Metro

600 NE Grand Ave.
Portland, OR 97232-2736
oregonmetro.gov

503-797-1532
Fax: 503-797-1792
roger.alfred@oregonmetro.gov

Roger A. Alfred, Senior Attorney

March 21, 2025

Periodic Review Specialist
Department of Land Conservation & Development
635 Capitol Street NE, Suite 150
Salem, OR 97301

Re: Additional record materials for Metro UGB Amendment 001-24

Dear Periodic Review Specialist:

With this letter, Metro is submitting additional materials for the DLCD record that were not included as part of our original UGB record submittal on December 19, 2024. These materials are being provided under OAR 660-025-0130(4) as documents that are relevant to one or more of the filed objections. As required by that rule, all ten objectors are being notified of this submittal by copy of this letter – the materials are too voluminous to send to the objectors via email, but may be obtained from DLCD by request. There is also a hard copy available for review at the Metro Regional Center, located at 600 NE Grand Avenue in Portland.

Thank you for your assistance.

Sincerely,

Roger A. Alfred
Office of Metro Attorney

cc: E. Michael Connors, Hathaway Larson
Jeffrey Kleinman, West of Sherwood Farm Alliance
Robert Liberty, West of Sherwood Farm Alliance
Sam Diaz, 1000 Friends of Oregon
June Bradley, Tomasi Bragar DuBay, Housing Land Advocates
Eve Goldman, Tualatin Riverkeepers
Indi Namkoong, Verde
Brian Fields, Eastview Road Neighborhood Association
Daniel Hoyt
James Marsh
Ron Bunch

Oregon Housing Needs Analysis Legislative Recommendations Report: *Leading with Production*

Legislative Report

December 2022

Oregon Department of Land Conservation and Development
Oregon Housing and Community Services

Acknowledgements

Housing Need Work Group Members

Mary Kyle McCurdy, 1000 Friends of Oregon
Mallorie Roberts, Association of Oregon Counties
Michael Burdick, Association of Oregon Counties
Jill Rolfe, Coos County
Mary Phillips, City of Gresham
Nick Snead, City of Madras
Carla Paladino, City of Medford
Dwight Jefferson, City of Portland
Miranda Bateschell, City of Wilsonville
Michael Szporluk, disability rights consultant
Allan Lazo, Fair Housing Council of Oregon
Taylor Smiley Wolfe, Home Forward
Ariel Nelson, League of Oregon Cities
Ted Reid, Metro
Renata Wakeley, Mid-Willamette Valley COG
Tamra Mabbott, Morrow County
Brock Nation, Oregon REALTORS
Samantha Bayer, Oregon Home Builders Association
Al Johnson, unaffiliated
Cristina Palacios, Unite Oregon

Housing Capacity Work Group Members

Mary Kyle McCurdy, 1000 Friends of Oregon
Michael Burdick, Association of Oregon Counties
Kaarin Knudson, Better Housing Together - Eugene
BreAnne Gale, City of Bend
Brian Rankin, City of Bend
Jeffrey Adams, City of Cannon Beach
Brian Latta, City of Dallas
Heather O'Donnell, City of Eugene
Chris Faulkner, Clean Water Services
Peter Gutowsky, Deschutes County Community Development
Emily Reiman, DevNW
Allan Lazo, Fair Housing Council of Oregon
Jonathan Trutt, Home Forward
Stacie Sanders, Housing Oregon
Ariel Nelson, League of Oregon Cities
Peggy Lynch, League of Women Voters
Matt Lawyer, Marion County Board of Commissioners
Anneliese Kohler, Metro Regional Government
Ted Reid, Metro Regional Government
Bill Van Vliet, Network of Oregon Affordable Housing
Justin Peterson, Oregon Cascades West Council of Governments
Mary Anne Cooper, Oregon Farm Bureau
Samantha Bayer, Oregon Home Builders Association
Kathy Wilde, Oregon Housing Land Advocates
Dave Hunnicut, Oregon Property Owners Association
Brock Nation, Oregon REALTORS
Yiping Fang, Portland State University
Al Johnson, unaffiliated
Garet Prior, Wilsonville Alliance for Inclusive Communities

DLCD Staff

Brenda Bateman
Kirstin Greene
Sean Edging
Ethan Stuckmayer
Mari Valencia Aguilar
Gordon Howard
Emma Land
Palmer Mason

OHCS Staff

Andrea Bell
Megan Bolton
Mitch Hannoosh
Rick Ruzicka
Nicole Stingh
Brit McLean
Natasha Detweiler-Daby
Kim Travis

Consultants

Lorelei Juntunen, ECONorthwest
Madeline Baron, ECONorthwest
Mike Wilkerson, ECONorthwest
Justin Sherrill, ECONorthwest
Ben Duncan, Kearns & West
Ellen Palmquist, Kearns & West
Violeta Alvarez, Kearns & West
Jamie Damon, Kearns & West
Arpana Nautiyal, Kearns & West
Noah Siegel, MSH Strategies
Deb Meihoff, Communitas

About this Report

The report responds to specific legislative direction dating back to House Bill 2003 (2019). This bill charted a new direction to more fully and equitably meet housing needs as required by Goal 10: Housing, of Oregon's statewide land use planning program. House Bill 2003 led to multiple reforms, including a requirement for local adoption of Housing Production Strategies (HPSs) and the development of a new pilot methodology for estimating statewide housing need. In House Bill 2003 and the pilot methodology the model to estimate statewide housing need was called the Regional Housing Needs Analysis (RHNA), but it is now called the Oregon Housing Needs Analysis (OHNA).

In a budget note in House Bill 5006 (2021), the Legislature then directed Oregon Housing and Community Services (OHCS) and the Department of Land Conservation and Development (DLCD) to deliver recommendations on how to implement the OHNA in advance of the 2023 Legislative Session. The Legislature followed up with additional direction in House Bill 5202 (2022) to address issues related to land capacity and the implementation of the OHNA.

This report documents the core components of the agencies' recommendations. While it may be possible to consider some of these recommendations in isolation from others, our core finding is that Oregon's ongoing housing crisis requires comprehensive and structural changes to Goal 10 implementation and housing production. Many precedent documents and processes inform these recommendations:

1. OHCS and DLCD each published reports in 2021 (OHCS summary report, OHCS technical report, and DLCD report) describing technical elements of the new statewide methodology for calculating housing need and recommending legislative action to implement it.
2. In early 2022, OHCS and DLCD developed an initial framework document, titled *Meeting Oregon's Housing Needs: Next Steps for Equitable Housing Production,* to describe how the new methodology might be incorporated into the state's Goal 10 processes. The recommendations herein build from this framework.
3. DLCD and Communitas Consulting facilitated a working group, which met six times to inform recommendations. To review meeting materials and summaries, visit the OHNA Project Webpage.
4. Kearns & West led six stakeholder focus groups and three follow-up sessions with partners from nonprofit, development, local government, and fair housing organizations to solicit input. A summary of all stakeholder engagement is included in Appendix E.
5. DLCD held 14 regional forums with local government planners, developers, elected officials, and advocacy groups around the state to inform recommendations. A summary of all stakeholder engagement is included in Appendix E.
6. In response to a 2022 legislative budget note and direction, DLCD led a parallel Housing Capacity Working Group, charged with considering specific reforms to the Housing Capacity Analysis and the process described in statewide planning Goal 14-Urbanization. This group met a total of seven times to inform recommendations, which are included in Recommendation 1.4 and Appendix A of this report.
7. ECONorthwest conducted best practices research into what is working in other states and reviewed an audit of California's housing planning system to inform these recommendations.
8. ECONorthwest completed a series of technical revisions to the initial pilot methodology and prepared a report summarizing these refinements, which is included in Appendix D of this report.

9. The University of Oregon conducted a literature review and a survey of planners, developers, and local governments regarding barriers to development and published a report summarizing their results, which is included in Appendix F of this report.

Relevant Acronyms

AFFH: Affirmatively Furthering Fair Housing
AMI: Area Median Income
BLI: Buildable Land Inventory
DLCD: Department of Land Conservation and Development
HCA: Housing Capacity Analysis
HPS: Housing Production Strategy
LCDC: Land Conservation and Development Commission
LIFT: Local Innovation Fast Track
LIHTC: Low-Income Housing Tax Credit
OHCS: Oregon Housing & Community Services Department
OHNA: Oregon Housing Needs Analysis
PAB: Private Activity Bond
RHNA: Regional Housing Needs Analysis (prior name for OHNA)
SDC: System Development Charge
UGB: Urban Growth Boundary

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Executive Summary

Oregon's housing undersupply threatens the very core of our common purpose as Oregonians. We cannot grow sustainably, move toward a more equitable economy, or address the full complexity of the homelessness crisis unless we substantially increase our supply of homes.

Making meaningful progress will require comprehensive system reforms. While Oregon has already made great strides, including through recent legislative initiatives such as House Bill 2001 and House Bill 2003 (2019), we are still falling behind. To continue, the state and its communities must now tackle the harder reforms needed to prioritize housing production.

Our current system plans for and invests in too little housing. The outcome is undersupply, rising home prices, segregation and displacement in some communities, and deepening inequities across all communities. Together, we must plan for and build the housing we need, where we need it.

The recommendations in this document describe the comprehensive, system-wide reforms needed to reverse decades of underinvestment in housing production and development readiness, organize our land use planning systems toward the common goal of building housing, and begin to redress disparities in housing outcomes. These recommendations can only make a difference if the Oregon Legislature commits to serious reform of the land use planning system, helps local governments pay for public infrastructure and affordable housing, and creates a cohesive state approach to housing production. Those comprehensive reforms will require significant investments, as well as changes to state statute, rule, and guidance to implement. In summary, they are:

Housing Under-Production is a National Problem

Oregon is not alone. While nearly every state is experiencing underproduction, Oregon's outcomes are among the worst.

Measured as a share of housing stock, **Oregon ranks 4th in under-producing housing in the country** behind California, Colorado, Utah, and ahead of Washington State.

Recommendation 1) Plan for what's needed.

Oregon's land use system needs to balance housing production with growth management, economic, and environmental goals. For this to work, the system requires a reorientation that starts with an updated and consistent statewide methodology to more clearly determine housing need and equitably distribute it among jurisdictions. Planning for what's needed requires that:

1.1 **Adopt OHNA Methodology.** Formalize the OHNA methodology as the standardized, statewide source for setting common goals for housing planning. OHCS and DLCD have extensively reviewed and refined the 2019 pilot methodology (see Appendix D for refinements) Maintaining and deploying it will require administrative and technical capacity, a regular cycle of review and update to incorporate new data, and annual database management to track statewide progress toward housing production targets.

What is the Oregon Housing Needs Analysis?

The OHNA is the cornerstone of a reformed housing planning system. It provides a comprehensive, city-by-city estimate of housing need by income, along with data and information about how local housing outcomes vary by race and ethnicity, age, disability status, and other identity markers. When implemented, it will be a regularly updated data suite that can be used to set state and local **housing production targets**. It provides a **more accurate representation** of full housing need and a **more equitable distribution of affordable housing** throughout regions.

In the methodology alone, the **ONHA takes a big step toward equitable outcomes** compared to the current Housing Capacity Analysis methods, by incorporating historic housing underproduction and housing needed for people experiencing homelessness into future production targets, and by **using regional incomes to project housing need** by income level. In addition, the OHNA would be the source of annual housing production dashboards that provide clear metrics that can be used to track and monitor real production outcomes and metrics related to housing equity.

1.2 **Establish Production Targets and Equity Indicators.** Establish housing production targets and equity indicators, produced by the state, for cities with a population above 10,000 people to help solve our crisis. The state would measure progress toward targets in an outcome-driven system that adjusts policies over time.

1.3 **Emphasize Housing Production Strategies.** With their OHNA-derived housing production targets and strengthened policy requirements, cities would craft community-led and implementable Housing Production Strategies (HPSs) that promote equitable housing production and overcome locally specific development barriers.

1.4 **Streamline UGB Amendments.** Improve and streamline land capacity and urbanization processes to expedite well-planned expansions that support needed housing where capacity is limiting production.

Recommendation 2) Build what's needed, where it's needed.

It's one thing to plan to accommodate housing and another for that housing to be built. Where housing is built and for whom dramatically impacts who prospers and how our neighborhoods function. Building what's needed where it's needed will require us to:

2.1. **Commit Sustained, Coordinated Investment.** Commit resources for housing production, affordable housing production, and development readiness, including infrastructure funding. This is not a one-time, small-scale investment. The state must sustain this effort over time and focus investments in the construction of housing that the market is least likely to produce without aid: housing for low- and middle-income households and housing in rural and coastal markets. Creative financing and funding sources that leverage private investment should be considered. Additionally, the state has the opportunity to better coordinate existing resources and focus funding toward the goal of housing production (see Recommendation 3.1).

2.2. **Reinforce Housing Choice for All.** Use the implementation of Housing Production Strategies to advance fair and equitable housing outcomes, including addressing segregation and displacement.[1] We must build more housing in the places where it is needed, with intentional strategies that aim for fair housing and enable housing choice for all.

Recommendation 3) Commit to working together with urgency.

Housing underproduction is a systemic problem that no one actor can resolve. Public, private, local, and statewide entities all have a role to play and can become obstacles when not coordinated. **There is no one entity or person responsible for the public sector role in housing production at the state level.** For our state to have an effective system to accelerate housing production, we must have coordinated administrative systems that can deliver. Working together with urgency requires us to:

3.1. **Establish a Coordinated Governance Structure.** Develop a mechanism for state agency administration, collaboration, and accountability, to make rapid progress toward housing production goals. The solution should encompass a housing production team composed of experts in development, affordable housing development, fair housing, planning and development code, permitting processes, etc. to diagnose and overcome development barriers to quickly identify and implement policy or funding interventions where needed.

3.2. **Continue State and Regional Policy Action.** Develop strategies in which the State and Metro Regional Government (Metro) clearly articulate the tools, actions, and policies the state and regional governments will employ to meet housing production targets. These strategies should describe what they will contribute to partnerships with local jurisdictions, consistent with their statutory and charter limitations. Metro will continue to manage its region's land use planning processes and will use housing projection methodologies consistent with the OHNA. The state will allocate housing production goals to local jurisdictions within the Portland Metropolitan Area.

Implementation Considerations

Few policy imperatives are more important to Oregon's future than increasing the pace of building new homes. Housing production is on the critical path to building Oregon's economic competitiveness, helping families prosper, and improving community resilience. Simply producing the units needed to meet current demand could generate up to $40 billion in additional economic growth, a boost that would benefit us all.[2]

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[1] Those who most often face housing discrimination, segregation, and displacement include, but are not limited to, low-income households, households of color, people with disabilities, large families, other federally protected classes, and households with other specific housing needs.

[2] This estimate is based on Oregon's share of the national economic benefits that come from producing 3.8 million housing units across the country over a 20-year time period (as described in Up for Growth's *Housing Underproduction in the U.S. 2022 Report*), scaled to match the OHNA estimates of current underproduction and units needed for people experiencing homelessness. Economic growth is measured as increase in gross domestic product.

Implementing these recommendations will likely need to be sequenced over more than one legislative cycle. To make near-term progress on their implementation, we recommend that the Legislature consider bills in the 2023 session that advance the goal of building more homes. DLCD and OHCS look forward to continuing conversations about solutions and refining these recommendations in advance of and during the 2023 legislative session.

A. Redefine Oregon's Planning Process for Housing

The Legislature should establish the OHNA as the foundation for Goal 10 planning processes in state statute, including directing cities to replace local projections of need in Housing Capacity Analyses (HCAs) with OHNA-generated 20-year need. It should strengthen HPSs by requiring actions that address housing barriers and advance fair housing outcomes, and by incorporating production targets based on the data provided in the OHNA. Additionally, the Legislature should make statutory changes necessary to make needed urban growth boundary (UGB) expansions[3] more efficient and certain and support housing production within the UGB.

B. Coordinate State Response

The Legislature should establish a Housing Production Team and administrative leadership position. This team should be deployed as quickly as possible to achieve early housing production wins by helping cities build on challenging development sites, removing barriers, and focusing state resources. Additionally, this team should be charged with developing the first ever statewide Housing Production Strategy, which can shift the state's energy and efforts to this urgent challenge. The Legislature should direct staff at a broad cross-section of agencies, including DLCD, Oregon Housing and Community Services, Business Oregon, the Oregon Health Authority, the Bureau of Labor and Industries, and the Oregon Department of Transportation, to coordinate their activities and (as appropriate) available funding toward the goal of housing production in coordination with the new Housing Production Team.

C. Create Innovative Funding and Finance Solutions

In addition to funding affordable housing production through OHCS, the Legislature should establish new housing production funding mechanisms aimed at housing the market cannot produce on its own, including middle-income housing. Along with better coordination of existing funding sources, new sources for infrastructure funding, systems development charges, and pre-development activities are needed. Several formal and informal groups of stakeholders are considering innovative funding and financing mechanisms that are resonant with the recommended fund types in this report.

[3] Each Oregon city is surrounded by an urban growth boundary (UGB); a line that designates where a city expects to grow over a 20-year period. Generally speaking, it's where the city ends, and the farms and forests begin.

I. Introduction: Our Housing Crisis

Oregon's lack of housing threatens the very core of our common purpose. Decades of underbuilding have driven up home prices and rents and left too many without adequate housing choices. Too often, people can't afford housing at all. We won't be able to grow sustainably, move toward a more equitable economy, or address the full complexity of the homelessness crisis unless we substantially increase our pace of building new homes. Over the next 20 years, Oregon's communities need to add more than 550,000 units, over 30 percent of which will house Oregon's lowest-income residents and will most likely require public funding or subsidy. We must organize our systems to plan for and build these homes.

We cannot equitably distribute what is being underproduced. The people who are suffering most acutely from our housing shortage are disproportionately lower income households and communities of color. The lack of housing options perpetuates segregation through economic exclusion. By restricting people's housing choices, we make Oregon less fair, deprive people of basic human dignity, and limit our collective growth and prosperity. Where housing is built and for whom dramatically impacts who prospers and how our neighborhoods function. We need a range of housing types for all income levels, distributed equitably around and within each region of the state, providing access to employment and critical services and reducing the overall cost-burden to families and individuals.

This applies to both renting and homeownership. For most Americans, homeownership is the primary path to building personal and generational wealth. However, housing scarcity inverts the American dream. The market caters mostly to wealthier buyers, while rising housing costs make it nearly impossible for many to buy their first homes. At the same time, the lack of housing increases the need for publicly financed units and ultimately forces the most vulnerable people to become unhoused. This is devastating for people experiencing homelessness and has negative social and economic impacts on communities.

Oregon's system of comprehensive land use planning describes a decades-old intention to do better. It embodies the state's core values and has long represented a consensus on the preservation of farm and forest land, the importance of community engagement, and the need to plan for a healthy economic future. It also includes a requirement that jurisdictions plan for the "availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households."[4] However, Oregon has not fully realized this vision and many thousands of Oregonians lack an affordable, accessible, or safe place to live.

A recent survey conducted by the University of Oregon sheds light on what is not working. The survey found broad agreement that we face significant challenges in the cost, availability, and readiness of land to support development as well as the prohibitive cost of infrastructure, materials, and labor. There are sharper divides among those surveyed, however, when

[4] Goal 10 of Oregon's Land Use Planning: https://www.oregon.gov/lcd/OP/Documents/goal10.pdf

determining who is responsible for causing and addressing the current crisis. The survey finds that local governments tend to implicate the lack of funding and inflexibility on the part of developers to deliver a broader range of housing types, while private and non-profit developers view over-regulation and onerous processes as the culprit. Meanwhile, for the most part, local governments interested in advancing affordable housing solutions have been left on their own, without meaningful coordination or investment from the state to help find and implement solutions.

By statute, DLCD regulates the land use planning and policy that is implemented at the local level. OHCS funds affordable housing production and preservation. However, *no state agency is directly responsible for overall housing production*. This has left some jurisdictions without workable solutions to incentivize market or affordable housing production and allowed others to avoid their housing obligations. We should not be surprised that, despite the best efforts of the agencies and local governments, the outcome of this disconnected system has been decades of housing underproduction and the perpetuation of housing inequities.

The recommendations offered in this report focus on streamlining statutory requirements and bureaucracy so that Oregon can deliver real outcomes -- more housing in all parts of the state, a diversity of housing types, and more affordable units where they are needed. We offer these recommendations with a great sense of urgency. While there are many efforts underway to address the immediate symptoms caused by our lack of housing, we will not be able to meaningfully address the hardships faced by Oregonians until we focus on the long-term solution: providing more housing options for everyone, everywhere.

A Shift in Focus That Benefits Us All: Leading with Production

While the originators of Goal 10 intended for careful planning that would result in balanced, diverse, and affordable outcomes, implementation has fallen far short of that intent. The historic implementation of Goal 10 has overemphasized "accommodation" of housing need by completing an accounting exercise of the theoretical capacity of land, while doing little to ensure that housing is built or address where it should be located and whether households are realistically able to access it. This has negative consequences for all Oregonians – with dramatic underproduction, rising rates of cost burdening and homelessness, and continued patterns of segregation and involuntary displacement. The state needs to make comprehensive updates to our planning systems to better produce needed housing.

The recommendations in this report shift the current system's focus on accommodating potential housing growth to building the housing Oregonians need. We do this by:

- Accurately identifying what housing is needed by income and holding ourselves accountable to action
- Equitably allocating housing need within and between communities
- Requiring jurisdictions to consider context-specific actions to address displacement and segregation

- Providing strategic, flexible funding for housing the market cannot build on its own
- Connecting existing Fair Housing[5] obligations to our land use system and Housing Production Strategies to support diverse, quality, physically accessible, affordable housing choices with access to economic opportunities, services, and amenities
- Measuring and evaluating progress towards improved housing outcomes, especially for those who have been historically underserved

Taken together, these recommendations can transform our system from one that plans for and invests in too little housing to one that plans for and builds the housing we need, where we need it.

Our Shared Housing Obligation

We all share a responsibility to find the solutions that let us build what's needed where it's needed. The lack of sufficient units affects every community, but the people who are suffering most acutely from our housing shortage are disproportionately lower income, communities of color, or people with disabilities. They cannot be asked to wait another decade or more for Oregon to reverse the discriminatory policies and practices that have limited their housing options.

Solutions include: policies that enable production, public and private investment in a range of housing types, and clear policy goals so we can hold ourselves and each other accountable to outcomes.

To make meaningful change, Oregon needs a comprehensive system reform that brings state and local governments and affordable and market-rate developers together with common goals for building more homes, building more publicly supported homes, and investing in inclusive communities. To achieve this aim, we need a clear shift in approach to lead with production.

Reforming the Goal 10 Planning System for Housing

Oregon does not have a clear roadmap to follow for state oversight of housing production. Few other states have attempted a production-focused strategy, and none of them share Oregon's statewide land use planning system. While our review of national best practices provides lessons learned from other states, applying them in Oregon requires a thoughtful, carefully implemented approach, at least in part because the Oregon Legislature has already taken some of the suggested steps. In House Bill 2001 (2019), it eliminated zoning exclusive to detached single-unit homes, allowing a greater diversity of housing to be built throughout the state, and required cities of over 10,000 to develop Housing Production Strategies (HPSs). While these are necessary steps that will yield long-term benefits, expedited housing production will also require an alignment of a full suite of policy tools, agency coordination, and public investment.

[5] All recipients of federal funds from the Department of Housing and Urban Development are required to affirmatively further the policies and purposes of the Fair Housing Act, also known as "affirmatively further fair housing" or "AFFH."

In many states that are newer to comprehensive planning initiatives, zoned capacity limits housing production. Oregon's problems are different. The state has already increased zoned capacity to enable production, including through recent legislative initiatives such as House Bill 2001 (2019). Now, we must tackle the harder reforms needed to lead with production. We need to make sure that enough zoned capacity is available in the right places so that community members, especially those who have experienced historic marginalization, have meaningful choices in where they live and what kind of housing choices are available to them. At present, our system generates lower housing production in whiter, more affluent communities and expands capacity mostly in lower-income and more diverse communities. We need to improve the often onerous and contentious system for allowing jurisdictions to add land needed to meet growth and current housing deficits. And, most importantly, we need to turn our attention and investments to making land ready for development, advance state and local policies that are supportive of increased production and housing options and accelerate affordable low- and middle-income housing construction.

The recommendations in this report are far-reaching and will fundamentally change the way Oregon plans for and produces housing. If adopted, these changes could modernize Goal 10 into a national model for housing production. Goal 10 systems reform can deliver:

- **Increased focus on local actions that enable land readiness and production**, including removal of zoning and regulatory barriers and access to infrastructure investment
- **A smoother and less litigious UGB expansion process**, supported by the land use efficiencies in housing production strategies, a more accurate representation of housing need and capacity, and increased flexibility to unlock land where it's needed
- **Advancing fair housing goals**, by expanding production and housing options in historically exclusionary areas and integrating diverse, affordable, quality, and accessible housing across regions
- **Better and clearer guidance on local actions**, clarifying the purpose of each planning function and reducing and streamlining current requirements

These improvements are anchored by the objectivity of the OHNA methodology, data, and unit allocation to local jurisdictions. It is critical that these goals be seen as achievable and not an unfunded mandate. Discussions with local governments, market rate and affordable housing developers, and various advocacy organizations throughout the state have clarified that the state needs to implement changes that foster **partnership** between state and local governments, **accountability** to working towards housing need, and **investment** to support affordable housing production that the private housing market cannot produce on its own.

II. Core Recommendations

Recommendation 1) Plan for what's needed

Overview: Lead with Production

Leading with production requires a fundamental shift from a more passive planning approach to accommodate growth to outcomes-based strategies that focus on production.

As directed by statute, our current system addresses housing need by using past development trends to calculate the land supply and zoning capacity needed to meet future demand. However, past trends may not reflect the actual regional housing need and demand for housing options in any particular location. In this current system, most jurisdictions systematically underestimate their future housing demand, and especially underestimate their demand for housing for lower income households, because the demand was not appropriately accounted for originally and was reinforced through low production performance. This creates a negative feedback loop where underproducing housing, especially affordable housing, causes future projections to further underestimate need. A consequence of this dynamic over several decades is that the Housing Capacity Analysis (or Housing Needs Analysis), the historic implementing document of Goal 10, has become a land supply calculation and growth management tool that has little to do with actual housing production needed for a healthy society and economy. Instead, Goal 10 implementation has enabled and reinforced housing inequities between and within communities.

Overcoming this challenge requires implementing a new methodology that better estimates total need and does not rely on past development trends to determine where growth will occur (recommendation 1.1), setting production targets and measuring progress toward those targets and equitable outcomes (recommendation 1.2), strengthening Housing Production Strategies so that they are better organized to remove barriers to development (recommendation 1.3), and streamlining the process for expanding urban growth boundaries when they are needed in a coordinated housing planning system (recommendation 1.4).

1.1 Formalize the OHNA as the foundation for housing planning in Oregon.

Part of 2019's House Bill 2003 directed OHCS to develop a pilot methodology to estimate Oregon's statewide housing need. In its inception, this methodology was called the Regional Housing Needs Analysis or RHNA, borrowing the term from California. In this implementation work, it is renamed the Oregon Housing Needs Analysis, or OHNA, to better reflect its evolution to a unique, Oregon-specific model. The pilot analysis was completed and extensively reviewed in 2020, including a full results report, technical methodology, and assessment report that documents how this methodology improves upon current processes.

The OHNA methodology is the cornerstone of a different approach to Goal 10 implementation. The recommendations in this report assume access to the data and information that would come from implementing the OHNA methodology. The OHNA methodology will provide a data-informed measurement of housing need in each area of the state that, (i) estimates units needed

to meet current and future housing need, (ii) catches up with past underproduction and the resulting pent-up demand, (iii) accounts for people experiencing homelessness, and (iv) ensures a more equitable distribution of affordable units within a region. Using this methodology, the state will calculate and allocate housing need with a standardized approach, replacing housing needs projections that are currently developed by local jurisdictions at great expense of time and resources.

As part of this implementation effort, DLCD and OHCS recommend changes to the pilot methodology to fully account for the impacts on housing markets from second and vacation homes, improve and broaden indicators of housing outcomes, and better align income brackets with funding sources available to support affordable housing production. These recommended changes are documented in the technical report included in Appendix D. The revised methodology suggests that **Oregon needs 554,691 new housing units** to accommodate 20 years of population growth and to account for current underproduction and the lack of units for people experiencing homelessness.[6] About 176,300 of these units, or 32 percent, will need to be affordable for households earning less than 60 percent of statewide area median income (AMI).

With these revisions, the OHNA contains the following parts:

1. **Needed Housing (20-year housing need).** For each city and county and for the state as a whole, the OHNA will provide estimates of housing need for 20 years, by income range. These estimates will replace the 20-year projection of housing need currently completed locally by cities in housing capacity analyses. Local jurisdictions will continue to make critical decisions about the types, characteristics, and location of housing based on the state methodology, community priorities, and context-sensitive local information, such as cost burden, accessibility, and household demographics.

2. **Housing Production Index (housing production targets).** The OHNA will also establish local housing production targets for cities over 10,000 (see recommendation 1.2). These targets set a baseline by which the state regularly tracks and evaluates progress on housing production.

3. **Housing Production Dashboard (measures progress toward meeting need).** Annually, for each city that has a six or eight-year production target, for Metro, and for the State, the state will compile and publish data showing progress toward production targets (see recommendation 1.2 for details) in a housing production dashboard.

4. **Housing Equity Indicators (measures housing outcomes).** For each city, the OHNA model will provide annual reports on housing outcomes. These include data and information about rates of rent burdening and homeownership by race and ethnicity, age,

[6] The pilot methodology estimated a total statewide need of about 554,000 units, of which 110,000 units were due to underproduction. The revised methodology shifts the income bins used and better accounts for the effects of second and vacation homes on total housing stock, which decreases the overall estimate for underproduction while increasing housing need in areas of the state with concentrations of second homes.

and disability status (as data allow for smaller jurisdictions). It can also be updated to include information about segregation and risk of gentrification, or other measures of housing outcomes, such as climate resilience within communities. The information provided will vary from geography to geography; for some smaller geographies, data are insufficient to provide reliable disaggregation. While DLCD and OHCS will lead further engagement and discussion following legislative adoption of these recommendations to confirm the specific measures that are most useful and appropriate, recommendation 1.2 provides initial concepts.

The OHNA will need to be reviewed and updated on a regular cycle as new data become available. This update process should include a process in which the implementing agency consults with a range of experts for peer review and publishes notice and review of the proposed methodology. The most appropriate schedule for significant revisions is likely to be every ten years, timed as new census data and geographic boundaries become available. Smaller mid-cycle adjustments and updates are possible if warranted and resources are available. To maintain and run the model on a regular basis, the OHNA will need to be housed in an agency with data capabilities including housing economics, modeling capacity, database management, and data visualization skills, and with the ability to gather information from local governments about actual rates of production to track progress toward targets.

OHCS oversaw the process of developing the methodology and could continue regularly running and updating the methodology on a regular basis. This work requires staff capacity commensurate with the analytical, procedural, and communications requirements as directed by the Legislature. We estimate that implementation would require a qualified staff person (1 FTE equivalent) to regularly complete and update the methodology, with additional staff capacity to continue work ancillary to the analysis itself, including external communications, public engagement, policy analysis, and data publication, mapping, and visualization. However, the exact number of staff necessary depend on the extent of analysis and engagement directed by the Legislature.

The Oregon Office of Economic Analysis is another possible lead agency for this work in the long run, as they are involved in neither the funding nor regulation of housing and may be seen as impartial. However, it is important to emphasize that this agency has much less programmatic infrastructure in place to conduct this analysis. Therefore, it would very likely take more staff capacity and funding appropriation to implement initially. Overall, regardless of which agency or office manages it, state government needs to closely coordinate the technical work of running and maintaining the OHNA model with implementation of the system (see recommendation 3.1 for more details about system administration).

Broadening "Needed Housing"

Under the current Goal 10 framework, Oregon cities are required to plan for "needed housing", which refers to housing types determined to meet locally identified need at a variety of price or rent ranges. Currently, this means that cities needed to plan for different housing types, such as single-family, multi-family, and manufactured housing types, based on locally-driven analyses. These analyses are conducted by individual cities and consider anticipated population growth, household demographics, local market trends, and various context-sensitive factors.

However, the implementation of this requirement has often overlooked a number of factors that affect need, especially for historically marginalized communities such as people experiencing homelessness, people with disabilities, and communities of color. Additionally, many of the housing types projected in local analyses are based primarily on past development trends, even if that housing is unlikely to meet need or be affordable to current and future residents.

To implement an OHNA, the Legislature would need to establish a statute that requires a state agency to regularly develops and conduct a methodology estimating and allocating housing need to local jurisdictions, including the number of units and the affordability ranges needed over the next twenty years. Additionally, existing statutes would need to be adjusted to better plan for a variety of housing needs, types, and characteristics, including factors that are currently omitted:

- Broadening the types of needed housing to include middle housing and accessible housing,
- Clarifying that household demographics include considerations of race and ethnicity, disability status, and student population (if applicable), and
- Including the effect of second and vacation homes on need, as estimated by the OHNA.

Note: specific changes to the needed housing statute are outlined in greater detail in Appendix C

This would establish a system in which the state estimates the **total amount of housing and affordability ranges** needed, while local jurisdictions make critical decisions about the **types, characteristics, and location of housing** based on the state methodology and context-sensitive local information, such as cost burden and disability status, as well as community priorities.

1.2 Create production targets and indicators and measure progress towards outcomes in local Housing Production Strategies.

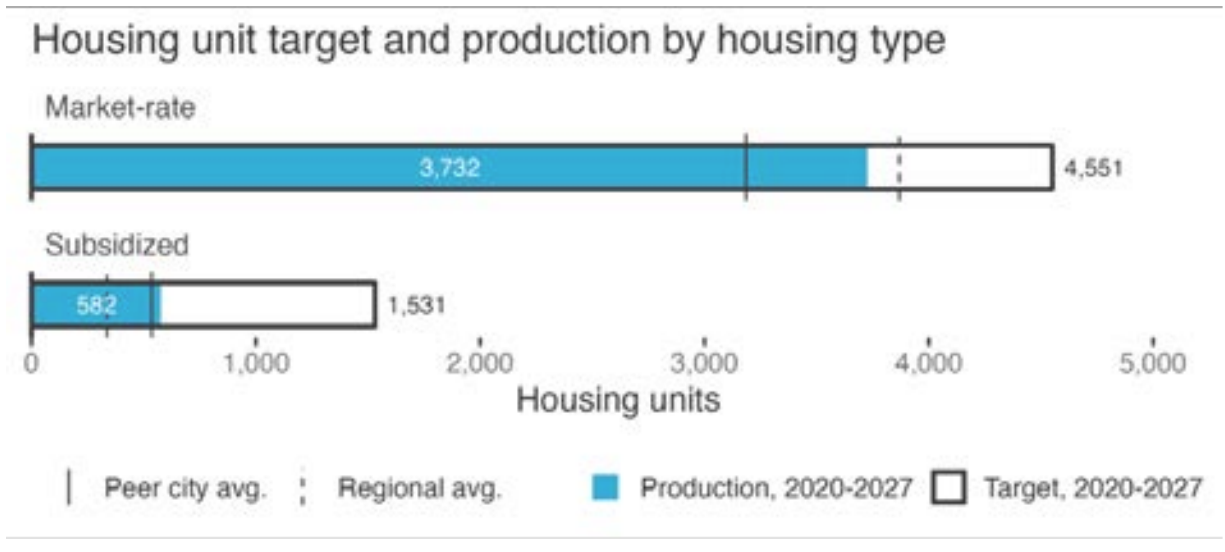
The proposed framework draws from the OHNA's Housing Production Index to set production targets that orient all partners toward common goals for market-rate and publicly supported housing production. Using the OHNA allows the state to benchmark housing production on an annual basis and informs local policy decisions, providing transparent, regular information about progress toward outcomes.

The OHNA methodology addresses inequities in the current system by allocating a share of regional demand to each community based on income, access to jobs, and population. In this way, the state and local governments can collectively begin to address chronic underproduction and geographic inequity at a regional scale. This will allow implementing jurisdictions to make informed decisions about how to plan for an increase in housing production and allow state agencies to partner with local jurisdictions to help fund and implement those plans. It also means

jurisdictions will not have to wait until the end of a six- or eight-year planning cycle to consider housing production.

The state will not expect jurisdictions to hit their targets exactly in each cycle. However, if it is clear that a jurisdiction's production is much lower than in regional or market-based peers,[7] there are likely locally specific development barriers that the jurisdiction must address. A production-focused system will use measurement of progress toward targets to identify these problem areas, and work proactively to address them, bringing state funding and expertise to support. Below is an example of what such a dashboard might look like, with commentary on the data options, for a fictional city.

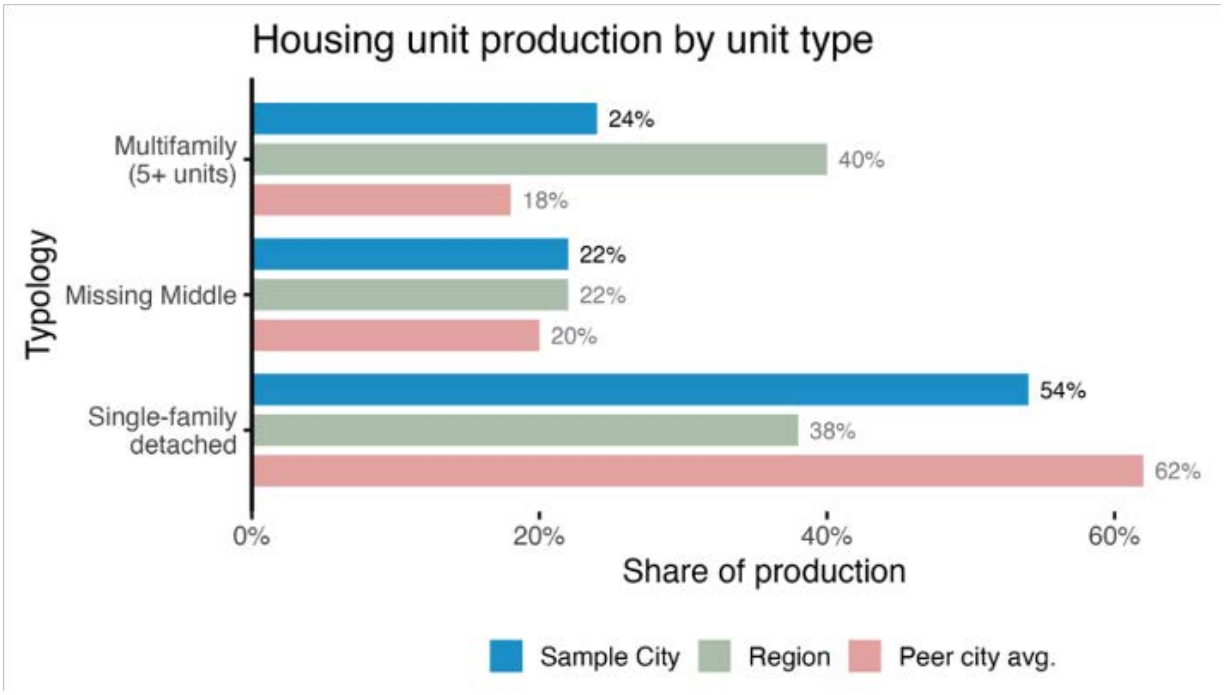
Figure 1. Sample Housing Production Dashboard



Production by housing type

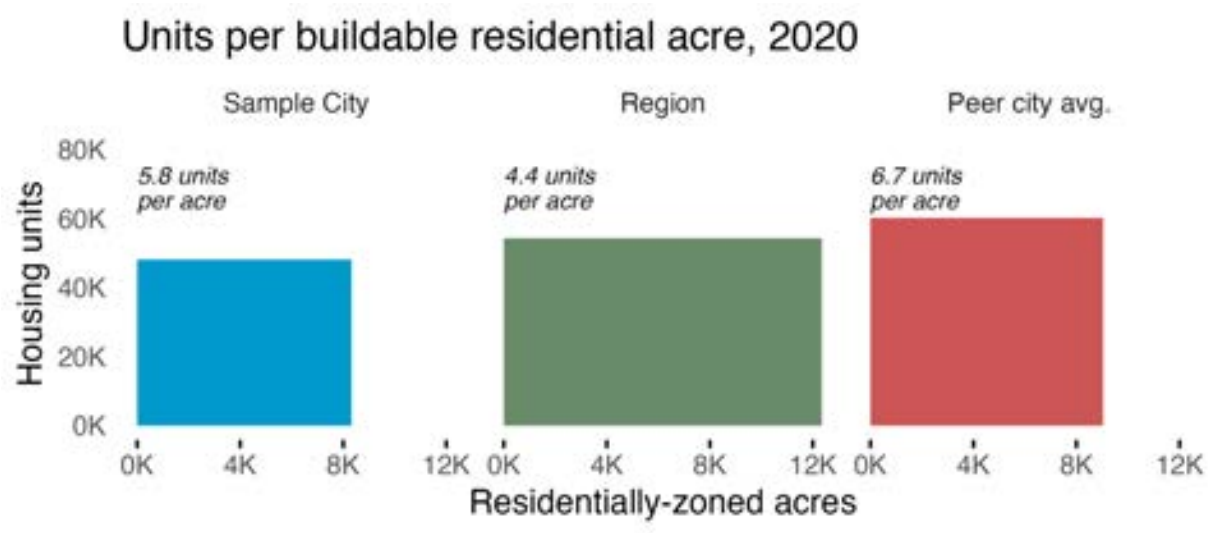
- Track permitting and production data that is already collected by DLCD.
- Compare to region and peer cities to highlight overall housing market.
- Could also provide trend-line.

[7] The technical report included in Appendix D describes how market-based peer cities could be determined.



Production by unit type

- Use DLCD data about the unit typology to track production (or permits) by basic housing typology (single-unit, middle housing, multi-unit).
- No "targets," just relative data and information.
- "Efficiency measures" in the HPS will consistently work towards greater housing diversity and choice.



Land use efficiency

- Could be based on calculations of buildable residential land from local Buildable Land Inventories.
- If a jurisdiction is "built up," the image should expand upwards.
- If a jurisdiction is sprawled, the image would expand to the right.
- No "targets," just relative data and information.

Twenty-year need (the basis for targets articulated in the Housing Production Index) can be produced on an annual basis, so that cities that are on different planning cycles can have access to the most current data inputs as they begin their analyses. For an individual city, production targets will be set for the entire six- or eight-year time period, as either 30 percent of 20-year need (for cities on a six-year cycle) or 40 percent of 20-year need (for cities on an eight-year cycle) and will be based on Needed Housing data available the year they begin their planning process. Progress toward the six- or eight-year target will be measured annually in the dashboard. New targets will be assigned in the next six- or eight-year cycle, based on updated data that reflect progress toward targets in previous cycles.

Targets should be set for both the **total number of units** and the **total number of affordable units** that should be constructed in six or eight years. By tracking progress toward total unit production, the system recognizes and encourages the production of units affordable to all residents and of all types. Achieving total production targets will help cities overcome past underproduction, which is necessary to allow the private market to better meet the needs of middle-income residents. By tracking progress toward publicly-supported units for lower-income Oregonians, the system recognizes that the private market, on its own, cannot meet all housing need. Even in a well-supplied market, these units will need public support, as market-rate units are unlikely to filter to these levels of affordability in a timeframe that will provide real relief to Oregonians in need.

A few considerations about determining thresholds for measuring publicly supported affordable units:

- To establish a target for affordable units, we recommend using one income category, all units affordable to households earning less than 60 percent of Area Median Income, (AMI). While there is substantial need for housing for the lowest income Oregonians (with incomes below 30 percent of AMI) it is not practical to track the production of units at these lower levels of affordability, because these units layer subsidies that are impracticable to measure. It is common to add rent subsidies to help very low-income residents access units that may technically be rent-restricted to those below 60 percent of AMI, rather than to build units that are rent-restricted below 30 percent of AMI.
- While the target is focused on one income category, the Housing Production Dashboard should track and report publicly-supported units at all income categories, including housing affordable to middle-income households earning between 60 and 120 percent AMI. In some instances, these are also publicly supported, with the goal of supporting middle-income or home ownership access. While these data will not fully represent the total amount of housing production affordable to these households, it will measure the impact of state and local subsidies aimed at this segment of the market.

Additionally, the OHNA model will track specific indicators of housing outcomes that can enable jurisdictions to better understand and support strategies designed to overcome inequities in the housing market. The pilot methodology included extensive data analysis and documentation for

cities across the state on indicators of housing outcomes that should be maintained as part of the OHNA dashboard going forward. These included cost burden, tenure, and other factors, by race, ethnicity, age, and disability status.

Additional indicators can and should be added to the dashboard, such as segregation, displacement, a deeper look at housing for people with disabilities, greenhouse gas emission reduction, or climate resilience, based on the priorities established by the Legislature and through rulemaking for implementation. The technical report (Appendix D) describes in more detail the data available to evaluate housing outcome disparities by race, ethnicity, age, and disability status, and offers a few example statistics and graphics. The report also summarizes the data limitations and ways to show as much detail as possible for smaller geographies.

Overall, the dashboard is envisioned as an accessible, publicly available web-based data interface that will provide relevant housing production and outcome data for each relevant geography. The dashboard reporting is a critical evaluative tool that will inform needed refinements to a local jurisdiction's Housing Production Strategies. Over time, the dashboard will also help jurisdictions across the state learn from one another about the types of policy and regulatory approaches that are working well and will provide a simple and transparent way for community members to track progress.

Implementing the OHNA in the Metro Region

Adopting the OHNA methodology will need to operate somewhat differently within the boundaries of the Portland Metro region. Metro Regional Government holds statutory responsibility for coordinating forecasts within its urban growth boundary. This entails Metro completing a regional forecast and distributing expected growth to its constituent cities and counties. This system has proven largely effective for integrating land use and transportation planning, resulting in livable communities and reduced greenhouse gas emissions. Metro and the region's cities have also developed a distinct system for identifying and planning for UGB expansions that includes urban and rural reserves, as well as concept planning for new urban areas. The region's approach recognizes that Metro is responsible for forecasts and managing the UGB while cities and counties are responsible for zoning and service provision. These differing responsibilities require coordination and a focus, not just on land need, but city readiness to urbanize land.

A core purpose of implementing an OHNA is to distribute housing more equitably between cities in a region. Under the current system, localized needs projections reinforce disparate responsibilities between cities in planning for a diversity of housing types and affordability. While the methodology addresses this dynamic statewide, in the Portland Metro, it will be critical that the resultant allocation of housing results in a more equitable distribution of housing in the region while maintaining Metro Regional Government's statutory responsibilities. More importantly, this allocation must be paired with systematic changes to the implementation of Goal 10 to ensure local governments are taking meaningful actions to increase production, diversity, and affordability within their communities. To do this, we recommend a partnership approach among the state, Metro Regional Government, and local jurisdictions, including the following core components:

1. **Metro should maintain its regional forecast coordination and growth management responsibilities** with its ongoing focus on readiness and requiring concept planning for urban reserves before expanding the UGB. Its 20-year regional forecast should include the same considerations that the OHNA considers, including the effect of underproduction, homelessness, and second/vacation homes.
2. **The state should allocate six-year production targets** for local governments above 10,000 population within the region, based on the 20-year regional forecast. These targets should be applied to local Housing Production Strategies and reflect an equitable distribution of housing between cities within the region. For neighboring communities outside of the Portland Metro region and within the tri-county region, the OHNA will estimate and allocate needed housing similar to other cities in the state.
3. **Local jurisdictions should continue conducting Housing Capacity Analyses** to ensure they adopt efficiency measures and strategize preparing buildable lands for development in subsequent cycles of their Housing Production Strategy.
4. **Accountability should be state-driven for local jurisdictions above 10,000 population** to implement meaningful actions that support production. See Recommendation 1.3 for more detail.
5. **Goal 10 should be applicable to urban, unincorporated areas in the Metro.** While cities above 10,000 population in the Metro must regularly plan for housing under Goal 10, there are substantial urban, unincorporated areas in the Metro UGB that are currently omitted from this requirement. Addressing this will require cities and counties in the Metro to amend or establish agreements to ensure urban, unincorporated areas are planned for under Goal 10. While the counties may in many cases have current zoning authority over these areas, it is important to stress that planning for these areas should not become the sole responsibility of counties, given that cities typically provide urban services to annexed areas. Further, in those areas not anticipated to be annexed by cities, the state must be prepared to provide on-going funding and investment to Metro counties to ensure they have sufficient resources to complete any needed interim Goal 10 requirements for urban, unincorporated areas.
6. **Metro Regional Government should complete a "Housing Coordination Strategy"** similar to local Housing Production Strategies but with an emphasis on regional coordination rather than local policies. See Recommendation 3.2 for detail.

1.3 Strengthen the Housing Production Strategy to promote production and overcome barriers.

The existing rules and laws governing HPS implementation provide a starting place to ensure state and local governments are doing everything they can to promote housing production.[8] According to House Bill 2003 (2019), the Legislature gave DLCD statutory authority to review, amend, and remand Housing Production Strategies. The current accountability system is designed to emphasize general *action towards addressing a need,* rather than achieving specific numerical targets or implementing any one particular action.

The implementation of the OHNA can build on this existing accountability framework and ensure that state agencies and local governments are taking meaningful and effective actions towards housing production. DLCD should incorporate a review of performance and progress

[8] Oregon Administrative Rules 660-008-0065 and 0070.

towards housing production outcomes and OHNA targets as part of its current review process that occurs at development of a new HPS, midway through the HPS implementation cycle, and then again at the six- or eight-year update of the HPS. With this addition, the system would then be organized to define clear goals, transparently show progress toward those goals, learn together about which actions are helping to make progress over time, and adjust strategies accordingly.

The proposed reforms focus community attention on building the housing we need where we need it (the desired outcome), rather than meeting administrative planning requirements that may or may not result in needed housing production. This makes HPSs – the set of identified local planning and policy changes to support housing production – the centerpiece of Goal 10 implementation.

Building Local Capacity

The vast majority of housing is built by the private sector. At the same time, local plans and development policies play a significant role in creating the conditions for housing production. Given the scope of the state's housing crisis, we recommend measuring the effectiveness of an HPS by the outcomes it produces. The goal is not to penalize jurisdictions for missing their targets – it will take time to dig ourselves out of our housing shortage – but to evaluate what is working and to course-correct when strategies are not leading to more housing for communities who need it most.

It is important to emphasize that the implementation of locally-focused policy and funding action on housing will require substantial investments in local capacity. DLCD's 2023-25 Agency Request Budget includes additional staff and a regular biennial investment of $2.5 million intended to provide jurisdictions technical and financial support for Goal 10 implementation. Additionally, the housing capacity recommendations discussed in Appendix A call for additional investment in urbanization planning and technical support. These investments are critical to support housing and urbanization planning, but they are insufficient on their own to fulfill the gap jurisdictions face. For example, the Oregon Office of Economic Analysis estimates that meeting housing production needs identified in the OHNA requires approximately 400-500 more public sector workers per year simply to approve, permit, and inspect the additional units at the local level.[9]

To address this gap, the state should partner with local jurisdictions and provide funding support (described in recommendation 2.1) tied to HPS implementation. Under the current and revised Goal 10 framework, cities above 10,000 in population are required to regularly complete housing planning requirements.

Small, Rural, and Coastal Communities

It is important to emphasize that small, rural, and coastal communities very often face significant and unique challenges with housing production. Many of these communities face significant

[9] Oregon Office of Economic Analysis. "Addressing Oregon's Housing Shortage". Accessed via: https://olis.oregonlegislature.gov/liz/2021I1/Downloads/CommitteeMeetingDocument/256863

economic challenges that significantly inhibit production and have limited resources and staff capacity to support housing planning and production.

While it is reasonable to require larger cities to periodically update plans and policies to support housing production, establishing the same requirements to smaller cities is impractical because they lack the financial and staffing resources needed to complete that work. Therefore, these recommendations seek to lift these communities up and provide them the support they need via the following actions and investments:

- Continue to enable, but do not require, communities below 10,000 to adopt HPSs and access the same funding resources that support production as larger jurisdictions.
- Enable county and regional entities to adopt county- or region-wide Housing Coordination Strategies in coordination with cities below 10,000 to access the same funding resources. See Recommendation 3.2 for more detail.
- Direct state investment to support housing production where the market is unable, with an emphasis on housing affordable to low- and middle-income households in rural and coastal markets.
- Establish a program that enables DLCD to provide funding and capacity to smaller communities without requiring submittal of competitive grant applications.
- Provide direct DLCD analytical support for smaller communities pursuing Goal 10 housing-related initiatives.
- Establish more streamlined analytical requirements and policy responses to housing need for smaller communities.

Housing Production Strategies

While cities are currently required to adopt strategies that comprehensively address identified needs, the current accountability framework does not require implementation of a particular strategy or to meet a specific production threshold. Currently, state administration of the HPS program progresses from collaboration, assisting jurisdictions in need of support, to increasingly more stringent measures should inaction continue. At the highest level of enforcement, if a jurisdiction is recalcitrant towards adopting meaningful strategies that address housing needs, DLCD has the authority to petition the Land Conservation and Development Commission (LCDC) to issue an enforcement order, requiring the jurisdiction to address the deficiency. These recommendations propose an important change to this system: integrating regular data-informed evaluation of progress toward targets and needed housing outcomes as part of the OHNA. This will help focus strategies and provide clear indicators of successful implementation. This additional data and information will help to focus collaborative conversations about the resources and strategies needed to overcome production barriers.

By establishing housing production as the primary indicator of progress, cities can orient their strategies toward the necessary policy changes, housing types, and measures of land readiness to

enable housing outcomes and break the negative feedback loop that leads to underproduction in the current system. Each HPS will be unique to local circumstances, and local expertise is essential to figuring out which strategies make sense in a specific context. At the same time, we can organize local actions into categories that are consistent with statewide goals and best practices for building the housing we need in the places we need it. Tighter definitions of HPS categories will also allow for more consistent evaluation by local jurisdictions and DLCD of their effectiveness and comparisons between peer cities.

The current administrative rule for HPSs requires jurisdictions to provide an interim, mid-cycle implementation report and a full report at the end/start of each cycle.[10] We recommend maintaining these existing reporting functions and will seek to help jurisdictions fulfill the requirements.

Through the OHNA, the state will provide baseline housing needs data that is currently the obligation of cities to generate, as described in recommendation 1.2 above. In addition, the table below provides an overview of the HPS elements that are currently required, and how we propose amending them with clarifications in existing rules and guidance. These changes will ensure that the actions are sufficiently and comprehensively focused on making land ready for development and for equitable housing production.

Figure 2. Suggested Revisions to Existing Housing Production Strategy Elements

Current elements of the HPS	Recommended revisions
Contextualized housing need	The state will provide OHNA-generated baseline data that is currently an obligation of local jurisdictions. Cities may add data necessary to help inform strategies.
Production strategies	When the HPS is adopted and approved, funding for implementing these strategies is unlocked. Strategies must address the following categories of actions: ▪ Zoning and code changes ▪ Reduce regulatory impediments ▪ Financial incentives and resources ▪ Land use efficiency measures ▪ Development readiness ▪ Fair housing (more details in recommendation 2.2) To support development of these strategies, new guidance will be needed regarding fair housing, housing mix and land use efficiency measures, and DLCD's defined HPS program outcomes.
Engagement	Local governments will continue to engage consumers and producers of needed housing, as required by current administrative rules. Future state level guidance will be needed to support this work and Goal 1.
Fair housing narratives	New data will be available to support cities' fair housing strategies and reporting through the OHNA, measured as annual indicators of housing outcomes. DLCD will provide additional guidance about how cities can use production-related policies and actions to advance fair housing.

[10] Oregon Administrative Rule 660-008-0060.

Accountability

Throughout this process, accountability at all levels of government was raised as a substantial condition for success needed to facilitate the development of needed housing. While DLCD has an existing accountability framework predicated on timely, good-faith implementation of tools, actions, and policies that promote production, participants raised a need to better clarify this framework. Specifically, it is not clear under the current framework how underperformance in market rate or affordable housing production will result in meaningful funding or policy interventions to increase production, nor is it sufficiently clear that failure to take meaningful action will be met with appropriate enforcement actions.

It is important to emphasize that under any accountability framework, it will take substantial investment at the state level to support the kinds of policy and funding interventions that are needed to increase production. This report calls for that investment in partnership with local governments to increase local capacity and funding needed to build housing, especially housing that the market would not otherwise produce on its own (see Recommendation 2.1). Additionally, while many participants have called for increased local accountability, many participants have also correctly asserted that local governments only control a portion of the policy levers that affect housing production and affordability. Underproduction of housing is a consequence of a myriad of policy and economic factors, and any accountability framework should acknowledge and reflect this dynamic.

Recognizing that accountability requires substantial Legislative decision-making, this report provides several considerations to inform future discussion that provides policy pathways that balance perspectives heard throughout the process. First and foremost, the project team recognizes that **unmet housing need should be addressed with meaningful action from all levels of government**. Achieving that goal requires three major components:

1. Clearly define "unmet housing need" through the OHNA
2. Respond to identified unmet housing need through local and state policy and funding interventions, in partnership.
3. Establish clear enforcement parameters to ensure timely action.

1. Define "unmet housing need"

Recommendation 1.2 establishes housing production targets and provides baseline data by which the state regularly tracks and reports housing outcomes, including annual market-rate and affordable housing production, for cities above 10,000 population. Additionally, it includes relative peer and regional assessments of local jurisdictions to assess the relative performance of jurisdictions by geography and market typology. While this information is not sufficient on its own to definitively assess underperformance, it provides a critical barometer to direct policy and funding interventions.

If a local jurisdiction consistently produces less housing in comparison to the region and other similar housing markets, it suggests that policy and funding interventions may be necessary to

facilitate the production of housing[11]. Thus, Recommendation 1.2 enables DLCD, with appropriate direction and parameters assigned by the Legislature, to define a threshold in which a response is warranted.

2. Respond to unmet housing need

Currently, jurisdictions regularly complete Housing Production Strategies to identify tools, actions, and policies that promote production of needed housing, and DLCD reviews and approves, amends, or remands submitted HPSs to ensure they substantially comply with administrative rule. By necessity, this framework requires substantial discretion, because the actions cities take to promote housing production will vary substantially based on local economic, political, and implementation dynamics. As a consequence, there is a lack of clarity on "how much is enough" with regard to identified strategies.

It is possible to provide more clarity through enhanced review and partnership by DLCD. If a jurisdiction is identified as consistently producing less housing than regional or market peers, this could trigger a requirement for DLCD to conduct an audit and review of city policies in advance of their next HPS, focused on identifying the following:

- Financial and regulatory impediments to production
- Financial and regulatory incentives, including available state resources
- Actions that advance fair and equitable outcomes

This audit should include a series of recommendations by which a city could address identified barriers to housing production, either through changes to local policies/actions, coordination of state resources, or other measures. After conducting the audit, DLCD could then be required to develop a performance plan in consultation with cities to establish a series of actions that address the barriers identified in the audit, timelines for the implementation of those actions, and coordination of state and local resources needed for implementation, such as financial or technical support.

This review and performance plan could be extended to a broader range of state agencies with the establishment of a coordinated statewide entity described in Recommendation 3.1, which could provide a much more comprehensive review of the full suite of tools a city could access than DLCD can alone. Additionally, the Legislature could also establish parameters that increase the likelihood of timely and coordinated action, including:

- Establishment of a timeframe by which implementation of actions must be implemented;

  Please note: The timeline must balance the need for urgent action with practicable local implementation, with flexibility to modify timelines to accommodate local circumstances. As a

[11] Interventions cannot be "one size fits all" and should respond to a variety of local contexts and conditions, especially in consideration of fair and equitable housing outcomes. See Recommendation 2.2 and the Technical Report (Appendix D) for more information.

starting place for discussion, one option could be adoption of actions within two years of the adoption of an HPS with flexibility for the state to amend deadlines to accommodate extenuating circumstances.

- Requiring DLCD (and potentially other agencies that distribute financial resources to local jurisdictions) to prioritize funding and technical support for jurisdictions with unmet housing need; and
- Establishing clear and scaling enforcement actions connected to the timely implementation of actions, discussed below.

3. Establish clear enforcement parameters

Communities throughout the state generally support the provision of adequate, affordable housing options within their community, and it is important to recognize that to increase the production of needed housing, most of the time this requires providing resources and tools to communities to support the implementation of that vision. However, it is equally important to recognize that appropriately-scaled enforcement provisions are an important tool in ensuring meaningful and timely action.

It is important to emphasize that **enforcement should only occur upon failure to act timely or act at all, not as a consequence of housing underproduction on its own**. Enforcement should begin collaboratively and take progressive steps in response to inaction, while providing opportunities for jurisdictions to readily come back into compliance. An enforcement policy must recognize that many factors operating at the national, state, and local levels can inhibit production and local capacity to address barriers. It is also critical to emphasize that **without substantial state investment in both local capacity and housing production writ large, it will not be possible to implement an accountability framework that delivers meaningful results**.

Additionally, it's important to recognize that there may be cases where, despite consistent good-faith implementation of strategies to facilitate production, housing production remains stymied due to factors outside of a jurisdiction's control. In these instances, there should be a list of policy options where a jurisdiction can demonstrate they are doing all they reasonably can to promote production, without risking the application of potential enforcement provisions.

Under the current framework, enforcement actions begin collaboratively and become progressively more substantial if delinquency continues, with the most substantial measure being an enforcement order issued by LCDC. A challenge with this approach is it 1) costs significant time and resources to compel action and 2) creates uncertainty as to whether failure to act will result in enforcement. Establishing **clear timelines** and **automatically applicable provisions** when a deadline passes addresses these shortcomings and enables city staff to clearly signal to local decisionmakers what needs to occur by when and what happens in lieu of local action.

Enforceable provisions must be established through legislative deliberation, but generally, the more impactful an enforcement provision is, the more contentious and challenging it will be to adopt, implement, and enforce. Additionally, it is important to consider how enforcement might differ between overall housing production and affordable housing production. Affordable

housing production faces a variety of barriers, and while overall production requires long-term policy solutions to create healthy market environments, there is a compelling argument to expedite and reduce barriers for subsidized affordable housing substantially to proportionally respond to the affordability crisis.

Below are a few examples of provisions the Legislature could consider, organized from less to more impactful:

1. Application of streamlined permitting processes for units that meet zoning requirements and specific criteria – e.g. California Assembly Bill No. 2011 (2022)
2. Application of a "development override" for subsidized affordable housing meeting specific criteria – e.g. Senate Bill 8 (2021) or Massachusetts Chapter 40 B (1969)
3. Application of a "model code" enabling a greater diversity of housing types in a defined area – e.g. House Bill 2001 (2019)
4. Application of tax incentives, such as property tax exemptions, for qualifying subsidized affordable housing meeting specific criteria – e.g. California Senate Bill 196 (2019)
5. Withholding certain state funding sources, such as state transportation funding – e.g. Utah House Bill 462 (2022)

All of the example provisions represent substantial enforcement actions that should not be applied lightly, and any inclusion of such provisions should not be applied until there has been substantial opportunity to address barriers, including state partnership and investment to overcome barriers to housing production.

Other Major Statewide Policy Initiatives

A critical dynamic in the implementation of the Oregon Housing Needs Analysis is how systemic changes to the housing planning system interface with other statewide policy initiatives. In particular, there is significant ongoing policy work related to climate change, wildfire, and housing preservation that stakeholders raised as intersecting with legislative recommendations.

Climate Change

The Land Conservation and Development Commission adopted rules for Climate-Friendly and Equitable Communities in July 2022. The rules require fifteen communities to designate "climate-friendly areas" – walkable, mixed-use neighborhoods where residents, workers, and visitors can meet most of their daily needs without having to drive. These areas are required to accommodate 30% or more of a community's projected 20-year housing need. This raises a critical question: how do we ensure that we are able to provide significantly more housing while planning for neighborhoods that mitigate greenhouse gas emissions?

This was a substantial consideration during rulemaking. Stakeholders and DLCD staff wanted to ensure that ambitious policy facilitating climate-friendly areas did not inhibit a community's ability to plan for an adequate supply of housing by creating "phantom capacity" – capacity on paper that is unlikely to be realized in practice. To achieve this, the rule requires cities to designate this capacity *in addition to* their 20-year land supply, but this capacity does not "count" until development occurs.

This is a key strategy in planning for significantly more housing. Climate policy and housing policy are inextricably linked, and addressing both requires building a substantial amount of housing in walkable, mixed-use neighborhoods that mitigate greenhouse gas emissions. In all Oregon communities, we need to plan for this abundance while also conservatively estimating land capacity to ensure that these policies do not artificially inhibit an adequate supply of land. In total, the OHNA recommendations ensure that communities are planning for this abundance, ensuring there is an adequate supply of developable land and preparing land to support housing production.

While adopted rules enable the possibility of "climate-friendly areas" through changes to land use, by itself, it does not guarantee that the housing will actually be built. To ensure climate-friendly areas result in actual production on the ground, implementation will need to ensure the designation of these areas is consistent with funding and policy actions identified in the local Housing Production Strategy. This will include a variety of strategies, ranging from reducing regulatory impediments to providing financial incentives, to support the production of housing in these communities and pair them with the needed investments in infrastructure, transit, and amenities to ensure these communities foster affordability, choice, and resilience in the future.

Wildfire Adapted Communities

As directed by Senate Bill 762, DLCD has published a Wildfire Adapted Communities Recommendations Report for consideration by the Oregon Legislature during the 2023 legislative session. The recommendations focus on potential ways the statewide land use planning program and local comprehensive plans and zoning codes can minimize risk, even as the frequency, intensity, and duration of wildfires continue to increase.

The wildfire report is complementary to this report, providing six recommendations and multiple implementation alternatives intended to increase the resiliency of communities. The emphasis of the report is *not* to prohibit the production of needed housing, but rather, to facilitate development in a manner that reduces wildfire risk and minimizes loss of life and property. Protecting existing homes from wildfires is necessary to prevent housing shortages in fire prone communities. DLCD's recommendations build on the protections recently adopted by the Legislature in SB 762 to minimize the spread of wildfires at the community and neighborhood level, thus further reducing the risks to individual homes and development.

Housing Preservation

This recommendations report makes clear that in order to address the housing affordability crisis Oregon faces today, state and local governments need to plan for substantially more housing and focus policy and funding interventions on increasing housing production. However, an important strategy to support affordability and promote housing stability is the preservation of existing housing supply, especially "naturally-occurring affordable housing" – housing that is relatively affordable without subsidy.

While the recommendations emphasize the need to focus on housing production at all levels of government, the framework should also facilitate the preservation of naturally occurring and subsidized affordable housing that would otherwise be lost to age or demolition. To do this, state and local policies should incentivize and encourage the rehabilitation or adaptive reuse of aging properties while focusing redevelopment on areas with lower risk of displacement, such as in underutilized parking lots or vacant large-scale retail/office sites. The housing capacity recommendations included in Appendix A include several recommendations that incorporate these principles in the local implementation of housing production strategies.

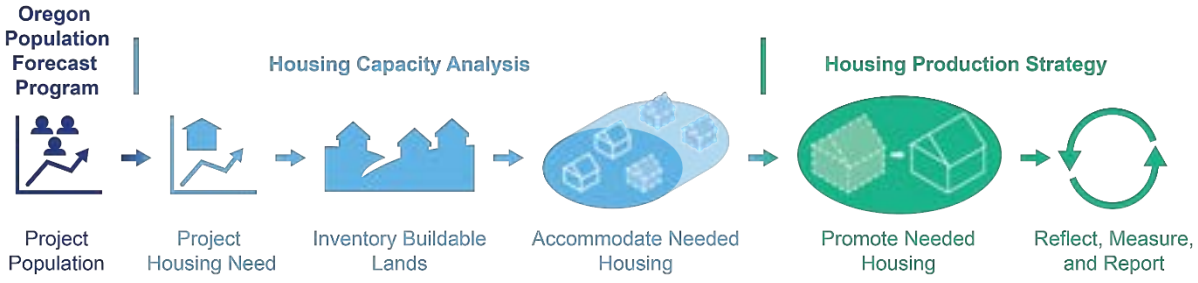
1.4 Streamline land capacity and urbanization processes to expedite well-planned expansions.

A renewed commitment to implementing Goal 10 for housing requires careful consideration of the relationship to Urban Growth Boundary (UGB) expansions. It is important to note that the adoption of OHNA-generated production targets and Housing Production Strategies are required for cities over 10,000, regardless of their existing built conditions and expansion context. In other words, jurisdictions that have achieved some level of infill or are "land-locked", i.e., physically unable to expand their UGB, will still be responsible for a share of the overall need.

UGB amendments are an existing tool to increase the supply of development ready land. Between 2016 and 2021, there have been a total of 35 successful UGB amendments (out of 37), 13 of which were to accommodate residential land needs.[12] Increasing housing supply and providing affordable options will require a combination of planning and policy actions at all levels, and when warranted, this should continue to include UGB amendments. To facilitate a smoother UGB amendment process, this report includes nine recommendations (see page 28) that increase the capacity and flexibility for local jurisdictions to pursue UGB amendments, reduce the likelihood of appeal or challenge of UGB decisions, and better prepare land within the UGB to support housing production.

Under the current system, jurisdictions conduct a Housing Capacity Analysis (HCA), which consists of two major components: a 20-year housing needs projection and a Buildable Lands Inventory. These two analyses answer a critical question: "Is there enough land within the UGB, zoned to sufficient capacity, to accommodate twenty years of projected growth?" If there is a deficiency of land, a jurisdiction must adopt measures to accommodate needed housing. First, the jurisdiction must adopt "efficiency measures," which are policies that increase development within a UGB. If a jurisdiction cannot reasonably accommodate needed housing within a UGB, the jurisdiction must expand its UGB, conducting a locational analysis under Goal 14 to determine which area would best suit the identified need.

Figure 3. The Current Goal 10 Process



The current process requires a local jurisdiction adopt a housing capacity analysis that projects past conditions into the future to determine whether increasing zoned capacity is necessary.

[12] Department of Land Conservation and Development. *Urban Growth Boundary Adjustments 2016-2021.* Accessed via: https://www.oregon.gov/lcd/UP/Documents/UGB_Amendments_2016-2021.pdf

Housing capacity analyses have emphasized characterizing density and counting the hypothetical capacity of lands for housing at the expense of supporting the actual production of housing. The consequence of this dynamic is that, while jurisdictions have substantial land and zoned capacity on paper, this land is not readily developable and housing production slows as available land supply becomes increasingly more costly to serve and prepare for development.

To put the emphasis on housing production, we recommend shifting the focus of land use efficiency measures from a Housing Capacity Analysis limited to analyzing the potential of lands for providing housing to the Housing Production Strategy (HPS) for cities over 10,000, which includes measures to support housing production, prepare land for development, and increase housing efficiency and diversity. Making this change in the HPS can serve a dual function, providing a policy and planning roadmap for housing production while also making the Goal 14: Urbanization process for land supply simpler and more efficient.

With the HPS at the center of housing implementation, communities can consider plans and policies specifically in terms of meeting their housing production goals. Cities can consider where it makes sense to upzone or rezone, where they should make capital investments in community amenities, where they should focus investments in low-cost market rental preservation efforts and affordable housing production, whether they can streamline their regulatory process to reduce costly delays in permitting, and what kinds of housing types match the OHNA-derived need, to name a few examples. Cities can then adopt these updates into local planning documents, ordinances, and/or comprehensive plans.

Leading with production requires some adjustments to the sequencing of Goal 10 compliance within Oregon's land use program. The current system begins with a local, city-based analysis to determine how many new households might demand housing in the future, translates that demand into unit types and income categories based on past development and demographic trends, and then determines whether there is sufficient land supply to meet the estimated future demand. Further, the method of analysis often varies by jurisdiction, meaning that local projections are not consistent and standardized across the state. When there is a gap, this is addressed either through land use efficiency measures such as rezoning and/or by expanding the urban growth boundary. Local governments often make this determination without consideration of the broader regional housing market, where economic growth is anticipated in the future, the current level of housing choice afforded in the region and other regional demographic distributions, desired equitable outcomes, fiscal impacts, or other systemic effects.

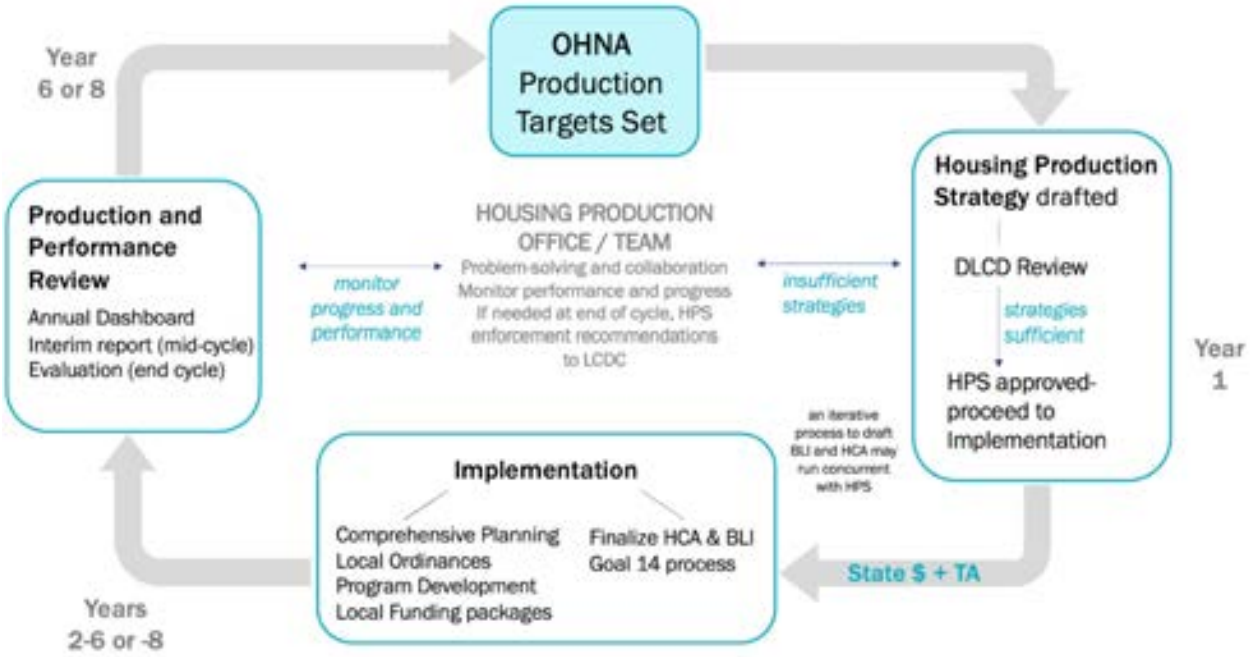
This means that production strategies are only factored in after the jurisdictions have forecast and planned for housing types and determined the need for additional land supply. The process does not take into account the impact that Housing Production Strategies – such as easing regulatory restrictions, minimizing procedural delay, preparing land for development, or increasing housing choices allowed in communities – may have on future development patterns.

This recommendation merges these two processes so OHNA targets inform HPSs, and implementation of those strategies can shape HCAs. In this way, HPS outcomes will inform

future Buildable Lands Inventories (BLIs) and HCAs. While in practice the two processes may inform one another, conceptually, it is helpful to consider this improved Goal 10 implementation process as a cycle in which we transform a negative feedback loop to positive by centering housing production targets. This outcome-focused and comprehensive housing production system will be implemented on a rolling basis, with new targets provided in each planning cycle. If a city is meeting the need and its rates of housing underproduction and cost burdening are declining, its future targets will reflect that progress.

Overall, these process revisions serve to streamline work for local governments by increasing certainty in land supply decisions, providing common datasets that are produced at the state level rather than locally, and creating a space for productive policy discussions in the HPS that are tied to a clear, measurable set of outcomes and targets.

Figure 4. Revised Housing Production Strategy Review Process



House Bill 5202 - Housing Capacity

This recommendation includes a series of refinements to Goal 10 and Goal 14 developed in consultation with a Housing Capacity Work Group, convened by DLCD in response to Legislative direction under House Bill 5202 (2022). Through this process, DLCD has identified a total of nine recommendations to streamline the HCA and UGB amendment process. The net effect of these recommendations would increase local capacity, reduce administrative burden, increase legal certainty, and build on existing tools to facilitate the timely expansion of UGBs and prepare land for development and redevelopment. These recommendations are summarized below. Specific housing capacity recommendations are included in Appendix A. Housing Capacity Recommendations included in this document and are also integrated with the policy outline included in Appendix C.

A. Better Utilize Land within the UGB

1. Enable the adoption of "efficiency measures" in the Housing Production Strategy, enabling a jurisdiction to adopt efficiency measures in advance of a UGB amendment.
2. Direct LCDC to adopt administrative rules and guidance on the local implementation of efficiency measures that support housing production and affordability, prioritizing the following outcomes:
   - Credit recent local implementation of statewide policy initiatives related to housing
   - Increase housing diversity, efficiency, and affordability
   - Enhance flexibility in housing choice and location
   - Reduce cost or delay and increase procedural certainty for housing production
   - Incentivize preservation and stability of naturally-occurring affordable housing
   - Prepare land for development and redevelopment, including underutilized commercial or employment lands

B. Streamline Establishing Need for a UGB Amendment

3. Amend the "needed housing" statute (ORS 197.303) to replace local housing needs projections with the OHNA and provide greater local discretion to plan housing types and characteristics in response to need and market feasibility, rather than primarily on past development trends.
4. Amend the "buildable lands" statute (ORS 197.296) to reflect a more realistic estimation of 20-year residential land supply and provide more options to discount land that is unlikely to develop.
5. Direct LCDC to refine administrative rules related to buildable lands inventories to provide more methodological options for local jurisdictions to estimate land capacity.

C. Streamline Regulatory Review of UGB Amendment

6. Adjust the "urban reserve" statute (ORS 197.145 and 197A.320) and related administrative rules to increase flexibility and ease of local implementation.
7. Facilitate the existing UGB land exchange process to remove lands within the UGB unlikely to develop within twenty years, while adding land that is more likely to develop.

D. Increase Local Capacity & Support

8. Appropriate funding to support local urbanization planning, including UGB amendments, UGB land exchanges, public facilities planning, urban reserve, and concept planning, prioritizing supporting smaller and more rural communities.
9. Focus new housing staff requested in DLCD's Agency Request Budget to focus on urbanization and public facilities planning to support local governments with analysis and technical assistance, prioritizing supporting smaller and more rural communities.

Additional Policy Considerations - Small-Scale UGB Amendment

The nine recommendations listed above reflect a substantial set of reforms developed in a very short timeframe prescribed by the Legislature. Critically, these recommendations reflect a series of refinements that have pretty broad support among stakeholders, even among those who often substantially disagree on urbanization-related policy. However, it is important to acknowledge that discussions surrounding urbanization are often significantly contentious, and given the short duration of the legislatively-prescribed deadline, DLCD staff recognized that consensus building for every policy option would be challenging.

DLCD staff believe that a core intent of the Legislative direction provided under HB 5202 required bona fide discussion on potential policy options that could reduce local analytical burden in pursuing a UGB amendment in exchange for delivery of statewide housing goals. The Legislative direction driving this work under HB 5202 is a direct response to a bill considered in the 2022 Session, House Bill 4118, which proposed requiring approval of UGB amendments in response to housing proposals affordable to households earning at or below area median income.

This proposal reflects a broader legislative discussion surrounding this kind of policy. Previously, House Bill 4079 (2016) was initially adopted to evaluate the barriers to affordable housing production arising from the UGB amendment process, and whether a removal of that process (with limitations) would stimulate provision of affordable housing. This legislation enabled two cities (later three) to pursue a UGB amendment without completing a Goal 10 and Goal 14 analysis for a qualifying proposal. To date, two of the three cities (Bend and Redmond) are in progress, but have not yet completed, projects, and the third (Pendleton) has not begun its process.

These policies, and similar policies modeled after these bills, were substantially contentious among work group members. In particular, many members raised significant concern about a potential bypass to the urbanization system that undermines the land use planning program at large, while other members maintain that a pathway could leverage the urbanization process to support statewide housing affordability goals.

While the short timeframe associated with the process was insufficient to establish a fully-developed and viable policy option with substantial buy-in from stakeholders, DLCD staff learned many important takeaways that warrant inclusion in this report. First, it is important to emphasize that **whether to advance a policy option that provides a streamlined UGB amendment in exchange for delivery of affordable housing is a legislative decision**. Should the Legislature decide to pursue this option, there are several considerations to improve its implementation, effectiveness, and political viability. This includes:

1. **A requirement for deed restriction guaranteeing delivery of affordable and diverse housing options in exchange for regulatory flexibility**. The Legislature would need to determine the types of housing outcomes that the pathway should require. Examples include:

- Regulated affordable housing for low-, moderate-, and mixed-income housing, including affordable rental, homeownership, and cooperative ownership housing.
- Diverse housing options the market is unlikely to produce, including manufactured, middle, and multi-family housing.

2. **Regulatory streamlining that reduces the analytical burden for small and capacity-constrained local jurisdictions** utilizing the pathway. Example approaches include:

   - A "shifted burden" approach, in which submittal of a qualifying project triggers a requirement for DLCD to conduct a limited Goal 10 and 14 analyses within a specified timeframe.
   - A "limited analysis" approach, in which a subset of jurisdictions identified as facing significant growth and affordability challenges under the OHNA qualify for a limited site alternative analysis, weighing priority and locational factors for several potential development areas.
   - An "analysis waiver" approach, in which small jurisdictions with constrained planning capacity submitting qualifying proposals would not be required to prepare Goal 10 or Goal 14-related analysis for limited UGB amendments, subject to a cap on the number of UGB amendments within a 5-year period.

3. **Limitations on the scope, scale, and applicability of the pathway.** Examples include:

   - Jurisdiction applicability, considering:
     - Population – The policy should emphasize providing an additional option to small jurisdictions with limited staff capacity and resources, not to larger jurisdictions with more capacity and resources to pursue a standard UGB amendment.
     - Population growth and cost burden – With the implementation of an OHNA, it is possible to measure and identify fast growing communities facing significant cost burden, enabling the option in communities where it is most needed.
     - Geographic or regional limitations – The policy should consider the exclusion of areas with significant concerns about the loss of resource lands, such as the Willamette Valley.
     - Frequency of use – The policy should have a limit on the frequency of use to ensure it does not overwhelm staff capacity or bypass the standard urbanization process.
   - Site applicability, considering:
     - Site size – There should be some upper acreage threshold for qualifying projects included in the policy. Examples of commonly suggested acreage thresholds include up to 50 or up to 100 acres.
     - Resource land exclusion – The policy should prohibit the inclusion of high-value farmland lands from the pathway and consider requiring a streamlined Goal 14 priority analysis. As discussed previously, the policy should consider excluding geographic areas where preservation of resource lands are a higher priority.

Recommendation 2) Build what's needed, where it's needed

Overview: Addressing housing need at all levels

On its own, the market will not meet the housing needs of all Oregonians. Housing for the lowest income Oregonians will always require public support, and the funding gap for meeting that need is daunting. Additionally, in most parts of the state, denser development, infill development, smaller product types, development in rural communities, and redevelopment of underutilized or contaminated parcels are harder for developers to get permitted, successfully finance, and feasibly build. These units are very important to meeting overall housing need, as they provide important workforce housing and homeownership opportunities, and help build climate-resilient communities and add needed units to an undersupplied market. Overall, approximately 49% of Oregon's needed housing over the next 20 years will require some public subsidy.

In many areas, denser development, infill development, smaller product types, and the redevelopment of underutilized or contaminated parcels are harder to build and require public subsidy.

While housing generally becomes more affordable as it ages, we cannot count on this process for several reasons: (a) it can take generations to reach lower affordability levels, (b) it almost never produces safe, adequate housing for the lowest income levels, and (c) it can halt or even reverse (for example, through gentrification) when a market is undersupplied.

Digging out of our housing deficit will require ongoing funding support from the Legislature that includes and extends beyond the traditional categories of affordable housing. Investments should be targeted to the development types that the market would not otherwise produce on its own, such as those listed above. **Without strong public investment in housing development, implementation of the OHNA will simply help us do a better job counting what we do not build**.

2.1 Commit sustained, coordinated investment

While simplifying and rationalizing our planning system is an important piece of the puzzle, there are many other significant barriers to housing production that communities face. Private market housing providers are not able to provide housing affordable to lower income households without subsidy, and local governments will need new tools to take on an expanded role in housing production. Success requires a new and expanded partnership between the state and local jurisdictions. Without significant state investment, OHNA implementation will likely be understood as an unfunded mandate that fails to provide the necessary conditions for local governments to comprehensively address housing need.

Oregon needs to produce about 27,000 housing units annually to meet the 20-year statewide production targets. In recent years the state has only produced 15,000-20,000 units per year.[13] To

[13] Source: U.S. Department of Housing and Urban Development's State of the Cities Data Systems (SCODS) database on Oregon housing permits. Between 2014 and 2021 annual permits have ranged from about 15,300 to 19,100 statewide.

close this gap, we need to look at which investments are best suited to overcome market barriers at all income levels with particular attention to the needs of historically underserved Oregonians.

Publicly Supported Affordable Housing

The most challenging unmet need to address is at the lower end of the income spectrum of households earning less than 60 percent of area median income (AMI). While public support is needed for many types of development, it is most acute to produce about 9,000 units per year that are affordable to low-income households. Lower-income Oregonians are affected most severely by the housing shortage and live with the greatest housing instability. This intervention point has the most urgent need for additional direct subsidies and support.

As the state's affordable housing financing agency, OHCS's funding mechanisms and allocation methodologies rely on complex and layered data and evaluation criteria designed to target resources toward strategic policy objectives. OHCS already prioritizes housing need in its allocation methodologies and can use the OHNA data to ensure that affordable housing production is equitably distributed across the state.

Affordable Housing Financing in Oregon is Changing

Affordable housing finance relies on layering local, state, federal, and philanthropic resources along with private equity and debt to fund development. These layered resources are necessary because the rents that are affordable to the intended tenants are below what it costs to develop and operate the property, leaving a "funding gap." This gap requires public subsidy or low-cost financing to pay for construction and ongoing operations along with large levels of mortgage or debt service payments.

To bring the impact of state resources to scale, OHCS has worked to maximize the use of federal Low Income Housing Tax Credits (LIHTCs) that are generated when the project includes financing with federally allocated Private Activity Bonds (PABs). Long an underutilized program, recent state and local investments in affordable housing were deliberately structured to leverage this 4% LIHTC and have successfully delivered new development. This increases utilization of the 4% LIHTC program has exhausted all built up capacity for the Private Activity Bond resource.

While the 4% LIHTC program will continue to operate and be a source of leverage for state Local Innovation and Fast Track (LIFT) investments, it is not a program that can continue to expand beyond that allowed by the annual federal Private Activity Bond authority allocated to Oregon. This means that the 4% LIHTC program cannot be used to increase the current rate of affordable housing development and future gap funding from the state or local jurisdictions is going to require either much higher per unit subsidy rates or some other source of fund leverage.

OHCS has managed unprecedented levels of investment in affordable housing

Despite federal constraints, OHCS hopes to continue recent momentum in affordable housing development. A major component of this is through a 2023-2025 funding request to the Oregon Legislature that includes $160 million for LIFT rental housing production and another $65 million for affordable homeownership. This would help create an estimated 1,200 rental units and 280 homeownership units, which, combined with the leveraging of available federal funds, would develop an estimated 4,000 new affordable homes for rent or purchase over the biennium. Additionally, OHCS is requesting more than $260 million to support affordable housing development and preservation of affordable homes. Even with this significant investment request, these resources are primarily required to continue funding at the level of recent years and will unfortunately fund less than a quarter of the documented need.

In summary, the landscape for affordable housing funding in Oregon has changed, and action at all levels of government is necessary to meet the moment and provide the funding required to continue developing the level of affordable housing needed by low-income Oregonians.

Additional funding for affordable housing development is critical to meet the needs of Oregon's lowest-income households. The Legislature should consider the investments included in OHCS' 2023-25 Agency Request Budget as an absolute minimum to maintain current production levels, which fall far short of actual needs as outlined in the OHNA. More resources from the state will be necessary to make more progress towards meeting these needs, the funding is only a part of the solution.

Federal caps on LIHTC and PABs currently limit the ability to utilize state and local funds most effectively. The Oregon Legislature must look to Congress as vital partners in housing solutions and pursue changes that will maximize the benefit of state and local investment. Legislation such as the Affordable Housing Tax Credit Improvement Act would, among other things, make technical adjustments to the PAB and 4% LIHTC program that would foster equity investment from the private sector into affordable housing developments and effectively stretch state investments further to allow for greater production. Combining federal action with more state resources for LIFT or other OHCS funding programs would have a substantial positive impact, augmenting unit production in the state beyond even the unprecedented growth in recent years.

Other types of support

Chronic underproduction has made it much harder for more people to afford the cost of housing. This now extends well beyond the traditional categories of publicly supported housing and affects higher income households as well. We need to pursue innovative tools that more effectively work with the market to support development types that might not be feasible. This can be especially true in smaller cities and more rural markets where infrastructure and land readiness costs are prohibitive for local budgets.

At a minimum, we recommend that the state coordinate existing funding sources that are currently distributed across many agencies and ensure that they are leveraged toward the goal of housing production. For example, Business Oregon already distributes some funds for the

purpose of infrastructure development, and recently produced an economic recovery plan that highlights workforce housing as a major impediment to achieving resilience in the business community. The Oregon Department of Transportation acquires land as it invests in transportation infrastructure, some of which might be used for housing development. The Department of Environmental Quality administers a Clean Water State Revolving Fund that has recently been significantly expanded with federal infrastructure funding and could be leveraged to support housing production. There are many other examples. While coordinating these investments and activities would require administrative structures that do not exist, this strategy is the most straightforward near-term option to make progress toward production goals, in part because it does not require new revenue sources.

At the same time, we know that additional, sustained resources will be needed. We cannot meaningfully move toward meeting housing need without aggressive investment in desired housing outcomes. The following types of funding would be particularly helpful to consider. Further inquiry with developers, lenders, and other partners in the development process can help to clarify how incentive programs might best be structured, funded, and targeted to needed types.

- **Infrastructure and development readiness**. Local governments will require infrastructure investments to jump-start housing production strategies both within existing UGBs and in expansion areas. This could take the form of a revolving loan fund or grant program such as those that currently exist within Business Oregon and would offer significant incentives for jurisdictions to play a more active role in housing production. Additional funds could be made available on a competitive basis to jurisdictions successfully meeting housing production metrics, such as the number of units permitted.

  Infrastructure funds would be used to support land acquisition, parcel consolidation, and infrastructure in expansion areas. It would also be available for retrofitting infrastructure for infill development, and master planning for larger sites. This could be structured like a block grant, such as those currently available for economic development. Ideally, these funds would be distributed with limited administrative requirements required from local entities, proportionate to the need identified in the OHNA.

- **Systems development charges** (SDCs) are fees charged to new development to help cover the incremental impact of new units and households on local infrastructure. While there is no question that these fees are necessary to the viability of public infrastructure, they also increase the cost of development and can be a barrier to production. A state-level fund to buy down the cost of SDCs for both affordable and market-rate workforce housing could support development that would not otherwise occur. Such a fund would create an incentive for needed housing types without affecting the revenues that local governments depend on for basic services in their communities. By backfilling these costs, the state could help make more units viable and affordable. Additionally, this could be set up as a local matching fund to maximize available resources for the greatest impact. As a very

rough starting-place estimate, an investment of $100 million could incentivize the creation of 5,000 - 10,000 units depending on program structure, that would not otherwise be built.

- **Gap funding.** Most local governments have extremely limited capacity and few resources to take an active role in housing development. The state could help jurisdictions achieve specific outcomes in their HPSs by providing access to capital for gap funding and assistance for workforce and missing middle housing (e.g., duplexes, triplexes, cottage clusters, etc.). We recommend that the state consider a revolving loan fund, capitalized by state dollars, to help overcome local barriers to production such as site acquisition, preparation, or rehabilitation, or gap funding directly to a project that helps a jurisdiction meet its production targets.
- **Funding for implementing fair housing strategies.** Housing production is one of several tools available to help cities advance fair housing outcomes. With expanded guidance, cities may be including additional strategies that better connect people to units, facilitate homeownership, increase unit accessibility, and reduce discriminatory practices. To support policy development and implementation, some grant or technical assistance funding for local governments will be helpful. Additional incentives should be made available by the state to support affordable housing development in areas of concentrated affluence, where higher land costs are often a barrier to development. By more equitably distributing affordable housing across communities, we can work toward equitable and fair housing goals such as dismantling segregation, preventing displacement, improving homeownership opportunities, or increasing the accessibility of existing or new housing, among others.
- **Technical assistance and capacity building.** Current staffing levels in local governments would be stretched beyond capacity by realizing the shared objective of catalyzing a rapid increase in statewide housing production. This requires a significant legislative investment to support implementation of Goal 10, which would include technical assistance for locally needed plans and permit capacity to speed up the building process.

  The Oregon Office of Economic Analysis estimates that 400-500 new local planners and inspectors would be needed statewide for a 10,000 increase in annual housing starts. Currently, many cities fund their permitting staff at least in part through permit fees charged on development. This means that cities must staff up quickly when the development market picks up and may have to lay off staff when development cools. This is highly inefficient and can lead to permitting delays. Additional funding for permitting staff, perhaps conditioned on decreased permitting fees to development, could help overcome this challenge.

  Additionally, the transition to an implementation-focused system suggests the addition of other types of local government staff, including planning staff who can create actionable Housing Production Strategies and coordinate policies and investments to support production. In the previous biennium alone, a historic investment from the Legislature in housing planning totaling $4.5 million supported 92 housing-related

projects in 75 jurisdictions. This translates to $1 million of investment supporting roughly 20 new housing projects in about 15-20 communities. DLCD has submitted an Agency Request Budget to establish a continuous biennial budget of $2.5 million for direct planning assistance to local jurisdictions in order to implement legislative housing direction. More funding support will directly result in increased local capacity to work on housing production, especially in small communities, and is an essential signal that the state is a true partner in housing production.

2.2 HPS implementation should advance fair housing outcomes

While housing abundance is a necessary precondition to housing equity, it is insufficient on its own. The people who are suffering most acutely from our housing shortage are disproportionately lower income and communities of color. They cannot be asked to wait another decade or more for Oregon to reverse the discriminatory policies and practices that have limited housing options for generations. Meaningful implementation of Goal 10 must provide a range of housing types for all income levels, distributed equitably around and within each region of the state, and for people of all ages and abilities. This provides access to employment and critical services and reduces the overall cost-burden to families and individuals. Centering the HPS in our Goal 10 system creates a new space for communities to address these issues directly.

Housing Production Strategies can serve as an important tool available to cities to help advance fair housing outcomes. Improved guidance to cities can help them consider how policies that influence housing production and the built environment intersect with fair housing outcomes. DLCD can begin by connecting existing, but currently separate, guidance regarding gentrification and anti-displacement into the HPS process, and cross-walking other existing guidance to more clearly demonstrate how the recommended tools can support land use efficiency.

Fair Housing Considerations

The Fair Housing Act prohibits discrimination in housing because of race, color, national origin, religion, sex (including gender identity and sexual orientation), familial status, or disability status.[14] Oregon's laws also protect people from discrimination based on source of income, domestic violence survivorship, and marital status.[15]

Furthermore, the Fair Housing Act requires the U.S. Department of Housing and Urban Development (HUD) and its recipients of federal financial assistance to Affirmatively Further Fair Housing, which means they must "do more than simply not discriminate… take meaningful actions to overcome patterns of segregation and foster inclusive communities."[16]

OHCS, Business Oregon and the Oregon Health Authority receive federal funds from HUD and as such have an obligation to affirmatively further fair housing. These agencies work together to comply with this mandate by engaging in fair housing planning through a process called the Analysis of Impediments to Fair Housing Choice every five years.

The OHNA housing equity indicators are intended to help provide standardized data across Oregon communities to monitor housing outcomes on a range of equity and fair housing concerns. The goal is that this data will help jurisdictions in their fair housing and equity reporting requirements and help communities track progress and hold jurisdictions and the state accountable with easy-to-read annual reports on progress.

In addition, these recommendations align local actions in a Housing Production Strategy with the Fair Housing obligations of combating housing discrimination, overcoming patterns of segregation, and fostering inclusive communities free from barriers that restrict access to opportunity.

In developing HPSs, local jurisdictions and state partners will need to consider which actions to deploy in which places to generate the desired outcomes, such as assessing where upzoning can help to undo patterns of exclusion and underproduction, or where is it necessary to consider stabilization and anti-displacement measures. These issues can be addressed using a decision-making framework similar to the example below. In the near term, jurisdictions can estimate current levels of production and patterns of growth using their permit data, recent HCAs, or other easily available sources. Over time, the OHNA will provide data to help jurisdictions understand what actions are most effective in individual census tracts and within jurisdiction as a whole.

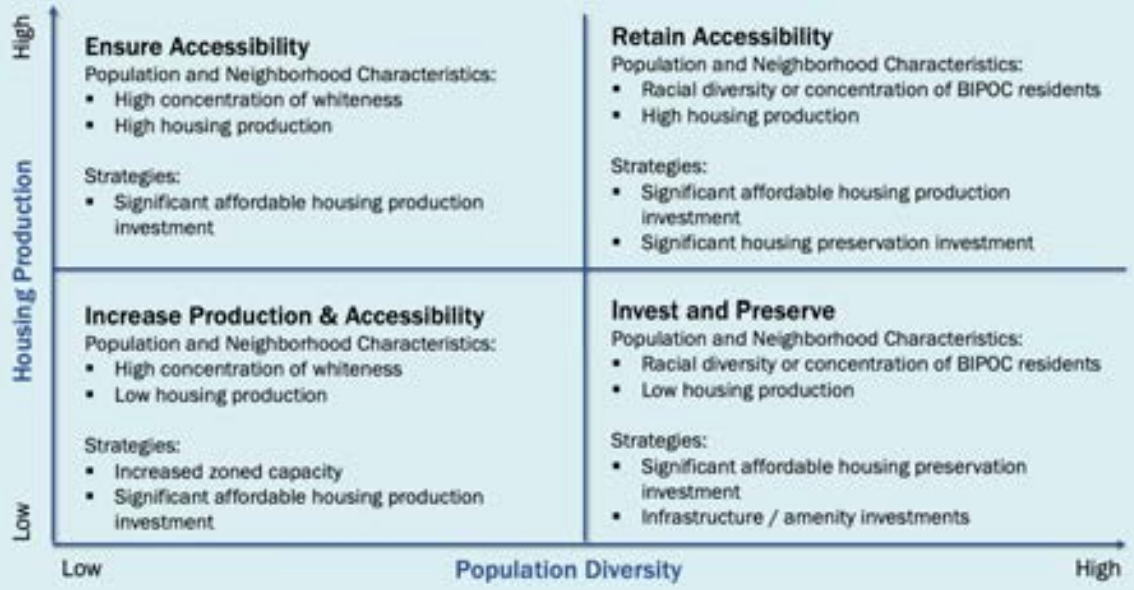
[14] U.S. Department of Housing and Urban Development. "Housing Discrimination Under the Fair Housing Act." https://www.hud.gov/program_offices/fair_housing_equal_opp/fair_housing_act_overview.

[15] State of Oregon Bureau of Labor and Industries. "Civil Rights and Fair Housing." https://www.oregon.gov/boli/civil-rights/Pages/fair-housing.aspx.

[16] U.S. Department of Housing and Urban Development. "Affirmatively Furthering Fair Housing." https://www.hud.gov/AFFH

Example Fair Housing Framework

Figure 5. Example Framework to Determine Strategies Needed for Fair Housing Production



The framework in Figure 4 is one way to think about organizing that guidance. On the vertical axis, the framework conceptually shows a range of housing production outcomes, from low production in slower growing or constrained environments to high production. On the horizontal axis, it conceptually shows community diversity, from low diversity, where there is a relative concentration of whiteness, to high. The fair housing challenges and solutions vary in each quadrant and so must the strategies. For example, areas with a high concentration of white households and corresponding concentration of affluence that have low housing production (in the bottom left-hand corner), restrictive zoning is likely reducing development capacity and should be increased. In the opposite corner, relatively high diversity combined with high housing production suggests a strong need for anti-displacement strategies and investment in preservation.

It is possible to place communities – either entire cities or census tracts – in these quadrants to provide a key input to cities as they complete their HPSs. The technical report included in Appendix D outlines recommended changes to the OHNA Pilot Methodology will provide more details and examples. Many of the tools that might be applied to fair housing outcomes are already listed in HPS guidance but are not clearly cross-walked to desired policy outcomes nor to the market characteristics that are likely to drive neighborhood change.

As described in the funding recommendations above, local governments will need new tools and technical assistance to plan and implement specific programmatic improvements aimed at fair housing outcomes and anti-displacement and gentrification. This could take the form of a specific housing equity fund.

Recommendation 3) Commit to working together with urgency

Overview: Dedicate state level staff to oversee and support housing production across the entire market spectrum

Currently, there is no specific agency of state government responsible for overall housing production, and many of the available regulatory tools are better suited to preventing unwanted developments than to encouraging those that are needed. As a result, the policy response to the current housing shortage has been disjointed, with siloed policy discussion and action occurring at several agencies without meaningful, systemic coordination between them or with local and regional partners.

A comprehensive, production-focused system needs leadership and coordination across the many entities engaged in some aspect of housing production. Simply put: someone needs to be in charge, to: (1) ensure coordination of available funding sources and regulatory authorities (currently spread across many agencies) toward meeting production targets, and (2) implement the OHNA model, including ongoing management of the data that measure progress toward targets.

Figure 6. State agency roles in housing production.

Agency	Roles in Housing Production
Oregon Housing and Community Services	Affordable Housing Finance, Fair Housing
Department of Land Conservation and Development	Planning & Zoning Rules, Public Facilities Planning, Land Use Regulation
Department of Administrative Services	Economic Analysis
Oregon Department of Transportation	Integrated Transportation and Land Use, Transportation Infrastructure and Planning
Department of Environmental Quality	Water and Wastewater Infrastructure, Environmental Regulation
Business Oregon	Infrastructure & Capital Improvements Funding, Economic Development, Community Development Block Grants, Brownfields Redevelopment
Bureau of Labor and Industries	Occupational Licensing, Fair Housing
Department of Consumer and Business Services	Building Codes, Lending & Financial Regulation

3.1 Develop a coordinated statewide administrative structure

Coordinated statewide action would require sufficient authority to (a) convene agency leadership, (b) develop and refine policies to achieve desired housing production outcomes, (c) administer programs with accountability in housing production as well as fiscal and budget, contracting, HR, and IT services, (d) provide specialized housing production expertise to local partners, (e) direct funding for housing and public infrastructure, and (f) provide regular reporting to the Legislature and Governor's office.

Recognizing an urgent need to begin addressing housing production barriers, we recommend establishing an interagency Housing Production Team and administrative leadership position. The leadership of this team should be housed at the coordinated statewide administrative entity, and staff assigned to the team should be drawn from multiple agencies, leveraging the expertise and programmatic knowledge of each agency. This team should respond to a legislative mandate that directs agencies to coordinate their existing and potential new funding sources and regulatory authorities toward the goal of housing production. This provides a clear focal point for communicating and partnering with local governments.

The Housing Production Team should have (or be able to contract for) expertise in affordable housing finance, market rate development, permitting and building code, land readiness, fair housing law, community engagement, and development policy analysis. The team would deliver a commitment to federal and state requirements for fair housing, including anti-displacement tools and other housing equity strategies. This would also facilitate better coordination of housing production with broader policy initiatives, including transportation, equity, infrastructure, environmental quality, and climate. This team would function in two ways:

A. As technical experts that can be called on to address specific site development challenges or policy questions in partnership with local governments. Local jurisdictions face numerous constraints that inhibit the development of sites that would otherwise support housing production and receive minimal support from the state in technical or financial assistance to address such constraints. This team would provide varied and specialized housing production expertise that can diagnose and overcome development barriers through policy and investment interventions. It should also be able to deploy technical assistance and consultant support to ensure that it can help unstick complex development sites or evaluate thorny policy questions.

B. As an accountability and review team, to oversee progress toward goals in HPSs. The team would recommend actions that may be missing in local strategies or need more attention on a regular review cycle. In its accountability function, we recommend that the inter-agency Housing Production Team incorporate the existing staff review of HPS documents. This will enable the team to partner with local jurisdictions on specific actions identified in the HPS to ensure they have the resources and state coordination needed for implementation. If necessary, they would also be able to recommend enforcement orders for cities that are not meeting targets and are not taking sufficient action to address those deficits.

Implementing the OHNA will require a high degree of trust, communication, and transparency, as jurisdictions become accustomed to the new methodology. The establishment of a coordinated statewide administrative structure and Housing Production Team may necessitate phasing, recognizing the substantial challenge of reorganizing power and responsibility among state government agencies. We recommend further discussion around the best models for building confidence, such as community and stakeholder engagement, contracting of experts in the field, and regular reporting to the Legislature.

3.2 State and Regional Continuing Policy Action

The goal in centering housing production and outcomes in Goal 10 implementation is to remove barriers to housing development and to align capacity for better outcomes. This is true at both the local level and across state and regional government. To ensure that we are bringing all resources to bear in addressing the housing crisis, we recommend that the state and Metro Regional Government adopt action plans similar to HPSs that would:

- Define new regional and state actions to meeting need, such as the LIFT affordable housing development program or Metro's voter-approved measures for affordable housing and permanent supportive housing
- Identify existing resources that could be invested or leveraged for better outcomes
- Coordinate with local implementation
- Report to legislature on regional and state progress
- Identify new opportunities for action

In contrast to locally-adopted HPSs, the action plan that Metro adopts must recognize the coordinating role that regional governments play in housing planning. Rather than adopting specific policies, such as local zoning codes and regulations, regional housing coordination strategies should emphasize the collaborative actions among local governments that can be facilitated regionally. For example, regional housing coordination strategies could include identifying shared funding sources, sharing staff capacity, or entering intergovernmental agreements to promote housing production.

While we recommend that Metro be required to periodically complete such a strategy, counties and other regional entities should be able to opt-in and collaborate with cities, especially those with populations under 10,000, making them eligible for funding, capacity, and resources to address shared housing priorities. This would be especially helpful in smaller, more rural communities.

At the state level, the administrative entity described in Recommendation 3.1 should periodically complete a coordinated state HPS. Such a requirement would help address significant data gaps and follow up policy work. At present, we do not have an accurate picture of how much housing exists or is being produced statewide. An Oregon HPS would create a baseline understanding and data standards to track new production and the equitable distribution of housing options. This would allow for comprehensive tracking of the state's progress towards closing the gap in underproduction.

Additionally, many of the policy issues DLCD and OHCS heard through engagement require follow-up and collaboration with other state agencies. See Appendix B for a detailed list of DLCD's follow-up policy work. These and other areas of follow-up work highlight the need for a statewide HPS in which the state is consistently working to promote housing production and evaluate progress towards equitable outcomes.

III. Conclusions and Next Steps

Housing underproduction is a systemic, nationwide challenge that has been decades in the making. Nearly every state has failed to produce enough homes to meet the need. In this respect, even with its comprehensive land use program, Oregon is not unique. Along with the other coastal and intermountain west states that have seen rapid population growth, Oregon's situation is dire. We rank fourth worst in states in terms of underproduction as a share of total housing units, better only than California, Colorado, and Utah.[17]

This crisis is felt throughout Oregon, whether in large urban areas with skyrocketing rent and home values, in more rural communities struggling to find construction workers and developers, or on the coast where the local workforce competes for housing with short-term rentals. While some important details remain to be resolved in the coming months, we believe that these recommendations will position Oregon to make the systemic changes necessary to confront this challenge.

Few policy imperatives are more important to Oregon's future than increasing the pace of building new homes. Housing production is essential for Oregon's economic competitiveness, helping families prosper, and improving community resilience. Simply producing the units needed to meet current demand could generate up to $40 billion in additional economic growth, a boost that would benefit us all.[18] Achieving this will take hard work, coordinated action and investment from many partners in the public and private sectors, and at the state, regional, and local levels.

The recommendations described in the pages above are complex and comprehensive. Implementing them will require significant investments, changes to state statute, rules, and guidance, and will likely need to be sequenced over more than one legislative cycle. To make near-term progress on their implementation, we recommend that the Legislature consider bills that advance the bipartisan goal of building more homes, as follows:

A. **Redefine Oregon's Planning Process for Housing.** The state should establish the OHNA as the foundation for Goal 10 planning processes in state statute. This should, at a minimum:

   - Adopt core components of the OHNA methodology into statute, including that the OHNA must account for underproduction and an estimate of housing needed to serve people experiencing homelessness, must be allocated based on regional incomes and job distributions, and must be reviewed and updated with appropriate new data on a regular cycle. (Recommendation 1.1)

[17] Up for Growth, 2022, Housing Underproduction in the U.S. 2022, https://www.upforgrowth.org/underproduction

[18] See footnote 2 on page 3.

- Create administrative capacity to run the OHNA and track progress toward targets on an annual basis. This could be in OHCS, or in the Office of Economic Analysis. (Recommendation 1.1)
- Direct cities to replace local projections of need in Housing Capacity Analyses with OHNA-generated 20-year need numbers, by income, produced by the state. (Recommendation 1.1 and 1.4)
- Direct cities to strengthen Housing Production Strategies by requiring actions that address housing barriers and advance fair housing outcomes (Recommendation 1.3 and 2.2) and by incorporating production targets based on the data provided in the OHNA (Recommendation 1.2).
- The state should make statutory changes necessary to make needed UGB amendments more efficient and better prepare land for development. This should include direction and funding/resources for DLCD and LCDC to continue work related to Goal 10 and facilitating timely expansion of Urban Growth Boundaries when a need is identified. (Recommendation 1.4 and Appendix A).

B. **Coordinate the state response.** The state should establish a coordinated statewide administrative structure with a Housing Production Team. If it is necessary to phase this in, a temporary Housing Production Team could be established as part of DLCD or OHCS while broader discussion occurs. The housing production issues facing many communities demand an immediate state response. This team should be deployed as quickly as possible to achieve early housing production wins by helping cities unstick challenging development sites, removing barriers and focusing state resources. Additionally, this team should be charged with developing the first ever statewide Housing Production Strategy, which will serve to shift the state's energy and efforts to this urgent challenge. Over time, as rules are developed and take effect, this team can begin to function in its review process to assist with HPS implementation and accountability. (Recommendations 3.1 and 3.2).

- Provide position authority and Legislative direction for staff at other agencies to work with the newly established Housing Production Team toward the goal of housing production. Meeting production goals will require coordinating existing funding sources to meet housing need, working across agencies to overcome site permitting challenges, and providing support to local staff to overcome affordable housing funding challenges. (Recommendation 3.1)

C. **Create innovative funding and finance solutions.** The state should establish new housing production funding mechanisms aimed at middle housing or workforce housing development. Several stakeholder forums are considering innovative funding and financing mechanisms that are resonant with the recommended fund types in this report. (Recommendation 2.1)

The process of developing a Statewide Housing Production Strategy will inevitably uncover additional changes that are needed, and iterative improvements should be expected. More work will undoubtedly be required in future Legislative sessions. The Housing Production Team may need to evolve as we learn from its initial successes. Additional funding sources are required to make meaningful progress. Further accountability mechanisms may be needed. However, the comprehensive legislative package described above would be a substantial movement in the right direction, putting Oregon on the trajectory to lead the nation with a new approach to housing production focused on meeting the needs of all Oregonians. These recommendations, and the associated increase in housing production, will only succeed with sustained Legislative leadership and action in the 2023 Session and beyond.

IV. Appendices

Appendix A. Housing Capacity Recommendations

Appendix B. Follow-up Policy Work – Basis for a Statewide Housing Production Strategy

Appendix C. OHNA Legislative Policy Outline

Appendix D. OHNA Technical Report

Appendix E. OHNA Engagement Summary

Appendix F. University of Oregon Development Barriers Survey Summary

West of Sherwood Farm Alliance

Analysis of unconstrained development acreages in Sites A5 and A6 in North District Mixed Employment Area identified for large lot high tech manufacturing in Metro Urban Growth Report.

Mackenzie

SHERWOOD WEST NORTH DISTRICT CONCEPT PLAN REFINEMENT

(Revised February 19, 2024) Figure 13

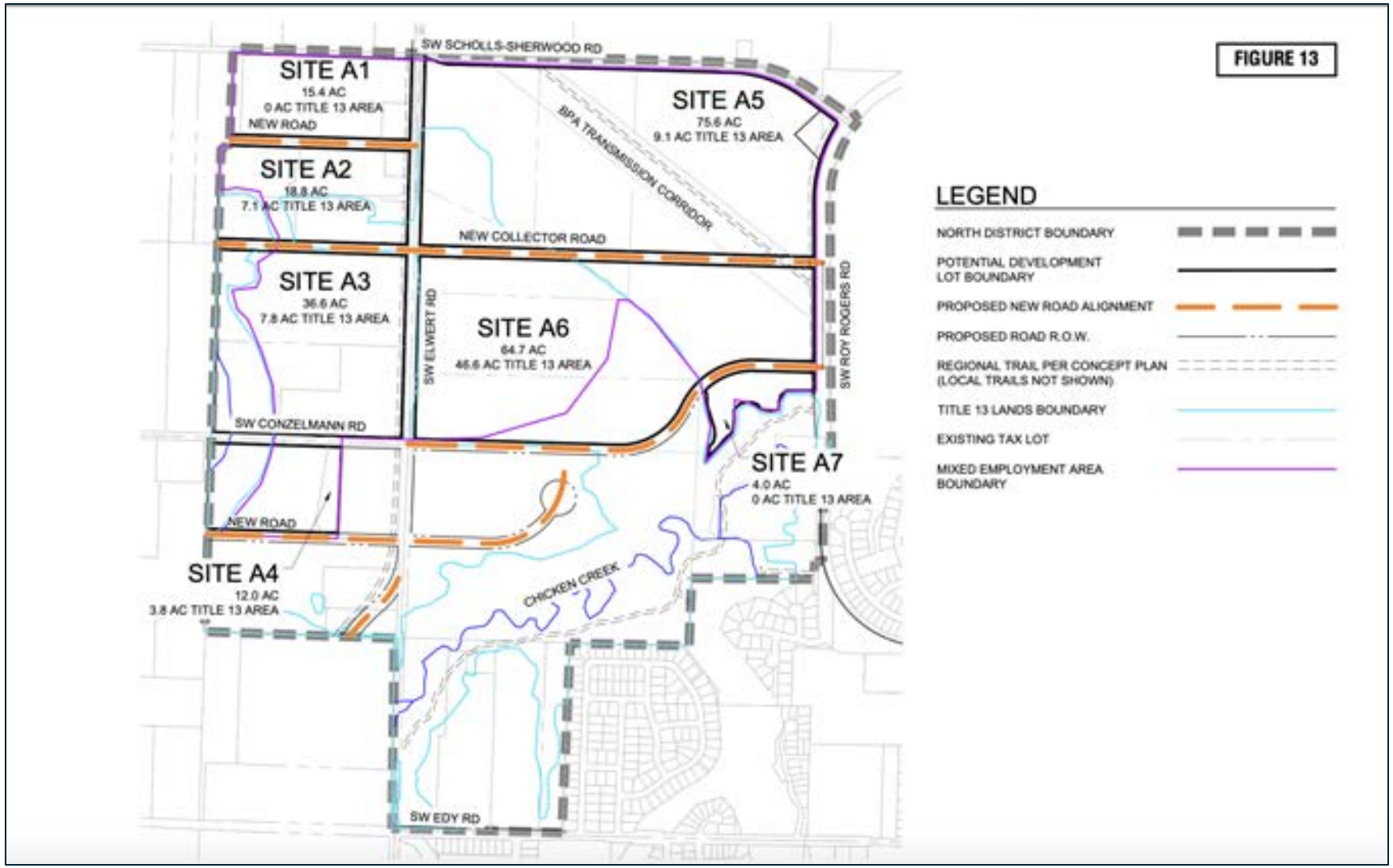
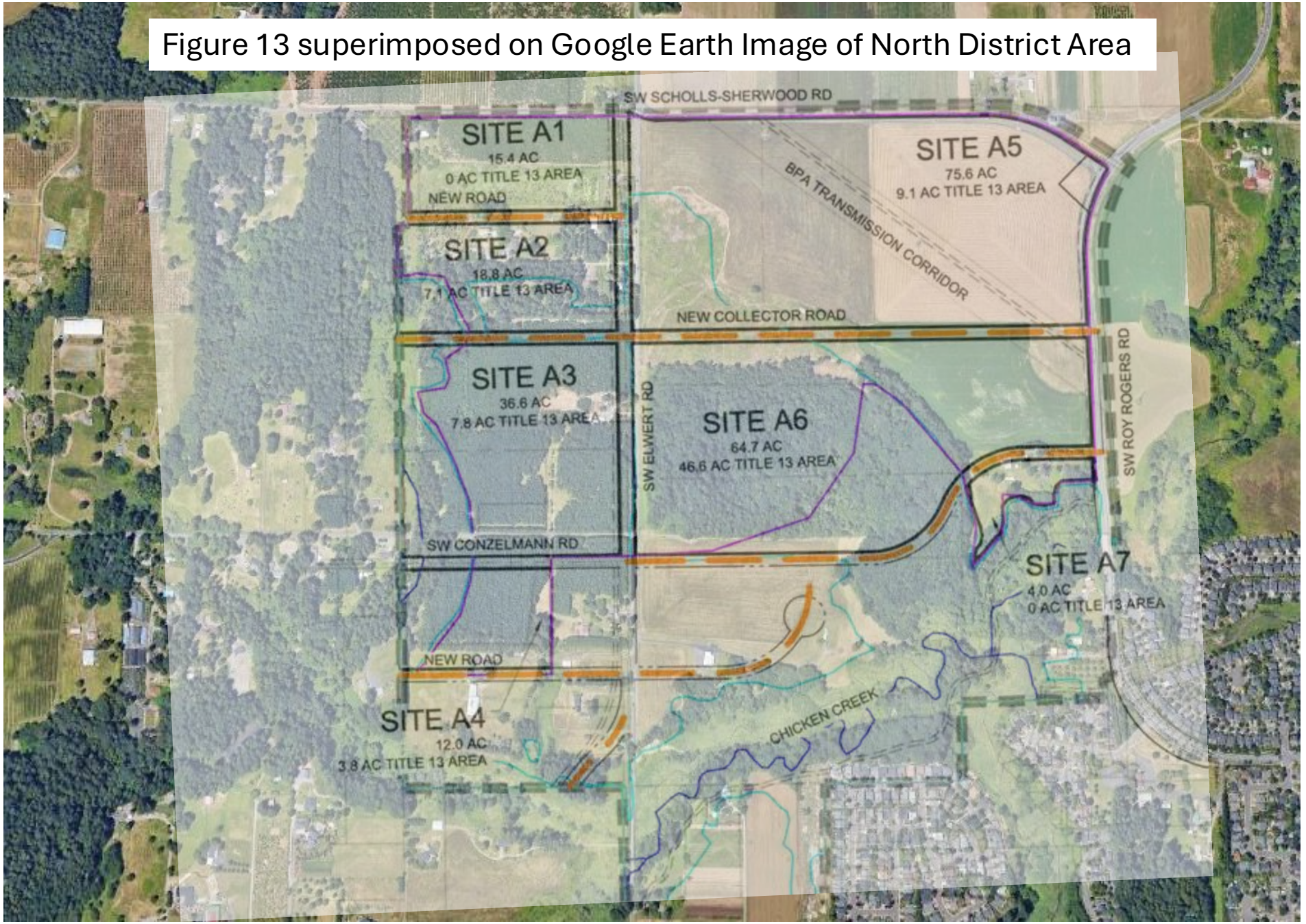
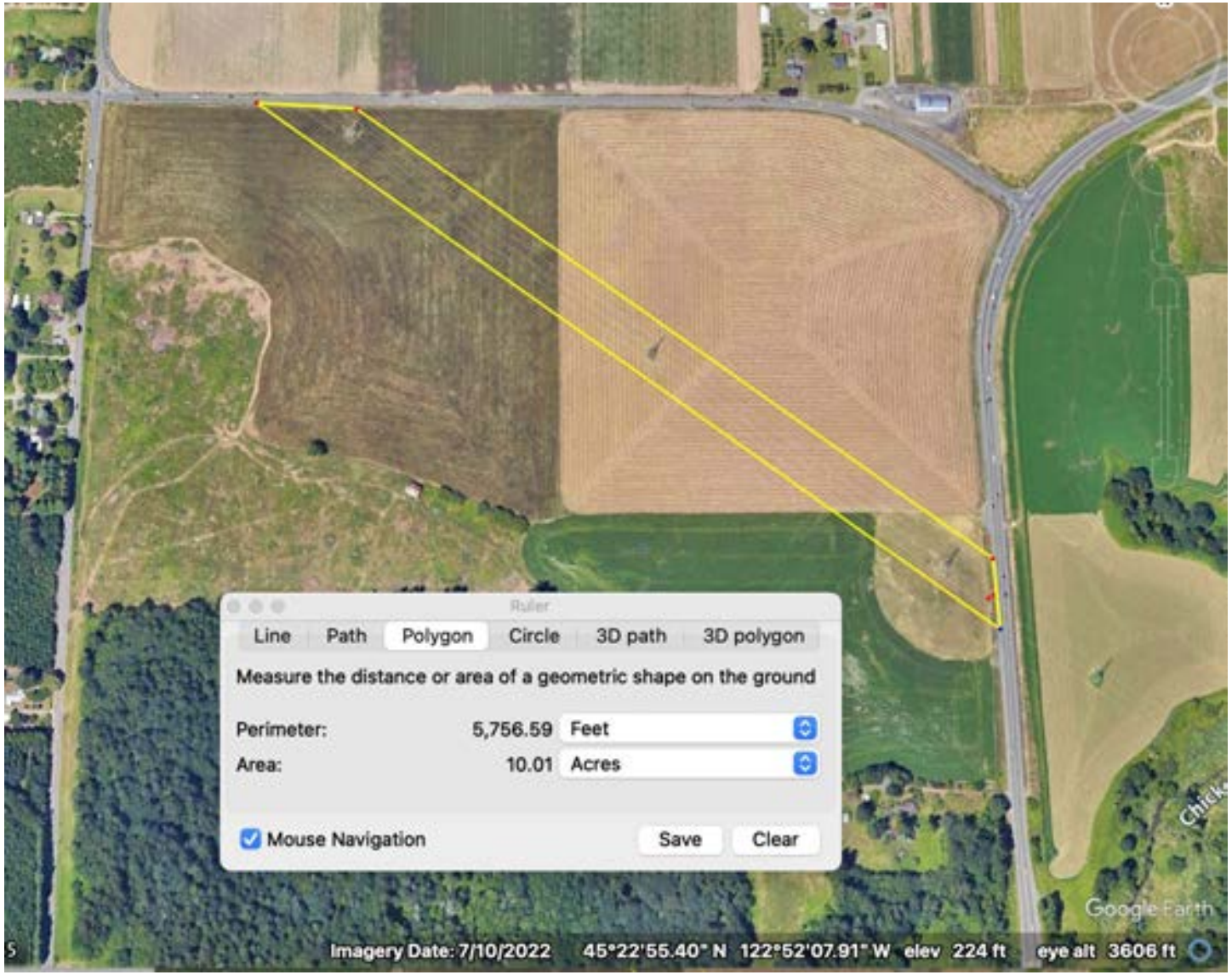


Figure 13 superimposed on Google Earth Image of North District Area

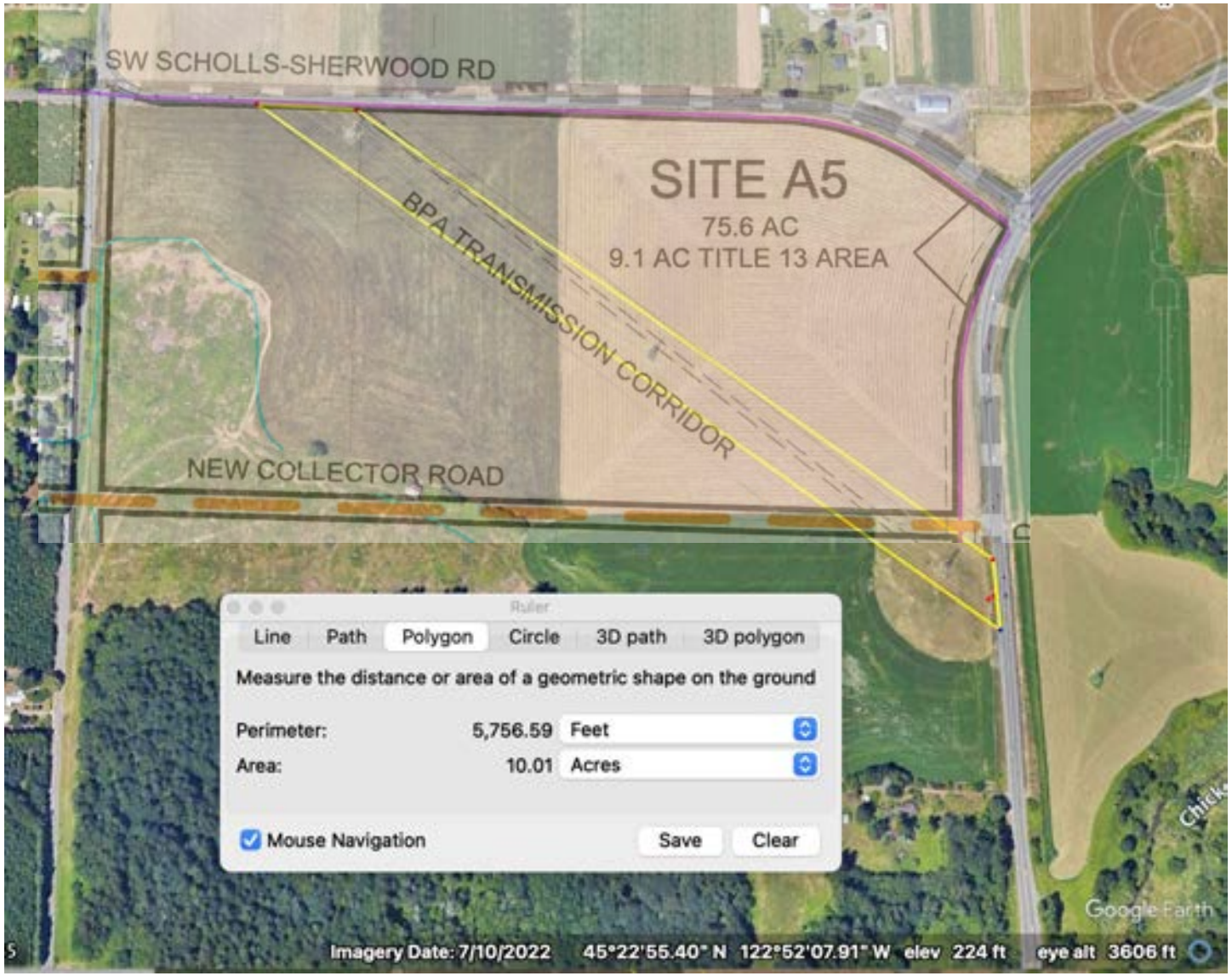


Google Earth image of BPA high voltage powerlines and tower on Site A5 where they cross SW Scholls-Sherwood Road
View is looking east/southeast

Estimate of acreage of BPA high voltage power lines easement based on visible powerlines. Note tower structure in middle of the polygon.



Overlay showing Figure 13 site A5 layout with BPA transmission corridor acreage estimate:
Note the mapped BPA transmission corridor slightly out of alignment with actual corridor.



Title 13 Habitat in North District area excerpted from Figure 4 in Sherwood West Concept Plan

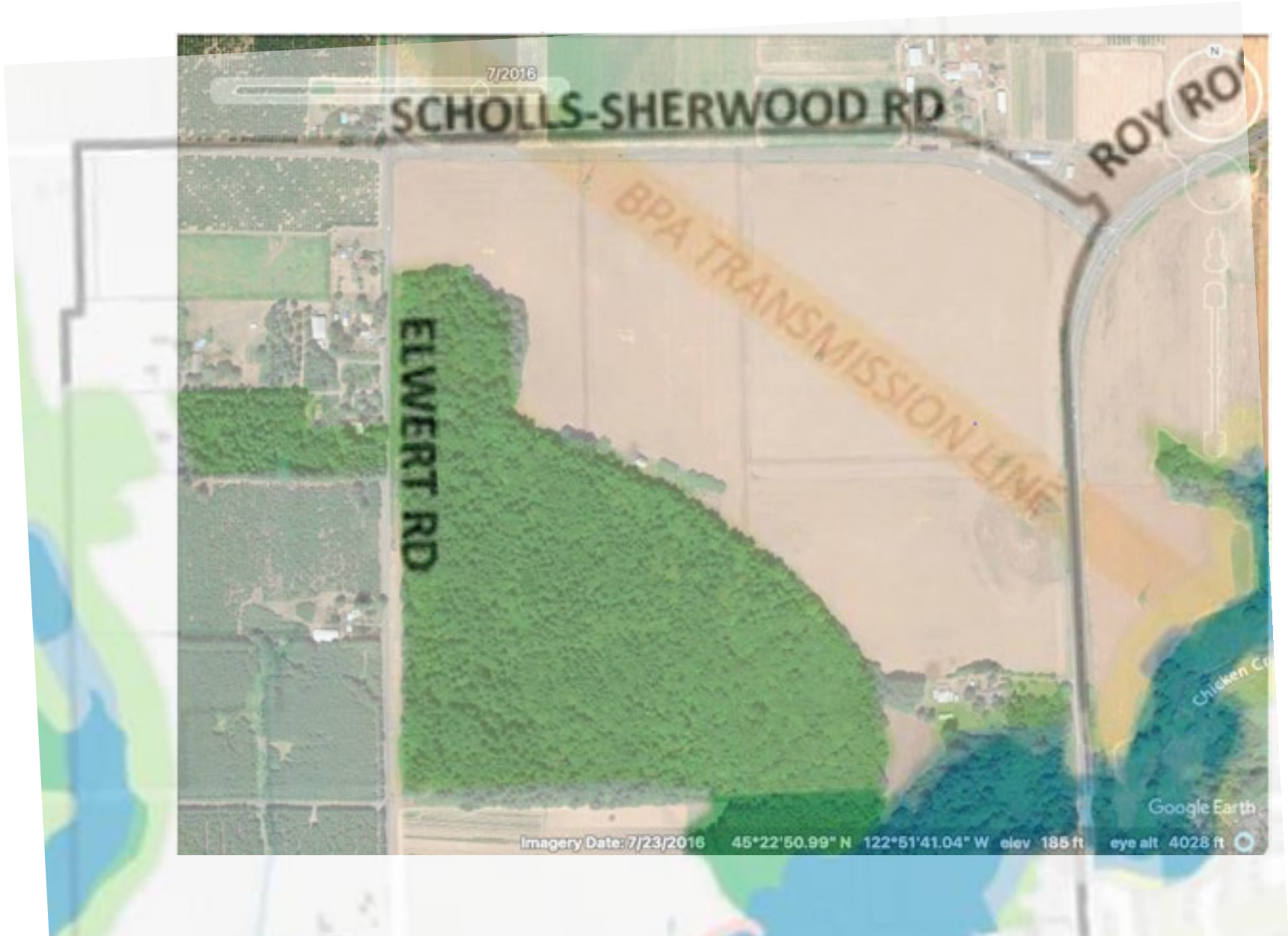
Riparian Class I Habitat
Riparian Class II Habitat
Riparian Class III Habitat

Upland Class A Habitat
Upland Class B Habitat
Upland Class C Habitat

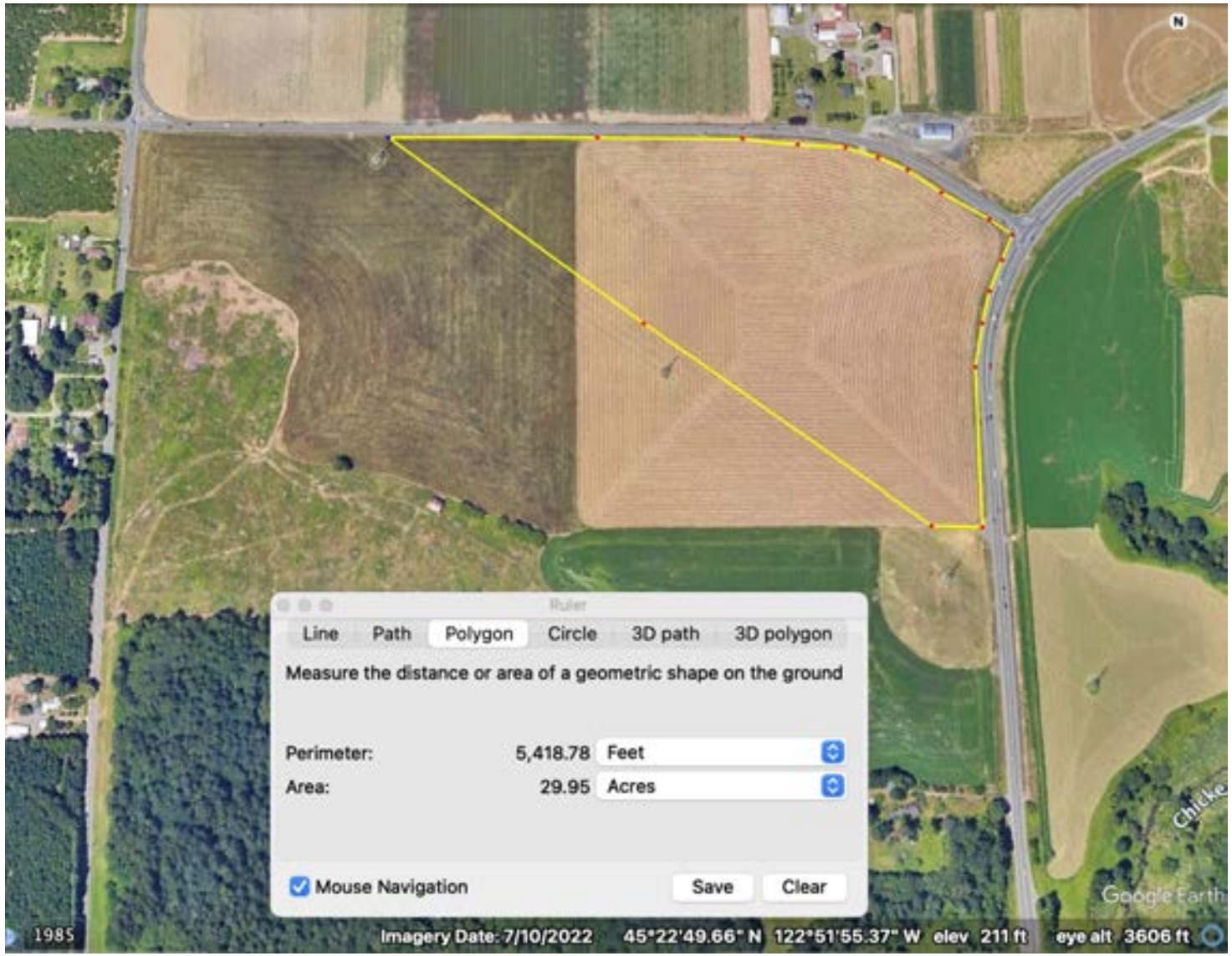
Figure 4. Natural Resources Existing Conditions

Google Earth photo of land making up Sites A5 and A6 on July 23, 2016 showing prior extent of forests on Title 13 Habitat Lands

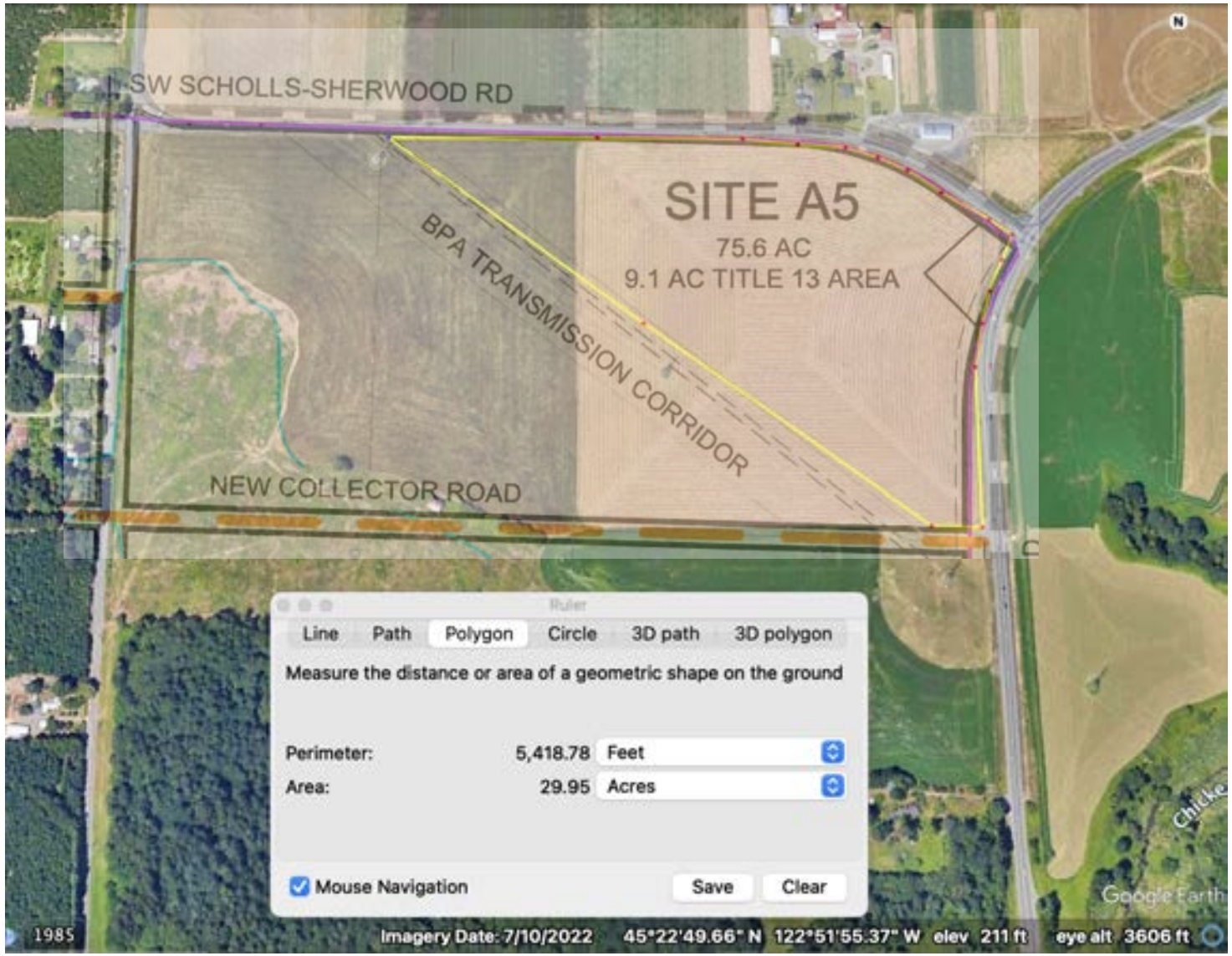
Google Earth photo of land making up Sites A5 and A6 on July 23, 2016 with Title 13 Habitat Map overlaid.



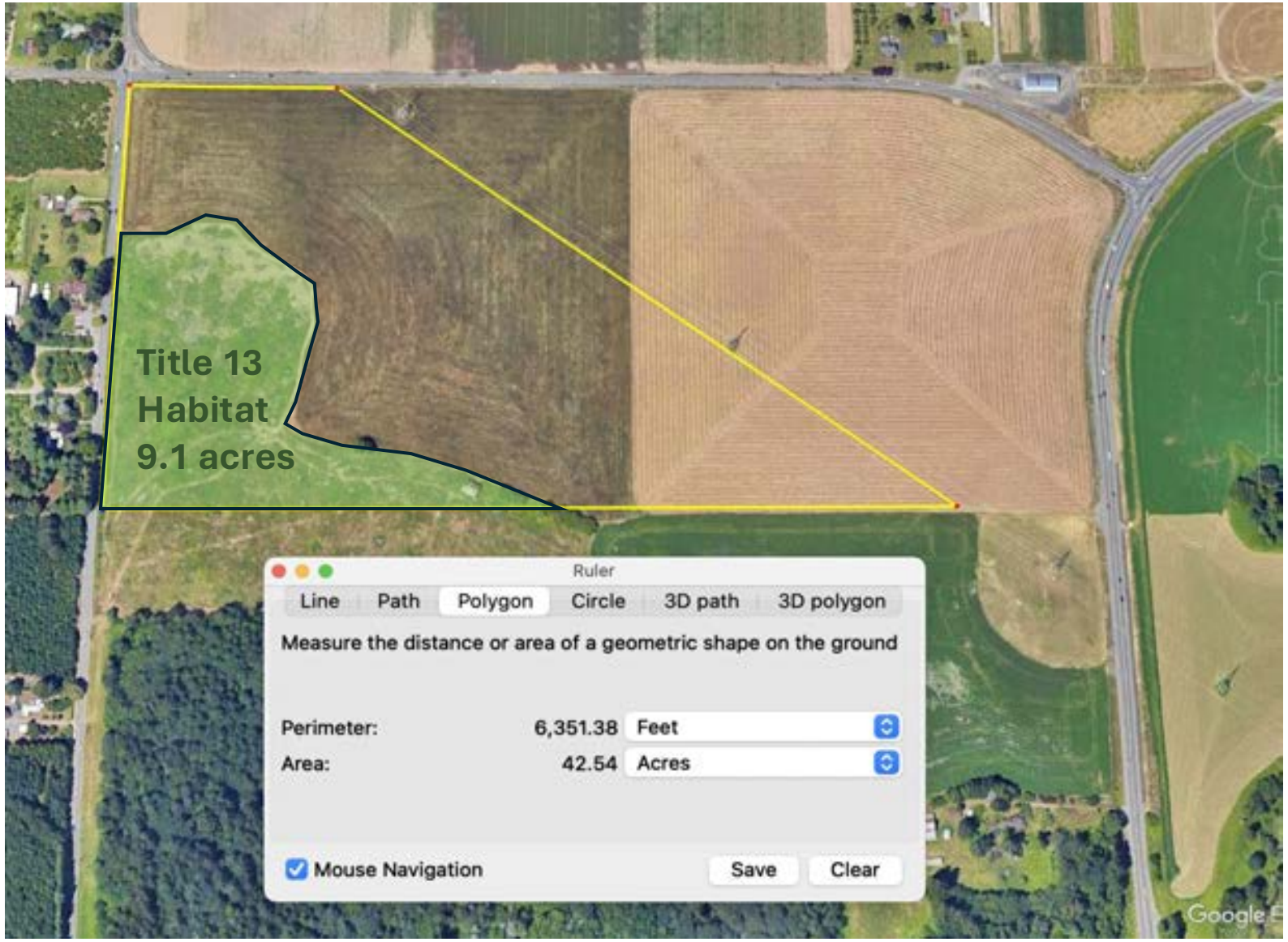
Site A5 with Google Earth estimate of acreage northeast of BPA corridor



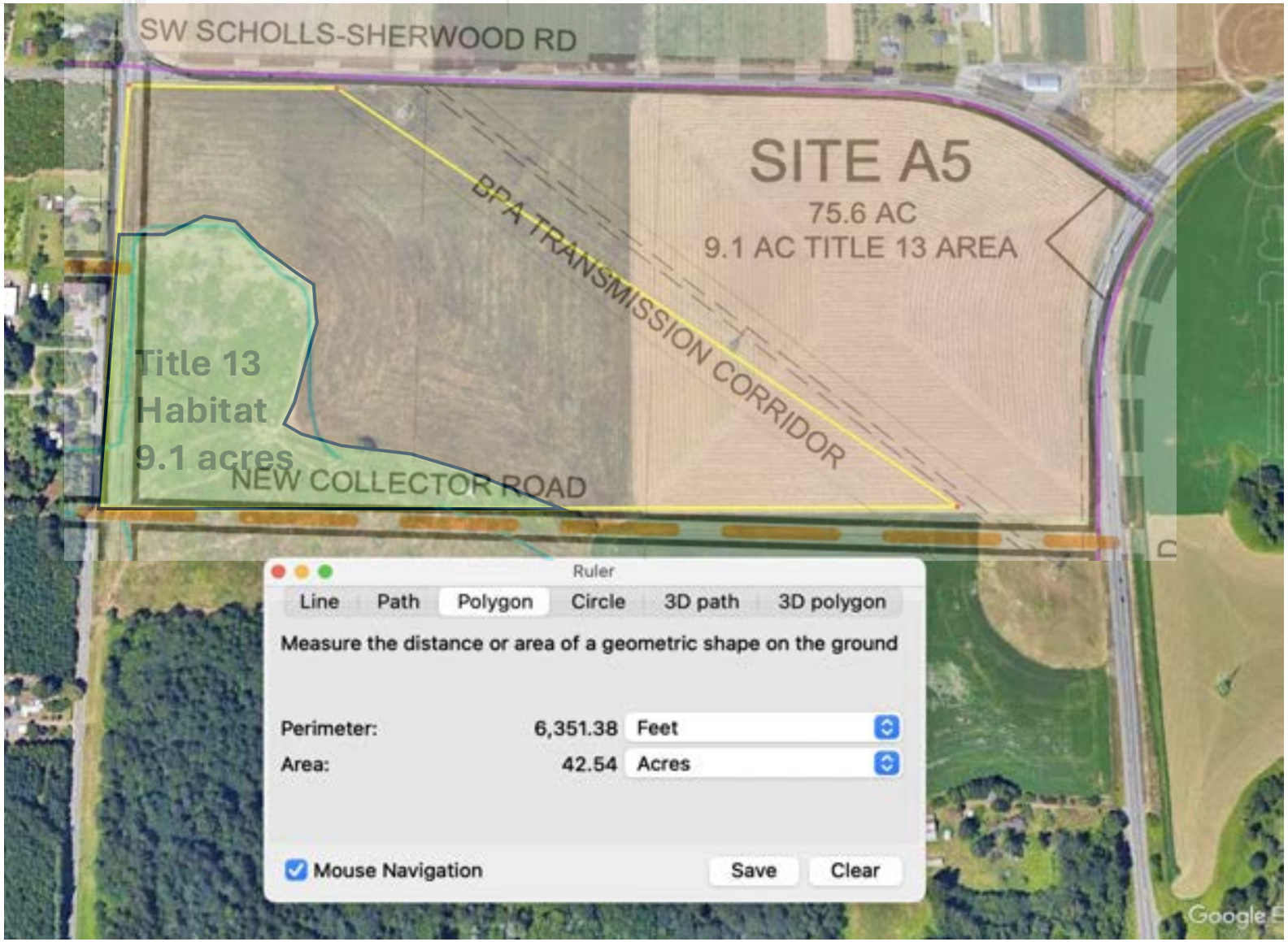
Overlay showing Figure 13 site A5 layout with acreage northeast of BPA corridor:
Note the mapped BPA transmission corridor slightly out of alignment with actual corridor.

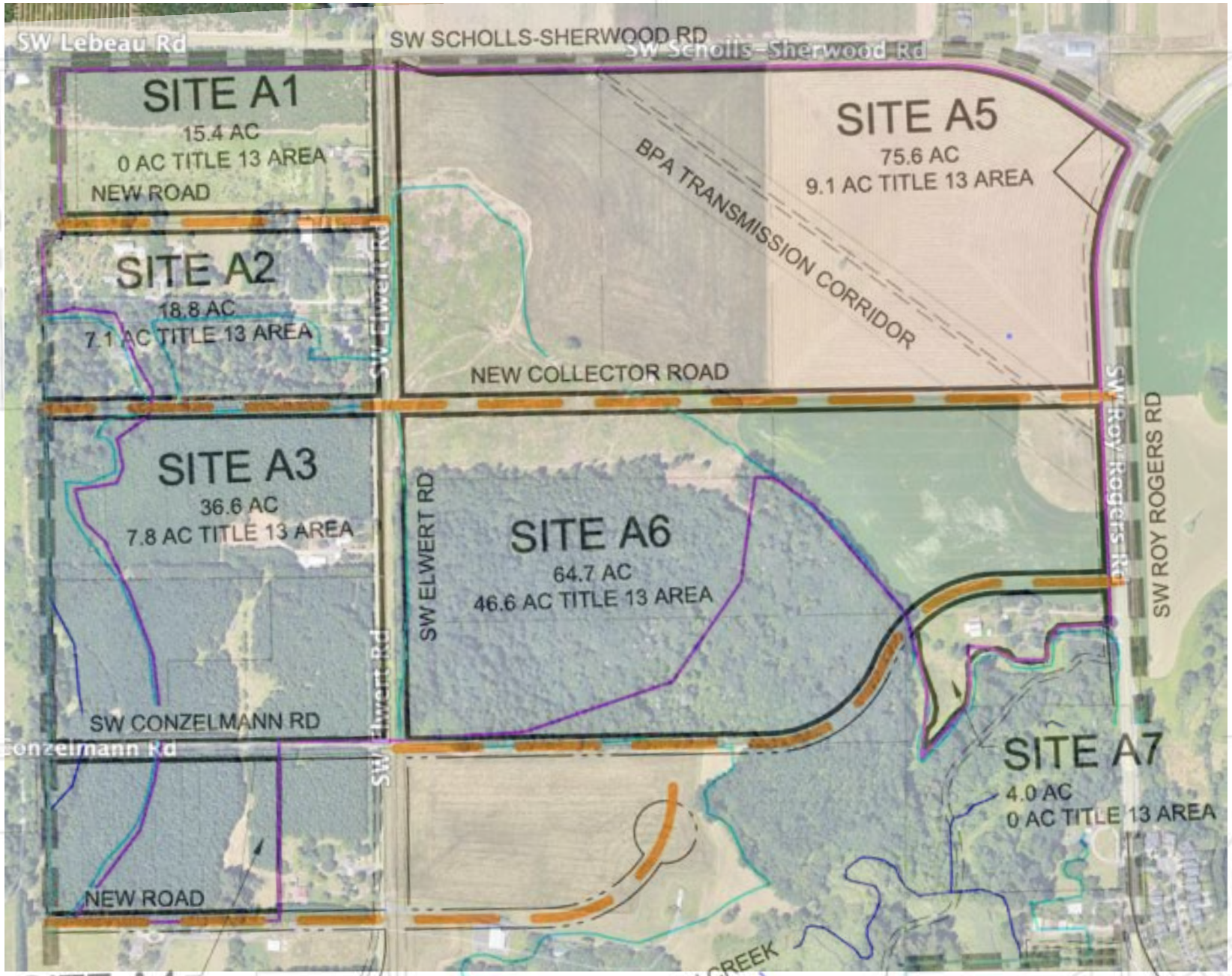


Site A5 with Google Earth estimate of acreage southwest of BPA corridor and Title 13 Habitat acreage from Figure 13.

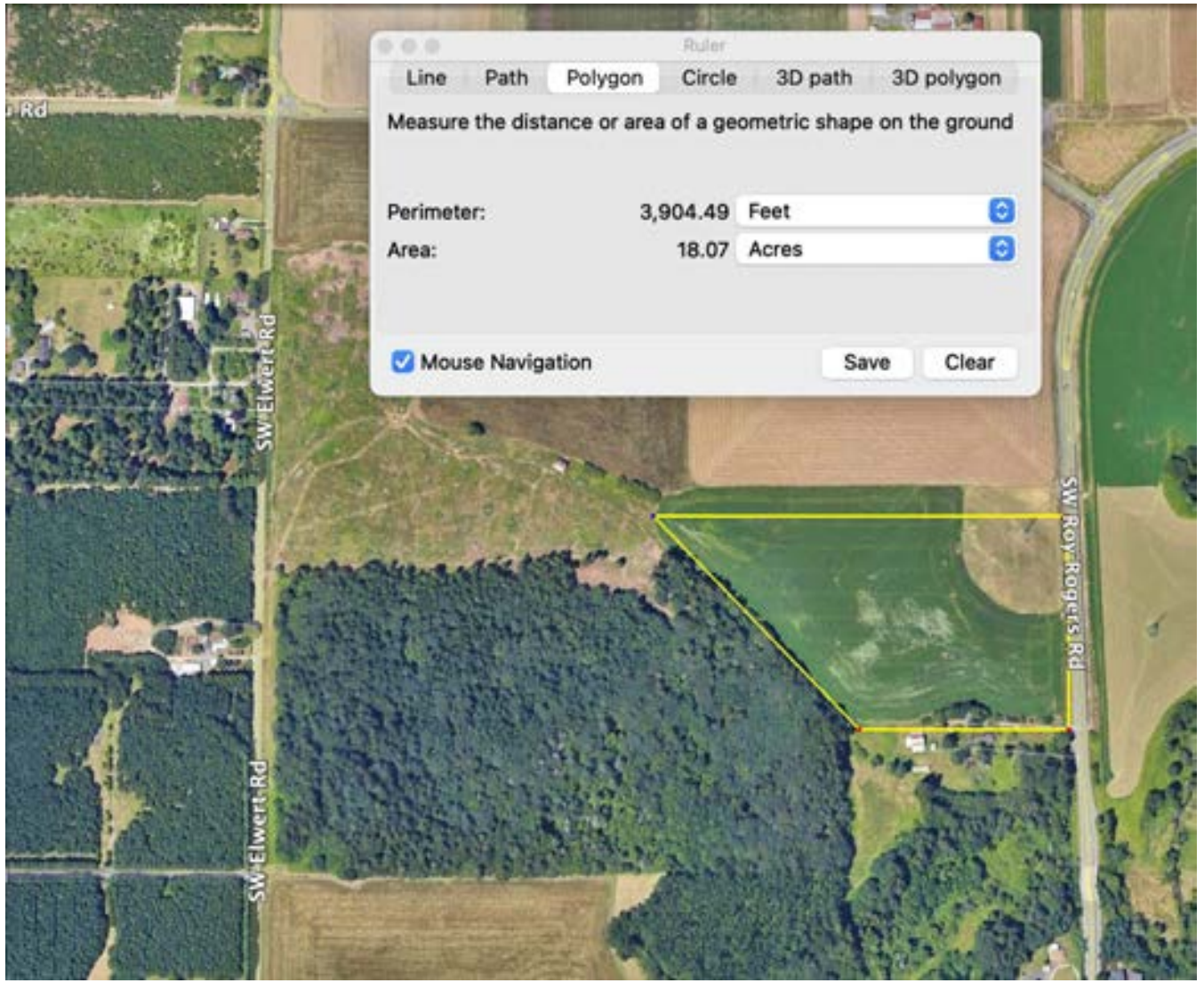


Overlay showing Figure 13 site A5 layout with acreage southwest of BPA corridor:
Note the mapped BPA transmission corridor slightly out of alignment with actual corridor.



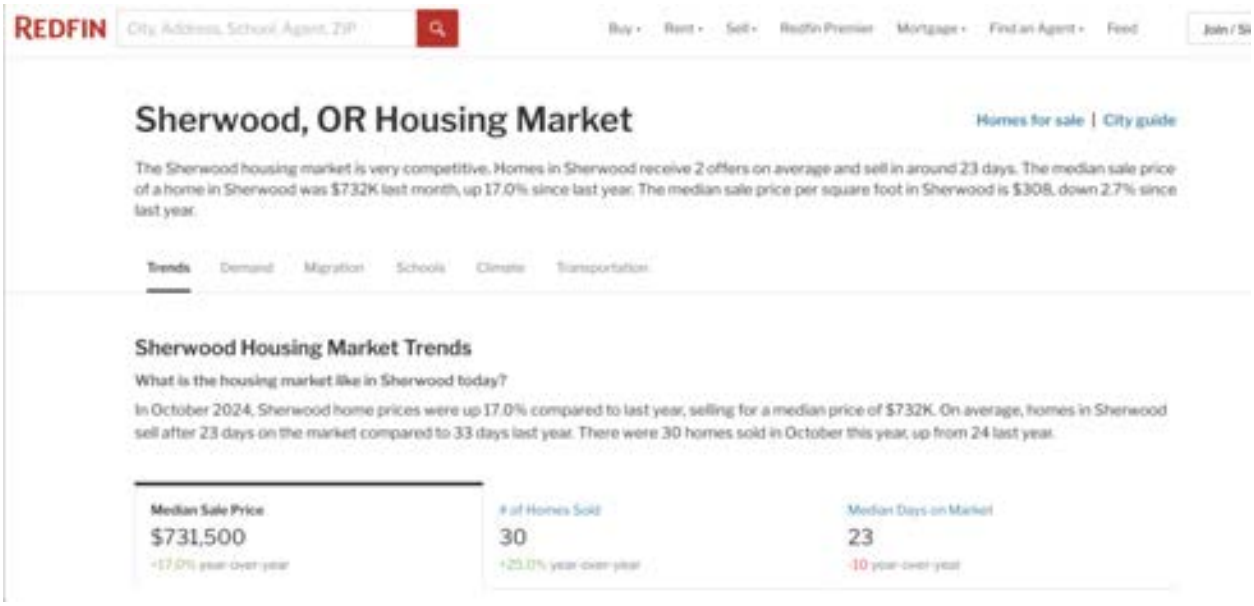

SW Lebeau Rd
SW SCHOLLS-SHERWOOD RD
SW Scholls-Sherwood Rd
SITE A1
15.4 AC
0 AC TITLE 13 AREA
NEW ROAD
SITE A5
75.6 AC
9.1 AC TITLE 13 AREA
BPA TRANSMISSION CORRIDOR
SITE A2
18.8 AC
7.1 AC TITLE 13 AREA
SW Elwert Rd
NEW COLLECTOR ROAD
SW Roy Rogers Rd
SW ROY ROGERS RD
SITE A3
36.6 AC
7.8 AC TITLE 13 AREA
SW ELWERT RD
SITE A6
64.7 AC
46.6 AC TITLE 13 AREA
SW CONZELMANN RD
Conzelmann Rd
SW Elwert Rd
SITE A7
4.0 AC
0 AC TITLE 13 AREA
NEW ROAD
SITE A4
CHICKEN CREEK

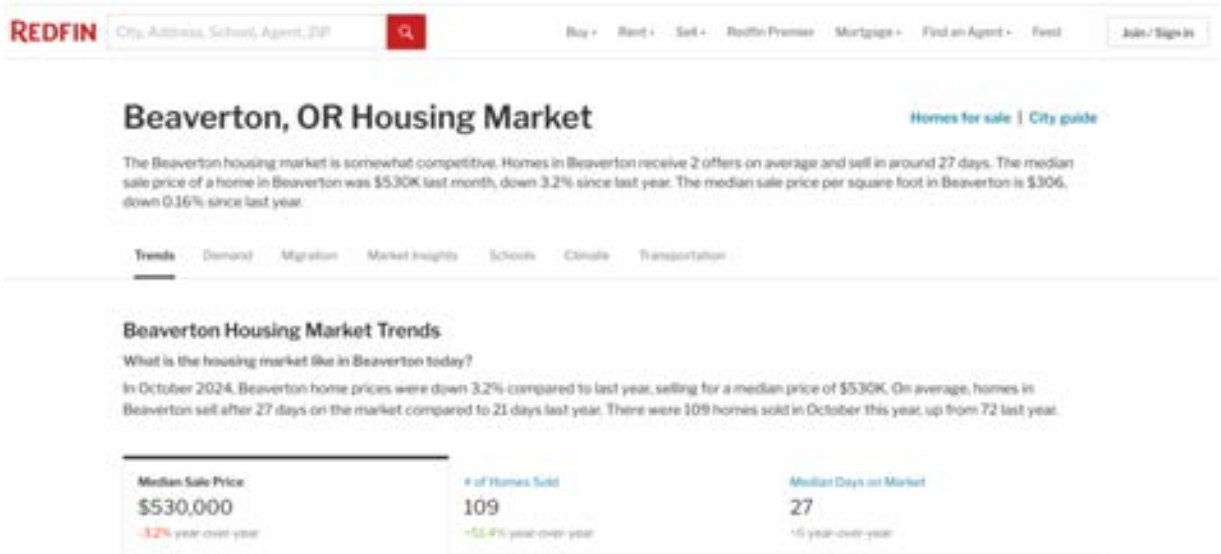
Site A6 with Google Earth estimate of acreage outside Title 13 Habitat
Acreage of 18.07 acres is consistent with 18.1 acres derived from Figure 13.

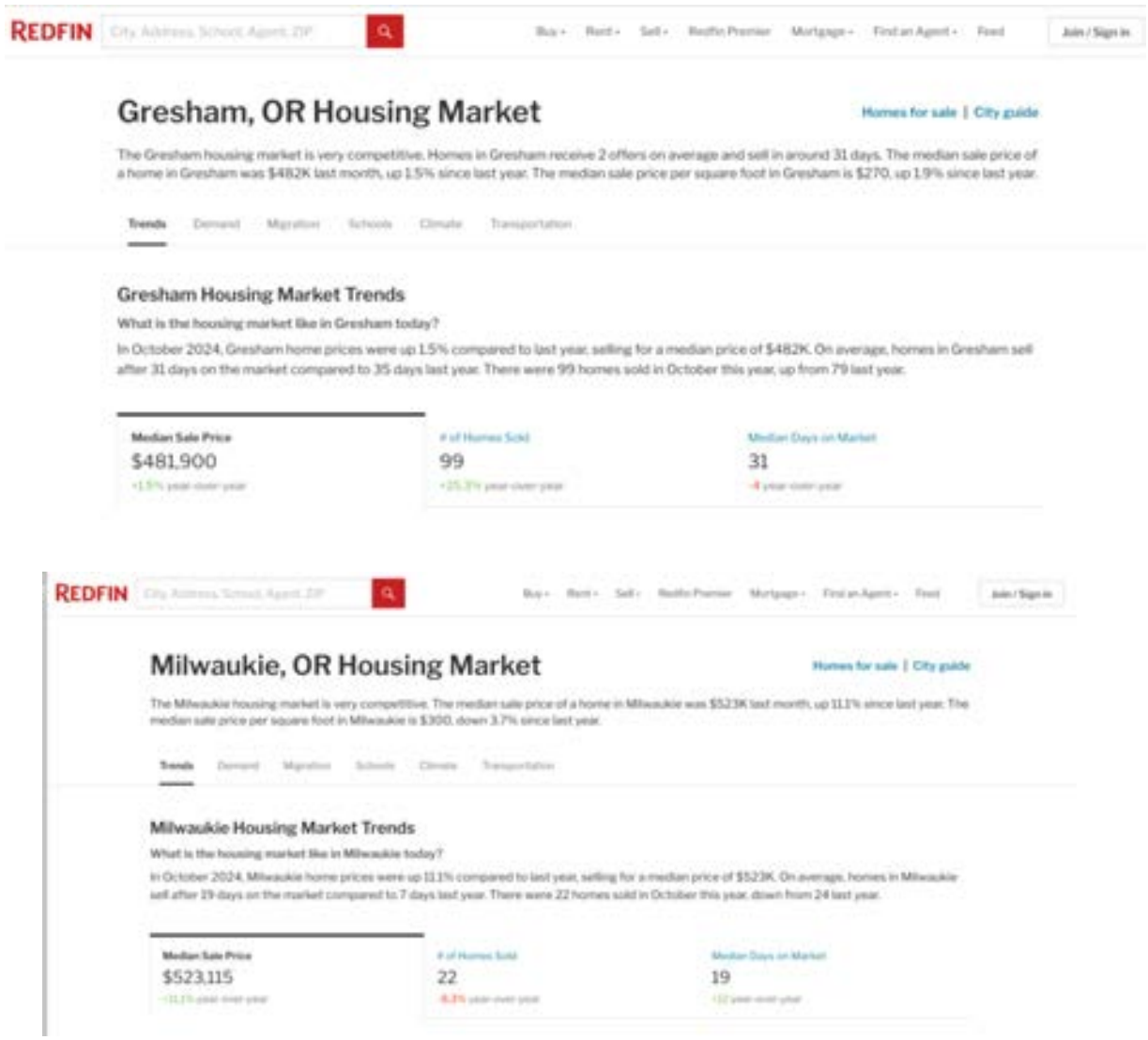


Information on Average Home Prices in Portland Metro Area
Submitted by West of Sherwood Farm Alliance

Redfin Home Price Information accessed November 14, 2024



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Gresham, OR Housing Market
Homes for sale | City guide
The Gresham housing market is very competitive. Homes in Gresham receive 2 offers on average and sell in around 31 days. The median sale price of a home in Gresham was $482K last month, up 1.5% since last year. The median sale price per square foot in Gresham is $270, up 1.9% since last year.
Trends
Demand
Migration
Schools
Climate
Transportation
Gresham Housing Market Trends
What is the housing market like in Gresham today?
In October 2024, Gresham home prices were up 1.5% compared to last year, selling for a median price of $482K. On average, homes in Gresham sell after 31 days on the market compared to 35 days last year. There were 99 homes sold in October this year, up from 79 last year.
Median Sale Price
$481,900
# of Homes Sold
99
Median Days on Market
31

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Milwaukie, OR Housing Market
Homes for sale | City guide
The Milwaukie housing market is very competitive. The median sale price of a home in Milwaukie was $523K last month, up 11.1% since last year. The median sale price per square foot in Milwaukie is $300, down 3.7% since last year.
Trends
Demand
Migration
Schools
Climate
Transportation
Milwaukie Housing Market Trends
What is the housing market like in Milwaukie today?
In October 2024, Milwaukie home prices were up 11.1% compared to last year, selling for a median price of $523K. On average, homes in Milwaukie sell after 19 days on the market compared to 7 days last year. There were 22 homes sold in October this year, down from 24 last year.
Median Sale Price
$523,115
# of Homes Sold
22
Median Days on Market
19

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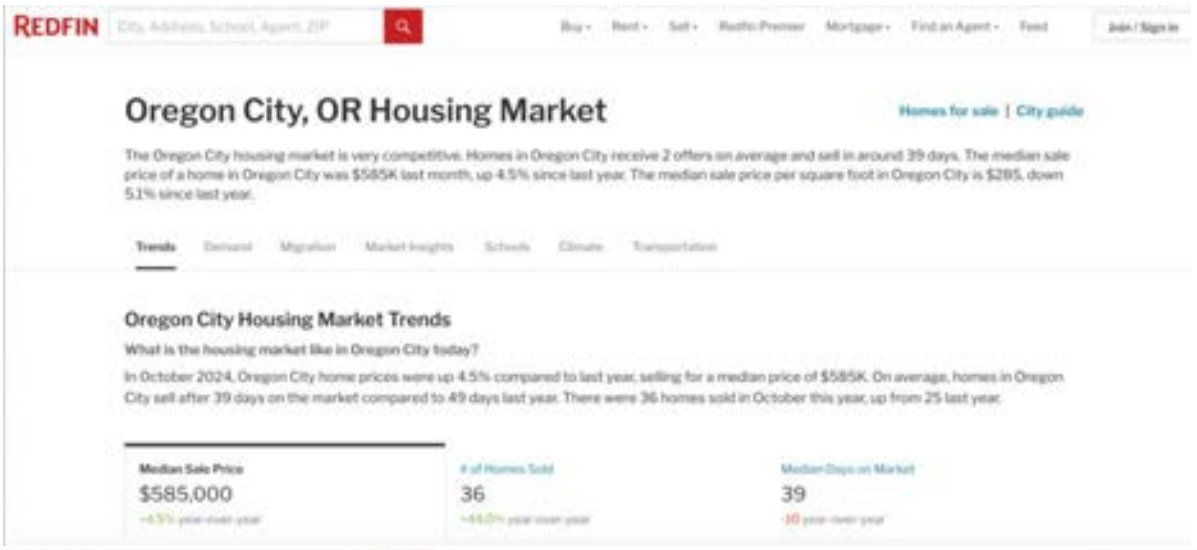
Hillsboro, OR Housing Market
Homes for sale | City guide
The Hillsboro housing market is very competitive. Homes in Hillsboro receive 2 offers on average and sell in around 28 days. The median sale price of a home in Hillsboro was $523K last month, up 1.6% since last year. The median sale price per square foot in Hillsboro is $306, down 5.1% since last year.
Trends
Demand
Migration
Schools
Climate
Transportation
Hillsboro Housing Market Trends
What is the housing market like in Hillsboro today?
In October 2024, Hillsboro home prices were up 1.6% compared to last year, selling for a median price of $523K. On average, homes in Hillsboro sell after 28 days on the market compared to 16 days last year. There were 108 homes sold in October this year, up from 89 last year.
Median Sale Price
$523,480
# of Homes Sold
108
Median Days on Market
28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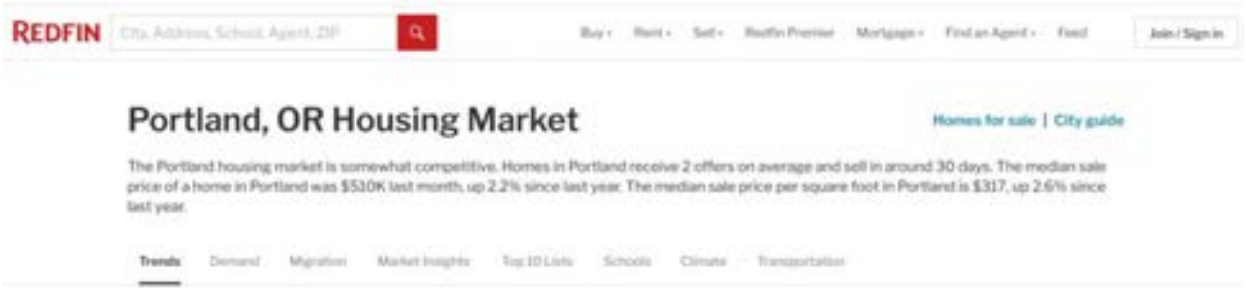
Oregon City, OR Housing Market
Homes for sale | City guide
The Oregon City housing market is very competitive. Homes in Oregon City receive 2 offers on average and sell in around 39 days. The median sale price of a home in Oregon City was $585K last month, up 4.5% since last year. The median sale price per square foot in Oregon City is $285, down 5.1% since last year.
Trends
Demand
Migration
Market Insights
Schools
Climate
Transportation
Oregon City Housing Market Trends
What is the housing market like in Oregon City today?
In October 2024, Oregon City home prices were up 4.5% compared to last year, selling for a median price of $585K. On average, homes in Oregon City sell after 39 days on the market compared to 49 days last year. There were 36 homes sold in October this year, up from 25 last year.
Median Sale Price
$585,000
+4.5% year-over-year
# of Homes Sold
36
+44.0% year-over-year
Median Days on Market
39
-10 year-over-year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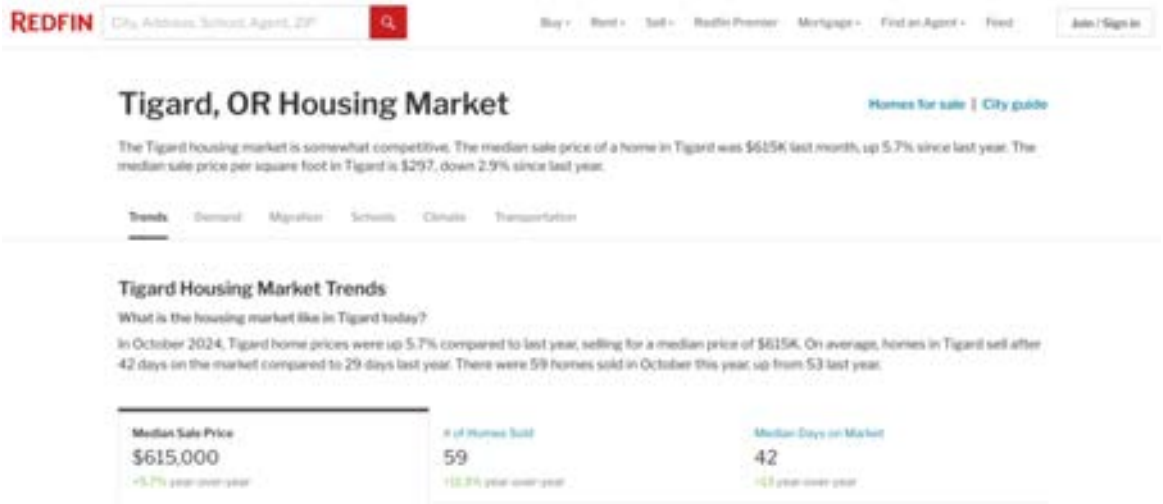
Portland, OR Housing Market
Homes for sale | City guide
The Portland housing market is somewhat competitive. Homes in Portland receive 2 offers on average and sell in around 30 days. The median sale price of a home in Portland was $510K last month, up 2.2% since last year. The median sale price per square foot in Portland is $317, up 2.6% since last year.
Trends
Demand
Migration
Market Insights
Top 10 Lists
Schools
Climate
Transportation
Portland Housing Market Trends
What is the housing market like in Portland today?
In October 2024, Portland home prices were up 2.2% compared to last year, selling for a median price of $510K. On average, homes in Portland sell after 30 days on the market compared to 20 days last year. There were 683 homes sold in October this year, up from 585 last year.
Median Sale Price
$509,900
+2.2% year-over-year
# of Homes Sold
683
+16.8% year-over-year
Median Days on Market
30
+10 year-over-year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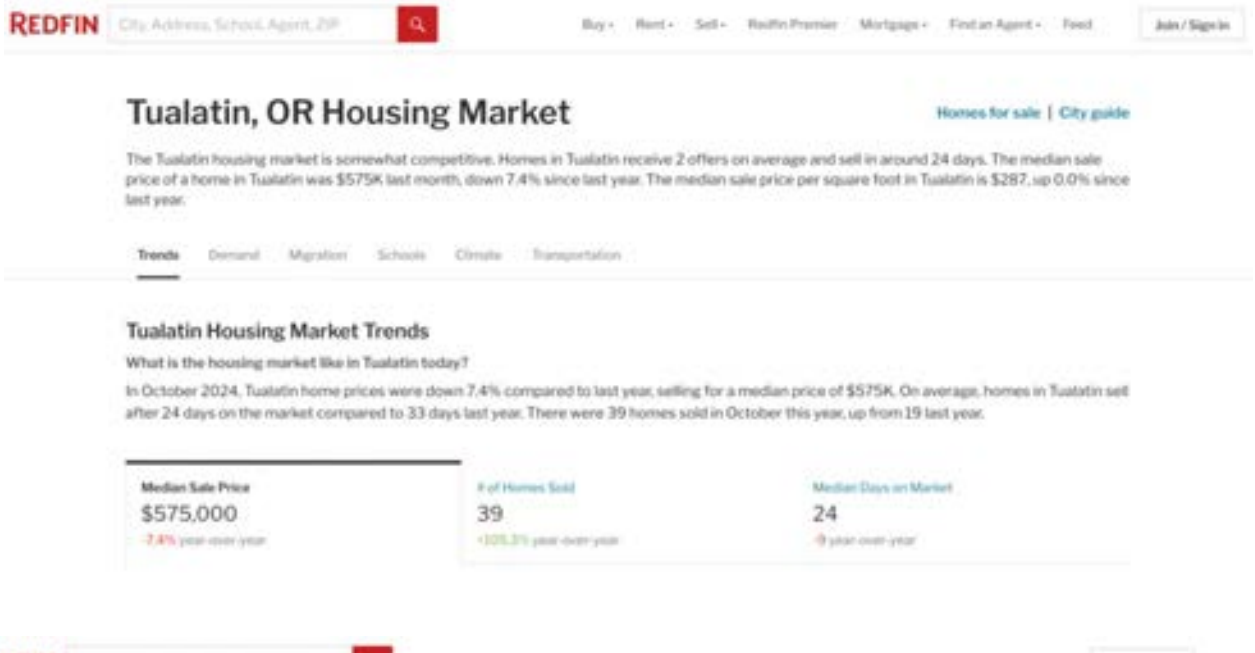
Tigard, OR Housing Market
Homes for sale | City guide
The Tigard housing market is somewhat competitive. The median sale price of a home in Tigard was $615K last month, up 5.7% since last year. The median sale price per square foot in Tigard is $297, down 2.9% since last year.
Trends
Demand
Migration
Schools
Climate
Transportation
Tigard Housing Market Trends
What is the housing market like in Tigard today?
In October 2024, Tigard home prices were up 5.7% compared to last year, selling for a median price of $615K. On average, homes in Tigard sell after 42 days on the market compared to 29 days last year. There were 59 homes sold in October this year, up from 53 last year.
Median Sale Price
$615,000
+5.7% year-over-year
# of Homes Sold
59
+11.3% year-over-year
Median Days on Market
42
+13 year-over-year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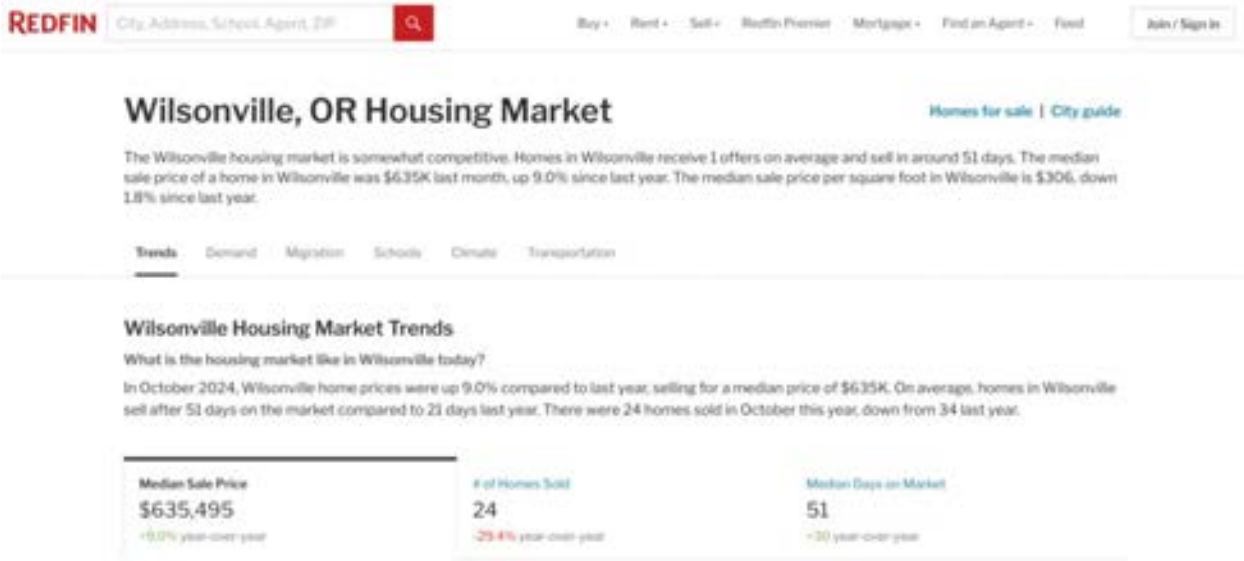
Tualatin, OR Housing Market
Homes for sale | City guide
The Tualatin housing market is somewhat competitive. Homes in Tualatin receive 2 offers on average and sell in around 24 days. The median sale price of a home in Tualatin was $575K last month, down 7.4% since last year. The median sale price per square foot in Tualatin is $287, up 0.0% since last year.
Trends
Demand
Migration
Schools
Climate
Transportation
Tualatin Housing Market Trends
What is the housing market like in Tualatin today?
In October 2024, Tualatin home prices were down 7.4% compared to last year, selling for a median price of $575K. On average, homes in Tualatin sell after 24 days on the market compared to 33 days last year. There were 39 homes sold in October this year, up from 19 last year.
Median Sale Price
$575,000
-7.4% year-over-year
# of Homes Sold
39
+105.3% year-over-year
Median Days on Market
24
-9 year-over-year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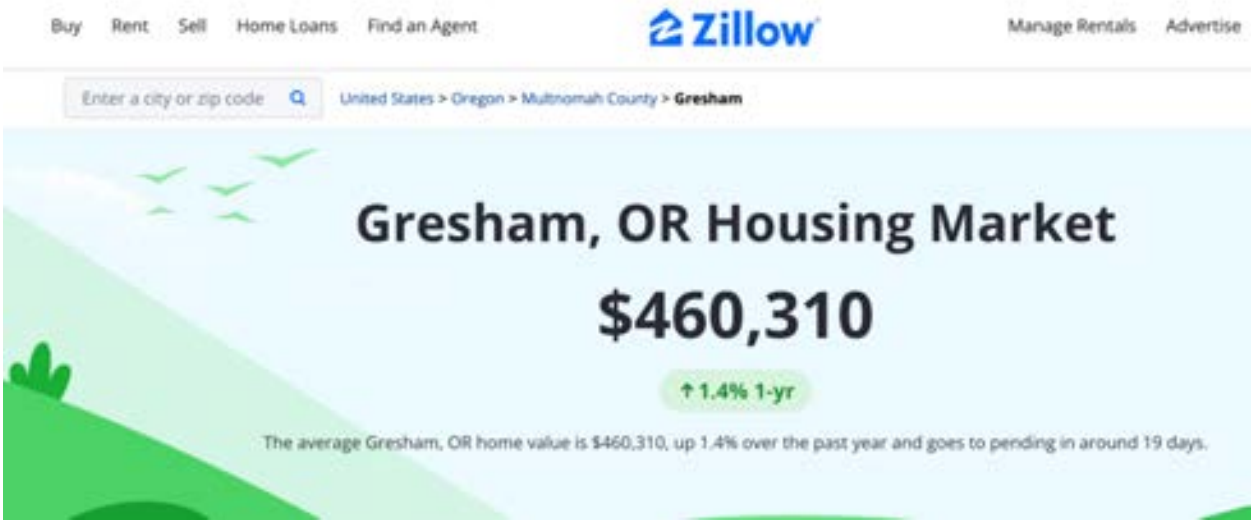
Wilsonville, OR Housing Market
Homes for sale | City guide
The Wilsonville housing market is somewhat competitive. Homes in Wilsonville receive 1 offers on average and sell in around 51 days. The median sale price of a home in Wilsonville was $635K last month, up 9.0% since last year. The median sale price per square foot in Wilsonville is $306, down 1.8% since last year.
Trends
Demand
Migration
Schools
Climate
Transportation
Wilsonville Housing Market Trends
What is the housing market like in Wilsonville today?
In October 2024, Wilsonville home prices were up 9.0% compared to last year, selling for a median price of $635K. On average, homes in Wilsonville sell after 51 days on the market compared to 21 days last year. There were 24 homes sold in October this year, down from 34 last year.
Median Sale Price
$635,495
+9.0% year-over-year
# of Homes Sold
24
-29.4% year-over-year
Median Days on Market
51
+30 year-over-year

Zillow Home Price Information accessed November 14, 2024



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Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Washington County > Hillsboro
Hillsboro, OR Housing Market
$532,909
↑ 0.8% 1-yr
The average Hillsboro, OR home value is $532,909, up 0.8% over the past year and goes to pending in around 21 days.

Buy Rent Sell Home Loans Find an Agent
Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Clackamas County > Milwaukie
Milwaukie, OR Housing Market
$506,086
↑ 0.6% 1-yr
The average Milwaukie, OR home value is $506,086, up 0.6% over the past year and goes to pending in around 13 days.

Buy Rent Sell Home Loans Find an Agent
Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Clackamas County > Oregon City
Oregon City, OR Housing Market
$599,441
↑ 2.0% 1-yr
The average Oregon City, OR home value is $599,441, up 2.0% over the past year and goes to pending in around 25 days.

Buy Rent Sell Home Loans Find an Agent
Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Multnomah County > Portland
Portland, OR Housing Market
$524,402
↓0.0% 1-yr
The average Portland, OR home value is $524,402, down 0.0% over the past year and goes to pending in around 20 days.

Buy Rent Sell Home Loans Find an Agent
Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Washington County > Tigard
Tigard, OR Housing Market
$610,989
↑0.6% 1-yr
The average Tigard, OR home value is $610,989, up 0.6% over the past year and goes to pending in around 25 days.

Buy Rent Sell Home Loans Find an Agent
Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Washington County > Tualatin
Tualatin, OR Housing Market
$639,154
↓0.3% 1-yr
The average Tualatin, OR home value is $639,154, down 0.3% over the past year.

Buy Rent Sell Home Loans Find an Agent
Zillow
Manage Rentals Advertise
Enter a city or zip code
United States > Oregon > Clackamas County > Wilsonville
Wilsonville, OR Housing Market
$637,718
↓0.1% 1-yr
The average Wilsonville, OR home value is $637,718, down 0.1% over the past year and goes to pending in around 33 days.

What difference does the balance of jobs to housing have on commute time?					Comments
	From 2020 Metro #			From US Census	
	Households	Jobs	Jobs/HH	Commute Time	
Clack, Mult, Wa. Counties	732,937	1,026,032	1.40		
Beaverton	39,895	63,500	1.59	24.9	Has close to regional jobs/household average. Commutes 48 seconds less than Sherwood
Gresham	41,195	40,562	0.98	28.6	Gresham has almost the same jobs/household ratio as Sherwood and 2.9 minute longer commuter
Hillsboro	42,338	84,623	2.00	23.1	
Happy Valley	6,893	7,823	1.13	28.0	
Lake Oswego	17,257	21,525	1.25	23.2	Commute is only six seconds longer than Hillsboro which has many more jobs/household
Oregon City	13,557	17,112	1.26	26.4	Better ratio of jobs to households than Sherwood and has a slightly longer commute time.
Portland	280,708	480,904	1.71	25.5	
Sherwood	6,567	6,646	1.01	25.7	Almost identical to Portland which many more jobs per household
Tigard	21,617	45,109	2.09	23.5	
Tualatin	10,995	34,115	3.10	22.9	
West Linn	9,955	4,982	0.50	27.3	West Linn has less one quarter as many jobs/household as Wilsonville and commute is 1 minute, 4%, lo
Wilsonville	9,778	20,539	2.10	26.3	Wilsonville has many more jobs/household than Lake Owego but a 3 minute longer commute

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BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING THE DISTRIBUTION OF THE POPULATION AND EMPLOYMENT GROWTH TO YEAR 2045 TO LOCAL GOVERNMENTS IN THE REGION CONSISTENT WITH THE FORECAST ADOPTED BY ORDINANCE NO. 18-1427 IN FULFILLMENT OF METRO'S POPULATION COORDINATION RESPONSIBILITY UNDER ORS 195.036	)	ORDINANCE NO. 21-1457 Introduced by Chief Operating Officer Marissa Madrigal in concurrence with Council President Lynn Peterson

WHEREAS, ORS 195.025 designates Metro as the local government responsible for coordination of planning activities within the Metro district; and

WHEREAS, ORS 195.036 requires Metro, in coordination with other local governments within its boundary, to issue a population forecast for the entire area within its boundary to be applied by Metro and local governments within the boundary of Metro as a basis for changes to comprehensive plans and land use regulations; and

WHEREAS, on December 13, 2018 the Metro Council adopted a population and employment forecast for the region by Ordinance No. 18-1427 (“For the Purpose of Expanding the Urban Growth Boundary to Provide Capacity for Housing to the Year 2038 and Amending the Metro Code to Conform"); and

WHEREAS, Metro planning staff have begun work on a required update to the Regional Transportation Plan, which is scheduled for adoption in 2023 and will need to rely on the most current data regarding the distribution of the forecasted population and employment growth for the region; and

WHEREAS, Metro began the process of distribution of the forecasted population and employment in November 2019 by coordinating with the 24 cities and three counties within the Metro district regarding the proposed distribution, including a series of meetings and a review and comment period designed to improve the accuracy of the distributions; and

WHEREAS, Metro staff made presentations to its advisory committees (MTAC and TPAC) regarding the distribution and coordination with local governments; and

WHEREAS, Metro incorporated comments and suggestions from the cities and counties to refine the distribution; and

WHEREAS, the forecast distributions shown on the attached Exhibit A are expressed in terms of population, households, and employment; now, therefore,

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THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The distribution made to local governments, described in Exhibit A to this Ordinance and in the Staff Report dated January 29, 2021, of the regional population and employment forecast adopted by the Council in Ordinance No. 18-1427, is accepted and adopted as fulfillment of Metro's responsibilities regarding coordination of population forecasts under ORS 195.025 and 195.036 and is endorsed for use by the 24 cities and three counties as their own population and employment forecasts for their planning activities.

2. The Metro Chief Operating Officer shall make the distribution of population and employment available to each city and county in the district.

ADOPTED by the Metro Council this 25th day of February 2021.

Lynn Peterson, Council President

Attest:

Jaye Cromwell, Recording Secretary

Approved as to Form:

Carrie MacLaren, Metro Attorney

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Exhibit A to Ordinance No. 21-1457
2045 Distributed Forecast of Population, Households, and Employment

	Population Forecast (adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	1,959	2,022	2,021
Barlow	137	130	119
Beaverton	99,490	114,525	119,156
Canby	17,161	19,582	19,681
Cornelius	12,534	14,606	17,322
Durham	1,878	1,859	1,793
Estacada	4,091	5,227	5,267
Fairview	9,024	9,538	9,797
Forest Grove	26,370	30,702	33,592
Gladstone	11,960	12,071	12,021
Gresham	113,409	119,476	122,154
Happy Valley	22,556	41,314	57,362
Hillsboro	105,153	122,598	128,270
Johnson City	572	589	848
King City	4,718	6,961	8,985
Lake Oswego	40,035	41,947	42,133
Maywood Park	764	730	724
Milwaukie	20,594	22,859	23,268
Molalla	10,088	14,035	14,160
North Plains	3,480	5,194	5,860
Oregon City	36,457	42,665	49,009
Portland	668,429	708,370	774,219
RiverGrove	509	483	449
Sandy	11,127	17,621	18,451
Sherwood	19,747	20,118	20,662
Tigard	54,591	63,813	71,611
Troutdale	16,292	17,385	17,795
Tualatin	27,278	27,598	27,565
West Linn	26,060	26,579	26,990
Wilsonville	25,945	29,756	30,566
Wood Village	4,213	4,814	5,306
Unincorporated Clackamas County	201,322	219,034	293,341
Unincorporated Multnomah County	19,328	22,264	40,490
Unincorporated Washington County	264,884	308,416	372,475

	2020	2030	2045
Clackamas County, total	428,614	493,892	593,665
Multnomah County, total	831,459	882,577	970,485
Washington County, total	622,082	718,412	809,312
	1,882,155	2,094,881	2,373,462

* 2020 city limits

Note: All forecast figures prepared pre-COVID.

Note: All forecast figures prepared pre-Census 2020 vintage population program release>

Note: 2020 is a forecast year estimate.

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	Household Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	580	619	622
Barlow	40	40	40
Beaverton	39,895	47,544	51,262
Canby	6,564	7,833	8,312
Cornelius	3,773	4,552	5,594
Durham	686	703	703
Estacada	1,513	2,022	2,246
Fairview	3,654	4,039	4,388
Forest Grove	9,058	10,918	12,380
Gladstone	4,568	4,727	4,777
Gresham	41,195	45,384	49,067
Happy Valley	6,893	13,203	20,210
Hillsboro	42,338	51,103	55,409
Johnson City	285	307	486
King City	2,442	3,730	4,990
Lake Oswego	17,257	18,909	19,486
Maywood Park	356	356	355
Milwaukie	9,141	10,611	11,328
Molalla	3,363	4,893	5,443
North Plains	1,031	1,593	1,862
Oregon City	13,557	16,591	21,010
Portland	280,708	311,084	359,541
RiverGrove	185	184	188
Sandy	4,026	6,667	7,696
Sherwood	6,567	6,926	7,372
Tigard	21,617	26,160	30,423
Troutdale	5,880	6,561	6,829
Tualatin	10,955	11,474	11,626
West Linn	9,955	10,617	11,886
Wilsonville	9,778	11,727	13,281
Wood Village	1,223	1,461	1,703
Unincorporated Clackamas County	75,024	85,357	126,027
Unincorporated Multnomah County	5,588	6,731	12,944
Unincorporated Washington County	93,243	112,396	140,670
	2020	2030	2045
Clackamas County, total	162,149	193,685	252,417
Multnomah County, total	338,604	375,616	434,827
Washington County, total	232,184	277,718	322,914
	732,937	847,019	1,010,158
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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	Employment Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	579	636	670
Barlow	628	580	602
Beaverton	63,500	65,005	72,693
Canby	3,863	3,913	4,312
Cornelius	2,873	3,086	3,895
Durham	1,683	1,718	1,842
Estacada	1,250	1,354	1,454
Fairview	3,048	3,633	5,355
Forest Grove	7,120	6,964	7,299
Gladstone	2,911	3,159	3,926
Gresham	40,562	47,161	55,902
Happy Valley	7,823	9,105	12,367
Hillsboro	84,623	92,918	102,430
Johnson City	317	314	340
King City	708	879	1,108
Lake Oswego	21,525	21,441	23,825
Maywood Park	222	235	251
Milwaukie	13,273	13,742	15,221
Molalla	3,883	3,944	4,020
North Plains	794	860	897
Oregon City	17,122	18,675	21,749
Portland	480,904	502,913	565,382
RiverGrove	135	133	141
Sandy	3,193	3,297	3,675
Sherwood	6,646	7,051	8,013
Tigard	45,109	46,005	52,368
Troutdale	7,448	8,291	10,321
Tualatin	34,115	34,615	36,792
West Linn	4,982	5,365	6,135
Wilsonville	20,539	21,323	24,010
Wood Village	2,594	3,197	3,798
Unincorporated Clackamas County	72,446	75,446	90,565
Unincorporated Multnomah County	3,849	5,416	10,081
Unincorporated Washington County	65,763	79,192	103,707
	2020	2030	2045
Clackamas County, total	173,891	181,792	212,341
Multnomah County, total	538,628	570,846	651,090
Washington County, total	313,513	338,930	391,712
	1,026,032	1,091,568	1,255,143
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 21-1457, FOR THE PURPOSE OF ADOPTING THE DISTRIBUTION OF THE POPULATION AND EMPLOYMENT GROWTH TO YEAR 2045 TO LOCAL GOVERNMENTS IN THE REGION CONSISTENT WITH THE FORECAST ADOPTED BY ORDINANCE NO. 18-1427 IN FULFILLMENT OF METRO'S POPULATION COORDINATION RESPONSIBILITY UNDER ORS 195.036.

Date: February 1, 2021
Department: Planning & Development

Prepared by: Chris Johnson, Ted Reid
Presenters: Chris Johnson, Roger Alfred
Ted Reid

BACKGROUND

Federal and state laws (23 U.S. Code 134 and ORS 197.040, respectively) require Metro to prepare and update a transportation plan for its metropolitan planning area every 5 years. In accordance with these laws, an update of the Regional Transportation Plan (RTP) is scheduled to begin in late 2021 with an intended adoption date of December 2023. This 2023 RTP will need to rely on a Transportation Analysis Zone[1] (TAZ) Distributed Forecast of future population and employment.

The 2045 Distributed Forecast under consideration is intended to replace and extend the 2040 Distributed Forecast, which was adopted by Metro in fall 2016. The 2045 Distributed Forecast is aligned with the Regional Forecast (seven-county area) developed to inform Metro's most recent urban growth management decision, which the Metro Council adopted in December 2018. This ensures that the 2023 RTP will be based on the best available information and that the region's land use and transportation plans are consistent.

Oregon land use laws (195.025; ORS 195.036) require Metro to coordinate its regional population and employment forecasts with local governments inside the urban growth boundary for use in updating their comprehensive plans, land use regulations and other related policies. In accordance with this law, Metro coordinated with the local jurisdictions to conduct this Distributed Forecast update for use in the 2023 RTP.

<u>The Growth Forecast Distribution Update Process</u>

This update was able to build on the lengthy review process conducted in support of preparing the 2018 Urban Growth Report. During that process, Metro conducted extensive technical engagement with its regional partners to establish the methodology used to identify the region's buildable land inventory (BLI). With the 2018 Urban Growth Report already in place, Metro was able to focus regional

[1] The TAZ is the geographic unit that serves as the building block of Metro's primary forecasting tools (the travel demand model and MetroScope). The region is divided into 2,162 TAZs. These small subdivisions improve the accuracy of the travel demand model as well as all other aspects of transportation planning. The TAZ-level data also assists land use planners in updating comprehensive plans and zoning, and conducting other types of land use analysis, including neighborhood level analysis.

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coordination efforts on revisions to smaller-geography population and employment forecasts based on local knowledge.

Regional coordination of the updated forecast distribution included two main stages of local review.

The first stage involved Metro and local government staff working together to confirm the core inputs to the MetroScope land use allocation model. These inputs include the base year numbers for population and employment as well as the BLI that was completed as part of the 2018 urban growth boundary decision. Local government staff reviewed these inputs and made revisions based on recent zoning changes, new developments or investments within their respective jurisdictions. This review period extended from May 2017 to May 2018.

Metro staff completed modeling using the results from the first stage of local review and prepared a draft distribution of households and jobs into the region's 2,162 TAZs. To view a TAZ map, refer to Exhibit A. The local jurisdictions were then given approximately five months (February 2020 thru June 2020) to examine the TAZ-level results. Jurisdictions wishing to adjust the growth by TAZ (increase or decrease) assigned by the model worked with Metro to re-allocate that growth in a manner consistent with accepted regional figures previously adopted by the Metro Council.

Metro worked closely with a designated county lead from each county throughout a second stage of review to ensure that all participating cities understood their roles and were able to complete their reviews by the deadline. Additional meetings were held with individual county leads to review results. With assistance from the county leads, Metro was able to either accommodate each jurisdiction's proposed changes or negotiate a satisfactory revision where the full change could not be implemented. The timeline for local reviewer engagement and ground rules are described in Attachment 1.

In accordance with state law (ORD 195.036), Metro summarized the TAZ distribution (which is used in transportation modeling) into a jurisdiction-level distribution that is more understandable for local planning activities. The resulting product is the 2045 Distributed Forecast of population, households and employment to cities and counties in the Portland region and is included as Exhibit B.

Regional Planning Directors Involvement

Metro coordinated with regional planning directors throughout the Distributed Forecast update through the local review process. The names of the regional planning directors, designated county leads, and other local reviewer who participated in this process are listed in Attachment 2.

The process began with a series of kickoff meetings held in January 2020, convening the planning directors (or designated planning leads) from Clackamas, Multnomah, and Washington Counties. Each kickoff meeting reviewed the purpose, timeline, and instructions for the local review process. The county leads served as liaisons between Metro and the cities within their respective jurisdictions, providing technical guidance to local staff throughout the process and helped to coordinate the timely return of feedback. County leads also conducted reviews on behalf of several smaller cities with limited planning staff capacity.

Metro staff communicated with county leads and jurisdiction staff primarily via e-mail throughout the local review process. Metro also met with county leads and cities as needed to coordinate reviews and provide guidance during the review period.

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Metro Advisory Committee Involvement

The Metro Technical Advisory Committee (MTAC) served as the primary advisory committee for the 2045 Distributed Forecast. A project kickoff presentation was given before MTAC in November 2019 to review the purpose, timeline, and ground rules for the local review process. Subsequent project status reports were provided to both MTAC and the Transportation Policy Alternatives Committee (TPAC) to keep both committee informed as to project progress. The final project status presentation was given to MTAC in November 2020.

ANALYSIS/INFORMATION

1. Known Opposition

There is no known opposition to the 2045 Distributed Forecast. Metro staff was able to either incorporate local jurisdictions' suggested revisions in the baseline assumptions and distributions or come to agreement on modifications to those assumptions and distributions.

2. Legal Antecedents

Consultation conducted to prepare the 2045 Distributed Forecast satisfies Metro's coordination obligations under ORS 195.025 and 195.036. As requested by DLCD, staff proposes that the Metro Council adopt the 2045 Distributed Forecast by an ordinance that will be acknowledged by DLCD as part of Metro's planning documents in order to support future planning decisions by local governments that rely upon the population forecasts. State law requires cities and counties to adopt coordinated forecasts as part of their comprehensive plans.

3. Anticipated Effects

Adoption of the updated distribution of population and employment forecast will inform the 2023 RTP and ensure that the plan is based on the most recent data available. This localized data will also encourage local governments to use the distribution information to conform their land use and transportation plans to regional policies adopted by the Metro Council. Delay of the adoption could also delay the development of the 2023 RTP and may delay some local government activities that would be accomplished with the updated 2045 Distributed Forecast information. Also note that a new Regional Forecast and subsequent Distributed Forecast will be prepared for the Metro Council's consideration as part of its anticipated urban growth management decision in 2024.

4. Budget Impacts

The FY 2019-2020 and FY 2020-2021 budgets included resources for staff in the Research Center and the Planning and Development Department to work on this project.

RECOMMENDED ACTION

Staff recommends that the Metro Council accept and adopt the updated 2045 Distributed Forecast of population, households and employment which was completed in accordance with Metro's responsibilities on population coordination with local governments in the region to inform the 2023 RTP.

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ATTACHMENTS

1. Distributed Forecast Engagement Plan and Ground Rules
2. Local Reviewer Contact List

EXHIBITS

A. Transportation Analysis Zone (TAZ) Map
B. 2045 Distributed Forecast of Population, Households, and Employment

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Attachment 1
Distributed Forecast Engagement Plan and Ground Rules

Action	Timeframe
Notify MTAC, TPAC of 2019 distr. forecast schedule & stakeholder engagement plan	November 2019
Complete TAZ allocations – Metro staff	September – December 2019
Contact county leads – coordinate TAZ review with each	December 2019
Obtain stakeholder signatures for es-202 employment data	December 2019
Send out TAZ forecast and es-202 task reminders – finalize by end of month	January 2020
Kick-off meetings (by county) – provide forecast materials for review 1. Review UGM regional forecast drivers 2. Review 2019 distr. forecast specifications and assumptions 3. Execute es202 releases for all stakeholders with the State 4. Send out data to qualified stakeholders (excel)	January 2020
Provide any material assistance as requested by local stakeholders – stakeholders review TAZ forecast figures (jobs and households) 1. Review 2020 base year figures by jurisdiction 2. Review 2030 "mid-year" figures 3. Review 2045/50 forecast figures 4. Go over TAZ adjustment ground rules 5. Send in TAZ reviews to county leads	February – June 2020
Adjust TAZ's as needed	July – August 2020
Lock-down final TAZ forecast figures	September 2020
Forecast documentation, citation, and archive	September 2020

Although careful attention to inputs and forecasts (and MetroScope model statistics) have been exercised in preparing the distributed forecast, current conditions and future expectations may change in which we might not have been aware of during the development of the TAZ forecast. Thus we are asking stakeholders to help us refine the initial TAZ-level forecast with additional manual (if any) adjustments based on your local knowledge. In order to maintain the integrity of the forecast, we ask participants to follow these basic guidelines on making adjustments to the TAZ forecast.

Ground rules:

- Each jurisdiction has been assigned a set of TAZ's that approximate the current city limits and county jurisdiction (note: there may be rounding and estimation error / differences between city limits and TAZ boundaries that can't be avoided).
- Cities and counties are given TAZ allocations that add up to "control totals" for each jurisdiction.
    - The ultimate control total or cap is determined by Metro's regional forecast. (This is the total forecast amount for the region as a whole and adopted in the 2018 UGM decision)
    - Within the control totals for each jurisdiction, we advise jurisdictions to limit their manual adjustment (plus or minus) to each TAZ subject to recovering your control total.

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    - If your TAZ review identifies an excess (or shortfall) in your city control total, please contact your county lead to see if there is another city in your county that has a shortfall (or excess). Your county lead can assist in manually rebalancing the TAZ totals in the county.
    - If the county adjustments exceed (or has a shortfall) the given county control total, Metro in coordination with the effected cities and counties will affect a compromise to settle the manual TAZ adjustments.
- Cities and counties have latitude to make adjustments, but Metro asks that the manual adjustments are paired with explanations as to why the adjustments are necessary.

Your assistance in this review process is important and helps make this a better forecast product. Thank you for your involvement in this process.

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Attachment 2
Local Reviewer Contact List

Last Name	First Name	Jurisdiction	County
Seldon	Sarah	Fairview	Multnomah
Fry	Carolanne	Fairview	Multnomah
Kelly	Katherine	Gresham	Multnomah
Higgins	Jay	Gresham	Multnomah
Armstrong	Tom	Portland	Multnomah
Hagen	Chet	Multnomah County	Multnomah
Johnson	Carol	Multnomah County	Multnomah
Barber	Adam	Multnomah County	Multnomah
Berry	Jessica	Multnomah County	Multnomah
Cook*	Kevin	Multnomah County	Multnomah
Shackelford	Amber	Troutdale	Multnomah
Farrell	Arini	Troutdale	Multnomah
Straite	Matt	Wood Village	Multnomah
Becker	Jolynn	Banks	Washington
McQuillan	Kate	Beaverton	Washington
Wells	Ryan	Cornelius	Washington
Tate	Linda	Durham	Washington
Pohl	Bryan	Forest Grove	Washington
Riordan	Dan	Forest Grove	Washington
Eidt	Taylor	Hillsboro	Washington
Choi	Brad	Hillsboro	Washington
Liden	Keith	King City	Washington
Varner	Andy	North Plains	Washington
Palmer	Erika	Sherwood	Washington
Hajduk	Julia	Sherwood	Washington
McGuire	Tom	Tigard	Washington
Shanks	Susan	Tigard	Washington
Schulyler	Warren	Tigard	Washington
Purdy	Lloyd	Tigard	Washington
Koper	Steve	Tualatin	Washington
Pauly	Daniel	Wilsonville	Washington
Bateschell	Miranda	Wilsonville	Washington
Rybold	Kimberly	Wilsonville	Washington
Rencher*	Ken	Washington County	Washington
Walter	Michael	Happy Valley	Clackamas
Siegel	Scot	Lake Oswego	Clackamas
Farley	Will	Lake Oswego	Clackamas
Levitan	Daniel	Milwaukie	Clackamas
Heberling	Mary	Milwaukie	Clackamas

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Last Name	First Name	Jurisdiction	County
Kolias	Vera	Milwaukie	Clackamas
Fadenrecht	Christina	Milwaukie	Clackamas
Wicks	Alison	Milwaukie	Clackamas
Egner	Denny	Milwaukie	Clackamas
Aman	Leila	Milwaukie	Clackamas
Straite	Matt	Rivergrove	Clackamas
O'Neill	Kelly	Sandy	Clackamas
Meharg	Emily	Sandy	Clackamas
Denison	Shelley	Sandy	Clackamas
Wyss	Darren	West Linn	Clackamas
Fursdon	Megan	West Linn	Clackamas
Buehrig	Karen	Clackamas County	Clackamas
Fritzie	Martha	Clackamas County	Clackamas
Setterfield	Brett	Clackamas County	Clackamas
Williams*	Stephen	Clackamas County	Clackamas
Cross	Nicole	Clackamas County	Clackamas

*Designated County Lead

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Exhibit A
Transportation Analysis Zone (TAZ) Map

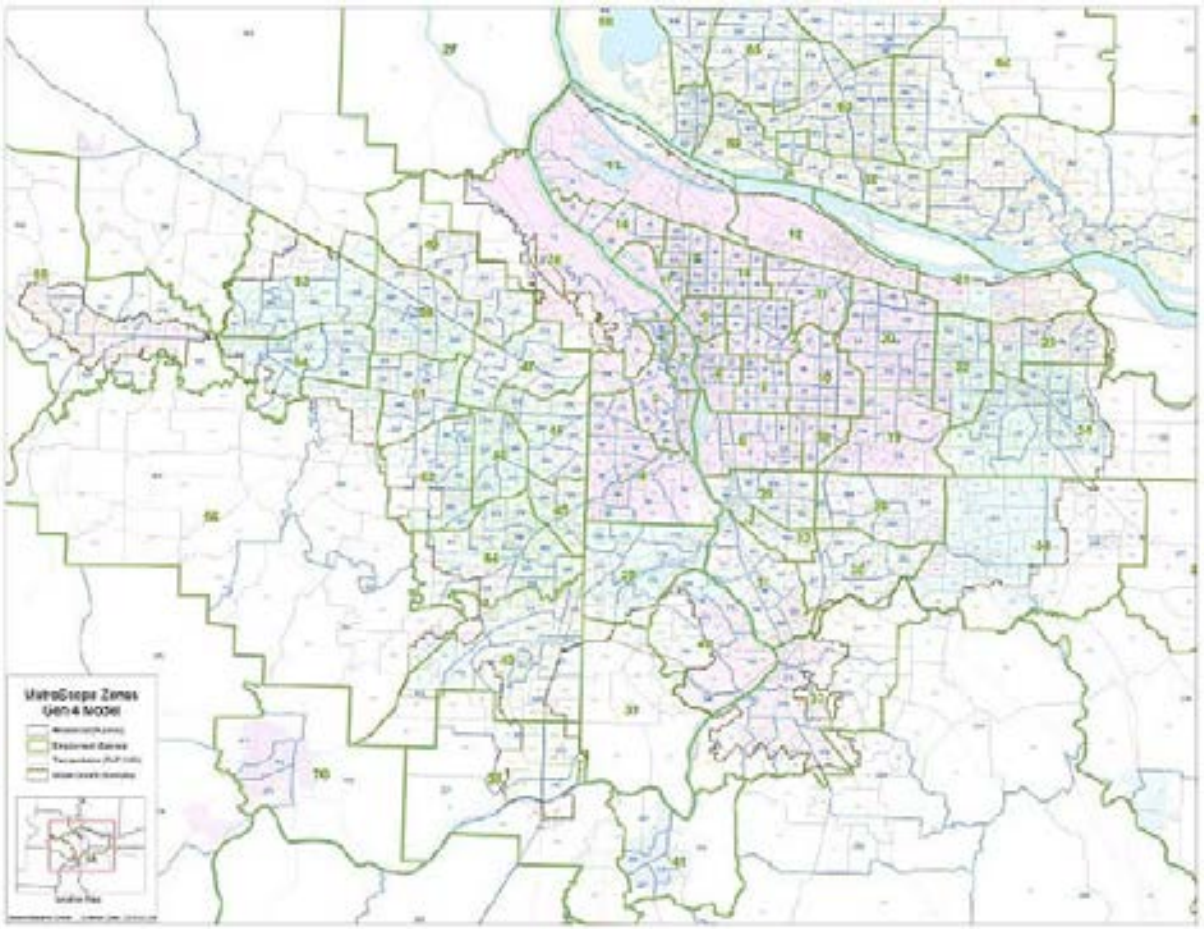

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Exhibit B

2045 Distributed Forecast of Population, Households, and Employment

	Population Forecast (adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	1,959	2,022	2,021
Barlow	137	130	119
Beaverton	99,490	114,525	119,156
Canby	17,161	19,582	19,681
Cornelius	12,534	14,606	17,322
Durham	1,878	1,859	1,793
Estacada	4,091	5,227	5,267
Fairview	9,024	9,538	9,797
Forest Grove	26,370	30,702	33,592
Gladstone	11,960	12,071	12,021
Gresham	113,409	119,476	122,154
Happy Valley	22,556	41,314	57,362
Hillsboro	105,153	122,598	128,270
Johnson City	572	589	848
King City	4,718	6,961	8,985
Lake Oswego	40,035	41,947	42,133
Maywood Park	764	730	724
Milwaukie	20,594	22,859	23,268
Molalla	10,088	14,035	14,160
North Plains	3,480	5,194	5,860
Oregon City	36,457	42,665	49,009
Portland	668,429	708,370	774,219
RiverGrove	509	483	449
Sandy	11,127	17,621	18,451
Sherwood	19,747	20,118	20,662
Tigard	54,591	63,813	71,611
Troutdale	16,292	17,385	17,795
Tualatin	27,278	27,598	27,565
West Linn	26,060	26,579	26,990
Wilsonville	25,945	29,756	30,566
Wood Village	4,213	4,814	5,306
Unincorporated Clackamas County	201,322	219,034	293,341
Unincorporated Multnomah County	19,328	22,264	40,490
Unincorporated Washington County	264,884	308,416	372,475
	2020	2030	2045
Clackamas County, total	428,614	493,892	593,665
Multnomah County, total	831,459	882,577	970,485
Washington County, total	622,082	718,412	809,312
	1,882,155	2,094,881	2,373,462
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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	Household Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	580	619	622
Barlow	40	40	40
Beaverton	39,895	47,544	51,262
Canby	6,564	7,833	8,312
Cornelius	3,773	4,552	5,594
Durham	686	703	703
Estacada	1,513	2,022	2,246
Fairview	3,654	4,039	4,388
Forest Grove	9,058	10,918	12,380
Gladstone	4,568	4,727	4,777
Gresham	41,195	45,384	49,067
Happy Valley	6,893	13,203	20,210
Hillsboro	42,338	51,103	55,409
Johnson City	285	307	486
King City	2,442	3,730	4,990
Lake Oswego	17,257	18,909	19,486
Maywood Park	356	356	355
Milwaukie	9,141	10,611	11,328
Molalla	3,363	4,893	5,443
North Plains	1,031	1,593	1,862
Oregon City	13,557	16,591	21,010
Portland	280,708	311,084	359,541
RiverGrove	185	184	188
Sandy	4,026	6,667	7,696
Sherwood	6,567	6,926	7,372
Tigard	21,617	26,160	30,423
Troutdale	5,880	6,561	6,829
Tualatin	10,955	11,474	11,626
West Linn	9,955	10,617	11,886
Wilsonville	9,778	11,727	13,281
Wood Village	1,223	1,461	1,703
Unincorporated Clackamas County	75,024	85,357	126,027
Unincorporated Multnomah County	5,588	6,731	12,944
Unincorporated Washington County	93,243	112,396	140,670
	2020	2030	2045
Clackamas County, total	162,149	193,685	252,417
Multnomah County, total	338,604	375,616	434,827
Washington County, total	232,184	277,718	322,914
	732,937	847,019	1,010,158
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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	Employment Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	579	636	670
Barlow	628	580	602
Beaverton	63,500	65,005	72,693
Canby	3,863	3,913	4,312
Cornelius	2,873	3,086	3,895
Durham	1,683	1,718	1,842
Estacada	1,250	1,354	1,454
Fairview	3,048	3,633	5,355
Forest Grove	7,120	6,964	7,299
Gladstone	2,911	3,159	3,926
Gresham	40,562	47,161	55,902
Happy Valley	7,823	9,105	12,367
Hillsboro	84,623	92,918	102,430
Johnson City	317	314	340
King City	708	879	1,108
Lake Oswego	21,525	21,441	23,825
Maywood Park	222	235	251
Milwaukie	13,273	13,742	15,221
Molalla	3,883	3,944	4,020
North Plains	794	860	897
Oregon City	17,122	18,675	21,749
Portland	480,904	502,913	565,382
RiverGrove	135	133	141
Sandy	3,193	3,297	3,675
Sherwood	6,646	7,051	8,013
Tigard	45,109	46,005	52,368
Troutdale	7,448	8,291	10,321
Tualatin	34,115	34,615	36,792
West Linn	4,982	5,365	6,135
Wilsonville	20,539	21,323	24,010
Wood Village	2,594	3,197	3,798
Unincorporated Clackamas County	72,446	75,446	90,565
Unincorporated Multnomah County	3,849	5,416	10,081
Unincorporated Washington County	65,763	79,192	103,707
	2020	2030	2045
Clackamas County, total	173,891	181,792	212,341
Multnomah County, total	538,628	570,846	651,090
Washington County, total	313,513	338,930	391,712
	1,026,032	1,091,568	1,255,143
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING THE DISTRIBUTION OF THE POPULATION AND EMPLOYMENT GROWTH TO YEAR 2045 TO LOCAL GOVERNMENTS IN THE REGION CONSISTENT WITH THE FORECAST ADOPTED BY ORDINANCE NO. 18-1427 IN FULFILLMENT OF METRO'S POPULATION COORDINATION RESPONSIBILITY UNDER ORS 195.036	)	ORDINANCE NO. 21-1457 Introduced by Chief Operating Officer Marissa Madrigal in concurrence with Council President Lynn Peterson

WHEREAS, ORS 195.025 designates Metro as the local government responsible for coordination of planning activities within the Metro district; and

WHEREAS, ORS 195.036 requires Metro, in coordination with other local governments within its boundary, to issue a population forecast for the entire area within its boundary to be applied by Metro and local governments within the boundary of Metro as a basis for changes to comprehensive plans and land use regulations; and

WHEREAS, on December 13, 2018 the Metro Council adopted a population and employment forecast for the region by Ordinance No. 18-1427 (“For the Purpose of Expanding the Urban Growth Boundary to Provide Capacity for Housing to the Year 2038 and Amending the Metro Code to Conform"); and

WHEREAS, Metro planning staff have begun work on a required update to the Regional Transportation Plan, which is scheduled for adoption in 2023 and will need to rely on the most current data regarding the distribution of the forecasted population and employment growth for the region; and

WHEREAS, Metro began the process of distribution of the forecasted population and employment in November 2019 by coordinating with the 24 cities and three counties within the Metro district regarding the proposed distribution, including a series of meetings and a review and comment period designed to improve the accuracy of the distributions; and

WHEREAS, Metro staff made presentations to its advisory committees (MTAC and TPAC) regarding the distribution and coordination with local governments; and

WHEREAS, Metro incorporated comments and suggestions from the cities and counties to refine the distribution; and

WHEREAS, the forecast distributions shown on the attached Exhibit A are expressed in terms of population, households, and employment; now, therefore,

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THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The distribution made to local governments, described in Exhibit A to this Ordinance and in the Staff Report dated January 29, 2021, of the regional population and employment forecast adopted by the Council in Ordinance No. 18-1427, is accepted and adopted as fulfillment of Metro's responsibilities regarding coordination of population forecasts under ORS 195.025 and 195.036 and is endorsed for use by the 24 cities and three counties as their own population and employment forecasts for their planning activities.

2. The Metro Chief Operating Officer shall make the distribution of population and employment available to each city and county in the district.

ADOPTED by the Metro Council this 25th day of February 2021.

Lynn Peterson, Council President

Attest:

Jaye Cromwell, Recording Secretary

Approved as to Form:

Carrie MacLaren, Metro Attorney

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Exhibit A to Ordinance No. 21-1457
2045 Distributed Forecast of Population, Households, and Employment

	Population Forecast (adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	1,959	2,022	2,021
Barlow	137	130	119
Beaverton	99,490	114,525	119,156
Canby	17,161	19,582	19,681
Cornelius	12,534	14,606	17,322
Durham	1,878	1,859	1,793
Estacada	4,091	5,227	5,267
Fairview	9,024	9,538	9,797
Forest Grove	26,370	30,702	33,592
Gladstone	11,960	12,071	12,021
Gresham	113,409	119,476	122,154
Happy Valley	22,556	41,314	57,362
Hillsboro	105,153	122,598	128,270
Johnson City	572	589	848
King City	4,718	6,961	8,985
Lake Oswego	40,035	41,947	42,133
Maywood Park	764	730	724
Milwaukie	20,594	22,859	23,268
Molalla	10,088	14,035	14,160
North Plains	3,480	5,194	5,860
Oregon City	36,457	42,665	49,009
Portland	668,429	708,370	774,219
RiverGrove	509	483	449
Sandy	11,127	17,621	18,451
Sherwood	19,747	20,118	20,662
Tigard	54,591	63,813	71,611
Troutdale	16,292	17,385	17,795
Tualatin	27,278	27,598	27,565
West Linn	26,060	26,579	26,990
Wilsonville	25,945	29,756	30,566
Wood Village	4,213	4,814	5,306
Unincorporated Clackamas County	201,322	219,034	293,341
Unincorporated Multnomah County	19,328	22,264	40,490
Unincorporated Washington County	264,884	308,416	372,475

	2020	2030	2045
Clackamas County, total	428,614	493,892	593,665
Multnomah County, total	831,459	882,577	970,485
Washington County, total	622,082	718,412	809,312
	1,882,155	2,094,881	2,373,462

* 2020 city limits

Note: All forecast figures prepared pre-COVID.

Note: All forecast figures prepared pre-Census 2020 vintage population program release>

Note: 2020 is a forecast year estimate.

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	Household Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	580	619	622
Barlow	40	40	40
Beaverton	39,895	47,544	51,262
Canby	6,564	7,833	8,312
Cornelius	3,773	4,552	5,594
Durham	686	703	703
Estacada	1,513	2,022	2,246
Fairview	3,654	4,039	4,388
Forest Grove	9,058	10,918	12,380
Gladstone	4,568	4,727	4,777
Gresham	41,195	45,384	49,067
Happy Valley	6,893	13,203	20,210
Hillsboro	42,338	51,103	55,409
Johnson City	285	307	486
King City	2,442	3,730	4,990
Lake Oswego	17,257	18,909	19,486
Maywood Park	356	356	355
Milwaukie	9,141	10,611	11,328
Molalla	3,363	4,893	5,443
North Plains	1,031	1,593	1,862
Oregon City	13,557	16,591	21,010
Portland	280,708	311,084	359,541
RiverGrove	185	184	188
Sandy	4,026	6,667	7,696
Sherwood	6,567	6,926	7,372
Tigard	21,617	26,160	30,423
Troutdale	5,880	6,561	6,829
Tualatin	10,955	11,474	11,626
West Linn	9,955	10,617	11,886
Wilsonville	9,778	11,727	13,281
Wood Village	1,223	1,461	1,703
Unincorporated Clackamas County	75,024	85,357	126,027
Unincorporated Multnomah County	5,588	6,731	12,944
Unincorporated Washington County	93,243	112,396	140,670
	2020	2030	2045
Clackamas County, total	162,149	193,685	252,417
Multnomah County, total	338,604	375,616	434,827
Washington County, total	232,184	277,718	322,914
	732,937	847,019	1,010,158
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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	Employment Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	579	636	670
Barlow	628	580	602
Beaverton	63,500	65,005	72,693
Canby	3,863	3,913	4,312
Cornelius	2,873	3,086	3,895
Durham	1,683	1,718	1,842
Estacada	1,250	1,354	1,454
Fairview	3,048	3,633	5,355
Forest Grove	7,120	6,964	7,299
Gladstone	2,911	3,159	3,926
Gresham	40,562	47,161	55,902
Happy Valley	7,823	9,105	12,367
Hillsboro	84,623	92,918	102,430
Johnson City	317	314	340
King City	708	879	1,108
Lake Oswego	21,525	21,441	23,825
Maywood Park	222	235	251
Milwaukie	13,273	13,742	15,221
Molalla	3,883	3,944	4,020
North Plains	794	860	897
Oregon City	17,122	18,675	21,749
Portland	480,904	502,913	565,382
RiverGrove	135	133	141
Sandy	3,193	3,297	3,675
Sherwood	6,646	7,051	8,013
Tigard	45,109	46,005	52,368
Troutdale	7,448	8,291	10,321
Tualatin	34,115	34,615	36,792
West Linn	4,982	5,365	6,135
Wilsonville	20,539	21,323	24,010
Wood Village	2,594	3,197	3,798
Unincorporated Clackamas County	72,446	75,446	90,565
Unincorporated Multnomah County	3,849	5,416	10,081
Unincorporated Washington County	65,763	79,192	103,707
	2020	2030	2045
Clackamas County, total	173,891	181,792	212,341
Multnomah County, total	538,628	570,846	651,090
Washington County, total	313,513	338,930	391,712
	1,026,032	1,091,568	1,255,143
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 21-1457, FOR THE PURPOSE OF ADOPTING THE DISTRIBUTION OF THE POPULATION AND EMPLOYMENT GROWTH TO YEAR 2045 TO LOCAL GOVERNMENTS IN THE REGION CONSISTENT WITH THE FORECAST ADOPTED BY ORDINANCE NO. 18-1427 IN FULFILLMENT OF METRO'S POPULATION COORDINATION RESPONSIBILITY UNDER ORS 195.036.

Date: February 1, 2021
Department: Planning & Development

Prepared by: Chris Johnson, Ted Reid
Presenters: Chris Johnson, Roger Alfred
Ted Reid

BACKGROUND

Federal and state laws (23 U.S. Code 134 and ORS 197.040, respectively) require Metro to prepare and update a transportation plan for its metropolitan planning area every 5 years. In accordance with these laws, an update of the Regional Transportation Plan (RTP) is scheduled to begin in late 2021 with an intended adoption date of December 2023. This 2023 RTP will need to rely on a Transportation Analysis Zone[1] (TAZ) Distributed Forecast of future population and employment.

The 2045 Distributed Forecast under consideration is intended to replace and extend the 2040 Distributed Forecast, which was adopted by Metro in fall 2016. The 2045 Distributed Forecast is aligned with the Regional Forecast (seven-county area) developed to inform Metro's most recent urban growth management decision, which the Metro Council adopted in December 2018. This ensures that the 2023 RTP will be based on the best available information and that the region's land use and transportation plans are consistent.

Oregon land use laws (195.025; ORS 195.036) require Metro to coordinate its regional population and employment forecasts with local governments inside the urban growth boundary for use in updating their comprehensive plans, land use regulations and other related policies. In accordance with this law, Metro coordinated with the local jurisdictions to conduct this Distributed Forecast update for use in the 2023 RTP.

<u>The Growth Forecast Distribution Update Process</u>

This update was able to build on the lengthy review process conducted in support of preparing the 2018 Urban Growth Report. During that process, Metro conducted extensive technical engagement with its regional partners to establish the methodology used to identify the region's buildable land inventory (BLI). With the 2018 Urban Growth Report already in place, Metro was able to focus regional

[1] The TAZ is the geographic unit that serves as the building block of Metro's primary forecasting tools (the travel demand model and MetroScope). The region is divided into 2,162 TAZs. These small subdivisions improve the accuracy of the travel demand model as well as all other aspects of transportation planning. The TAZ-level data also assists land use planners in updating comprehensive plans and zoning, and conducting other types of land use analysis, including neighborhood level analysis.

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coordination efforts on revisions to smaller-geography population and employment forecasts based on local knowledge.

Regional coordination of the updated forecast distribution included two main stages of local review.

The first stage involved Metro and local government staff working together to confirm the core inputs to the MetroScope land use allocation model. These inputs include the base year numbers for population and employment as well as the BLI that was completed as part of the 2018 urban growth boundary decision. Local government staff reviewed these inputs and made revisions based on recent zoning changes, new developments or investments within their respective jurisdictions. This review period extended from May 2017 to May 2018.

Metro staff completed modeling using the results from the first stage of local review and prepared a draft distribution of households and jobs into the region's 2,162 TAZs. To view a TAZ map, refer to Exhibit A. The local jurisdictions were then given approximately five months (February 2020 thru June 2020) to examine the TAZ-level results. Jurisdictions wishing to adjust the growth by TAZ (increase or decrease) assigned by the model worked with Metro to re-allocate that growth in a manner consistent with accepted regional figures previously adopted by the Metro Council.

Metro worked closely with a designated county lead from each county throughout a second stage of review to ensure that all participating cities understood their roles and were able to complete their reviews by the deadline. Additional meetings were held with individual county leads to review results. With assistance from the county leads, Metro was able to either accommodate each jurisdiction's proposed changes or negotiate a satisfactory revision where the full change could not be implemented. The timeline for local reviewer engagement and ground rules are described in Attachment 1.

In accordance with state law (ORD 195.036), Metro summarized the TAZ distribution (which is used in transportation modeling) into a jurisdiction-level distribution that is more understandable for local planning activities. The resulting product is the 2045 Distributed Forecast of population, households and employment to cities and counties in the Portland region and is included as Exhibit B.

Regional Planning Directors Involvement

Metro coordinated with regional planning directors throughout the Distributed Forecast update through the local review process. The names of the regional planning directors, designated county leads, and other local reviewer who participated in this process are listed in Attachment 2.

The process began with a series of kickoff meetings held in January 2020, convening the planning directors (or designated planning leads) from Clackamas, Multnomah, and Washington Counties. Each kickoff meeting reviewed the purpose, timeline, and instructions for the local review process. The county leads served as liaisons between Metro and the cities within their respective jurisdictions, providing technical guidance to local staff throughout the process and helped to coordinate the timely return of feedback. County leads also conducted reviews on behalf of several smaller cities with limited planning staff capacity.

Metro staff communicated with county leads and jurisdiction staff primarily via e-mail throughout the local review process. Metro also met with county leads and cities as needed to coordinate reviews and provide guidance during the review period.

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Metro Advisory Committee Involvement

The Metro Technical Advisory Committee (MTAC) served as the primary advisory committee for the 2045 Distributed Forecast. A project kickoff presentation was given before MTAC in November 2019 to review the purpose, timeline, and ground rules for the local review process. Subsequent project status reports were provided to both MTAC and the Transportation Policy Alternatives Committee (TPAC) to keep both committee informed as to project progress. The final project status presentation was given to MTAC in November 2020.

ANALYSIS/INFORMATION

1. Known Opposition

There is no known opposition to the 2045 Distributed Forecast. Metro staff was able to either incorporate local jurisdictions' suggested revisions in the baseline assumptions and distributions or come to agreement on modifications to those assumptions and distributions.

2. Legal Antecedents

Consultation conducted to prepare the 2045 Distributed Forecast satisfies Metro's coordination obligations under ORS 195.025 and 195.036. As requested by DLCD, staff proposes that the Metro Council adopt the 2045 Distributed Forecast by an ordinance that will be acknowledged by DLCD as part of Metro's planning documents in order to support future planning decisions by local governments that rely upon the population forecasts. State law requires cities and counties to adopt coordinated forecasts as part of their comprehensive plans.

3. Anticipated Effects

Adoption of the updated distribution of population and employment forecast will inform the 2023 RTP and ensure that the plan is based on the most recent data available. This localized data will also encourage local governments to use the distribution information to conform their land use and transportation plans to regional policies adopted by the Metro Council. Delay of the adoption could also delay the development of the 2023 RTP and may delay some local government activities that would be accomplished with the updated 2045 Distributed Forecast information. Also note that a new Regional Forecast and subsequent Distributed Forecast will be prepared for the Metro Council's consideration as part of its anticipated urban growth management decision in 2024.

4. Budget Impacts

The FY 2019-2020 and FY 2020-2021 budgets included resources for staff in the Research Center and the Planning and Development Department to work on this project.

RECOMMENDED ACTION

Staff recommends that the Metro Council accept and adopt the updated 2045 Distributed Forecast of population, households and employment which was completed in accordance with Metro's responsibilities on population coordination with local governments in the region to inform the 2023 RTP.

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ATTACHMENTS

1. Distributed Forecast Engagement Plan and Ground Rules
2. Local Reviewer Contact List

EXHIBITS

A. Transportation Analysis Zone (TAZ) Map
B. 2045 Distributed Forecast of Population, Households, and Employment

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Attachment 1
Distributed Forecast Engagement Plan and Ground Rules

Action	Timeframe
Notify MTAC, TPAC of 2019 distr. forecast schedule & stakeholder engagement plan	November 2019
Complete TAZ allocations – Metro staff	September – December 2019
Contact county leads – coordinate TAZ review with each	December 2019
Obtain stakeholder signatures for es-202 employment data	December 2019
Send out TAZ forecast and es-202 task reminders – finalize by end of month	January 2020
Kick-off meetings (by county) – provide forecast materials for review 1. Review UGM regional forecast drivers 2. Review 2019 distr. forecast specifications and assumptions 3. Execute es202 releases for all stakeholders with the State 4. Send out data to qualified stakeholders (excel)	January 2020
Provide any material assistance as requested by local stakeholders – stakeholders review TAZ forecast figures (jobs and households) 1. Review 2020 base year figures by jurisdiction 2. Review 2030 "mid-year" figures 3. Review 2045/50 forecast figures 4. Go over TAZ adjustment ground rules 5. Send in TAZ reviews to county leads	February – June 2020
Adjust TAZ's as needed	July – August 2020
Lock-down final TAZ forecast figures	September 2020
Forecast documentation, citation, and archive	September 2020

Although careful attention to inputs and forecasts (and MetroScope model statistics) have been exercised in preparing the distributed forecast, current conditions and future expectations may change in which we might not have been aware of during the development of the TAZ forecast. Thus we are asking stakeholders to help us refine the initial TAZ-level forecast with additional manual (if any) adjustments based on your local knowledge. In order to maintain the integrity of the forecast, we ask participants to follow these basic guidelines on making adjustments to the TAZ forecast.

Ground rules:

- Each jurisdiction has been assigned a set of TAZ's that approximate the current city limits and county jurisdiction (note: there may be rounding and estimation error / differences between city limits and TAZ boundaries that can't be avoided).
- Cities and counties are given TAZ allocations that add up to "control totals" for each jurisdiction.
    - The ultimate control total or cap is determined by Metro's regional forecast. (This is the total forecast amount for the region as a whole and adopted in the 2018 UGM decision)
    - Within the control totals for each jurisdiction, we advise jurisdictions to limit their manual adjustment (plus or minus) to each TAZ subject to recovering your control total.

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    - If your TAZ review identifies an excess (or shortfall) in your city control total, please contact your county lead to see if there is another city in your county that has a shortfall (or excess). Your county lead can assist in manually rebalancing the TAZ totals in the county.
    - If the county adjustments exceed (or has a shortfall) the given county control total, Metro in coordination with the effected cities and counties will affect a compromise to settle the manual TAZ adjustments.
- Cities and counties have latitude to make adjustments, but Metro asks that the manual adjustments are paired with explanations as to why the adjustments are necessary.

Your assistance in this review process is important and helps make this a better forecast product. Thank you for your involvement in this process.

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Attachment 2
Local Reviewer Contact List

Last Name	First Name	Jurisdiction	County
Seldon	Sarah	Fairview	Multnomah
Fry	Carolanne	Fairview	Multnomah
Kelly	Katherine	Gresham	Multnomah
Higgins	Jay	Gresham	Multnomah
Armstrong	Tom	Portland	Multnomah
Hagen	Chet	Multnomah County	Multnomah
Johnson	Carol	Multnomah County	Multnomah
Barber	Adam	Multnomah County	Multnomah
Berry	Jessica	Multnomah County	Multnomah
Cook*	Kevin	Multnomah County	Multnomah
Shackelford	Amber	Troutdale	Multnomah
Farrell	Arini	Troutdale	Multnomah
Straite	Matt	Wood Village	Multnomah
Becker	Jolynn	Banks	Washington
McQuillan	Kate	Beaverton	Washington
Wells	Ryan	Cornelius	Washington
Tate	Linda	Durham	Washington
Pohl	Bryan	Forest Grove	Washington
Riordan	Dan	Forest Grove	Washington
Eidt	Taylor	Hillsboro	Washington
Choi	Brad	Hillsboro	Washington
Liden	Keith	King City	Washington
Varner	Andy	North Plains	Washington
Palmer	Erika	Sherwood	Washington
Hajduk	Julia	Sherwood	Washington
McGuire	Tom	Tigard	Washington
Shanks	Susan	Tigard	Washington
Schulyler	Warren	Tigard	Washington
Purdy	Lloyd	Tigard	Washington
Koper	Steve	Tualatin	Washington
Pauly	Daniel	Wilsonville	Washington
Bateschell	Miranda	Wilsonville	Washington
Rybold	Kimberly	Wilsonville	Washington
Rencher*	Ken	Washington County	Washington
Walter	Michael	Happy Valley	Clackamas
Siegel	Scot	Lake Oswego	Clackamas
Farley	Will	Lake Oswego	Clackamas
Levitan	Daniel	Milwaukie	Clackamas
Heberling	Mary	Milwaukie	Clackamas

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Last Name	First Name	Jurisdiction	County
Kolias	Vera	Milwaukie	Clackamas
Fadenrecht	Christina	Milwaukie	Clackamas
Wicks	Alison	Milwaukie	Clackamas
Egner	Denny	Milwaukie	Clackamas
Aman	Leila	Milwaukie	Clackamas
Straite	Matt	Rivergrove	Clackamas
O'Neill	Kelly	Sandy	Clackamas
Meharg	Emily	Sandy	Clackamas
Denison	Shelley	Sandy	Clackamas
Wyss	Darren	West Linn	Clackamas
Fursdon	Megan	West Linn	Clackamas
Buehrig	Karen	Clackamas County	Clackamas
Fritzie	Martha	Clackamas County	Clackamas
Setterfield	Brett	Clackamas County	Clackamas
Williams*	Stephen	Clackamas County	Clackamas
Cross	Nicole	Clackamas County	Clackamas

*Designated County Lead

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Exhibit A
Transportation Analysis Zone (TAZ) Map

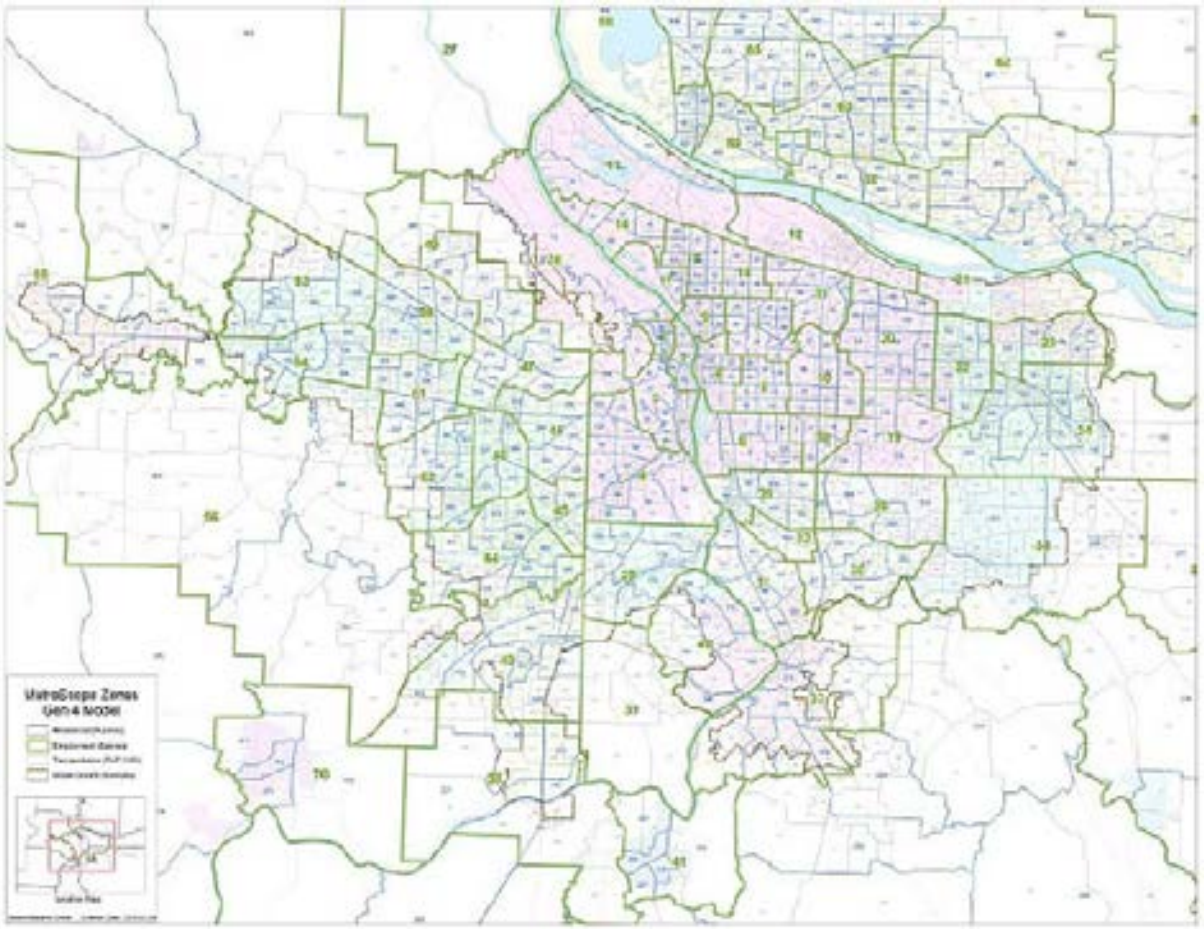

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Exhibit B

2045 Distributed Forecast of Population, Households, and Employment

	Population Forecast (adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	1,959	2,022	2,021
Barlow	137	130	119
Beaverton	99,490	114,525	119,156
Canby	17,161	19,582	19,681
Cornelius	12,534	14,606	17,322
Durham	1,878	1,859	1,793
Estacada	4,091	5,227	5,267
Fairview	9,024	9,538	9,797
Forest Grove	26,370	30,702	33,592
Gladstone	11,960	12,071	12,021
Gresham	113,409	119,476	122,154
Happy Valley	22,556	41,314	57,362
Hillsboro	105,153	122,598	128,270
Johnson City	572	589	848
King City	4,718	6,961	8,985
Lake Oswego	40,035	41,947	42,133
Maywood Park	764	730	724
Milwaukie	20,594	22,859	23,268
Molalla	10,088	14,035	14,160
North Plains	3,480	5,194	5,860
Oregon City	36,457	42,665	49,009
Portland	668,429	708,370	774,219
RiverGrove	509	483	449
Sandy	11,127	17,621	18,451
Sherwood	19,747	20,118	20,662
Tigard	54,591	63,813	71,611
Troutdale	16,292	17,385	17,795
Tualatin	27,278	27,598	27,565
West Linn	26,060	26,579	26,990
Wilsonville	25,945	29,756	30,566
Wood Village	4,213	4,814	5,306
Unincorporated Clackamas County	201,322	219,034	293,341
Unincorporated Multnomah County	19,328	22,264	40,490
Unincorporated Washington County	264,884	308,416	372,475
	2020	2030	2045
Clackamas County, total	428,614	493,892	593,665
Multnomah County, total	831,459	882,577	970,485
Washington County, total	622,082	718,412	809,312
	1,882,155	2,094,881	2,373,462
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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	Household Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	580	619	622
Barlow	40	40	40
Beaverton	39,895	47,544	51,262
Canby	6,564	7,833	8,312
Cornelius	3,773	4,552	5,594
Durham	686	703	703
Estacada	1,513	2,022	2,246
Fairview	3,654	4,039	4,388
Forest Grove	9,058	10,918	12,380
Gladstone	4,568	4,727	4,777
Gresham	41,195	45,384	49,067
Happy Valley	6,893	13,203	20,210
Hillsboro	42,338	51,103	55,409
Johnson City	285	307	486
King City	2,442	3,730	4,990
Lake Oswego	17,257	18,909	19,486
Maywood Park	356	356	355
Milwaukie	9,141	10,611	11,328
Molalla	3,363	4,893	5,443
North Plains	1,031	1,593	1,862
Oregon City	13,557	16,591	21,010
Portland	280,708	311,084	359,541
RiverGrove	185	184	188
Sandy	4,026	6,667	7,696
Sherwood	6,567	6,926	7,372
Tigard	21,617	26,160	30,423
Troutdale	5,880	6,561	6,829
Tualatin	10,955	11,474	11,626
West Linn	9,955	10,617	11,886
Wilsonville	9,778	11,727	13,281
Wood Village	1,223	1,461	1,703
Unincorporated Clackamas County	75,024	85,357	126,027
Unincorporated Multnomah County	5,588	6,731	12,944
Unincorporated Washington County	93,243	112,396	140,670
	2020	2030	2045
Clackamas County, total	162,149	193,685	252,417
Multnomah County, total	338,604	375,616	434,827
Washington County, total	232,184	277,718	322,914
	732,937	847,019	1,010,158
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

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	Employment Forecast		
	(adjusted to city limits)*		
	2020	2030	2045
Jurisdiction*			
Banks	579	636	670
Barlow	628	580	602
Beaverton	63,500	65,005	72,693
Canby	3,863	3,913	4,312
Cornelius	2,873	3,086	3,895
Durham	1,683	1,718	1,842
Estacada	1,250	1,354	1,454
Fairview	3,048	3,633	5,355
Forest Grove	7,120	6,964	7,299
Gladstone	2,911	3,159	3,926
Gresham	40,562	47,161	55,902
Happy Valley	7,823	9,105	12,367
Hillsboro	84,623	92,918	102,430
Johnson City	317	314	340
King City	708	879	1,108
Lake Oswego	21,525	21,441	23,825
Maywood Park	222	235	251
Milwaukie	13,273	13,742	15,221
Molalla	3,883	3,944	4,020
North Plains	794	860	897
Oregon City	17,122	18,675	21,749
Portland	480,904	502,913	565,382
RiverGrove	135	133	141
Sandy	3,193	3,297	3,675
Sherwood	6,646	7,051	8,013
Tigard	45,109	46,005	52,368
Troutdale	7,448	8,291	10,321
Tualatin	34,115	34,615	36,792
West Linn	4,982	5,365	6,135
Wilsonville	20,539	21,323	24,010
Wood Village	2,594	3,197	3,798
Unincorporated Clackamas County	72,446	75,446	90,565
Unincorporated Multnomah County	3,849	5,416	10,081
Unincorporated Washington County	65,763	79,192	103,707
	2020	2030	2045
Clackamas County, total	173,891	181,792	212,341
Multnomah County, total	538,628	570,846	651,090
Washington County, total	313,513	338,930	391,712
	1,026,032	1,091,568	1,255,143
* 2020 city limits			
Note: All forecast figures prepared pre-COVID.			
Note: All forecast figures prepared pre-Census 2020 vintage population program release>			
Note: 2020 is a forecast year estimate.			

Sherwood Vacant Lands Capacity Analysis

September 2024

SHERWOOD WEST CONCEPT PLAN

1,291 acres added to UGB 41% expansion of city's land area.

3,117 to 5,582 new expensive low-density homes & rentals

4,524 new jobs

$334 million for new infrastructure.

$58- $70 million funding shortfall for infrastructure

$45,000 - $51,000 system development charge/new home

Sherwood Planning Area* Vacant Lands Capacity

0 additional acres added to the Urban Growth Boundary

4,572 new homes with a closer fit with housing needs

5,526 new jobs

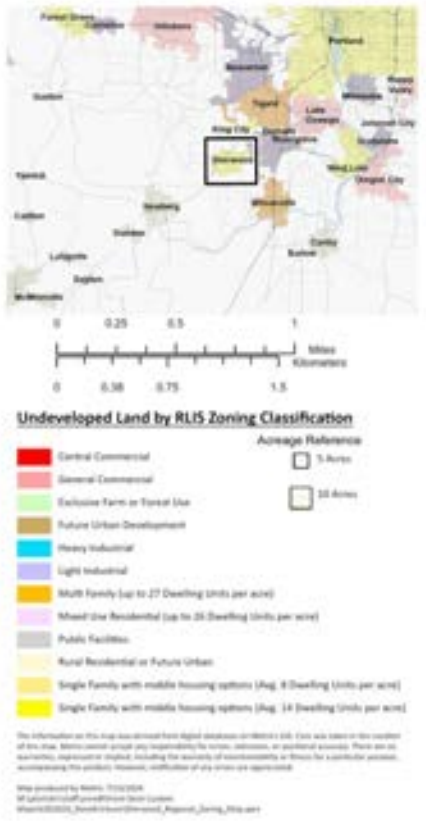
$58-$70 million taxpayer and ratepayer savings because no funding shortfall; $ millions saved on unneeded infrastructure.

Conserves instead of develops **precious farmland, forests, streams and wildlife.**

* The Sherwood Planning Area is the land inside the city limits of Sherwood, plus the Brookman Addition area and Tonquin Employment Area previously added to the UGB.

Methodology for Capacity Analysis of Sherwood Planning Area Vacant Lands

Metro Resource Center Map of Vacant Land in Sherwood Planning Area Prepared August 2024



The Sherwood Planning Area is the land inside Sherwood city limits, the Brookman UGB expansion concept area and Tonquin Employment Area

Vacant Lands in the Sherwood Planning Area

Metro RLIS General Zoning Class	Vacant Acres
Single Family Residential	146.76
Mixed Use Residential	22.53
Multi Family Residential	36.07
Commercial	22.99
Industrial (Light & Heavy)	229.78
Future Urban Development	111.43
Rural (residential, farm, forest use)	18.16
Public Facilities	5.03

Housing Needs & Vacant Land Capacity

Oregon Housing Needs Draft Analysis:
Sherwood: Appendix B page 48

20-Year Housing Need: 1,514 units

0-30% AMI:	395 units
30-60% AMI:	279 units
60-80% AMI:	169 units
Total 0-80% AMI	*843 units 56%*
80-120% AMI:	238 units
120%+ AMI:	433 units

Metro Regional Housing Need Estimate
by Housing Type with Ranges across All Growth Scenarios

	Low	High
Single-Unit Detached	23%	40%
Middle Housing	14%	21%
Multifamily Housing	46%	56%

Source: Draft Urban Growth Report page Table 15: Capacity deficits or surpluses for existing and future housing needs (2024-2044)

Metro Regional Housing Need Estimate to 2044

Showing Deficits for Each Growth Scenario

	Single Family Detached & Middle Housing	Multifamily
Scenario 1	surplus	surplus
Scenario 2	surplus	-2,100 units
Scenario 3	- 2,250 units	surplus
Scenario 4	surplus	- 23,900 units

Source: Draft Urban Growth Report page 40 Table 15: Capacity deficits or surpluses for existing and future housing needs (2024-2044)

Sherwood 2019 Housing Need Analysis.

58% of new housing should be affordable by households earnings less than $83,281

31% of housing must be affordable by households earning less than $55,521

Sherwood Housing Needs Analysis 2019. Table 4 “Estimate of needed new dwelling units by income level, Sherwood 2019-2039.

Sherwood Average Home Price: $637,115

Source: Zillow September 18, 2024

$639,950

23348 SW Price Ter, Sherwood, OR 97140

Est.: **$3,545/mo**

Principal, interest, insurance, taxes

Minimum household income able afford it: **$141,800 (137% MHI)**

Sherwood Monthly Apartment Rents

RentCafe	Average Rent	$1,999
Zillow Rentals	Median Rent	$2,595
Apartments.com	Avg. 2 Bdrm Rent	$1,948

Minimum household income able to afford $2,000/month rent: $80,000 (about 80% of MHI)

Sherwood's 2019 Housing Need Analysis.

Table 2. Forecast of needed housing units by mix, Sherwood planning area, 2019-2039

Housing Type	New Dwelling Units (DU)	Percent
Single-family detached	865	50%
Single-family attached	432	25%
Multifamily	432	25%
Total	**1,729**	

Source: ECONorthwest

Vacant Land Available for Housing In Sherwood Planning Area

Metro Generalized RLIS Zoning	**Acres**
Mixed Use Residential	22.53
Multi Family Residential	36.07
Single Family Residential	146.76
Total Residential	**205.35**
Future Urban Development	111.43
Rural	18.16
Total Vacant Land Available for Housing	**334.94**

Single-Family Detached Homes

Single-Family Detached Homes on 5,000 sq ft lots

Example: Sherwood, 4 bedroom, 3 bath, 4,791 square foot lot.

Single-Family Detached Homes on small lots

Example: Sherwood, 3 bedroom, 3 bath, 3,049 square foot lot.

Single-Family Attached Row Homes

Example: Stonewater Row Homes at Orenco 1,200 square feet homes (23 homes/acre)

Middle Housing

Accessory Dwelling Units, Duplexes, Triplexes, Fourplexes, Cottage Clusters

Middle Housing is allowed by state law on the 146.76 acres of vacant land zoned for single-family residential in the Sherwood planning area.

Middle Housing: Accessory Dwellings

Internal ADU
With separate entrance

ADU over garage

Detached backyard cottage

Middle Housing: Duplex Homes

Example: New construction on 5,300 sf lot in SE Portland (about 16 homes/net and about 13 homes/gross acre)

Middle Housing: Triplex & Fourplex Homes

Examples: NW Portland; 3-plex on 5,000 square foot lot (left homes/acre) and 4-plex on 5,000 square foot lot (right, = homes/acre)

Cottage Clusters

Example: Hastings Green in Portland 23 cottages on 2/3rds of an acre (about 35 homes/net acre and 28 homes/gross acre)

Middle Housing Vacant Land Capacity

Home type	acres	homes
100 ADUs with 2% of existing 5000 sf homes; 50 (4%) with 1,234 new SF homes	0	150
Cottage clusters at 24 homes/acre gross density	10	240
Duplexes on 6,000 sf lots homes/acre gross density	15	174
Three-plexes on 7,200sf lots at gross density	15	272
Four-plexes on 7,200 sf lots at gross density	10	116
Total Middle Housing	***50***	***953***

Multi-Family Homes

Multifamily Homes in Mixed Use

Example: Alta Arlo in Seattle 241 apartments on 7.8 acres. (31 homes net acre and about 28 homes/gross acre plus commercial spaces)

Multifamily Homes in Mixed Use

Example: The Windward in Lake Oswego:200 residential, 43,000 sq ft of commercial space, parking garage for 430 cars,135 spaces of public parking on 3 acres (67 homes/acre net or about 60 homes/acre gross).

Multi-Family Homes: Market Rate Condos

1310 Condominiums in SE Portland: 5 units on 5,000 square foot lot (about 43 homes/net acre net and 35 homes/gross acre)

Multi-Family Homes: Market Rate

Example: The Vector Apartments at Orenco station; 230 apartments on 2.25 acres (102 homes/net acre [and about 90 homes/ gross acre.)

Multi-Family Housing for Seniors of Modest Means
who live or want to live in Sherwood.

"Seniors face a serious affordability crisis in our region. Folks on fixed income need to be able to live with safety and stability," said Metro Councilor Gerritt Rosenthal. "Tigard is an important and bold partner in delivering on our promise to Metro voters to provide accessible housing."

Example: Alongside Senior Apartments next to the senior center in Tigard:
57 units on 2 acres (28 homes/net acre and about 25 homes/gross acre)

Affordable Multi-family Homes for Teachers and Other Employees of the Sherwood School District.

SVA Architects

705 Serramonte features 122 apartment homes, with 59 one-, 56 two-, and seven three-bedroom units, with rental rates set at 50% of market rate at the time of occupancy.

Example: 705 Serramonte Drive Daly City, CA. 122 units on 3.3 acres
(about 40 homes/net acre and 36 homes/gross acres

Affordable Multi-family Homes for People Working in the Vineyards and Farms near Sherwood

At the dedication Metro Councilor Juan Carlos Gonzalez “highlighted how Nueva Esperanza addresses the plight of local farmworkers, “who work tirelessly to feed our communities [and] struggle to secure safe and affordable housing for themselves and [their] families.”

Example: Nueva Esperanza, Hillsboro 150 units on 6.12 acres (24 homes/net acre and about 22 homes/gross acre

Affordable Multi-family Homes for People Working in Stores, Restaurants and Motels in or Near Sherwood

Example: Cedar Rising Aloha, 81 units on 1.2 acres

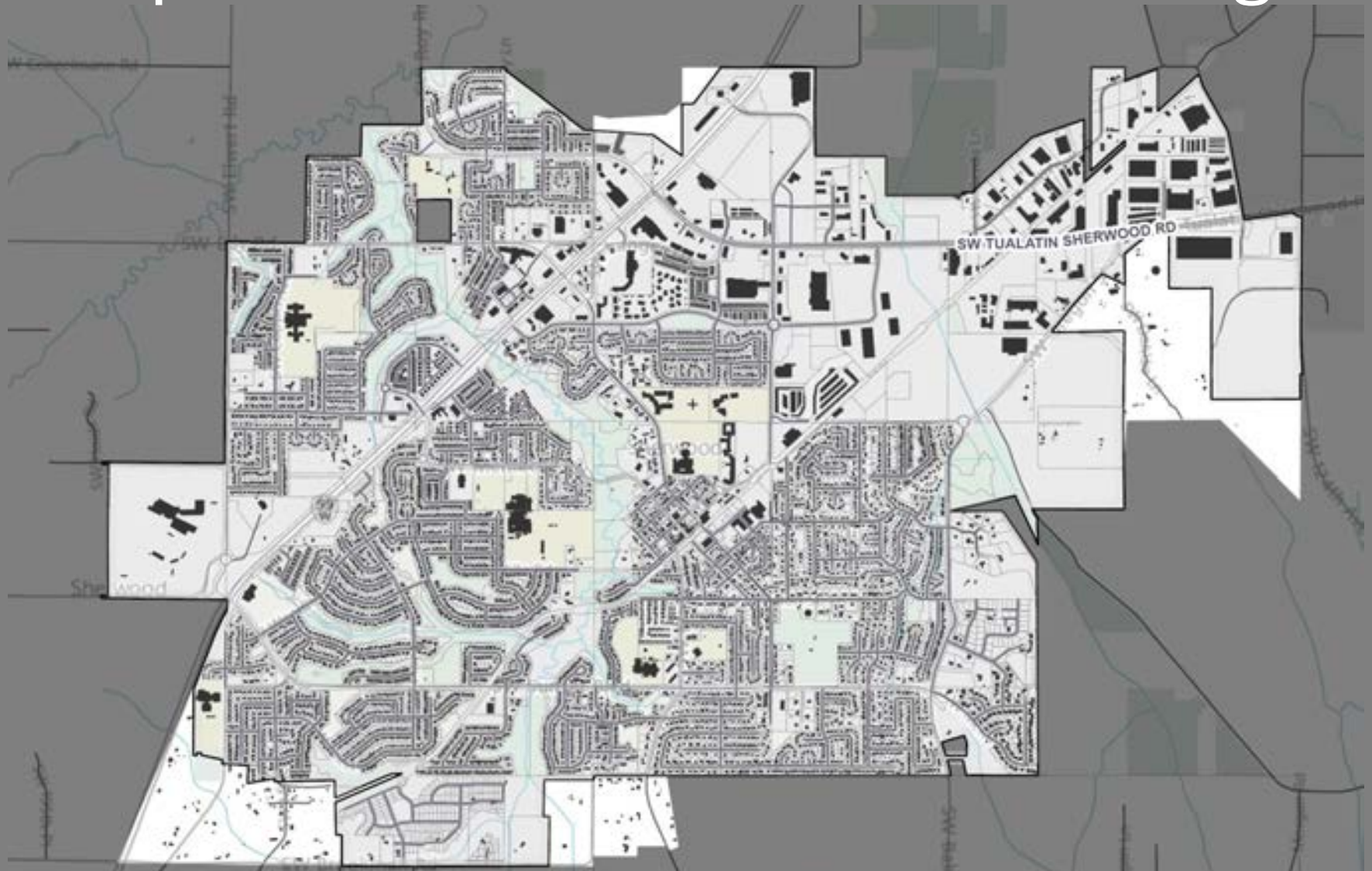
Sherwood Vacant Land Capacity for Housing

Home type	Acres	Homes	Share
Single-family detached	200	1,859	41%
Single-family attached	20	460	10%
Middle housing homes	50	953	21%
Market Rate Multi-family homes	50	1,300	28%
Affordable MF homes for farmworkers, teachers, clerks	9	410	9%
Totals	***329***	***4,572***	***100%***

This use of land would cover 81% of the regional deficit of 2,100multi-famiy units in Scenario 2 and more than cover the regional deficit for single-family detached and middle housing in scenario 3. It also allows for market an affordable multifamily housing representing substantial progress toward Oregon and Sherwood's housing needs analyses.

In addition to development of housing on vacant lands there is significant potential for infill on partially developed lots and through redevelopment.

Building footprints in the Sherwood Planning Area



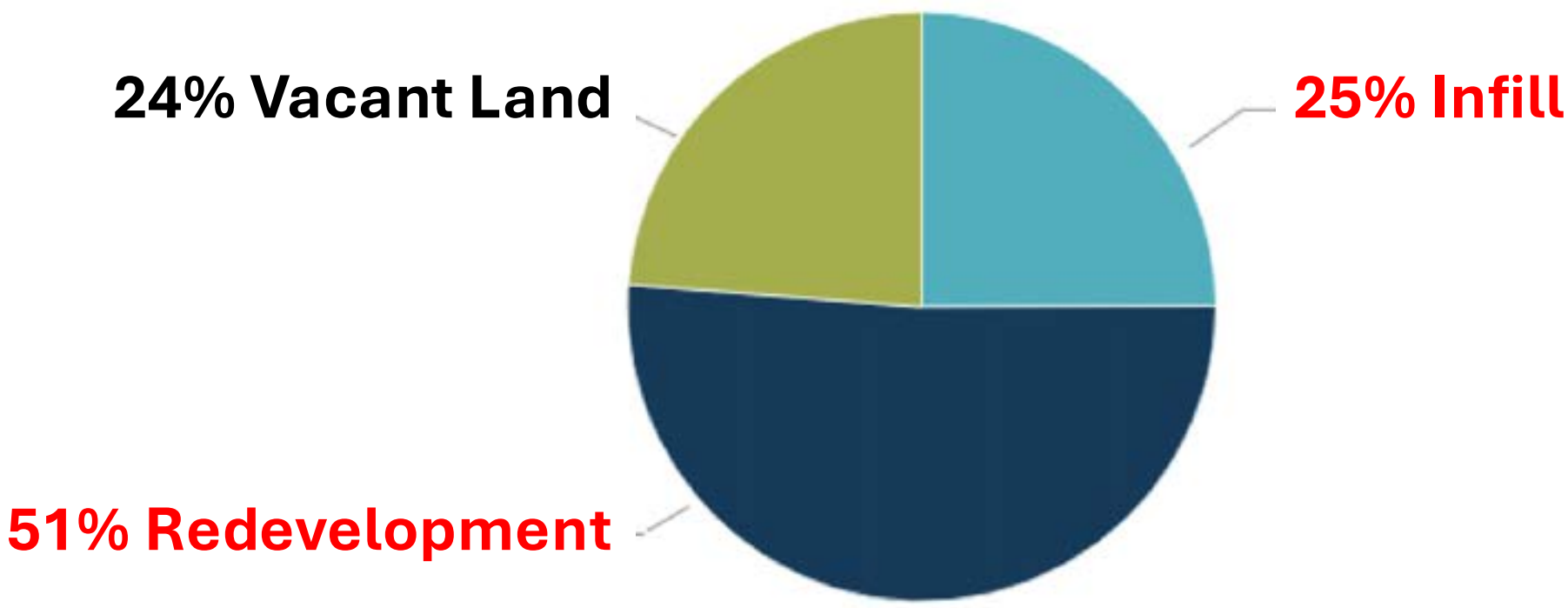
Sherwood Planning Area is Sherwood city limits, Brookman annexation area and portion of Tonquin Employment Area

Many parcels have room for additional development.

Metro 2018 Urban Growth Report

Figure 8 page 16

Where new homes were built inside Metro UGB 2007-2016



Source: Metro Land Development Monitoring System output dataset from May 2018 RLIS data input

Sherwood Vacant Land Capacity for Housing

CONCLUSION

Sherwood and the Brookman area have more than enough vacant land to meet all of its housing needs for 20 years plus thousands of additional homes to meet regional needs, without expanding the UGB.

Sherwood Vacant Lands Capacity for Employment

RLIS Vacant Land Class Sherwood Planning Area	**Acres**		**Sherwood West Concept Plan Employment Land Designation**	**Sherwood West Concept Plan Jobs/Acre** Table 5 page 48 of Concept Plan	**Jobs**
Heavy Industrial	40.82		Mixed Employment	18	735
Light Industrial	188.95		Mixed Employment	18	3,401
Central Commercial	4.65		Commercial	36	168
General Commercial	18.33		Commercial	36	660
Mixed Use	22.53		Mixed Use	25	563
Total	**275.29**				**5,527**
Note: Does not include hospitality and schools jobs included in Table 5.					

Natural Resources & the Environment

Using vacant lands inside the UGB in Sherwood Planning Area conserves world-class farmland & forestlands.

These lands can grow and have grown high value crops like Pinot Noir grapes, hazelnuts and Christmas Trees.

Natural Resource & Environmental Protection

Saves Chicken Creek and adjoining riparian areas and forests from development and retains their carbon sequestration values; helps maintain water quality in Tualatin River National Wildlife Refuge.

CONCLUSION

Using vacant land already inside the Sherwood Planning Area means:

- *Less Sprawl*
- *Less Taxes & Fees*
- *More Housing Choices*
- *Plenty of Jobs*
- *Protects farmland and forests*
- *Conserves water and wildlife*

Savings for Taxpayers and Ratepayers by using vacant lands in the Sherwood Planning Area

$?? millions saved by not spending money on new infrastructure serving development west of city limits.

No need to find additional taxes and fees to cover $58 to $70 infrastructure shortfall.

Source: Appendix O ," Sherwood West Concept Plan: Preliminary Infrastructure Funding Strategy" March 10, 2023page 2, Table 1 and Page 4 Table 3.

Sherwood Vacant Lands Capacity Analysis

September 2024

Local Class	RLIS General Class	Acres
Central Commercial	Commercial	4.654950053
General Commercial	Commercial	18.33491579
Exclusive Farm of Forest Use	Rural	0.733272
Future Urban Development	Future Urban Development	111.43227
Heavy Industrial	Industrial	40.822175
Light Industrial	Industrial	188.953552
Multi Family (up to 27 Dwelling Units per acre)	Multi Family Residential	36.065764
Mixed Use Residential (up to 26 Dwelling Units per acre)	Mixed Use Residential	22.5252
Public Facilities	Public Facilities	5.02508
Rural Residential or Future Urban	Rural	17.423406
Exclusive Farm of Forest Use		0.73
Single Family with middle housing options (Avg. 4 Dwelling Units per acre)	Single Family Residential	66.944991
Single Family with middle housing options (Avg. 8 Dwelling Units per acre)	Single Family Residential	76.105195
Single Family with middle housing options (Avg. 14 Dwelling Units per acre)	Single Family Residential	3.707271

Metro RLIS General Zoning Class	Vacant Acres
Single Family Residential	146.76
Mixed Use Residential	22.53
Multi Family Residential	36.07
Commercial	22.99
Industrial (Light & Heavy)	229.78
Future Urban Development	111.43
Rural (residential, farm, forest use)	18.16
Public Facilities	5.03

General RLIS Class
Local Class

Row Labels	Sum of Acres
Commercial	**22.99**
Central Commercial	4.65
General Commercial	18.33
Future Urban Development	**111.43**
Future Urban Development	111.43
Industrial	**229.78**
Heavy Industrial	40.82
Light Industrial	188.95
Mixed Use Residential	**22.53**
Mixed Use Residential (up to 26 Dwelling Units per acre)	22.53
Multi Family Residential	**36.07**
Multi Family (up to 27 Dwelling Units per acre)	36.07
Public Facilities	**5.03**
Public Facilities	5.03
Rural	**18.16**
Exclusive Farm of Forest Use	0.73
Rural Residential or Future Urban	17.42
Single Family Residential	**146.76**
Single Family with middle housing options (Avg. 14 Dwelling Units per acre)	3.71
Single Family with middle housing options (Avg. 4 Dwelling Units per acre)	66.94
Single Family with middle housing options (Avg. 8 Dwelling Units per acre)	76.11
Grand Total	**592.73**

METRO HEARINGS OFFICER'S ANALYSIS, CONCLUSIONS, AND RECOMMENDATIONS TO THE METRO COUNCIL

Sherwood School District Urban Growth Boundary
Major Amendment, Case 17-02

JULY 21, 2017

ANDREW H. STAMP, P.C.
KRUSE-MERCANTILE PROFESSIONAL OFFICES, SUITE 16
4248 GALEWOOD STREET
PORTLAND, OR 97035

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SECTION I: APPLICATION SUMMARY

FILE NAME:	UGB Case 17-02: Sherwood School District Urban Growth Boundary Major Amendment
APPLICANT:	Sherwood School District 23295 SW Main Street Sherwood, OR 97140
PROPOSAL:	82-acre expansion of the urban growth boundary (UGB) for a high school campus with sports fields. Realign SW Elwert Road and SW Kruger Road in Sherwood.
LOCATION:	Tax Lots 2S236-200, -201, -206, and -207
SITE ADDRESSES:	18880 SW Haide Road, 22895 SW Elwert Road and 18985 SW Kruger Road, Sherwood, Oregon 97140
URBAN RESERVE AREA:	Area 5B.
CURRENT ZONING:	AF-20
METRO CODE:	Metro Code Sections 3.07.1425 (B, C, D, E & F) and 3.07.1440 (A & B). Code Section 3.07.1425(C)(1-9)

SECTION II: BACKGROUND INFORMATION

Proposal Description: The applicant requests an expansion of the City of Sherwood UGB to include approximately 82 acres for a high school campus with sports fields. This proposal also seeks to realign the intersection of SW Elwert Road and SW Kruger Road for improved and safer traffic flow.

Site Information: The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Rd and SW Kruger Rd as shown in Attachment 1. The property has frontage on SW Elwert, SW Haide and SW Kruger Roads. The entire property is zoned AF-20 (Agricultural and Forest District) by Washington County with a minimum lot size of 80 acres. The entirety of the property is located within the Sherwood West Preliminary Concept Plan area (Metro Urban Reserve Area 5B). The site slopes

gently down to the east towards SW Elwert Road with approximately 40 foot grade change across the site. There is a shallow valley and ridge within this slope.

The properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the road realignment. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

Case History: The Sherwood School District (District) is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Local Government Statement: This UGB major amendment is being considered at the request of the Sherwood School District. The City of Sherwood completed the Sherwood West Preliminary Concept Plan for urban reserve area 5B and submitted a service provider form supporting the school district's application. The school district participated in the concept planning process and the subject site is one of the school locations identified in the preliminary concept plan. Washington County submitted a written statement supporting the application with proposed conditions for Metro to consider. Tualatin Valley Fire and Rescue submitted a written statement supporting the application and Clean Water Services is neutral on the application.

SECTION III: APPLICABLE REVIEW CRITERIA

The criteria for a Major Amendment to the UGB are contained in Metro Code Section 3.07.1425(B, C, D, E, & F) and 3.07.1440 (A & B). The approval criteria appear ***bold 12-pt Aerial Narrow font),*** and the hearings officer's analysis follows.

> ***Metro Code Section 3.07.1440(A) The purpose of the major amendment process is to provide a mechanism to address needs for land that cannot wait until the next analysis of buildable land supply under ORS 197.299. Land may be added to the***

UGB under this section only for the following purposes: public facilities and services, public schools, natural areas, land trades and other non-housing needs;

This code section requires that the applicant show, by substantial evidence in the whole record, that it is an eligible entity allowed to use the interim ORS 197.299 Major Amendment UGB process rather than wait until the next regular Metro UGB amendment cycle (in December, 2018).

Hearings Officer's Analysis: Title 14 of the Metro Code (*i.e.* Metro's Urban Growth Management Functional Plan) includes the Major Amendment process to amend the UGB for a number of specific non-housing needs, including schools and public parks. This process, which is designed to implement ORS 197.299(4), is intended to provide an opportunity to meet these specific land needs outside of the legislative housing needs process the Metro Council conducts on a six-year cycle as required by ORS 197.299(1) and ORS 197.296.

As part of the six-year legislative housing needs process, Metro conducts an inventory of the current residential and employment capacity within the UGB, forecasts population and employment growth over a 20-year timeframe, determines the capacity of the current UGB to accommodate that growth and documents the results of these analyses in an urban growth report. ORS 197.296(6)(a), which is one of the state's needed housing statutes, envisions that local governments with populations over 25,000 will factor in land for schools at the same time as they determine the amount of land needed to be brought in to the UGB for housing. In this regard, the need for land for schools under ORS 197.296(6)(a) is a "derivative need" which is linked to, and dependent upon, a finding that there is a need for land to be brought into the UGB to accommodate an identified housing need. As noted in more detail below, this process has proven to be long, drawn out affair, which is not sensitive to short-term needs. Furthermore, because it is done on a large-scale regional basis, is not always sensitive to more localized school and park needs.

In fact, Metro's most recent urban growth report, adopted in 2015, did not address school and park land needs at the regional level at all. Some school districts anticipate growth, others see declining enrollment and none look out over the 20-year timeframe that the urban growth report considers. Depending on the particular physical, financial and expected growth characteristics of each school district, plans for accommodating projected increases in enrollment vary. Similarly, park districts acquire property and develop park facilities based on numerous operational and funding parameters that can't be considered at the regional level. In addition, it is quite common for school districts and cities to collaborate on opportunities to meet the city's recreation needs as well as the school district's team needs. For these reasons, the Major Amendment process is the appropriate means of addressing specific school district and park needs that can be accommodated through UGB expansions.

Metro has adopted specific criteria to implement ORS 197.299(4). There are two criteria contained in Metro Code section 3.07.1440(A) that are analyzed separately below:

1) The proposal must be for a non-housing need, and

> 2) The proposal must be intended to meet needs that cannot wait until the next analysis of land supply (December 2018).

There does not appear to any disagreement that the first criterion is met: the applicant proposes to add land to the boundary for a public school and a public facility need, both of which are non-housing needs. The Sherwood School District's Sherwood High School is a "public school" within the meaning of Metro Code Section 3.07.1440(A).

However, whether the applicant has met the second criterion has proven to be more controversial. The applicant addresses its need as follows:

> As of 2015, the Sherwood School District encompasses 4.31 square miles serving a population of approximately 18,884 residents and 5,000 students. The Sherwood School District includes:
> - The City of Sherwood city limits;
> - Portion of the western area of the City of Tualatin (mostly industrial land);
> - Rural Clackamas County (primarily between Sherwood and Wilsonville); and
> - Rural Washington County north and west of Sherwood, as well as a small area east of I-5 between Wilsonville and Tualatin.
>
> To facilitate future planning and to comply with State requirements for a fast-growing school district, the District adopted a long-term facilities plan in January of 2008, which assumed that additional school capacity would therefore likely be needed within ten years of the plan's adoption. As predicted school facilities have recently become overtaxed. In 2015, to assess current resources, the Sherwood School District completed a Facilities Planning and Assessment Report to determine both condition and available capacity. Enrollment based on the most current demographic data and capacity shows that school capacity is near or over capacity at all school levels as shown in Staff Report Attachment 2 (Table 1 in petition).
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the

high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

From the updated capacity assessment and demographic data, it became apparent that facilities must be expanded to keep pace with continued student enrollment growth. A Long Range Planning Committee, Bond Steering Committee, Bond Visioning Committee and Sherwood High School Programming Committee were formed to study facility needs. Led by the Bond Management Team, these committees met from 2014 to 2016, making recommendations to the Sherwood School District Board. The process included input from a number of participants from the community including City Council and staff representation, School District staff, architects, civil engineers, financial advisors, business leaders, citizens, parents and students. Throughout this process, the Sherwood City Council was provided with updates and community input was sought via various public outreach methods.

As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth. With the conclusion that the existing high school cannot be upsized to meet demand, the District's Bond Management Team began looking for a long-term solution and the School Board, with voter approval, ultimately decided to build a new high school. The new high school is planned to be sized to initially accommodate 2,000 students, but allow for easy expansion to 2,400 students. This size will allow for projected growth over the next 10 years and foreseeable future.

Once a new high school is online, the existing high school building can be repurposed as a consolidated middle school with both existing middle schools (Laurel Ridge and Sherwood Middle) being relocated to the existing high school campus. Once this occurs, the two existing middle schools can be converted to elementary school use to expand needed elementary school capacity. Finally, the proposal allows for Hopkins Elementary School, a building nearing its useful lifespan, to be taken out of

> school service and converted to administrative functions. The existing administrative offices consist of portable buildings in varying locations and with the conversion of Hopkins, office space can be centralized for increased efficiencies.

The primary opponent argues that the applicant has not justified the use of the Major Amendment process instead of waiting until the normally scheduled Metro 2018 UGB expansion. Their attorney states: "Metro's scheduled UGB expansion in 2018 is the appropriate time to analyze the expansion for the proposed high school because more data will be available and the full set of impacts can be analyzed. The delay will also resolve the issues with inadequate notice in the current application." *See* Letter from Jennifer Bragar dated June 6, 2017, at p. 8.

What the opponents appear to be arguing is that this application is premature, and the applicant should wait until 2018 when the 20-year buildable lands analysis will be available. Furthermore, the opponents do believe that the Major Amendment process authorized by ORS 197.299(4)(a)(A) requires the same type and level of analysis required when Metro conducts its periodic legislative housing need analysis required by ORS 197.299(1) and ORS 197.296. The opponent's unstated assumption is that school needs must be evaluated as a derivative need of housing using the ORS 197.296(6) process.

Metro staff weighed in on the debate via a Memorandum dated June 9, 2017, which states, in relevant part:

> Metro's legislative process for reviewing the UGB is guided partially by ORS 197.296. Subsection 197.296(2) directs Metro to demonstrate that there is sufficient buildable land within the UGB to accommodate estimated housing needs for 20 years. A housing need is the only need identified in the statute. ORS 197.296(6) says if the housing need is greater than the capacity of the UGB Metro shall take one or more actions that could include amending the UGB to include sufficient buildable lands to accommodate housing needs for 20 years. Subsection (6)(a) goes on to say that if the UGB was amended to accommodate housing needs for the next 20 years, then the amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities.
>
> The statutory directive to Metro is to include sufficient land for school facilities as part of any UGB expansion that is required to meet a 20-year need for housing. In Metro's most recent analysis of the 20-year housing supply (the 2015 UGR), Metro determined there was sufficient capacity inside the existing UGB to accommodate housing needs; therefore, no corresponding analysis for public school facilities was required.

> Even if the Metro Council had determined there was a need to expand the UGB in 2015 to accommodate a 20-year housing need, there is no certainty that the location where the land would be added to meet the housing need is also a location where a local school district needs additional land to meet its facility needs. Likewise there is no certainty that the specific land needs of a school district are coordinated with the local jurisdictions desire for additional housing. For instance, a UGB expansion adjacent to Hillsboro to meet a regional housing need would not support the Sherwood School District's need for a new high school.
>
> These difficulties arise, in part, from the size of the Metro region and the fact that it consists of 24 individual cities and 17 different school districts. It is important to recognize that the provisions of ORS 197.296(6)(a) regarding planning for accommodation of new school facilities is included in the statutory section that describes the analysis required for all cities in the State of Oregon. While it would not be as difficult for a smaller jurisdiction to coordinate future public school needs with future housing needs in making UGB expansions, that task is much more complicated in the Metro region.
>
> The disconnect in the Metro region between the location of UGB expansions to meet a 20-year housing need and the needs of existing school districts is addressed, in part, by ORS 197.299(4)(a), which is the statute that directs Metro to establish the process being utilized by the Sherwood School District in this proceeding. ORS 197.299(4)(a) requires Metro to allow "off-cycle" UGB expansions as necessary to accommodate a need for land for a public school that cannot reasonably wait.

Given that the opponents have a very different interpretation of the purpose and meaning of ORS 197.299(4) when compared to Metro staff and the applicant, a discussion of statutory interpretation is in order.

A statute is considered "ambiguous" if it is capable of at least two reasonable interpretations. *State v. Tarrence*, 161 Or App 583, 985 P2d 225 (1999); *Kenton Neighborhood Ass'n v. City of Portland and Oregon Waste Systems, Inc.*, 17 Or LUBA 784, 797 (1990) (when code is internally inconsistent, it is ambiguous).[1] If the legislation is unambiguous, local governments and courts are bound to apply the statute in that manner, regardless of how inartful the enactment seems. *Sanchez v. Clatsop County*, 146 Or App 159, 164 n 4, 932 P2d 557 (1997). Stated another way, an unambiguous statute should not be "interpreted." *City of Hillsboro v. Housing Dev'l Corp of Washington County*, 61 Or App 484, 488, 657 P2d 726 (1983). *See GTE*

[1] *See also Fisher v. City of Gresham*, 69 Or App 411, 416, 685 P2d 486 (1984); *McCoy v. Linn County*, 90 Or App 271, 276 nl, 752 P2d 323 (1988).

Northwest, Inc., v. Oregon Public Utility Comm'n, 179 Or App 46, 39 P3d 201 (2002). Rather, unambiguous words should be given their plain, natural, and ordinary meaning. *PGE v. BOLI*, 317 Or at 611.[2]

In this case, the hearings officer believes that the relationship between ORS 197.296 and ORS 197.299 creates sufficient ambiguity to warrant an exercise of statutory interpretation.

Text and Context.

When construing a statute, the court will often first look directly at the text of the statute itself. *See Whipple v. Howser*, 291 Or 475, 635 P2d 782 (1981) (citing *Greyhound Corp. v. Mount Hood Stages, Inc.*, 437 US 322, 330, 98 S Ct 2370, 2375 (1978)). Emphasizing the need to look first to the language of the statute, the *Whipple* court stated:

> "The cardinal rule for the construction of a statute is to ascertain from the language thereof the intent of the law makers as to what the purpose was to be served, or what the objective was designed to be attained."

Whipple, 291 Or at 479 (citing *Swift & Co. and Armour & Cove, Co. v. Peterson*, 192 Or 97, 233 P2d 216 (1951). *See also State of Oregon v. Buck*, 200 Or 87, 92, 262 P2d 495 (1953). The *Whipple* court also cited to *State ex rel. Cox v. Wilson*, 277 Or 747, 562 P2d 172 (1977), in which the court stated:

> "There is, of course, no more persuasive evidence of the purpose of a statute then the words by which the legislature undertook to give impression to its wishes."

Courts do not view the text in a vacuum; they consider the context of the language at issue as well. In fact, the context of the statute is as important to the interpretation as the text. *State v. Webb*, 324 Or 380, 927 P2d 79 (1996); *Friends of Neaback Hill v. City of Philomath*, 139 Or App 39, 48, 911 P2d 350 (1996). *See e.g., Shadrin v. Clackamas County*, 34 Or LUBA 154 (1998). In some cases, the court may consider the context before examining the text, in situations where the context "provided perspective on the text." *See Plotkin v. Washington County*, 165 Or App 246, 250, 997 P2d 226 (2000). In this case, consider the two statutes in tandem.

ORS 197.299 provides as follows:

---

[2] *See also OSHU v. Hass*, 325 Or 492, 501, 942 P2d 261 (1997); *Zidell Marine Corp. v. West Painting, Inc.*, 322 Or 347, 906 P2d 809 (1995); *State v. Langley*, 314 Or 247, 256, 839 P2d 692 (1992); *Curly's Dairy, Inc. v. State Dept of Agriculture*, 244 Or 15, 415 P2d 740 (1966) (If statute is clear and unambiguous, the court may not resort to rules of statutory construction in ascertaining and declaring the legislative intent.); *Sullivan v. City of Ashland*, 130 Or App 480, 882 P2d 633, *rev den*, 320 Or 453, 887 P2d 792 (1994) (An unambiguous code provision cannot be interpreted, even if that provision is contrary to the express purposes of the provision.); *City of Portland v. White*, 61 Or App 120, 655 P2d 629 (1982).

197.299 Metropolitan service district analysis of buildable land supply; schedule for accommodating needed housing; need for land for school; extension of schedule.

(1) A metropolitan service district organized under ORS chapter 268 shall complete the inventory, determination and analysis required under ORS 197.296(3) not later than six years after completion of the previous inventory, determination and analysis.

(2)(a) The metropolitan service district shall take such action as necessary under ORS 197.296(6)(a) to accommodate one-half of a 20-year buildable land supply determined under ORS 197.296 (3) within one year of completing the analysis.

(b) The metropolitan service district shall take all final action under ORS 197.296(6)(a) necessary to accommodate a 20-year buildable land supply determined under ORS 197.296 (3) within two years of completing the analysis.

(c) The metropolitan service district shall take action under ORS 197.296(6)(b), within one year after the analysis required under ORS 197.296(3)(b) is completed, to provide sufficient buildable land within the urban growth boundary to accommodate the estimated housing needs for 20 years from the time the actions are completed. The metropolitan service district shall consider and adopt new measures that the governing body deems appropriate under ORS 197.296 (6)(b).

(3) The Land Conservation and Development Commission may grant an extension to the time limits of subsection (2) of this section if the Director of the Department of Land Conservation and Development determines that the metropolitan service district has provided good cause for failing to meet the time limits.

(4)(a) The metropolitan service district shall establish a process to expand the urban growth boundary to accommodate a need for land for a public school that cannot reasonably be accommodated within the existing urban growth boundary. The metropolitan service district shall design the process to:

(A) Accommodate a need that must be accommodated between periodic analyses of urban growth boundary capacity required by subsection (1) of this section; and

(B) Provide for a final decision on a proposal to expand the urban growth boundary within four months after submission of a complete application by a large school district as defined in ORS 195.110.

(b) At the request of a large school district, the metropolitan service district shall assist the large school district to identify school sites required by the school facility planning process described in ORS 195.110. A need for a public school is a specific type of identified land need under ORS 197.298 (3). [1997 c.763 §2; 2001 c.908 §2; 2005 c.590 §1; 2007 c.579 §2; 2014 c.92 §5]

As quoted above, ORS 197.299(1) cross-references ORS 197.296(3), which, in term, cross-references to ORS 197.296(2). These two statutes together set forth a process for evaluating and accommodating housing needs:

> *(2) At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use, a local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years. The 20-year period shall commence on the date initially scheduled for completion of the periodic or legislative review.*
>
> *(3) In performing the duties under subsection (2) of this section, a local government shall:*
>
> *(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and*
>
> *(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.* (Underlined emphasis added).

As the underlined language indicates, ORS 197.296 is a statute narrowly-tailored towards the process used to establish and fulfill an identified *housing* need. It is an expansion of the basic concepts set forth in Statewide Planning Goal 10, but it goes beyond Goal 10 in scope.

As part of that process, the effect of ORS 197.296(6) should also be considered as context:

> *(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need:*
>
> *(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school*

districts and the local government that has the authority to approve the urban growth boundary;

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall monitor and record the level of development activity and development density by housing type following the date of the adoption of the new measures; or

(c) Adopt a combination of the actions described in paragraphs (a) and (b) of this subsection.

A few key points can be quickly gleaned from ORS 197.296. First, by its terms, ORS 197.296(2) only applies to periodic review or another "*legislative* review of the [.. .] regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use. " This Major Amendment application is not periodic review and is also not a legislative review of Metro's regional framework plan, *i.e.*, the every six-year UGB amendment cycle. The Major Amendment application is subject to a quasi-judicial process and will result in a quasi-judicial decision by the Metro Council.

Strawberry Hill 4 Wheelers v. Board of Comm'rs sets out a list of factors to be weighed to determine whether a land use decision is legislative or quasi-judicial. 287 Or 591, 602-603, 601 P2d 769 (1979). Under *Strawberry Hills*, the Major Amendment is quasi-judicial because (a) the application process is bound to result in a decision, (b) the decision must apply pre-existing criteria to concrete facts, and (c) the action is directed at a closely circumscribed factual situation.

With regard to the first question, the *Strawberry Hills 4-Wheelers* Court asks practitioners to consider the following question: "Does the statute require the [local government] to reach a decision after the hearing, as in an adjudication, or may it indefinitely postpone or abandon the issue, like a legislative proposal?" 287 Or at 605. At first glance, one might assume that any land use decision that originates from an application being submitted (as opposed to be initiated by the local government itself) would be "bound to result in a decision." Indeed, that seems to have been the original intent of the *Strawberry Hill* Court. However, over the years LUBA and the Court of Appeals have increasingly read this factor more and more narrowly and will only find that that a decision is "bound to result in a decision" if the code either expressly requires a decision to be made, or if that requirement can be fairly read into the language of the code based on the context. *Estate of Gold v. City of Portland*, 87 Or App 45, 48, 740 P2d 812 (1987) ("the statute simply says that the governing body *may* approve the proposal, not that it *must* do anything."); *Johnson v. City of La Grande*, 37 Or LUBA at 388; *Valerio v. Union County*, 33 Or LUBA 604 (1997); *Miner v. Clatsop County*, 46 Or LUBA 467 (2004). In some cases, LUBA has not been as exacting in its analysis, holding that although the code did not:

> "expressly state that once a person requests an interpretation of a provision of the city's zoning ordinance that the person is entitled to a decision. We believe, however, that any reasonable person reading this ordinance would conclude that if a person requested an interpretation from the planning director, received that interpretation and then appealed the interpretation to the planning commission and to the city council, the person filing the appeal would be entitled to a decision from the city council."

Hoffman Ind. Inc. v. City of Beaverton, 2 Or LUBA 411 (1981); *Dean v. City of Oakland*, 33 Or LUBA 806, 809 (1997)("While the cited policy does not require a decision within a specified time, the most natural reading of its terms requires a decision.") The fact that any given ordinance in question states that the decision-maker "may" make a decision should not be a fact which is determined to be indicative of a legislative decision, but unfortunately, in practice it is just that. In this regard, the statute at issue in *Strawberry Hill* did not expressly require that a decision be made. However, the Supreme Court found no difficulty in concluding that "although affirmative action is optional, the statute appears to contemplate that the County Court will *eventually* reach and pronounce some decision whether to act or not. *Id*. at 606. (Emphasis added).

In this case, the MC 3.07.1440(g) requires the Metro Council to make a final decision on the petition. Therefore, this factor suggests that the decision is quasi-judicial.

The second of the *Strawberry Hill* questions has, in practice, become somewhat of a non-factor. Both LUBA and the Court of Appeals have recognized that all land use decisions in Oregon are subject to "preexisting criteria" and apply to concrete facts. LUBA has addressed this issue as follows:

> Turning to the "apply existing criteria to concrete facts" factor, that factor is present to some extent in all land use decisions. *Valerio*, 33 Or LUBA at 607. This factor is therefore less important than the other two factors, particularly where, as is the case here, the decisions are adopting new land use laws rather than applying existing land use laws to grant land use approval for a single property or a small number of properties. *Churchill v. Tillamook County*, 29 Or LUBA 68, 71 (1995); *McInnis v. City of Portland*, 27 Or LUBA 1, 5-7 (1994).

Carver v. Deschutes County, 58 Or LUBA 323 (2009). *See also Casey Jones Well Drilling, Inc. v. City of Lowell*, 34 Or LUBA 263, 271 (1998); *Johnson v. Jefferson Country*, 56 Or LUBA 72 (2008). In this case, the MC 3.07.1440 sets forth criteria for a Major Amendment to a UGB. Therefore, this factor suggests that the decision at issue is quasi-judicial.

Under the third factor, LUBA and the Courts are supposed to assess whether the decision either (1) affects either a small number of owners and properties or (2) the "action directed at a closely circumscribed factual situation," or whether the decision has more broad

applicability. According to early decisions by the Court of Appeals, "the number of people affected and the size of the area covered are less important considerations," and the focus should instead be on "the importance of assuring that the decision is factually correct and that the decision-maker gives fair attention to affected individuals." *1000 Friends of Oregon v. Wasco Co. Court*, 80 Or App 532, 536, 723 P2d 1034 (1986), *rev'd on other grounds*, 304 Or 76, 742 P2d 39 (1987). In practice, this third bean-counting "factor" has become the most critical issue to LUBA, and, despite suggestions to the contrary, in most cases it is more-or-less the dispositive factor. In fact, LUBA has found decisions to be legislative even when the other two factors favored a determination that a decision was quasi-judicial. *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992).

In this case, the proposal involves 82 acres consisting of four tax lots in unknown ownerships. This is well within the size and ownership limits that would allow the conclusion that the decision is quasi-judicial.

The primary opponent argues that this Major Amendment is a "legislative decision," The primary opponent states that "[t]he decision amends the Metro Boundary map that is incorporated into the Metro Urban Growth Functional Plan, and as such the change is legislative." *See* Letter from Jennifer Brager dated June 23, 2017 at p. 1. However, map amendments are not necessarily or inherently legislative or quasi-judicial in nature. *Compare Thomas v. City of Veneta*, 44 Or LUBA 5 (2003) (TSP and zoning map amendment affecting two tax lots comprising 6.4 acres); *Dan Giles & Assoc., Inc. v. McIver*, 113 Or App 1, 3, 831 P2d 1024 (1992)(zone change for single 29-acre parcel in unified ownership is quasi-judicial); *Neuberger v. City of Portland*, 288 Or 155, 603 P2d 771 (1979) (re-zoning involving 601 acres of land owned by three landowners is quasi-judicial).[3] *Contrast Valerio v. Union County*, 33 Or LUBA 604 (1997) (comprehensive plan amendment and zone change pertaining to 185 acres in a "number of different ownerships" is legislative); *Friends of Cedar Mill v. Washington County*, 28 Or LUBA 477 (1995) (PAPA relocating arterial and changing it from 5 lanes to 3 lanes is legislative, where it affects 40 properties and will carry 17,000 – 18,000 trips per day.); *McInnis v. City of Portland*, 27 Or LUBA 1 (1994) (Proposal which rezones 5000 acres in 110 different ownerships is legislative.); *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992) (Transportation plan map amendment that directly involves nine property owners, but has "indirect effects" on a broader population is legislative). Nor is a UGB amendment inherently legislative in nature. *BenjFran Development, Inc. v. Metro*, 17 Or LUBA 30 (1988) (denial of request for UGB amendment comprising almost 500 acres in three ownerships is quasi-judical).

Cases such as *Davenport* and *Friends of Cedar Mill* suggest that large transportation projects will be considered legislative due to the broad secondary effects that transportation facilities can have on commuters. The hearings officer does not believe that this line of cases can be extended to a school, however, based simply on the fact that many kids will attend the school. If that were the case, then any land use decision involving a Wal-Mart or Home Depot store would be legislative, because those uses have higher usage / trip generation rates than a typical school.

[3] *See Neuberger v. City of Portland*, 37 Or App 13 (1978), *rev'd in part, aff'd in part*, 288 Or 155, 603 P2d 771 (1979).

Opponent's counsel cites *Colwell v. Washington County*, 79 Or App 82, 87-8 (1986) for the proposition that this Major Amendment is a legislative (and not a quasi-judicial) decision (*see* Bragar letter dated 23 June 2017, pp 1-2). *Colwell* does not support that conclusion, and is easily distinguished. In *Colwell*, the Washington County Planning Commission made a land use decision which opponents wished to appeal to the Board of Commissioners, but their appeal was dismissed for failure to timely pay for the quasi-judicial Planning Commission hearing transcript. *Colwell*, 79 Or App at 85. Opponents appealed to the LUBA, which dismissed the appeal for failure to exhaust remedies at the local (County) level. The Oregon Court of Appeals reversed and remanded, finding that the Washington County governing body (*i.e.* the elected Board of County Commissioners) - and not the unelected County Planning Commission - must make Comprehensive Plan amendments, pursuant to ORS 215.050(1) and ORS 215.060.

Opponent's argument might have some merit if this unelected hearings officer was the one to make the final decision on this Major Amendment land use application. Only the elected Metro Council has that authority, however. This hearings officer's findings and determination are merely a recommendation to the Metro Council, and the Council is free to accept or reject this Hearings officer's decision, as the Council sees fit. Since the Metro Council will be the governmental body to make the final land use decision in this case, the Court of Appeals' holding in *Colwell* shall be followed for this application.

Despite the lengthy analysis set forth above, the hearings officer does not really believe that the quasi-judicial vs. legislative debate is dispositive, in any event. Rather, it is a red herring. Stated another way, the hearings officer does not believe that ORS 196.296 would apply to this UGB Amendment even it was a legislative decision. By its terms, ORS 197.296 only applies to UGB amendments that "require the application of a statewide planning goal relating to buildable lands for residential use." As discussed elsewhere in this recommendation, an amendment to a UGB which adds AF-20 zoned land for use as a school does not implicate Goal 10 in any meaningful way .

Second, ORS 197.296 sets forth a mandatory periodic process that is focused on only one type of land need: a need for housing. We can credit the Home Builder Association for being active in the legislature over the past 30+ years and influencing the adoption of specific statutory language, such as ORS 197.296, which relates specifically to their industry. But we should also not lose sight of the fact that there are other types of land need under Goal 14 that don't implicate ORS 197.296.

Taking a step back, recall that Goal 14 states that a UGB amendment must be based on consideration of six factors set forth in the Goal. The first two factors are commonly referred to as the "need" factors. The need factors require either a demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, <u>*or*</u> a demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories. While the need for housing is governed by ORS 197.296, other land needs are governed by Statewide Planning Goal 14, and in some cases, by OAR Ch. 660, Div 24. Note, as an example, that OAR Ch. 660, Div. 24 does not address now a livability need is established; Goal 14 seems to be the sole administrative pronouncement of its use. What is important to understand for purposes of this case is that ORS 197.296 is not the sole way to

establish land need, and a school need is not limited to being established as a derivative need of housing under ORS 197.296(6).

Among the more common types of land need mentioned in Goal 14 include a need for employment land, a need for public facilities, a need for schools, a need for parks, and the amorphous catch-all known as a "livability need."[4] With one exception related to public schools, ORS 197.296 does not govern substantively how these other types of land needs are established. Nor does it establish a *process* by which those other needs are established. Rather, ORS 197.296(2) & (3) are narrowly focused on accommodating a housing need, and as shown below, accommodating land for public schools as a derivative need stemming from housing need.

Consider ORS 197.296(6) as context: this statute applies when a local government is undertaking periodic review or a legislative review of a UGB that implicates Goal 10. If during such a process, the local government determines that a need exists for additional residential land and that accommodating that land need must necessarily involves a UGB amendment, then ORS 197.296(6)(a) requires that local government to "include sufficient land reasonably necessary to accommodate the siting of new public school facilities." Thus, under that process, a public school facility is considered a derivative need that arises by operation of a demonstrated need for housing. However, there is nothing in ORS 197.296(6) that makes ORS 197.296 the exclusive process by which a need for schools can be established. As demonstrated by the applicant a need for new school facilities can exist independent of housing needs. And while the primary opponent chalks up the applicant's current need to poor planning on the District's part (a sentiment that may have some basis in fact), ORS 197.299(4) appears to written as a safety value that can be used by school districts regardless of the causes that led to the need.

ORS 197.299(4)(a)(A) provides additional key textual clues which helps understand the nature of the process currently being undertaken. This provision authorizes Metro to "establish" and "design" a "process" that will fulfill a need that must be accommodated "*between*" periodic analyses of urban growth boundary capacity required by subsection (1) of this section." By giving Metro the authority to "establish" and "design" a unique UGB amendment process for schools, the statute makes clear that the school need specific "4(a)" process is not the *same* process as the legislative six-year process required by ORS 197.299(1) and 197.296(3). The ORS 197.296 process is already "established" and "designed" by statute, and really only puts a regional government much as Metro in an implementation role. On the other hand, ORS 197.299 delegates to Metro a role that is greater than mere implementation of a pre-existing process. Furthermore, ORS 197.299(4)(a)(4) further emphasizes that the school-specific process is only supposed to be used "between" the 6-year legislatively-mandated processes for accommodating housing needs, and it can only be invoked if the identified school need cannot wait until the next scheduled six-year legislative process.

[4] LUBA cases confirm that a need to improve livability can provide a basis for adding land to a UGB. Such an analysis requires, in addition to identifying a significant livability problem, an evaluation of probable and negative impacts on livability that may occur if the UGB is amended, and an explanation of why the livability benefits outweigh negative impacts on livability. *1000 Friend of Oregon v. City of North Plains*, 27 Or LUBA 372, 383, *aff'd.*, 130 Or App 406 (1994); *1000 Friends of Oregon v. Metro Service Dist.*, 18 Or LUBA 311, 320 (1989).

The gravamen of opponents' complaints with respect to ORS 197.299(4) stem from a misunderstanding of the relationship between the ORS 197.299(1) six-year UGB amendment process with the ORS 197.299(4) public school amendment process. Much of opponent counsel's testimony at the June 13, 2017, hearing and again in her June 23, 2017 letter, was directed generally at a dissatisfaction with how Metro plans for regional housing and employment needs and opponents' opinion that allowing out-of-cycle UGB expansions for public schools exacerbates Metro's alleged poor planning. In its June 23, 2017 letter, opponents argued that this Major Amendment application does not meet the requirements of ORS 197.296(2).

At its core, the opponent's argument hinges on the assumption that the school-specific process must be substantively the same as the periodic six-year legislative process. Stated another way, the opponents argue that the substantive standards and criteria that govern the school specific process are the same as the housing-specific legislative process under which school need can be established as a derivative need. However, if that were truly the case, however, there would be no need for Metro to "establish" and "design" a new process. Rather, if the legislative intent was to mandate the same rigorous process that is used to establish housing need and to otherwise limit school need as a derivative need, the legislature would have simply stated that a school-related need can form the basis for accelerating the time frame under which the legislative housing need process is conducted. And that in itself does not make any sense because nothing in ORS 197.299(1) or ORS 197.296 prohibits Metro from conducting the legislative housing-needs process sooner than on a 6-year increment. In fact, ORS 197.299(1) merely states that Metro must undertake the ORS 197.296 process "*not later than six years after completion of the previous inventory, determination and analysis.*" In theory, Metro could voluntarily conduct that inventory and analysis on a bi-annual or other timeline. In light of this observation, ORS 197.299(4) would be a redundancy if interpreted in the manner that the primary opponent advocates.

Courts strive to give effect to all parts of a statute, in order to produce a harmonious whole. ORS 174.010.[5] As a corollary, courts will avoid interpretations that render a portion of the statute redundant or meaningless surplusage.[6] *See State v. Stamper,* 197 Or.App. 413, 418, 106 P.3d 172, *rev. den.*, 339 Or. 230, 119 P.3d 790 (2005) ("we assume that the legislature did not intend any portion of its enactments to be meaningless surplusage"). If the school-specific process were not a separate process governed by different substantive criteria than ORS 197.296, it would not accomplish anything that Metro did not already have the right to do.

Rather than being drafted as an authorization to conduct the existing six-year legislative housing needs process at any time increment earlier than six years if a need exists that cannot wait six years, ORS 197.299(4)(a)(A) contemplates a *new* process *designed* by Metro to cater to

[5] *Lane County v. LCDC*, 325 Or 569, 578, 942 P2d 278 (1997); *Bolt v. Influence, Inc.*, 333 Or. 572, 581, 43 P.3d 425 (2002) ("we are to construe multiple provisions, if possible, in a manner that will give effect to all"). *See also Davis v. Wasco IED*, 286 Or 261, 267, 593 P2d 1152 (1979); *Tatum v. Clackamas County*, 19 Or App 770, 775, 529 P2d 393 (1974); *Plotkin v. Washington County*, 36 Or LUBA 378 (1996); *Walz v. Polk County*, 31 Or LUBA 363 (1996); *Fechtig v. City of Albany*, 31 Or LUBA 410 (1996) (Ordinance).

[6] *Certain Underwriters at Lloyd's London and Excess Ins. Co., Ltd. v. Massachusetts Bonding and Ins. Co.*, 235 Or.App. 99, 230 P.3d 103 (2010); *State v. Stamper*, 197 Or.App. 413, 417, 106 P.3d 172, *rev. den.*, 339 Or. 230, 119 P.3d 790 (2005); *EQC v. City of Coos Bay*, 171 Or.App. 106, 110, 14 P.3d 649 (2000).

school needs as a primary independent need, not as a secondary derivative need resulting from a housing need. Because it is a different process that is intended to evaluate a needs other than a housing needs, the process and requirements (*i.e.* inventory, determination, and analysis) of ORS 197.296 do not apply to this separate process. And discussed below, the legislative history confirms this analysis.

Legislative History

Prior to 2001, the case of *Portland Gen. Elec. Co. v. Bureau of Labor & Indus.*, 317 Or 606, 611–612, 859 P2d 1143 (1993) (hereinafter *PGE*) made clear that legislative history could not be used to determine legislative intent if the text and context of the law made the meaning of that law unambiguous. The case of *State v. Gaines*, 346 Or 160, 171–172, 206 P3d 1042 (2009) essentially acknowledges that the *PGE v. BOLI* approach was legislatively modified in 2001 via amendments to ORS 174.020, and that the statute now permits the consideration of legislative history even when the text and context seem to make the meaning unambiguous. For this reason, a careful treatment of *Gaines* is warranted here.

The OSB publication entitled "Interpreting Oregon Statutes" Steve Johansen, Hon. Jack Landau, and Anne Villella ed. OSB CLE (2009) contains a lengthy but highly relevant discussion of *Gaines*, as follows:

> In *Gaines*, the defendant was convicted of obstructing governmental administration when she refused to cooperate in being photographed after her arrest. On appeal, she argued that her behavior did not constitute a "'means of . . . physical . . . interference or obstacle' "within the meaning of the relevant statute. *Gaines*, 346 Or at 162 (quoting ORS 162.235(1)). She argued further that the 2001 amendments to ORS 174.020 required the court to consider the legislative history of ORS 162.235(1) along with the text and context of the statute, even if the court found that its analysis of the text and context did not render the legislative intent ambiguous. *Gaines*, 346 Or at 165. Interestingly, in assessing the meaning of the 2001 amendments to ORS 174.020, the court found that a text-and-context analysis suggested that the amendments did not significantly change the *PGE* standard. *Gaines*, 346 Or at 166. However, the court did not stop its analysis at the text-and-context level. As the plaintiff argued that ORS 174.020 required, the court went on to examine the legislative history. The legislative history revealed a clear legislative intent to eliminate the requirement that a court only look to legislative history "if but only if" the text and context left the meaning ambiguous. *Gaines*, 346 Or at 169.
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> * * * * *.

> The court will now consider proffered legislative history even when the text and context of a statute appear to render it unambiguous. In effect, *Gaines* brings legislative history into the step-one analysis along with the text and context of a statute. That said, legislative history remains a second step of statutory analysis—the court will consider it only after analyzing the text and context of a statute. The weight the court gives that legislative history also remains within the discretion of the court. A party attempting to overcome seemingly plain and unambiguous text through reference to legislative history has "a difficult task before it." *Gaines,* 346 Or at 172.

Although *Gaines* modifies the *PGE* methodology, the full extent of that modification remains to be seen. However, a recent appellate court decision suggests the extent may be relatively slight. *State v. Kelly,* 229 Or App 461, 211 P3d 932 (2009). *Kelly* raised the issue of the meaning of ORS 811.335(1)(b), which requires drivers to signal a turn "during not less than the last 100 feet traveled by the vehicle before turning." The defendant, who signaled a turn after he had stopped at an intersection, argued that the legislative history showed that the intent of the statute was to require a signal for at least as long as it took to travel the last 100 feet, but not to signal for the specified distance. The court agreed that under *Gaines* it needed to consider the legislative history. The court also made several points as to what weight it would give that legislative history.

The court first made clear that legislative history alone cannot overcome statutory text that is truly capable of only one interpretation. *Kelly,* 229 Or App at 466. Beyond that caution, the court explained the traditional limits of legislative history: legislative history is most helpful when it uncovers the general legislative intent of a statute (*Kelly,* 299 Or App at 466); statements of single legislators or non-legislators are generally, though not always, less helpful (*Kelly,* 299 Or App at 466–467), and the existence of a particular problem that precipitated a bill does not necessarily mean the statute was intended to address only that problem (*Kelly,* 299 Or App at 468). What *Kelly* does not suggest is that *Gaines* changes in any significant way *how* courts use legislative history. Rather, it only changes *when* the court will consider legislative history. Thus, even under *Gaines,* legislative history will be most helpful when an analysis of the text and context does not resolve an ambiguity of the statute. Legislative history may also be useful to reinforce an apparently unambiguous interpretation of a statute. (Emphasis added).

Courts are not likely to be persuaded by legislative history when that history does not give any indication that the precise legal question at issue was considered during the legislative enactment.[7]

The subsection in question, subsection 4, was added to ORS 197.299 in 2005 as part of Senate Bill 1032. Testimony at legislative committee hearings from bill authors and proponents indicates SB 1032 was intended to grant Metro new expedited authority to expand the UGB for the purpose of allowing construction of new schools, and such a process would be separate from the "normal" UGB expansion process typically required by state statutes.

Testimony of several speakers during the May 17, 2005 public hearing provide insight regarding the policy goals behind SB 1032. The main speaker, Gary Conkling, represented the Beaverton School District and was one of the authors of the bill. Mr. Conkling began his testimony in favor of the bill by outlining the pressing problems that face the city of Beaverton. He stated that "in the last decade or so the Beaverton School District has added more than ten thousand students" and that those students alone would make up the fifteenth largest school district in the state.[8]

Mr. Conkling explained that overabundance problems are common in the metropolitan areas of Portland, and most suitable plots of land for schools have been used for other projects intended to spur economic development. Mr. Conkling "anticipate[d] [Beaverton] will have to look outside the UGB for one or more additional school sites" to meet the growing demand. He ended his testimony by stating two main objectives of SB 1032. First, the bill is designed to gain "guidance from Metro, cities, and urban service providers as to where we should look outside the UGB" for suitable plots of land for schools. Second, the bill has language that "will encourage Metro to provide an accelerated process to add those lands once . . . the need has been established . . . so that lands can be added on an accelerated basis to the UGB."[9]

Metro Legislative Affairs Director Randy Tucker, a second advocate of SB 1032, added some additional points regarding the purpose and scope of the bill. Mr. Tucker explained that developing lands for schools requires additional planning considerations than developing lands for other purposes because schools must be located in particular locations. These additional considerations include that ideally, schools should be located near city centers, and schools must fall within existing school district boundaries. This makes it even more difficult to find suitable land for new school construction without expanding the UGB.

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[7] For example, the court often dispense with legislative history in one sentence by stating simply that the legislative history is silent on the particular issue facing the court. *Ritcherson v. State*, 131 Or App 183, 186, 884 P2d 554 (1994) (seeking to determine if ORS 138.510(2) included retroactive application of its two-year statute of limitations period); *see also Windsor Ins. Co. v. Judd*, 321 Or 379, 387, 898 P2d 761 (1995) ("[W]hat little [discussion of the amendment] there was reveals nothing that sheds light directly on the question posed in this case."); *State v. Holloway*, 138 Or App 260, 267, 908 P2d 324 (1995) ("Unfortunately, our examination of the legislative history sheds no light on the matter."); *In Def. of Animals v. Or. Health Scis. Univ.*, 199 Or App 160, 173 n 9, 112 P3d 336 (2005) ("We note that the legislative history . . . provides no assistance in determining the provision's meaning.").

[8] Hearing on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Gary Conkling, Representative of Beaverton School District).

[9] *Id.*

Finally, Mr. Tucker added that Metro intended to implement SB 1032 by amending its own code to make it easier to expand the UGB for schools "when [new schools] cannot be reasonably accommodated in the UGB, and when they must be accommodated before we would normally do an UGB expansion." Here, Mr. Tucker indicated that Metro should be authorized to quickly initiate UGB expansion for schools outside of the "typical" or "normal" legislative process of reevaluating the buildable land supply inside the UGB every [six] years.

Later, in a May 31, 2005 work session on SB 1032, Messrs. Conkling and Tucker again provided testimony in support of the bill and explained its purpose and scope. Mr. Conkling stated the bill's main purpose is to provide Metro "[with a] process that can work in between its periodic review, and provide for an accelerated process to bring these school sites inside the UGB."

After the testimony of Mr. Tucker, Senator Charlie Ringo, Chair of the Committee, asked if the bill will "facilitate Metro addressing the problem with high growth districts not finding land for schools."[10] Mr. Tucker stated his answer was yes, and that the bill would provide the basis for immediate negotiation as to what land should be included in the UGB as part of an amendment. Mr. Tucker explained that the bill would be beneficial to districts like Beaverton because "it facilitates the process for expanding the UGB for a school district that has need." Mr. Tucker stated that ideally, after revising the Metro code to implement the statute, the process to expand the UGB to include land for a school would take only four months.

The legislative history of HB 1032 indicates that one main purpose of the bill was to streamline the process for amending the UGB for the purpose of building new schools. The testimony of both Conkling and Tucker describe a pressing need for land in metropolitan areas for new school construction that cannot always be met within the typical five-year UGB cycle. Proponents of the bill clearly express intent to grant Metro authority to amend the UGB through a process that would be separate from the regular review cycle and corresponding 20-year need analysis.

Proponents of the bill used words such as "streamline" and "accelerated" in the context of a new expansion process that could occur outside and separate from the "normal" time intensive 20-year need analysis, and described a process that would be based exclusively on a demonstrated need for additional school facilities. Testimony regarding the purpose of SB 1032 indicates that the purpose of the legislation was to allow a separate and expedited process exclusively for school siting, which would not be tied to the 20-year buildable land supply analysis that is required under ORS 197.296.

As described above, it is clear from legislative history that the 2005 Oregon legislature was acutely aware of the problem of holding school districts to a six year Metro planning cycle during the enactment of SB 1032. Metro's Randy Tucker specifically stated that SB1032

[10] Work Session on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Sen. Charlie Ringo, Chair, S. Comm. on Environment & Land Use).

"facilitated" school districts obtaining a UGB amendment for school facilities.[11] According to the Merriam-Webster dictionary, the word "facilitate" means "to make (an action or process) easy or easier." It makes little sense to believe that the legislature would desire to make obtaining a Metro UGB amendment *just as, or even more difficult* for schools while simultaneously creating an "accelerated" process specifically for schools. Indeed, Metro's own Legislative Affairs Director – no stranger to tightly-crafted statutory language - was quite clear in stating that the purpose of SB 1032 was to "facilitate" (that is, make easier) the process for Metro-area schools.

In addition, the hearings officer finds that the ORS 197.299's school-specific UGB amendment process is no less thorough or exacting than an application that could have been filed in due course of the next six-year Metro planning cycle. It is true, as opponents claim, that the next Metro 20-year buildable lands analysis is not yet available, and thus cannot be taken into account during this application. The law does not require that, however, and requiring school applicants to wait until the next six-year Metro planning cycle would render the passage of ORS 197.299 pointless. The entire point of ORS 197.299 was to provide schools with an interim, accelerated, easier ("facilitated") application process, rather than waiting for the next 6 year Metro planning cycle. Statutes should not be construed such that they make other statutes completely meaningless.

As noted above, the Metro Council is required to complete a 20-year forecast and analysis of land need to maintain a 20-year supply of residential and employment land inside the UGB on a six-year cycle. However the Metro Council has directed staff to complete an urban growth report in 2018, three years after the urban growth report was adopted in 2015, with a possible growth management decision occurring in December 2018 that may or may not result in an expansion of the UGB. Delaying the proposed amendment for these specific school and park needs until that time, when these types of specific needs are not addressed in the regional analysis, is not an appropriate or an efficient way to provide these needed services and would result in the District experiencing ever-increasing overcrowding of their facilities.

Thus, in summary, review of the text and context of ORS 197.299 and ORS 197.296 in combination with the legislative history of the 2005 Amendments which created ORS 197.299(4) bring the legislative intent into clear focus. ORS 197.299(4) explicitly provides a "safety valve" of sorts for public school needs. The statute de-couples the need for schools from the derivative secondary needs analysis set forth in ORS 197.296(6). The legislature apparently understood the critical nature of schools to serve the community and felt strongly enough about that to provide a mechanism to ensure that needed schools can be built. Opponents' attempt to saddle Major Amendments with all of the trappings of a six-year legislative review of the region's UGB is contrary to both the plain text of ORS 197.299(4) and its legislative history.

Having resolved the statutory interpretation question, we turn back to the evidence of need. The District originally adopted a long-term facilities plan in January 2008 that assumed additional school capacity would be needed in ten years. This proved true, as of 2017 the high

[11] Testimony before the Senate Environment and land Use Committee, May 31, 2005, beginning at minute 1.13, available at http://records.sos.state.or.us/webdrawer/webdrawer.dll/webdrawer/rec/4193397/ Mr. Tucker's statement is found at minute 1.18, in response to a question from Senator Ginnie Burdick.

school is at 109% of capacity and the four elementary schools are at 99% capacity. A ten-year demographic study by Davis Demographics & Planning Inc., completed in May 2016, forecasted a deficit in capacity at all levels with the high school operating at 141% of capacity. In order to meet the growing need, the District determined, with the assistance of numerous committees, that a new high school would be needed. Voters approved a bond measure in 2016 to construct a new high school and make other facility improvements. The applicant adequately addressed the urgent need for the new high school by substantial evidence in the whole record in its application submittal and its subsequent submittals. (*See* application narrative ("Narrative") at 14-15, 33, Appendices G, H, and I; June 8, 2017, District letter at 1-3, Attachment i; June 13, 2017, District letter at 5.)

The applicant has met its burden of showing compliance of the two criteria found in Metro Code section 3.07.1440(A) by substantial evidence in the whole record.

Metro Code Section 3.07.1440(B)

> **3.07.1440 Major Amendments - Criteria**
> **(b) The applicant shall demonstrate that the proposed amendment to the UGB will provide for an orderly and efficient transition from rural to urban land use and complies with the criteria and factors in subsections (b), (c), (d), (e), and (f) of section 3.07.1425. The applicant shall also demonstrate that: (1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land; (2) If the amendment would add land for public school facilities, the coordination required by subsection (c)(5) of section 3.07.1120 of this chapter has been completed; and (3) If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot reasonably be created by land assembly or reclamation of a brownfield site.**

[Note: This Provision Incorporates by Reference: 3.07.1425(B), (C), (D), (E), & (F), which are Discussed Below].

***MC** 3.07.1425(B)(1): Demonstrated need to accommodate future urban population, consistent with a 20-year population range forecast coordinated with affected local governments;*

Hearing Officer's Analysis: MC 3.07.1425(b)(1) requires that the Major Amendment application show a [d]emonstrated need to accommodate future urban population, consistent with a 20-year population forecast coordinated with affected local governments. " This criterion is taken word for word from the first need factor set forth in Statewide Planning Goal 14. In the context of periodic review, Factor 1 pertains to a determination of overall land need in order to accommodate population growth. In this case, the need is for additional school capacity to alleviate an overcrowding situation at the Sherwood high School. For this reason, the first need factor set forth at MCC 3.07.1425(B)(1) is to be considered, but it is not determinative by itself.

In *Residents of Rosemont v. Metro*, 173 Or App 321, 328, 21 P3d 1108 (2001), the Court of Appeals explained that "[w]e held in *Baker [v. Marion County,* 120 Or App 50, 852 P2d 254, *rev den*, 317 Or 485, 858 P2d 875 (1993),] that factors 1 and 2 of Goal 14 are interdependent and

that, if one of the factors is not fully satisfied, or is less determinative, that factor must still be considered and discussed in deciding if a need for expansion of a UGB has been shown under factors 1 and 2 of Goal 14."

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable need for the new Sherwood High School based on a forecast that is consistent with the adopted 20-year population range forecast which has been coordinated with affected local governments.

The District and Metro staff address this provision at: Application Narrative at pp. 15, 34, App'x H; May 4, 2017, staff report ("Staff Report") at 5; June 9, 2017, Metro memo; June 13, 2017, District letter at 1-2. In particular, the applicant attempts to meet its burden of proof with the following analysis:

> *As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.*
>
> *The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.*

Metro's 20-year population range forecast is part of the 2015 urban growth report ("UGR"). Therein, the Metro Council determined that the region could meet the expected 20-year residential and employment forecast need within the UGB and no expansion of the UGB was needed to meet housing or employment needs. The UGR did not address specific school and park land needs. As a result, the District prepared a ten-year demographic study that supports a need for additional land for a new high school in order to accommodate future urban population. The District completed this demographic study using population and demographic projections for the cities of Sherwood and Tualatin.

The parties do not focus much, if any, of their debate on whether the population and demographic projections in the District's 10-year study are "consistent" with the assumptions in the 2015 UGR. Such as comparison is complicated by the fact that the UGR takes a high-level regional look at residential and employment needs, whereas the District's 10-year demographic study is much more narrowly focused on Sherwood's population. Nonetheless, the hearings officer reviewed both the 10-year study and the UGR and finds that there is no glaring inconsistency between them. The 2105 UGR anticipates continued high levels of growth in our region. The UGR further recognizes that there is still a considerable amount of vacant and redevelopable land located in and near the City of Sherwood. This would indicate that the District needs to be prepared to accommodate a large amount of additional school children. Given that the regional 20-year forecast did not address school and park land needs, the District's ten-year demographic study, which supplements the long-term facility plan completed in 2008, demonstrates a need to accommodate future urban population by substantial evidence in the whole record. The applicant has provided information regarding a ten-year demographic study showing a need for providing specific school facilities to meet present and future populations based on established methodologies for the proposed use. The applicant also provided written and verbal testimony from experts such as architect Karina Ruiz of Dull Olson Weekes IBI Group Architects, Inc, planner Keith Jones AICP of Harper Houf Peterson Righellis Inc, and traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates. Having reviewed these materials and observed their testimony, the hearings officer finds them more credible and assigns great weight to their views.

Staff is also correct when it states that even if Metro had expanded the UGB in 2015 for a 20-year housing need, there is no guarantee that the location of the added land would have accommodated the specific need for a new high school in Sherwood. ORS 197.299(4) provides a safety valve for such a situation.

The primary opponent argues that the District could only demonstrate consistency with the 2015 UGR by submitting a new 20-year demographic study. *See* letter from Jennifer Bragar dated June 23, 2017, at p. 20. The opponent points to no specific law which expressly states such a requirement, and the hearings officer does not believe that such a requirement exists. As far as the hearings officer can determine, "consistency" in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here. *See* the updated 10-year demographic study conducted by Davis Demographics & Planning Inc. dated May, 2016. This is consistent with Goal 2, which requires the factual inventories and assumptions included in the comprehensive planning documents to form the "basis for all decisions and actions related to land use." *Rivergate Residents Ass'n v. LCDC*, 38 Or App 149,

5990 P2d 1233, *rev den*. 286 Or 521 (1979); *Hildenbrand v. City of Adair Village*, 217 Or App 623, 177 P3d 401 (2008) ("Plan policies or inventories can serve to justify subsequent and related plan amendments because comprehensive plans must be internally consistent under Goal 2.)" *See also 1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 26 P3d 151 (2001). *Compare GMK Developments v. City of Madras*, 225 Or App 1, 199 P3d 882 (2008) (Nothing in Goal 2 itself requires the sort of continuous data correction that the opponents urge us to impose in this case).

MC 3.07.1425(B)(1) requires the District to demonstrate a need to accommodate future urban population; consistent with the demographic study contained in the 2015 UGR. The District has done that, and that is all that is required. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425(B)(2): Demonstrated need for land suitable to accommodate housing, employment opportunities, livability or uses such as public facilities and services, schools, parks, open space, or any combination of the foregoing in this paragraph;

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable "need for land suitable to accommodate * * * uses such as * * * schools * * *." The applicant presents its case as follows:

> As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment

3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

The City of Sherwood and the Sherwood School District have an intergovernmental agreement to share ballfields. The City of Sherwood owns an extensive system of parks and trails. However, the City's ballfield resources are very limited with only one soccer field located at the City's Snyder Park. In the early 1990s, prior to rapid growth in the preceding 20 years, the City took measures to protect natural resources. This included the protection of floodplains and wetland areas surrounding the Cedar Creek stream corridor that flows south to north through the center of the City limits to the Tualatin National Wildlife Refuge. The City acquired much of this land and maintains these areas as natural open space, wetlands and walking paths. Since most of the areas are sensitive and passive recreation areas, they are off limits to ballfield construction. Because Sherwood has a very active sports community, the City and School District decided to share sports fields with most of these facilities being on school grounds.

In the case of the new High School site, the City owns the approximately 20-acre parcel in the southeast corner of the property. Some of this land, approximately 4 acres, will be used for the Elwert and Kruger Road realignment and roundabout, but the remaining balance will become part of the new high school campus and allow for construction of additional ballfields to be shared with both school and City sports functions.

As documented in Section III of the petition, viable high school sites are not available within the current UGB. The only viable sites, including the proposed site, have been identified within the Sherwood West Concept Planning Area (Urban Reserve Area 5B).

The subject site ("Site C") is the best alternative site considering that it has:

- No mapped sensitive areas (habitats, wetlands or waterways),
- Gently sloping topography to allow for construction of ballfields,
- Close proximity to SW Elwert Road and Highway 99W for ease of access,
- Availability of public utilities (water and sewer),

- Available downstream discharge point for stormwater, and
- Sufficient area to provide high school campus for 2,400 students and needed City/School District shared ballfields.

As shown above, the applicant has shown a compelling need for providing specific school facilities to meet present and future populations.

The City of Sherwood and the District have an intergovernmental agreement to share sports fields with most of the facilities on school grounds. The City has an extensive system of parks and trails but sport field resources are very limited with one soccer field located in a city park. Thus, the applicant has shown there is a demonstrated land need to accommodate both school and park services by substantial evidence in the whole record. That evidence may be found in the following: Applicant's Narrative at p. 12-32, 34, Appendices C, G, H, and I; June 8, 2017, District letter pp 1-3. Additionally, the applicant demonstrated that district bond financing rules require moving ahead with the application now, rather than wait until the end of 2018. *See* letter from applicant's counsel Kelly Hossaini dated June 8, 2017, page 3 (discussing the district's finances).

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (B)(3): A demonstration that any need shown under paragraphs (1) and (2) of this subsection cannot be accommodated on land already inside the UGB.

MC 3.07.1425(B)(3) requires an alternatives sites analysis showing that the needed new school cannot be accommodated within the existing UGB. This requirement stems from state law. Among other laws, Statewide Planning Goal 14 requires the applicant to consider, as part of the needs analysis, all suitable lands inside the UGB as positive alternatives, and even requires the City to consider whether zone changes could make land suitable for the project. *See Brandt v. Marion County*, 22 Or LUBA 473, 481 (1991); *Turner v. Washington County*, 8 Or LUBA 234, 258 (1982), *aff'd*, 70 Or App 575,689 P2d 1318 (1984).

The applicant's narrative discusses MC 3.07.1425(B)(3) at p. 19-21, 34-35. For example, on pages 16-17 of the narrative, the applicant states as follows:

> As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth.
>
> **Expansion of Existing High School**
>
> The existing Sherwood High School is located on approximately 37.8 acres of land at 16956 SW Meinecke Road. The existing high

school has capacity for 1,550 students and, as of the writing of this report, is well over capacity with an enrollment of 1,689. This growth is expected to continue with a needed student capacity of approximately 2,200 by the year 2025 and peaking at approximately 2,400 students. Therefore, the School District will need a long-term high school capacity for 2,400 students.

Expanding the existing high school campus to meet this need is problematic on many fronts due to existing size limitation and irregular configuration of the site boundaries. Further, the campus cannot expand beyond its current boundaries as the campus is completely surrounded by existing residential development to the north, south and west and Stella Olsen Park and the sensitive wetland areas along Cedar Creek to the east as shown in Staff Report Attachment 4(Figure 5 in petition).

With respect to the buildings themselves, the School District has made additions over the years to accommodate growth, but the buildings are now completely overtaxed. Based on capacity analysis performed by the School District's contract architect, DOWA, the existing high school campus could be renovated to accommodate only another 450 students. This would increase capacity from 1,550 to approximately 2,000 students. However, at 2,000 students, the school would only have capacity for 7 years requiring the School District to add capacity again down the road. In review of the School District's bonding capacity, the School District will not be in a financial position to make any changes in 7 years and would be saddled with overcapacity schools for the foreseeable future. Therefore expanding the existing campus would provide for a short-term fix but would not provide the long-term solution the District is looking for.

New High School Siting Criteria

With the determination that a new high school is needed, the Bond Management Team identified the following criteria for aid in locating sites for further consideration:

1. Minimum Size: 50 acres
2. Zoning: Site must be zoned or planned for residential or institutional use that allow schools
3. Location: Site must be in Sherwood or contiguous to Sherwood (The City of Sherwood and mostly western Sherwood is where 90% of the student population resides)
4. Topography: Flat to mostly flat to accommodate ballfields

5. Wetlands and Waterways: No wetlands or minimal wetlands/waterways
6. Water and Sanitary Sewer: Adequate public utilities must be available or can feasibly be extended to serve the site
7. Stormwater Drainage: Downstream drainage capacity must exist to accommodate new impervious areas
8. Transportation: Site must be located near major streets to allow ease of access for students and limited routing of school traffic and buses through existing or planned residential areas

Inside the Current UGB

Using Metro's Regional Land Information System, City's Residential Buildable Lands Map and concept planning documents, potential sites were searched within the Sherwood School District Boundary that is inside the Existing Sherwood Urban Growth Boundary and within the Wilsonville or Tualatin existing Urban Grown Boundary.

Northeast Sherwood (Commercial and Industrial Land)

Sherwood City Limits

The northwest area of the City of Sherwood is zoned commercial and industrial, zoning that does not allow for school uses. In addition, much of the commercial and industrial land is built-out or contains wetlands and sensitive areas that cannot be developed. The largest vacant developable site in this area is located at the southeast corner of SW Langer Farms Parkway and SW Century Drive and is only 22 acres, too small for a high school.

Tonquin Employment Area

In 2004, 300 acres of industrial land was added to the Sherwood urban growth boundary in east Sherwood, known as the Tonquin Employment Area. A concept planning document was completed for this area in October of 2010. None of the area has of yet been annexed into the City of Sherwood to allow for urban development. There is an 88 acre parcel that fronts SW Tualatin-Sherwood Road that has potential to accommodate a new high school (12900 SW Tualatin Sherwood Road – 2S128D000100). However, this parcel was added to the UGB for the purpose of providing industrial uses and not for school uses. In addition, this site is located at the far east end of the existing Sherwood city limits and is not close to the student population that predominately resides on the west side of Sherwood. Therefore, locating the

school here would result in an inconvenient and isolated high school campus in the midst of industrial uses. Thus, the site was rejected from further consideration.

South and West Sherwood (Residential Land)

The southern and western areas of Sherwood are mostly residential. Residential zoning allows for school uses. This is also where most of the School District's student population resides (more than 90% of the student population lives in southern and western Sherwood). South of the existing city limits and within the urban growth boundary is the 250-acre Brookman Road Addition Concept Planning Area (Brookman Planning Area). The primarily-residential Brookman Planning Area has a completed concept plan from May of 2009. However, the area has not yet been annexed into the City of Sherwood and therefore has not been developed for urban uses.

The City of Sherwood recently completed a draft Housing Needs Analysis dated June 2015 for the existing urban growth boundary. The housing needs analysis contained a 2014 residential buildable lands inventory map that identified vacant buildable residential land within the City's UGB including the Brookman Planning Area. The residential buildable lands inventory map identified some available residential land. However, the available land is fragmented and/or constrained with no large developable sites that would accommodate a high school campus of 50 acres. Further there is no opportunity to consolidate this fragmented land in a way that would meet the District's criteria for a high school site. The Sherwood Buildable lands map is shown in Staff Report Attachment 5(Figure 6 in petition).

Within the Wilsonville or Tualatin Urban Growth Boundary

There are some limited areas of the Sherwood School District that are within Wilsonville and Tualatin's urban growth boundary, including the following:

Southwest Tualatin Concept Planning Area

Adjacent and east of the Sherwood Tonquin Employment Area is the Southwest Tualatin Concept Planning Area. Similar to Tonquin, this 614-acre area was added to the urban growth boundary in 2004. The area is planned for industrial use, and is even further away from west Sherwood students than Tonquin Road. Therefore, the area was rejected from further consideration.

Basalt Creek and Coffee Creek Planning Areas

Both of these planning areas are too far from the west Sherwood student population to be seriously considered. In addition, discussions with the City of Tualatin, who is leading the planning for Basalt Creek, indicates that there are no sites large enough with the correct zoning within Basalt Creek that would accommodate a new high school. The Coffee Creek planning area is designated by Metro as Regionally Significant Industrial land. This designation does not allow for school uses under any circumstances.

In summary as noted in Section III of the petition there are no suitable sites for a new high school within the current UGB to serve the Districts target population.

As noted in the findings set forth above, the District first examined the ability to expand the current high school to meet future capacity needs. However expanding the existing high school building is problematic due to existing size limitation and the configuration of the existing school campus. The current high school building includes a series of additions designed and constructed in an attempt to incrementally accommodate growth in the student population, resulting in a crowded non-operational and functional facility. Thus additional expansions to meet long term needs are not possible. In addition, the current high school campus is surrounded by residential development on three sides with the fourth side bordering a city park and natural resource area, thereby not allowing expansion of the campus itself.

The District identified eight site location criteria to help guide their search for appropriate site locations within the Sherwood city limits as well as limited areas within Tualatin and Wilsonville that are within the District boundary. The analysis of land within the city limits offered no usable sites. The city's industrial and commercial zones don't allow school uses and the vacant and developable land within the residentially zoned portions of the city is fragmented and constrained with no large enough sites available. The industrial designated land within the UGB but not in the city (Tonquin Employment Area) does contain one site large enough to meet the need; however it was included in the UGB for industrial purposes, is adjacent to existing industrial uses including an active quarry site and is located away from the main student population base. The limited land area within Tualatin and Wilsonville also include either industrially zoned land or very limited parcel sizes that does not provide an opportunity to site a high school. In addition, these areas are even a longer distance from the main student population base in the central and western portions of the city.

No opponents take issue with the applicant's analysis.

The hearings officer believes that it is relatively obvious that there are no sites within the City limits that could meet the need, even considering rezoning as an option. While there is vacant land in the existing UGB, the applicant has shown there are no suitable sites within the

UGB to meet the identified land need. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (C)(1): If the Council determines that there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering the following factors:

(1) efficient accommodation of identified land needs;

Hearing Officer's Analysis: Once a local government establishes a "demonstrated need" to expand the urban growth boundary, it then must apply the Goal 14's four "locational factors." When Goal 14 was amended in 2005, the locational factors were amended to make clear that the analysis is to be comparative in nature, as opposed to establishing minimum thresholds. The rule now states:

> The location of the urban growth boundary and changes to the boundary shall be determined *by evaluating alternative boundary locations* consistent with ORS 197.298 and with consideration of the following factors:
>
> (1) efficient accommodation of identified land needs
> (2) orderly and economic provision of public facilities and services;
> (3) *comparative* environmental energy, economic and social consequences; and
> (4) compatibility of the proposed urban uses with nearly agricultural and forest activities accruing on farm and forest land outside the UGB. (Underline emphasis added).

Metro has taken the four state-mandated locational factors set forth in Goal 14 and expended them to nine factors. Regardless of this, the goal of the locational analysis remains the same as state law, which is to determine the "best" land to include within the UGB to meet the land need**,** based on appropriate *consideration and balancing* of each factor. *1000 Friends of Oregon v. Metro (Ryland Homes)*, 38 Or LUBA 565, 584 (2000), *rev'd in part on other grounds* 174 Or App 406, 26 P3d 151 (2001). In *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), the court stated that consideration of factors means that the local government must:

> "(a) apply and evaluate each factor, (b) weigh and balance the factors which are not independent approval criteria-as a whole, and (c) meaningfully explain why a designation as urban or rural reserves is appropriate. "

Barkers Five, 261 Or App at 300.

OAR 660-024-0060(3) also provides guidance for how one "considers" the location factors and states:

> The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all of the factors were considered and balanced.

In conducting this analysis, one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a *balancing* of all these factors, rather than reliance on any one factor. OAR 660-024-0060(3). *See also Branscomb v. LCDC*, 64 Or App 738, 745, 669 P2d 1192 (1983)(Court held that land could not be excluded from consideration *solely* because it was agricultural land and, as such, fared badly under factor 6). *D.S. Parklane*, 165 Or App at 25; *1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 409-10 (2001).

A related issue is that local governments often incorrectly treat the locational factors as threshold criteria. In fact, this misunderstanding was so pervasive that at one point LUBA even wrongly suggested that each of the locational factors had a "minimum objective threshold" that had to be identified and met by each site included in a UAR/UGB. *See D.S. Parklane Development, Inc., v. Metro*, 35 Or LUBA 516, 572-3 (1999), *aff'd as modified*, 165 Or App 1, 24, 994 P2d 1205 (2000). However, on appeal, the Court of Appeals clarified that the locational factors were not intended to be applied as threshold ("go - no go") criteria. *Id.* In other words, the intent is *not* to confirm that the preferred site was "good enough" to urbanize based on minimum threshold standards. Rather, the locational factors were intended to be "applied equally" to include lands into a UGB only "where all of the factors justify that inclusion." *Id.* In other words, the intent in establishing these factors was to assist in evaluating and ranking which site(s) amongst *all* potential candidate sites were, relative to one another, the *best* sites to urbanize in order to meet the demonstrated land need.

With that introduction in mind, we turn to a discussion of the first factor. The applicant discusses the first locational factor as follows:

> Urban reserves are lands outside the existing urban growth boundary that are considered suitable for accommodating urban development and expanding the growth boundary when additional urban land is determined to be needed over a 50-year period. The following urban reserve areas are within the Sherwood School District Boundary and are identified in Staff Report Attachment 6 (Figure 7 in petition):
>
> Sherwood North – North of Sherwood UGB
> Sherwood South – South of Sherwood UGB
> Sherwood West – West of Sherwood UGB
> Tonquin – South and West of Sherwood UGB
> Grahams Ferry – Northwest of Wilsonville

I-5 East – East of I-5 and north of Wilsonville
Elligsen Road - East of I-5 and north of Wilsonville

I-5 East, Elligsen Road and Grahams Ferry Urban Reserve Areas
These urban reserve areas were immediately rejected from further consideration due to the distance from west and south Sherwood where the majority of the student enrollment resides. These areas are 2 to 5 miles away in a straight line and even further when traveling on the road network.

Tonquin Urban Reserve Area
This area is directly south of the Sherwood Tonquin Employment UGB area and west of the Southwest Tualatin UGB area. The Tonquin Urban Reserve area encompasses approximately 571 acres. The area has parcels large enough to accommodate the high school site. However, much of the property is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II and III (Metro Title 3). This urban reserve area and it is likely to be designated industrial and/or employment due to its close proximity to other industrial areas. This urban reserve area is on the east side of the City and not centrally located for use by the majority of the School District students. The area is further isolated by a rock bluff that forms the eastern boundary of the current urban growth boundary and Sherwood City limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates this area from the existing residential neighborhoods of Sherwood. Finally, the area does not have adopted concept plan or plan for how utilities will be extended to serve the area.

Sherwood North Urban Reserve Area
This area represents slivers of land along the existing urban growth boundary at the north end of the City of Sherwood. The area was designated urban reserve because it is not within the floodplain of the Tualatin River. However, this land is not large enough to accommodate a high school site and therefore was rejected from further consideration.

Sherwood South Urban Reserve Area
This area is directly south of the Brookman Road UGB area. This area consists of rolling hills with much of the area identified by Metromap online mapping system having slopes greater than 10%. There is also two stream corridors that travel through the area with many areas mapped by Metromap as being riparian or upland habitat. One potential site is located between Oberst Road and Labrousse Road that is not mapped as having upland habitat or

riparian areas. However, this land is mapped by Metro as having slopes of greater than 10% making development of a high school campus and ballfields difficult. The biggest challenge of developing in this area is that the Brookman Road UGB area would need to be annexed and developed first before this area can be made available for development. Therefore, development in this urban reserve area is likely years away and the only promising site is at the south end of and not next to the existing Brookman Road UGB area. This area also does not have a concept plan. For these reasons, this area was rejected from further consideration.

Sherwood West Urban Reserve Area

In February 2016, Sherwood completed a Preliminary Concept Plan for the Sherwood West Planning area (aka Metro Urban Reserve Area 5B). Sherwood West encompasses 1,291 acres along the west border of Sherwood's existing urban growth boundary. The Sherwood West Planning Area is shown in Staff Report Attachment 7 (Figure 8 in petition).

Six alternative high school sites (A-F) were identified within the Sherwood West Urban Reserve Area that are large enough to accommodate a new high school. The six alternative sites (A-F) within the Sherwood West Concept Plan Area were evaluated based on site selection criteria. The site locations and evaluation criteria are indicated in Staff Report Attachment 8 (Figures 9 to 14 in petition). The School District's site alternative analysis is summarized in the table below.

(Table 1 – Alternative Sites Summary in petition)

Alternative Selection Criteria	***Alternative Sites****					
	A	***B***	***C***	***D***	***E***	***F***
Flat Topography	*N*	***U***	***Y***	*U*	*U*	*U*
Wetlands	*N*	***Y***	***Y***	*U*	*Y*	*N*
Water Service	*N*	***Y***	***Y***	*Y*	*N*	*N*
Sanitary Sewer Service	*N*	***Y***	***Y***	*N*	*N*	*Y*
Storm Drainage	*Y*	***Y***	***U***	*N*	*N*	*Y*
** Y-Meets Criteria - N-Does Not Meet Criteria – U-Undetermined*						

From the site alternatives analysis, it became clear that Sites B and C were the most promising with other sites lacking utilities, having significant wetlands, drainage issues and/or significant topography that would make construction challenging. Alternative Sites B and C are located near each other both west of SW Elwert Road at SW Haide Road, just north of Highway 99W. Site C was selected due

to having more of a gentle slope and less grade changes. Most of Site C has a consistent slope change of approximately 40 feet over the length of the site with only a small valley and ridge. Site B has a more drastic slope change of 50 to 60 feet with a more defined ridge running through the middle of the site. Site B would be far more challenging to grade and develop for a high school than Site C. The Sherwood West Concept Plan contained a phasing and funding strategy. The phasing plan identified six phases (A-F). The subject site (Site C) is located within Phase A of the concept plan.

The subject site represents an efficient location because:

- The location is next to existing western Sherwood and close to the vast majority of the District's student population (90%).
- City utilities are available to serve this site or can be extend as the site is adjacent to the city limits.
- Direct and efficient access will be available via major streets that are intended to accommodate significant motor vehicle, pedestrian and bicycle needs.
- The site will be developed on the north, south and west along existing right-of-ways and will be developed to the existing City limits and UGB. This location is a logical location to develop first within the Sherwood West Concept Plan, as it is really the first site north of 99W. Other sites in Sherwood West would result in undesirable leapfrog development.
- Utilizing the approximate 76-acre site to ultimately accommodate the large 2,400-student high school and the School District/City shared ballfields will provide greater efficiency than developing play fields independently. The district and City have a long history of partnering to maximize use of shared ball field resources.

As set forth in the District's narrative and response to MC 3.07.1440(a), there is an identified need for a major amendment of the UGB to provide for a new high school site and this need cannot wait until the next analysis of the building land supply under ORS 197.299. As allowed by MC 3.07.1425(b), the District specified characteristics necessary for land to be suitable for the identified need, *i.e.*, the new high school. *See* Applicant's Narrative at 18-19, 33-35. These characteristics included a minimum site size of 50 acres; zoning that would allow for an institutional use; within or contiguous to Sherwood, where 90% of the children served by the District reside; flat to mostly flat topography; no or minimal constraints such as streams, wetlands, intact upland habitat; adequate/feasible access to public utilities, including water, sanitary sewer, and storm sewer; and near to major (collector or arterial) streets to accommodate high school-level transportation impacts. As also required by MC 3.07.1425(b), the District has demonstrated that the need for the new high school cannot be accommodated on land already inside the UGB.

As shown above, the District undertook an analysis of seven urban reserve areas that are within the district boundary, three of which are not adjacent to the city of Sherwood. The Metro Code does not allow for the creation of an island of urban land so the analysis must be limited to those properties that are directly adjacent to the current UGB. MC 3.07.1425(f).

The Seven Urban Reserve Areas

Within the District's boundary, there are seven areas that contain urban reserves (*see* Application Narrative p. 22 of 39, showing map of all seven areas). They are:

- Sherwood North
- Sherwood South
- I-5 East
- Elligsen Road
- Tonquin
- Graham's Ferry
- Sherwood West

Each will be discussed in turn.

The Sherwood North Urban Reserve Area

The Sherwood North urban reserve area is comprised of slivers of land without flood plain constraints north of the existing city limits and south of Tualatin River. This area does not contain one or more contiguous parcels that would be large enough to meet any of the District's siting criteria for a high school site. Therefore, the hearings officer finds that the Sherwood North urban reserve area cannot accommodate the need for a new high school.

The Sherwood South Urban Reserve Area

The Sherwood South urban reserve area is adjacent to the Brookman Road UGB area. Some of the Brookman Road UGB area was recently annexed to the city, but much of it still has not been annexed. The Sherwood South area consists of rolling hills with much of the area identified by Metro Map as having slopes greater than ten percent, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 3.) There are also two stream corridors that traverse the area with many areas mapped by Metro as being riparian or upland habitat. (See Attachment 4.) There is a potential site located between Oberst Road and Labrousse Road that is not mapped as being constrained by upland habitat or riparian areas, but is mapped as having slopes greater than ten percent, which would not meet the District's siting criterion for a flat to relatively flat site. A challenge in the overall development of this area is that the Brookman Road area within the UGB must be annexed and developed first before the Sherwood South area will have the public services it needs to be able to develop. Further, Sherwood South is not even concept planned yet. As far as the hearings officer is aware, no such planning has been scheduled. As noted earlier, MC 3.07.1110 requires that urban reserve areas be concept planned before they be considered for inclusion in the UGB. As set forth in response

to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Sherwood South urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application. Therefore, the hearings officer concludes Sherwood South cannot accommodate the need for a new high school.

The I-5 East Urban Reserve Area

The I-5 East urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Elligsen Road Urban Reserve Area

Similarly, the Elligsen Road urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin, and immediately south of the I-5 East urban reserve area. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to western Sherwood would be at least five miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Tonquin Urban Reserve Area

The fifth urban reserve is the Tonquin urban reserve area. This area lies on the east side of Sherwood and is contiguous to Sherwood's city boundary. As set forth in the Narrative, this urban reserve area is directly south of the Sherwood Tonquin Employment UGB area and, according to Julia Hajduk, the City's Community Development Director, will be used to accommodate the City's future industrial and employment needs given its proximity to other industrial uses and Sherwood's employment/industrial core. Therefore it is not likely to allow for zoning for an institutional use. As noted in the staff report, another issue with building a new high school in this area is that the majority of adjacent land within the UGB is not yet developed to urban standards. Any out-of-sequence development in this area, then, would require a costly and inefficient extension of public services. Further, much of the property in this urban area is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II, and III (Metro Title 13). (See Attachment 1.) This area is further isolated by a rock bluff that forms the eastern boundary of the current UGB and city limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates the area from the existing residential neighborhoods of Sherwood, thereby making it less efficient to serve the student population

given that the bulk of that population is in the southern and western areas of the city. Significant areas of the urban reserve also have substantial slopes of ten percent and greater, along with floodplain constraints, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 2.) Further, this urban reserve area does not have a concept plan in place or a plan for how utilities might be extended to serve the area. Concept planning has not been completed for this area. MC 3.07.1110 requires that urban reserve areas be concept planned before these areas can be considered for inclusion in the UGB. As set forth in response to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Tonquin urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application.[12] Therefore, the hearings officer concludes the Tonquin urban reserve area cannot accommodate the need for a new high school.

The Grahams Ferry Urban Reserve Area

The Grahams Ferry urban reserve area is at the District's extreme southeast boundary next to Wilsonville. This urban reserve areas meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to from Graham's Ferry to western Sherwood would be at least seven miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, this urban reserve area is constrained by natural resources and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that these urban reserves cannot accommodate the new high school.

The Sherwood West Urban Reserve Area

The seventh and final urban reserve area studied was Sherwood West. The hearings officer finds this is the only urban reserve area that can efficiently accommodate a new high school consistent with the citing criteria, for these reasons: Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre Sherwood West urban reserve for places within it that could accommodate a new high school site. The applicant District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major (collector or arterial) street network. Findings addressing MC 3.07.1425(c) can be found in the Narrative and in the staff report. The applicant District included an analysis of the six areas within Sherwood West. Therefore, the hearings officer finds that, given the framework of MC 3.07.1425(b) and (c), no urban reserve except for

[12] Urban Reserve Areas are intended to provide a 50-year supply of land. Given that the City has no plans to complete a concept plan for the area, and because contiguous areas within the UGB would need to develop first to extend the needed infrastructure, it is safe to conclude that development of this area is at least several years away.

Sherwood West should advance to MC 3.07.1425(c) to determine which urban reserve can best meet the identified need, because no other urban reserve can meet that need.

The Six Sites Studied within the Sherwood West Urban Reserve Area

The District identified six sites (designates Sites A through F) within the Sherwood West urban reserve area that were large enough to accommodate a new high school campus. Each of the six is discussed in turn:

Site A – The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, public infrastructure issues or a combination of these factors. There is a small wetland in the center of this site. The western portion is mostly occupied by Chicken Creek. There is no water service available from SW Elwert Road, and water extensions would be required along Elwert frontage and east from SW Edy Road. The site is low-lying and sanitary sewer connection is not available from SW Edy Road, so a major pumping station would have to be built.

Site B - The hearings officer finds this site *could* possibly accommodate the new high school. However, it has a significant ridge running through the middle of the site, which would require extensive grading, with slopes running both east and west with a 50-60 foot grade change. Both public water and a 15" sanitary sewer pipe are available off SW Elwert Road.

Site C - This site is quite flat, with no more than a 40 foot grade change required. It has water and sewer connections off SW Elwert Road. There are no wetlands. The hearings officer finds that Sites B and C are the two areas that can most efficiently accommodate a new high school, but Site C is clearly superior because Site B has a significant topographic ridge running north-south through the middle of the site with an approximately 50-60 foot grade change. Site C has less topography to manage, which is important when one considers that ballfields, tracks, and other sports facilities needed as part of the new high school cannot be developed on slopes. Therefore, the hearings officer concludes and finds Site C can most efficiently meet the identified need of a new high school.

Site D - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards private property, with a grade change in excess of 50 feet. There is no sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity. Street improvements on Kruger Road and offsite improvements would likely be required. Sites D also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Site E - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards Highway 99, with a grade change around 75 feet. There is no

sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity.

Site F - The hearings officer finds this site cannot efficiently accommodate the new high school due to wetlands, drainage, powerlines, and lack of public water supplu. While quite flat, this site has wetlands, drainage, and a BPA power line easement running through it. While there is a nearby sewer line, there is no water line, and costly improvements would have be made to supply the school with drinking and irrigation water as well as meeting firefighting needs. Site F is further constrained by a BPA easement that cuts diagonally through what would otherwise be the flattest, least constrained part of that area and this flat area is segregated from the existing UGB by Chicken Creek and protects a riparian corridor. Site F also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Conclusion of the Alternative Sites Analysis for the Six Sites in Sherwood West

The District evaluated the alternative sites related to five selection criteria noted above and determined that four of the six sites (A, D, E & F) lacked utilities, had significant wetlands, drainage issues or topography that restricted the ability to efficiently accommodate the identified land need. In addition, site D is not adjacent to the current UGB and therefore would create an island of urban land which is not allowed under Metro Code. Areas B & C better met the selection criteria with site C being the best site due to less grading and site work to accommodate the identified land need. Based on the urban reserve areas analyzed site C in the Sherwood West urban reserve best meets the need considering efficient accommodation of the identified land need. For these reasons, the hearings officer concludes and finds that proposed Site C (on the northwest corner of SW Elwert and Kruger Roads) can most efficiently meet the identified need of a new high school.

MC 3.07.1425(c)(2): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(2) the orderly and economic provision of public facilities and services.

Hearings Officer's Analysis: This suitability factor focuses on the orderly and economic provision of public facilities and services. Because Sherwood West has been concept planned pursuant to MC 3.07.1110, the provision of public facilities and services within the Sherwood West Concept Plan area has been studied to a larger degree than other URAs. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, storm water, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. (See Sherwood West Concept Plan, pages 15-21, 40-44, Appendix 3 (Existing Conditions Report), and Appendix 8 (Transportation Options Alternative Analysis Report and Cost Estimates). The concept plan was prepared in coordination with all of the future service providers, including those services that

will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, Tualatin Valley Fire & Rescue, and Washington County. (*See* Sherwood West Concept, acknowledgements page and Appendix 6 (Service Provider Interviews). The District was also part of the Technical Advisory Committee that informed the concept planning effort. Because all of this extensive analysis and coordination work had already been done for Sherwood West, the District used that work as the jumping off point for its analysis of the area for orderly and efficient accommodation of public services.

As demonstrated in the Narrative, pages 24-31, four of the six sites (A, D, E, and F) have significant barriers to provision of public infrastructure. Sites B and C have the fewest barriers and are most feasible for public infrastructure service. This is consistent with the findings of the Sherwood West Concept Plan, which anticipates phasing public infrastructure to serve the area encompassed by Sites B and C first, i.e., Area A. (*See* Sherwood West Concept Plan, pages 40-44.) Service provider interviews conducted as part of the concept planning effort also identified Area A as the "first stage development area." (*See* Sherwood West Concept Plan, Appendix 6, page 5.) It is also worth noting that, according to the concept plan, Area A of the concept plan has most infrastructure in place, "presents the best near-term opportunity for development in Sherwood West," and the cost to serve is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address effects of a new high school on Site C on the surrounding transportation system. The Transportation Study found that, with appropriate mitigation, Site C can accommodate the new high school while maintaining an adequate transportation system. See also District's findings in response to Goals 11 and 12 with respect to the provision of public facilities and services to Site C.

As part of this UGB amendment application effort, the District obtained service provider comments from the City of Sherwood, Washington County, Tualatin Valley Fire and Rescue, and Clean Water Services, all of whom supported the siting of the new school on Site C from an infrastructure provision standpoint, consistent with the Sherwood West Concept Plan.

In sum, Sites B and C best meet the need for a new high school considering the orderly and economic provision of public services per the Sherwood West Concept Plan and the District's own analysis.

The primary opponent makes only a desultory effort to challenge the applicant's proposed findings. *See* letter from Jennifer Brager dated June 23, 2017, at p. 7. Ms. Bragar concludes, without much in the way of analysis, that "Site C is unworkable." The only evidence that the opponent cites as support for this theory is the DKS Traffic Study dated March 15, 2017, which shows that currently there are several failing intersections in the vicinity. However, failing intersections is not in any way determinative when considering the locational factors.

The proposed site has positive attributes from the transportation and traffic perspective. The site is close to the area's major north-south highway (Highway 99) and east-west arterial (the Tualatin-Sherwood Road). It has a relatively flat topography, reducing hazards in wet or snowy conditions. With the planning modifications, the site will have adequate access and

capacity for peak school commuting times (7.15 to 8 am and 2.50 to 3:45 pm). Road widths and sightlines will be sufficient for safety purposes, an important consideration for less-experienced drivers, such as high school juniors and seniors.

The traffic issue has been addressed by unrebutted evidence from the applicant's civil and traffic engineers - the *only* expert testimony in the record - and is belied by the fact that all of the public service providers for the Sherwood West area, including Washington County, the City of Sherwood, and Clean Water Services, submitted service provider letters that support the new high school on Site C, and state that such services can be provided. (*see* Appendix to the Application Narrative for copies of these letters).

At the public hearing, local residents Carolyn McBee and Karen Labahn raised issues of traffic safety at the proposed site, specifically on Kruger and Elwert Roads. They testified, convincingly, that the roads abutting the preferred alternative site are rural in nature and not capable of handling the traffic generated by the school. As the hearings officer emphasized at the hearing, the analysis is comparative in nature. A site does not have to be good; it just has to be better than the alternatives. This is true even if all of the alternatives are objectively bad. In fact, it will undoubtedly be the case that the roads in all seven of the candidate urban reserve areas are rural in nature and incapable of handling urban levels of traffic. At this stage, the analysis is high level and really only focused on identifying issues that made any one site particularly good or horrendously bad in relation to the others.

In this case, the applicant's traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates wrote the following in a June 28, 2017 memorandum:

> DKS prepared the March 15, 2017, Sherwood High School UGB Expansion Transportation Study ("March Transportation Study"). The March Transportation Study assesses the proposed UGB amendment impacts and identifies a roster of system improvements for the short-term and long-term. This study acknowledges that several local intersections are heavily congested during peak hours, and that the rural street infrastructure nearby the proposed UGB amendment site does not meet either the City's or the County's facility design standards today. What this study also tells us, however, is that with proper mitigation the proposed school site can be adequately served with transportation infrastructure. The next step in the planning process is the post-UGB amendment Title 11 planning, as required by Metro, and it is during that process that the next transportation planning steps will be taken. These planning steps include designating urban zoning and land use types within the newly added UGB area. During this stage, we will engage in additional technical studies, including a second transportation impact study, to (1) refine the specific project needs, (2) ensure that the Transportation Planning Rule is met, (3) ensure that performance standards can be maintained over time, and (4) ensure that a safe transportation network is provided for the new

> high school. Based on our transportation analyses so far, we are confident that the Sherwood School District can provide adequate state and local transportation facilities to support the proposed Site C high school.

While the residents' traffic safety concerns are well meant, and taken seriously by the hearings officer, the engineers are undoubtedly correct that the applicant's preferred alternative site can be improved with reasonable cost expenditure. The improvements discussed at the hearing were typical of what one would expect when land urbanizes, and do not involve any highly extravagant technical solutions such as bridges over wetlands / streams, or expensive highway overpasses. The hearings officer had the opportunity to evaluate these engineering experts and considers their representations highly credible. No evidence was presented pertaining to other sites that would suggest that any other site would be significantly better from a transportation standpoint, and several of the sites required more expensive improvements.

The opponents argue that the applicant gamed the system by counting traffic in the middle of winter. *See* letter from Jennifer Brager dated June 23, 2017, at p. 8. Again, this argument seems to lose focus of the intended exercise. That argument might have merit if the applicant's traffic engineers had performed their traffic counts at some locations in winter, but at other locations in summer (when traffic is lighter because school is out of session and many workers are not commuting, due to vacations). That did not happen. The applicant's traffic study clearly states:

> To perform the intersection analysis, traffic counts were collected during the AM peak (7:00 – 9:00 am) on Feb 1, 2017 and the PM peak (4:00-6:00 pm) on Jan 31, 2017. Study intersections on ODOT facilities (i.e. OR 99W) were analyzed using estimated 30th highest hour traffic volume (30 HV) conditions. The 30 HV development process for existing conditions *includes the determination of seasonal adjustments.* (DKS "Sherwood High School UGB Expansion Transportation Study" dated March 15, 2017, p. 9, italic emphasis added).

Site C is located in close proximity to existing urban arterials, which in and of itself makes it a better site as compared to alternatives such as Sites D and F, which are more isolated and remote. Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography.

The hearings officer wishes to emphasize that the public will have many additional opportunities to comment on and influence the types of transportation improvements that will be built.

MC 3.07.1425(c)(3): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(3) comparative environmental, energy, economic, and social consequences.

A comparison of the six sites with respect to environmental, energy, economic, and social consequences of development is set forth below:

Environmental Consequences: There are areas within Sherwood West that have significant natural resources within them. The maps at Figure 6 of the Sherwood West Concept Plan and Appendix B of Appendix 3 of the Sherwood West Concept plan are instructive in this regard. From those maps one can see that Sites A, D, and F have significant areas of floodplains, wetlands, protected stream corridors, and inventoried wildlife habitat. In contrast, Sites B and C have little to no environmental resources on them. Further, Sites B and C are closest to the city's existing urban core, which give them the most direct transportation connections, thus limiting air quality degradation. Therefore, development of these sites with a high school would have the least negative environmental consequences of all of the alternative sites.

Energy Consequences: From an energy standpoint, all of the sites are reasonably close to the bulk of the student population to be served, but Sites E and F are more remote. This will be exacerbated as Sherwood West develops with mostly residential uses. Sites A, B, C, and D are most centrally located, which will allow more students to walk and bike to school and reduces the number of students being bused and driven to school, and allows for the least vehicle miles traveled for those who use cars and buses. Site D would require an out-of-sequence extension of public infrastructure to the more interior of the urban reserve, however, which ticks its adverse energy consequences somewhat higher than Sites A, B and C.

Economic Consequences: Public bond dollars are finite and must not be wasted. Taxpayers expect that school districts will be good stewards of the public money and building new school facilities is no exception. Being more remote from the existing urban area and public infrastructure, Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography. The effect of topography on the cost of building a high school site with its need for ball fields and other sports facilities should not be under estimated. Even small amounts of slope will have significant, expensive consequences on a school site due to the cost of grading.

Site C has another factor that weighs in its favor over Site B, which is that Site B contains a number of single-family residences that would have to be purchased and demolished to build the new high school. Purchasing houses to tear them down is not a good use of bond dollars if it can be avoided. Therefore, Site C clearly comes out ahead in this consideration.

Social Consequences: Siting the new high school in the most centrally located area possible is important to fostering a sense of civic and school pride. Although high schools can have fairly significant impacts on an area, they should be sited where the bulk of the population resides and be a use that brings people together in a place that the citizens identify as an integral part of their community. One of the alternatives that the District considered in its facilities planning to alleviate the capacity issue at the existing Sherwood High School was building a second high school. The community, however, was very much opposed to that idea. A small, cohesive community like Sherwood wants to remain bound together not divided by different allegiances to different high schools. All of the sites analyzed in Sherwood West would be superior to any sites in any other urban reserve for these reasons alone; however, within Sherwood West Sites B and C are most centrally located - both now and in the future as the city continues to grow to the south and west. Even so, development of Site B has a more immediate social consequence that Site C does not have. There are a number of residences in Site B that would have to be purchased and demolished in order to develop the new high school. Displacing residents from their homes needlessly is a very adverse social consequence and should not occur if it can be avoided, which in this case it can. Therefore, Site C comes out ahead here, too.

Conclusion: Sites B and C are the two sites that come out the most favorably when one factors in the environmental, energy, economic, and social consequences. However, Site C edges ahead of Site B due to Site B's increased adverse economic and social consequences.

MC 3.07.1425(c)(4): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(4) compatibility of proposed urban uses with nearby agricultural and forest activities occurring on land outside the UGB designated for agriculture or forestry pursuant to a statewide planning goal.

Hearings Officer's Analysis: The District identified a number of site characteristics that a new site would need to meet in order to accommodate a new high school. As discussed above, is one urban reserve area that can efficiently accommodate a new high school - Sherwood West. Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre urban reserve for areas within it that could accommodate a new high school site. The District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major street network. This analysis yielded six sites, which were then ranked according to the site criteria.

With respect to how the six sites meet the need for a new high school considering the compatibility of proposed urban uses with nearby agricultural and forest activities, it is important to note that the entire Sherwood West area is slated for eventual urban development, regardless of the current uses and zoning of land within it. It was designated as an urban reserve instead of a rural reserve partly due to its small-scale, intermittent farming and forestry activity, parcelization, and rural residential development. That said, urbanizing land that is adjacent to existing urban development is more consistent with this boundary location factor than urbanizing land further into the undeveloped portions of an area, which will likely remain in rural use much longer whether the new high school is built in the area or not. Sites A, B, and C are closest to existing urban development. Sites D, E, and F are more remote from existing urban development. Therefore, in this respect, A, B, and C will have fewer impacts on any nearby agricultural and forest activities. Site A does not appear to have any adjacent agricultural or forest activities occurring adjacent to it. The other sites have very minor to small amounts of agricultural activities occurring on adjacent land. Therefore, none of the sites would appear to have much impact on agricultural or forest activities. Given the sites' rough equivalency in this regard, Sites B and C are the least costly to serve and most readily developable according to the Sherwood West Concept Plan, so developing in those areas "now" will have fewer impacts on nearby agricultural and forest activities than jumping ahead to an area that might have otherwise remained rural for the next 20 years. This gives Sites B and C the edge in considering this factor.

MC 3.07.1425(c)(5): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(5) equitable and efficient distribution of housing and employment opportunities throughout the region.

Hearings Officer's Analysis: This factor is not directly relevant to the siting of a new high school and therefore is not determinative in any way.

MC 3.07.1425(c)(6): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(6) contribution to the purposes of Centers and Corridors.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro. According to Metro's 2040 Growth Concept Map, the proposed site is not in a Regional or Town center, nor is it directly on a Corridor. Site A is closest to a Corridor, but as staff pointed out in the staff report, it is mostly undeveloped or in single-family residential use. None of the other sites are close enough to any Centers or Corridors to contribute to them at this point in time. Therefore, none of the alternatives support the purposes of Centers and Corridors in any significant way.

MC 3.07.1425(c)(7): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(7) protection of farmland that is most important for the continuation of commercial agriculture in the region.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

As noted by staff in the staff report, Metro and Washington County completed an urban and rural reserve process that designated the most important land for commercial agriculture in the county as rural reserve and the land most suitable for urban development as urban reserve. This means that development within any urban reserve will, at least presumptively, protect farmland that is most important for the continuation of commercial agriculture in the region.

However, this factor seems to reach beyond that concern and require further differentiation of urban reserve areas, at least to the extent that any of these urban reserves are still in commercial agricultural production. Of the six sites studied in Sherwood West urban reserve area, none appear to have any significant commercial agriculture. As such, it seems their agricultural output does not form a significant component of the Sherwood area's economy.

The applicant points out that development of sites within an urban reserve that are closest to the existing UGB and to areas within the UGB that actually contain urban-level development, helps to keep agricultural and forest land further from the UGB and urban areas in unaffected operation until such time as urban development grows further in that direction.

MC 3.07.1425(c)(8): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(8) avoidance of conflict with regionally significant fish and wildlife habitat.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The Sherwood West urban reserve has some significant fish and wildlife habitat within in it, much of which is associated with Chicken Creek. According to the Sherwood West Concept Plan, Steelhead *(Oncorhynchus mykill),* a federally listed species, are known to exist within Chicken Creek. Sites located closer to Chicken Creek would therefore tend to be less suitable for this project.

All of the sites *except* for Sites B and C are constrained by a significant or moderate level of natural resources:

Site A has a wetland right in the middle, and the entire western portion of this site is mostly creek, and its drainage discharge is right into Chicken Creek (see Narrative, p. 25).

Site D has creek drainage running through the southern portion of the site. Since there is no established public storm drainage anywhere in the vicinity, so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site E is steeply sloped down to the east towards Highway 99, with a grade change around 75 feet. There are no established public storm drains in the vicinity. so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site F has creek drainage and potential wetlands running through the entire site (see Narrative, p. 30), so extensive mitigation measures could be required to avoid negatively effecting significant fish and wildlife habitat.

As shown on Figure 6 of the Sherwood West Concept Plan, the western edge of Site B abuts a tributary of Chicken Creek and includes some associated wildlife habitat. Site C has no such identified resources, and, therefore, the hearings officer concludes and finds that Site C best avoids conflicts with regionally significant fish and wildlife habitat.

MC 3.07.1425(c)(9): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(9) *a clear transition between urban and rural lands, using natural and built features to mark the transition***.**

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The boundaries of Sherwood West do not appear to have been designated according to providing a clear transition between urban and rural reserves using natural or built features. It is bisected in large part at its northern end by Chicken Creek. But Chicken Creek will not form a natural barrier between urban and rural uses, as the Sherwood West Concept Plan contemplates development on either side of the creek. So, Chicken Creek will end up being a natural area within an urban area - not a boundary between urban and rural uses. Because the boundaries of Sherwood West were not created according to natural or built features, and because all of the six sites studied within Sherwood West for a new high school are internal to Sherwood West and will eventually be in the midst of other urban area, this factor is not particularly relevant to this application. Even so, as staff notes in the staff report, there are no built or natural features that would mark even an internal transition from urban to rural lands for Sites C and E. Site B is flanked by Chicken Creek, which could form such a barrier, but, again, there will be urban development on the other side of that "barrier" one day. Site A is also flanked by Chicken Creek, but the creek and natural resources associated with that site also limit the development

potential of that site for a new high school. Further, there will be urban development on the other side of those natural barriers one day, so they will not really mark the transition that this factor contemplates. Site D has some natural resources on it that could provide a barrier of sorts, but which also reduce the buildable area, and, again, the concept plan does not contemplate these natural areas being any sort of permanent barrier between urban and rural uses. Site F has a large amount of wildlife habitat, but that habitat, too, cuts into the buildable area and will provide no such barrier as contemplated by this factor.

Hearings Officer's Analysis and Summary of the Nine MC 3.07.1425(c) Locational Factors

In summary, little weighing and balancing is needed in this case, because the applicant's preferred alternative, Site C, nearly always came out as the site that best met the intent of each individual factor. With respect to two factors, Sites B and C equally met the intent of the factor, and with respect to another factor Site B came in a fairly close second to Site C. All in all, however, Site C best met all of the factors. In sum, all of the factors were applied and evaluated, and on-balance, Site C came out ahead. Thus, whatever weighing and balancing of all of the nine locational factors with respect to the six sites that could potentially accommodate a new high school is required, the Hearings officer finds that the applicant's analysis clearly demonstrates that the proposed site, Site C, better meets the applicable locational factors than the other sites.

No discussion presented by any opponent to the contrary is convincing. In disputing the District's location factor analysis, the primary opponent pointed to individual aspects of different sites and argued why it believed those aspects made one site better than another with respect to a given, discrete aspect. The opponent's sniping is ineffective, however, because unlike the applicant, the opponent did not evaluate the sites *holistically* based on the nine enumerated factors. Stated it another, it may be the case, that some of the alternative sites fair better than the applicant's preferred alternative in some particular or another. No site is perfect, after all, and each site has its positives and its negatives. However, when viewed as a whole, on balance, the applicant's preferred alternative fairs the best over the broadest consideration of the nine factors. Therefore, the opponent failed to demonstrate that the MC 3. 07.1425(C) factors findings are deficient.

The opponent also argues that Sherwood South cannot be ruled out as a possible area for the Major Amendment even though it has not been concept planned under MC 3.07.1110, because MC 3.07.1110(6) provides that such an area can be added even if it has not yet been concept planned. *See* Brager letter dated June 23, 2017 at p.7. MC 3.07.1110(6) states:

> *"If the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan by the date set under subsection (a), then the Metro Council may nonetheless add the area to the UGB if necessary to fulfill its responsibility under ORS 197.299 to ensure the UGB has sufficient capacity to forecasted growth."*

First, the MC 3.07.1110(6) exception is restricted to situations where "the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan." There is no evidence that any local governments responsible for a concept plan for Sherwood South are unable to reach agreement on that concept plan. In fact, there seems to be no question that the City of Sherwood will be planning for Sherwood South-it just hasn't done it yet, and has no current plans to do so. Second, the fact that no pre-UGB expansion concept planning has been done for Sherwood South is just one of many reasons the District gave for why Sherwood South ceased to be considered as a viable area for the new high school. The opponent has not pointed to an area within Sherwood South that would meet the District's siting criteria. In fact, in the opponent's June 23, 2017, letter, the opponent points to "a large block of property" south of the recent Brookman Road annexation area, but then appears to agree that it is too sloped to work as a high school site. See Letter from Jennifer Brager dated June 23, 2017, at p.6.

Metro Code section 3.07.1425(D) The Council may consider land not designated urban or rural reserve for possible addition to the UGB only if it determines that:

1. *Land designated urban reserve cannot reasonably accommodate the need established pursuant to subsection B of this section; or*
2. *The land is subject to a concept plan approved pursuant to section 3.07.1110 of this chapter, involves no more than 50 acres not designated urban or rural reserve and will help the concept plan area urbanize more efficiently and effectively.*

Hearing Officer's Analysis: The proposed expansion is within an urban reserve. This criterion is not relevant because the site and surrounding properties to the north, east and south are within an Urban Reserve area (no property within or next to the subject site is outside of urban reserve areas).

This criterion is not applicable.

Metro Code section 3.07.1425(E): The Council may not add land designated rural reserve to the UGB.

Hearing Officer's Analysis: The proposed expansion is not within a rural reserve. This criterion is not relevant because the subject site and surrounding properties to the north, east and south are within an Urban Reserve area.

This criterion is either not applicable or has been met.

Metro Code section 3.07.1425(F): The Council may not amend the UGB in such a way that would create an island of urban land outside the UGB or an island of rural land inside the UGB.

Hearing Officer's Analysis: The subject site and the remaining portion of the Sherwood West urban reserve are adjacent to the City of Sherwood. The transformation of this area from rural to urban represents a logical and methodical way to enlarge an urban area, which will not create an island of urban development outside of the UGB.

The proposed expansion will not create an island of urban land outside the UGB or an island of rural land inside the UGB. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.07.1440 (B)(1) The applicant shall also demonstrate that:

(1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land.

Hearing Officer's Analysis: The applicant addresses this criterion as follows:

> The proposed major amendment site is surrounded by land that is either within the City of Sherwood or the Sherwood Urban Reserve Area 5B (aka Sherwood West Preliminary Concept Plan Area) (see Attachment 6). The land in the City located north and east of SW Elwert Road is fully urbanized with single-family subdivisions and constructed houses. City land located south and east of SW Elwert Road is the location of the Sherwood Elks Lodge. The Elks Lodge site contains a large area of vacant land around the existing building and parking lot. The Elks Lodge and undeveloped surrounding land is zoned Low Density Residential (LDR).
>
> Land to the north, south and west is currently rural and within the urban reserve area (Sherwood West Concept Plan). This County land is zoned Agricultural Forest (AF) and is a patchwork of sites zoned AF-5, AF-10 and AF-20 with the subject site zoned AF-20. AF-5 has a minimum lot size of 5 acres, AF-10 of 10 acres and AF-20 has a minimum lot size of generally 80 acres. The surrounding property has been highly parcelized and consists of a patchwork of small forests/farms and rural residential properties with none more than 80 acres and many under five acres in size.
>
> The site is compatible with surrounding residential properties as the property has separation provided by existing streets on the north (Haide Road), south (Kruger Road) and west (Elwert Road) boundaries. The eastern boundary consists of mostly forestland with only one house near the site boundary near the northwest corner of the site. All school traffic will be able to access the site

> from Elwert Road and will not be routed through existing or proposed residential areas or streets.
>
> While the development of a school site will be the first urban development in the Sherwood West Concept Plan Area, the regional and local plans anticipate redevelopment of this entire area for primarily residential land. Schools typically locate within residential areas and are considered to be compatible with residential land uses when the impacts of the school on residential uses are considered within the design.
>
> The first urban development projects to occur within rural areas typically can cause some tension between existing residents who welcome the change, and those who are content with its current rural character. So well-designed solutions to deal with compatibility issues may still feel like "encroachment" to rural residents. The development of the site will include public involvement during the design development and permit approval process, allowing ample opportunity for the neighbors to help address specific compatibility issues. In the long term, establishing the school will provide the opportunity for subsequent urban developments to be oriented and designed to optimize their physical relationship with the school. This will allow the development of future Sherwood West properties to "grow up together" compared to infilling a large public facility into an established residential neighborhood.

The subject site borders the UGB on the east along SW Elwert Road. Adjacent land uses include single family homes and the Sherwood Robin Hood Elk Lodge that also includes some vacant land that is zoned for residential use, which is expected to develop over time. Directly to the southeast across Highway 99W is the Sherwood Regional Family YMCA. To the north across SW Haide Road is mostly open land with some out-buildings and one dwelling that appears to be vacant. To the west are forested parcels with one dwelling adjacent to the NW corner of the subject parcel. To the south across SW Kruger Road is the Countryside Community Church, limited agricultural activities and four dwellings. The typical weekend use of the church complements the weekday uses of a school. The land to the south also borders Highway 99W.

The District has developed a preliminary site plan that shows the school buildings located in the center of the property with sports fields generally to the south and west and parking located to the north. The southeast corner of the site will contain the realignment of SW Elwert and SW Kruger Roads. The three adjacent roads provide some buffering for the very few adjacent homes and the NW Natural Gas Easement also buffers the southwest corner of the site. The district currently has a High School Design Committee charged with working with the design team to provide advice on a number of design elements and a couple of community input meetings will be scheduled in 2017. In addition there will be public input opportunities during the City's development review and permit approval process.

Finally the subject site is within a very large urban reserve area that has the potential to urbanize over time. As noted previously this portion of the Sherwood West urban reserve was identified as phase A in the preliminary concept plan the City completed. This allows the adjacent land to be designed and developed in a manner that enhances and embraces this important community facility. Therefore the proposed use of the site can be made compatible, through measures, with the uses of the adjacent land.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440 (B)(2) The applicant shall also demonstrate that:

If the amendment would add land for public school facilities, the coordination required by subsection C(5) of section 3.07.1120 of this chapter has been completed.

Hearing Officer's Analysis: MC 3.07.1120(C)(5) states:

> *"Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110."*

The applicant addresses this requirement as follows:

> This requirement is satisfied as described in Section III of the application. In summary, the Sherwood School District adopted a long-term facilities plan in January of 2008. The long-term plan assumed that additional school capacity would likely be needed within 10 years of the plan's adoption. (The 2008 Long Term Facilities Plan is provided in Appendix C).
>
> In 2014 to 2016, the School District did significant planning prior to placing a bond on the November 2016 ballot that was ultimately approved by voters. This included inventorying existing school facilities, completing updated demographic information, as well as significant planning and public outreach to identify a plan for school facilities that includes the proposed new high school.

As the District points out, it experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. The District completed a long term facilities plan in 2008. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school

year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District and the city of Sherwood have an intergovernmental agreement to share sport fields with most of the facilities occurring on school grounds. Thus the coordination required by subsection C(5) of Metro Code Section 3.07.1120 has been completed.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440(B)(3) The applicant shall also demonstrate that:

If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot be reasonably be created by land assembly or reclamation of a brownfield site.

Hearing Officer's Analysis: The proposed expansion is not for industrial use. This criterion is not applicable.

Findings Addressing OAR 660- Division 24 and the Applicable Statewide Planning Goals.

OAR 660-024-0020 requires that all UGB amendments apply the Statewide Planning Goals to the amendment process. This directive applies to the whole gamut of UGB amendments, from the every-six-year Metro legislative review of its UGB to a quasi-judicial major amendment under the Metro code to provide land for a specific public need, such as a school or other public facilities. However, this does not mean that the Goals will apply equally and in the same way in each situation. It may even be that one or more of the Goals may not apply at all to a given situation.

The primary opponent asserts that the applicant failed to adequately address the Statewide Planning Goals. *See* Letter from Jennifer Bragar dated June 6, 2017. While that was correct at the time Ms. Brager wrote her letter, the applicant followed up two days later with proposed findings. The Hearings officer finds that the applicant did adequately demonstrate compliance with the applicable Statewide Planning Goals by substantial evidence in the whole record, and adopts the applicant's suggested findings, with slight modification, as set forth below. The opponent's specific objections are also addressed below.

OAR 660-024 -0020

OAR 660-024-0020 sets out which of the Statewide Planning Goals are applicable to UGB amendments. The Goals will have a somewhat limited applicability to a UGB amendment for a specific need, but the relevant Goals are addressed below.

Goal 1 - Citizen Involvement

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

Hearings Officer Analysis: This Major Amendment application does not alter Metro's citizen involvement program. Consequently, compliance with Goal 1 is established through compliance with the public involvement requirements of Metro's code. Those requirements have been followed.

Goal 2 - Land Use Planning
"To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Hearings Officer Analysis: OAR 660-024-0020(1)(a) states that the exceptions process in Goal 2 and OAR 660, Division 4 are not applicable unless a goal exception is part of the application. A goal exception is not part of the Major Amendment application and so those provisions will not be addressed. Other than goal exceptions, Goal 2 requires the establishment of a comprehensive plan, a need for coordination of government entities in planning, and the need for public hearings and an opportunity for comment and review.

1) Coordination: This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred.

2) Public Hearings/Opportunities for Comment and Review: Metro staff sent the required notice for the hearing before the hearings officer, and there has been opportunity for comment and review of the application materials. The hearing was continued, which provides additional opportunity for comment and review, and the hearings officer has stated he is likely to leave the record open after the second hearing concludes. There will also be at least one hearing before Metro Council. Further, the proposed high school will have additional approvals to obtain after the Major Amendment application has been approved, such as annexation, a zone change and a conditional use permit, all of which include a public involvement component. Therefore, there has been and will continue to be public hearings and an opportunity for comment and review.

Goal 3- Agricultural Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 4 - Forest Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 5 - Natural Resources, Scenic and Historic Areas, and Open Spaces

"To protect natural resources and conserve scenic and historic areas and open spaces."

Hearings Officer Analysis: OAR 660-024-0020(1)(c) requires states that Goal 5 and its related rules apply only in areas added to the UGB. The area to be added to the UGB is the site identified in this application. There are no Goal 5 resources on the site identified by Metro, Washington County or the City of Sherwood in the Sherwood West Concept Plan. Therefore, this goal is not applicable.

Goal 6 - Air, Water and Land Resources Quality
"To maintain and improve the quality of the air, water and land resources of the state."

Hearings Officer Analysis: As LUBA recently stated:

> "[t]he relevant Goal 6 inquiry for a decision that amends comprehensive plan and zoning map designations, without approving any particular new development, is whether there is a reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed in the future. *See Friends of the Applegate Watershed v. Josephine County*, 44 Or LUBA 786, 802 (2003), (at the post-acknowledgment plan amendment stage, a local government need only show it is reasonable to expect that applicable state and federal environmental quality standards can be met); *see also Salem Golf Club v. City of Salem*, 28 Or LUBA 561, 583 (1995) (same).

See Nicita v. City of Oregon City, ___ Or LUBA ___ (LUBA No. 2016-045, Jan 25, 2017, slip op. at 27.

The hearings officer does not see how there could not be any "reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed [as a school]." The proposed school campus poses no significant adverse air, land or water quality impacts. There are no expected significant "waste or process discharges" from the new high school campus. The high school does not "process" anything and so there are no process discharges associated with the high school. Any waste that will be produced by high school activities will be handled through the normal course of business. For example, any solid waste generated by the school will be subject to recycling and solid waste collection by the franchised garbage hauler for the area. Any waste associated with sanitary sewers or storm events will be handled as part of the public sanitary and storm water facilities. As the property develops, the District will be required to coordinate with the state Department of Environmental Quality and with Clean Water Services to ensure that air, land and water resources are not degraded. As noted in response to Goal 5, no significant Goal 5 resources have been mapped on this property by Metro, Washington County or the City. Further, the proposed new high school site is adjacent to the existing UGB and will allow for efficient multi-modal transportation of the

bulk of the student population - especially as Sherwood West builds out with primarily residential uses in the decades to come.

The primary opponents make a half-hearted attempt to challenge the applicant's Goal 6 compliance, but its argument is too vague and too unfocused to provide a basis for denial. First, the opponent state that "air quality issues should be examined for a new school to be built near Highway 99." *See* letter from opponent's counsel Jennifer Brager, at p. 2, 6. This argument appears to assume that highway 99 causes sufficient level of pollution that a school should not be located in close proximity thereof. The opponents suggest that a "buffer" and "distancing is needed. The opponent never suggests what a proper buffer would be. The Hearings officer finds this concern to be speculative, unsupported by substantial evidence in the record, and beyond the scope of Goal 6's reach. Even if the hearings officer believed this was a valid concern, the hearings officer finds the air quality benefits of locating a school away from a major arterial would be offset by the additional VMT needed to transport school children a further distance.

Goal 7- Natural Hazards

"To protect life and property from natural disasters and hazards."

Hearings Officer Analysis: Goal 7 (Areas Subject to Natural Hazards). Goal 7 requires local governments to evaluate risks to people "upon receiving notice" of new hazard information from DLCD, and based on evaluation of that risk to prohibit development in areas "where the risk to public safety cannot be mitigated." Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires.

No natural hazards have been mapped on the properties that comprise the proposed school site. (*See*, *e.g.*, Sherwood West Concept Plan, figures 6 and 7.) The applicant's proposed site appears to be devoid of any natural hazards: It is not in a flood plain or a coastal zone. It does not have steep slopes that would be vulnerable to landslides. It does not contain soils that are exceptionally vulnerable to being an earth quake hazard (at least any more so in comparison to the rest of the Portland Metro region generally). Therefore, this goal is inapplicable.

Goal 8- Recreational Needs

"To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Hearings Officer Analysis: As set forth in the Narrative, the District provides most of the athletic fields for the City of Sherwood. The City and the District have had a long history of partnering in the provision, use, and maintenance of these fields so that recreational opportunities are provided as efficiently as possible. The new high school campus will include a number of new fields and sports facilities on which the City and the District will continue to partner. The new fields and sports facilities will be in addition to the existing fields and sports facilities already in use as part of the existing school facilities. See page 32 of the Narrative for additional

detail. The new high school campus, then is supportive of this goal, as it will help satisfy the need for recreational facilities in the city and in the District.

Goal 9 - Economic Development

> *"To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens."*

Hearings Officer Analysis: Goal 9 applies to areas within an urban growth boundary. OAR 660-09-0010(1). *Port of St. Helens v. Land Conservation & Development Committee*, 164 Or App 487, 495, 996 P 2d 1014 (2000). Goal 9 requires that jurisdictions provide adequate opportunities for a variety of economic activities. Goal 9 planning is limited to areas within UGBs, and local land use plans are required to comply with Goal 9 at periodic review and whenever a jurisdiction undergoes a post-acknowledgment plan amendment that changes the plan designation of more than two acres of land from industrial/employment use to a nonindustrial/non-employment use. OAR 660-009-0010(1), 0010(2), and 0010(4).)

Pursuant to OAR 660-024-0020, certain Goals, including Goal 9, are also applicable when the UGB is amended. The Major Amendment application expands the UGB to allow an existing high school to move several miles away from one site within the City of Sherwood to another site that will be annexed into the City of Sherwood for that purpose. This appears to be fairly neural from the standpoint of economic opportunities.

The opponent cites *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), and states that Goal 9 "requires a determination of the potential future land need for employment and is supposed to occur at the time the UGB is expanded, " and that "the school itself has to be analyzed as an 'other employment use' as defined under OAR 660-009-0005 because it will involve a governmental employment activity. " *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. That might be true for a UGB amendment that proposes to add employment land, but it not explain the relevance of Goal 9 to this particular UGB application, which is specific to a need for land for a new high school. In this case, the UGB amendment is targeting a specific need, *i.e.*, the relocation of an existing high school several miles away within the same city. Goal 9 is not applicable as the UGB expansion is for a specific need for a high school.

The cited passage from *Barkers Five* should be read in context. LCDC was referring to OAR 660-027-0050(2) and Metro's analysis for employment land needs occurring as part of its urban growth report. There is nothing in that passage that would make such an analysis a requirement for a major amendment application submitted under ORS 197.299(4). As stated in the findings for Goal 9, this goal is not applicable to a UGB amendment for a specific high school need. To the extent that the high school will have any Goal 9 impacts, the Hearings officer finds those impacts will be positive in terms of temporary construction jobs during development and provision of part-and-full time employment year-round.

Furthermore, if the opponent is implying that Metro must engage in a full-blown economic opportunities analysis in the context of a major amendment application for a high school, that conclusion does not follow from the opponent's stated premises or from Goal 9. The

opponent's argument is not developed well enough to allow the hearings officer to evaluate it on the merits: the opponent has not explained how this application actually impacts the requirements or scope of Goal 9.

Goal 10 - Housing

"To provide for the housing needs of citizens of the state."

Hearings Officer Analysis: The applicant states that Goal 10 is not applicable as the UGB expansion is for a specific need for a high school. The opponent states that "Goal 10 is implicated because housing opportunities will be lost as a result of this large land grab by the school district." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. While it is true that any use of land for non-residential purposes results in that land not being available for housing, that truism does not create a Goal 10 violation. As best as the hearings officer can determine, the opponent is arguing that the Preliminary Sherwood West Concept Plan shows a small school site surrounded by housing, and the applicant's current plan shows the entire site being used for a school and no housing. The opponent concludes that this change in plans 'will limit the planned housing in the Sherwood West Concept Plan Area," which, according to the opponent, "has Goal 10 implications." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2-3. It appears that the opponent is arguing that the Concept Plan locks in the density and mix of housing, and any change to the Concept Plan requires an analysis of Goal 10 compliance.

The hearings officer finds that the concept plan does not have the regulatory effect that the opponent assigns to it. The opponent cites to nothing in any local zoning code or Comprehensive Plan that gives this sort of regulatory effect to this (or any other) concept planning effort. Goal 10 would not have that type of regulatory effect until the property subject to the Concept Plan is brought into the UGB and assigned urban zoning designations. As currently situated, the land at issue is not within the UGB and so is not considered "buildable lands" under Goal 10 and Goal 14, and is not included in any buildable land inventory. Therefore, there is no buildable lands inventory to measure the Major Amendment application against and Goal 10 does not anticipate that there would be in this situation. By its terms, Goal 14 requires that jurisdictions "provide for the housing needs of citizens of the state" by inventorying "buildable lands for residential use. " Goal 10 defines buildable lands as lands in "urban and urbanizable areas that are suitable, available and necessary for residential use. " Under the definitions section of the Statewide Planning Goals, "urban land" is defined as "land inside an urban growth boundary, " and "urbanizable land" is defined as urban land, i.e., land inside a UGB, that is presently unavailable for any number of reasons. Therefore, the opponent' argument that, in the context of a Major Amendment, Goal 10 requires Metro to "demonstrate that its actions do not leave it with less than adequate residential land supplies" is wrong..

Moreover, as the applicant points out, the City's urban reserves include a 50-year land supply for the City. There is no evidence that siting a new high school in Sherwood West, in the location that the Concept plan contemplated a new school, will in any way negatively impact the ability of the City to provide for its housing needs, especially when Sherwood West is combined with Sherwood North and Sherwood South.

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The opponent also complains that the applicant is seeking to bring in 82 acres when it defined its current need as requiring only a 50-acre site. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. The hearings officer is at a loss to understand the relevance of this argument to a Goal 10 challenge. The opponent's argument is simply not developed sufficiently to allow the hearings officer to understand the nature of the complaint.

The opponent also argues that an 82-acre school site "contradicts the two school sites considered in the Preliminary Sherwood West Concept Plan. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. However, Concept Plans are not regulatory documents in the sense that they do not limit the size of planned facilities. The Concept Plan took the provision of additional school sites into account when it was developed. Although the concept plan includes two identified school sites, it is important to remember that the Concept Plan is a general plan that addresses how the area will develop generally. The Concept Plan does not specify the types of schools that the conceptual school sites reflect, e.g., elementary, middle or high school. Therefore, one should not view the blue squares denoting school sites in the Concept Plan in the literal sense of trying to determine how big the Concept Plan believed the sites will ultimately be. Such information comes from future refinement of the Concept Plan after areas are brought into the UGB.

Moreover, as the applicant points out, Goal 10 concerns itself with land already within a UGB, which the subject property is not. Therefore, Goal 10 has very limited applicability to a Major Amendment application for a new public school site. That said, the justification for the proposed expansion area of 82 acres is included in the Narrative. (Narrative at 31-32.) As set forth in the Narrative, approximately seven of the 82 acres will be needed for transportation improvements that will support the new high school. There is also a 40-foot wide gas pipeline easement that runs across the site, occupying approximately 2.2 acres but requiring protection of additional, adjacent property of approximately 20 feet on either side. This pipeline easement essentially gives the site an irregular shape, which reduces the efficiency with which it can be developed. The Narrative also discusses the shared sports fields arrangement between the City of Sherwood and the District that provides for additional ballfields. The District would also note that Figure 3 of the Narrative depicts a conceptual layout of the high school site and related transportation improvements over the entire 82-acre area. (Narrative at 7.) As one can see on that conceptual layout, the entire site will be fully utilized.

In the Appendix 6 Service Provider Interviews, the District warns that the current high school was at-capacity at the time of the interview (the appendix is dated June 15, 2015), and with the growth expected in Sherwood the high school could be expected to become over-capacity. (See Appendix 6, pages 3-4.) The District stated that expanding the existing high school and adding a new high school to the District would both be explored. The relevant information to be gleaned from the Concept Plan is that the majority of Sherwood West is intended to be developed with varying densities of housing and that the Concept Plan integrated the need for at least two additional school sites, with an understanding that the existing Sherwood High School would soon be over-capacity.

In its June 23, 2017 letter, the opponent argues that Metro "must demonstrate that its actions do not leave it with less than adequate residential land supplies in the types, locations,

and affordability ranges affected." *See* letter from Jennifer Bragar dated June 23, 2017, at p.2. As support for this requirement, the opponent relies on *Burk v. Umatilla County*, 20 Or LUBA 54 (1990). In *Burk*, the Port of Umatilla filed an application with the City of Umatilla to amend the city's comprehensive plan map for a 42-acre area within the city's urban growth boundary, but outside the city limits, from single-family residential to industrial. The city's buildable land inventory for housing included the 42 acres, because that acreage was within its UGB. Even with the 42 acres included in the buildable lands inventory, the city was deficient in land available for single-family housing. The city approved the map amendment even though it increased that deficiency, which earned the city a remand by LUBA.

The facts of *Burk* are different than those presented by this Major Amendment application. The land in question in *Burk* was inside a UGB and was already planned for zoned and residential uses. That is a key factual difference from the present case, because the land in this case is planned for agriculture and forestry. The land proposed to be added to the UGB is not "buildable land," and is not in any current inventory. For this reason, the Goal 10 analysis required in *Burk* is not applicable here.

Goal 11 - Public Facilities and Services

> *"To Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."*

Hearings Officer Analysis: As set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services with respect to that urban reserve. The concept plan was prepared with analyses of existing sanitary sewer, water, and storm water conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services. The concept plan discusses the provision of public facilities and services to the area at pages 16-18 and 40-44, as well as in Appendix 3 (Existing Conditions Report) and Appendix 6 (Service Provider Interviews). According to the Concept Plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District used this work as a jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative, pages 24-31 and Application Appendix A (New High School Preliminary Site and Utility Exhibit) and Appendix B (Service Provider Letters). All of the foregoing information addresses the orderly and efficient arrangement of sanitary sewer, water, and storm drainage facilities to serve the new school property, as well as the larger Sherwood West area and all of the evidence consistently points to the chosen property as a property that can served in a timely, orderly, and efficient manner.

The opponents argue that Goal 11 is not met, because the local sewer and water agency (Clean Water Services) has a concern about the installation of a temporary pump station. *See* letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents offer no testimony, expert

opinion, or evidence that would call into question the conclusions reached by the applicant's engineers, KPFF. Goal 11 does not require that every technical engineering solution be worked out at the time of UGB amendment. The KPFF engineers seem to believe that an engineering solution is not only possible, but likely, which is all that is required at this stage. See KPFF memo dated June 13, 2017. This Hearings officer has evaluated the opinion of the KPFF engineers, and finds them more credible.

The opponents further argue that "fire flow tests have not been completed." *See* Letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents do not explain why fire flow tests are mandated by Goal 11 in the context of a UGB amendment, nor is it obvious why they would be. The KPFF engineers seem to be satisfied that the fire flow issue can be adequately handled, and this hearings officer finds them more credible.

Goal 12 - Transportation

> *"To provide and encourage a safe, convenient and economic transportation system."*

Hearings Officer Analysis: Early LUBA cases suggested that a local government could not "pass the buck" by deferring compliance with Goal 12 and the TPR until the time of site plan review.[13] However, more recent case law clarifies that conditions of approval can be used to limit new development until such time as the TPR is addressed. For example, in *Citizens for Protection of Neighborhoods v. City of Salem*, 47 Or LUBA 111 (2004) (*Citizens*), the City of Salem approved a zone change to allow mixed residential and commercial use of a 275-acre property. That approval included a condition that prohibited development of the property until later adoption of a master plan for the property. The City of Salem's code criteria applicable during the master plan process included requirements that were substantially identical to the requirements of the TPR. Based on the condition requiring master plan approval, the city found that the zone change did not significantly affect the transportation facility because no development could occur until the subsequent master plan phase. *Id*. at 115, 116. LUBA held that the city could properly conclude that the rezoning of the property did not significantly affect any transportation facility because the condition essentially prohibited development on the property without first showing that any allowed development is consistent with the function, capacity and performance standards of affected transportation facilities. *Id*. at 120.

In *ODOT v. City of Klamath Falls (Southview Dev'l, LLC)*, 39 Or LUBA 641, 660, *aff'd* 177 Or App 1, 34 P2d 667 (2001), LUBA affirmed that portion of a county decision which approved a zone change with a condition that prevented additional development from impacting a transportation facility until such a time in the future when the TPR is addressed. LUBA found that this condition was sufficient to ensure compliance with the TPR in the interim.

Finally, in *Willamette Oaks, LLC v. City of Eugene,* 59 Or. LUBA 60 (2009), the city approved a zone change, and imposed a condition of approval prohibiting development of the property without approval of a planned unit development (PUD) application and a showing of

[13] *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994), *aff'd*, 130 Or App 406 882 P2d 1130 (1994); *Concerned Citizens of the Upper Rogue v. Jackson County*, 33 Or LUBA 70 (1997).

consistency with the TPR as part of the PUD application and review. LUBA approved this approach, stating as follows:

> In sum, with one caveat discussed below,[14] we think it is permissible for the city to defer consideration of compliance with the TPR to a subsequent review process at the time actual development is proposed, provided that the zone change or plan amendment is effectively conditioned to prohibit traffic or other impacts inconsistent with the TPR's requirements unless and until those requirements are fully addressed. Applicant offers no reason in the present case why deferring the application of the provisions of the TPR to a later PUD application process is insufficient to ensure that allowed uses of the subject property are consistent with

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[14] LUBA stated in a footnote that the PAPA procedural requirements would still need to be satisfied as part of the deferred process:

> The caveat mentioned above is that unless the local government takes steps to ensure otherwise, the subsequent review process may not require a comprehensive plan or land use regulation amendment and therefore will not trigger [**12] the notice obligations of a post-acknowledgement action under ORS 197.610 *et seq*. Under those statutes, a local government that amends its comprehensive plan or land use regulations, including zone changes, must provide to the Department of Land Conservation and Development (DLCD) timely notice of the hearing on the proposed amendments as well the decision adopting the amendments. DLCD, in turn, provides notice of the proposed amendments and any subsequent adoption to persons or agencies who request such notice. OAR 660-018-0025. The requirement to provide notice of post-acknowledgment plan amendments to DLCD and other parties is a critical component of a statutory and rule-based scheme that is designed to ensure that post-acknowledgment plan and land use amendments comply with the applicable statewide planning goals and rules, including the TPR. *See Oregon City Leasing, Inc. v. Columbia County, 121 Or App 173, 177, 854 P2d 495 (1993)* (failure to provide DLCD the notice required under ORS 197.610 *et seq*. is a substantive, not procedural error). The efficacy of that scheme is undermined if a local government defers consideration [**13] of compliance with the TPR to a subsequent review process that does not provide equivalent notice to that required by ORS 197.610 *et seq*. Without such notice, it is possible that DLCD and parties who may rely on DLCD's re-notice, potentially including ODOT, may not learn of the review proceeding or have an opportunity to participate in that proceeding.

> the function, capacity and performance standards of the affected transportation facilities. *ODOT v. City of Klamath Falls,* 39 Or LUBA at 660.

Under OAR 660-024-0020(1)(d), the Transportation Planning Rule ("TPR") need not be applied to a UGB amendment if the land will remain zoned as urbanizable. That will be the case with the properties subject to the proposed UGB amendment. The current AF-20 zoning will remain until the is annexed into the City of Sherwood. During the forthcoming Metro Title 11 concept planning process for the properties, the City will determine the appropriate zone and this will include a TPR analysis. The zoning will not actually be changed, however, until after annexation.

With respect to Goal 12 generally, as set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services, including transportation, with respect to that urban reserve. The concept plan analyzed the existing transportation system and how that system will need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future transportation service providers, including Washington County and ODOT. The concept plan discusses the transportation system within the plan area at 18-21, 40-44, as well as in Appendix 3 (Existing Conditions Report), Appendix 6 (Service Provider Interviews), and Appendix 8 (Transportation Options Alternative Analysis Report). The District used this work as the jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative at pages 10-11, and Appendix B (Service Provider Letters). The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address the provision of a safe, convenient, and economic transportation system for the new high school site. (The Transportation Study has been submitted to the record.) The Sherwood West Concept Plan takes a higher-level look at the transportation needs of the Sherwood West area in general, including the need for new streets and intersection improvements. The Narrative provides general information about how the school site will be served and the Transportation Study provides more detail than is commonly found at the UGB expansion stage, but finds that, with some mitigation improvements, a new high school on the proposed site can be served by the appropriate transportation system. The Transportation Study will become more relevant at the Title 11 concept planning and annexation stages of the high school site development. Because the new high school is very near to an existing, urban-level street system, and because Washington County and the City will be constructing a new intersection improvement adjacent to the new high school, the provision of transportation services to the new school will be more economical. According to the concept plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) In sum, all of the cited evidence supports a finding that it is possible to safely, conveniently, and economically provide for the transportation needs of the new high school.

For this reason, the applicant proposes a condition of approval to the UGB amendment that prohibits any new development on the subject property until a Comprehensive Plan Map and Zoning Map Amendment are completed, and that the TPR will be addressed at that time.

Several opponents expressed concerns about the adequacy of the surrounding transportation system to support the proposed high school. It is tempting to jump ahead to the specific traffic impacts of a proposed use even at this early stage of the land use process. It is important to keep in mind, however, that the Major Amendment application is just the first application in a series of land use proceedings that must occur prior to the high school actually being approved on the property. With respect to the Major Amendment application, Goal 12, OAR 660-024-0060(8), and MC 3. 07. l425(c)(2) are applicable and implicate transportation facilities. The District has submitted findings with supporting substantial evidence to address all of those provisions. The District also submitted additional evidence from its traffic engineer to address particular issues raised with respect to the March 15, 2017, Sherwood High School UGB Expansion Transportation Study. (See June 28, 2017, DKS memorandum.)

No one besides the District provided any evidence or testimony from a traffic engineer regarding any aspect of the Major Amendment application. Opponents correctly point out that there are existing transportation deficiencies in the area that surrounds the proposed high school site. Those opponents also correctly point out that if those deficiencies are not addressed then the new high school will exacerbate them. All of that is true, but it would be expected to be true regardless of where the new high school is sited, *i.e.*, nearly every area in and around Sherwood has existing transportation deficiencies and siting a new high school in any of those areas would impact the transportation system. Where the opponent's logic fails is in the apparent assumption that the transportation impacts of the new high school will not be addressed as part of the planning and permitting processes that are required prior to the new school opening its doors in 2020. That assumption is incorrect.

The laws and regulations that govern the permitting of the new high school simply do not allow the new school to be plopped down anywhere without transportation impacts being analyzed and mitigated in accordance with the law. The specifics of that analysis and mitigation for the chosen site are largely irrelevant at the UGB amendment stage. Instead, those specific transportation impacts will be addressed through subsequent Title ll planning for the UGB amendment area, and through annexation, zone change, and conditional use permit processes. Through these processes, the Transportation Planning Rule will be addressed, appropriate off-site mitigation within an appropriate timeframe will be required, and appropriate frontage improvements for all of the abutting streets will be conditioned. Public involvement is included in each of those steps as part of each of the planning and permitting processes. (See June 28, 2017, DKS & Associates memorandum.)

Goal 13 - Energy Conservation

"To conserve energy."

Hearings Officer Analysis: LUBA and the Courts have never given any regulatory affect to this Goal. The Hearings officer views this goal as being essentially meaningless. The general practice has been for applicants and staff to write some flowery prose that extorts the energy

saving virtues of the project. In this vein, the applicant states:

> As explained under the District's response to MC 3.07.1425(c)(3), which is the analog of Goal 14, Location Factor 3 (ESEE energy consequences), the proposed school site's adjacency to the existing UGB, served by major streets, facilitates multi-modal access for students, teachers, families, and administrative staff to and from the school campus. This will multi-modal facilitation will only increase as Sherwood West builds out into a predominantly residential area with nodes of neighborhood commercial.

Without some baseline standard to measure against, it is difficult to evaluate whether any given proposal will "conserve energy" or not. But at least it sounds good.

For its part, the opponent's arguments do not shed much light on the issue. They merely state that an "energy analysis" must be provided. *See* Letter from Jennifer Brager dated June 6, 2017, at p. 3. The opponents do not explain exactly what an "energy analysis" entails, nor it is particularly apparent on its face. Given that no focused argument concerning Goal 13 was raised by any party, the hearings officer finds that the applicant's proposed findings comply with Goal 13 – whatever it means.

Goal 14 - Urbanization

> *"To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."*

Hearings Officer Analysis: Goal 14 is addressed throughout this submittal.

Goals 15 through 19

Hearings Officer Analysis: These goals are not applicable, as the proposed UGB expansion does not include Willamette River Greenway, Estuarine Resources, Coastal Shorelands, Beaches and Dunes or Ocean Resources.

OAR 660-024-0040 - 0050

OAR 660-024-0050 directs local governments to inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. The District's Major Amendment application does not directly implicate these rule provisions, because the need for the new high school site did not arise out of an OAR 660-024-0040 overall land needs analysis and subsequent OAR 660-024-0050 buildable lands analysis. A specific need for a new high school site arose out of long-term facilities planning engaged in by the District. However, once the need for the new high school was identified, the District analyzed land that was within both the District boundaries and the Sherwood, Wilsonville, and Tualatin UGBs for land that could accommodate the need for the

new high school based on its suitability criteria. (See Narrative at pages 8-21.) There was no suitable land within those areas. The analysis required by OAR 660-024-0050 tracks closely in some respects with the analysis required by MC 3.07.1425(a), which was addressed by the District in its application. The caveat, however, is that identified specific land need, such as land for a new school, is not the same as a generalized need for more residential land or employment land. Given the specific need for a new school site, MC 3.07.1440(a) allows a UGB expansion tailored to just that need under certain circumstances.

OAR 660-024-0060 - Metro Boundary Local Alternatives Analysis

OAR 660-024-0060 sets forth the provisions that apply when a need within the Metro UGB has been specified and there is no land within the UGB that can accommodate that need. The provisions in OAR 660-024-0060 track closely with the provisions contained in MC 3.07.1425(c), which have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

OAR 660-024-0060:

(1) When considering a Metro UGB amendment, Metro must determine which land to add by evaluating alternative urban growth boundary locations. For Metro, this determination must be consistent with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, Metro must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

Hearings Officer Analysis: The highest priority of land available is land designated urban reserve. (ORS 197.298(1)(a).) The District's application included an analysis of urban reserve land.

(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, Metro must apply the location factors of Goal 14 to choose which land in that priority to include in the Metro UGB.

Hearings Officer Analysis: As set forth in the District's Major Amendment application, there is suitable land within an existing urban reserve to satisfy the need deficiency, i.e., the new high school. Accordingly, the location factors of Goal 14 were applied to that land. Those location factors are the first four location factors found in MC 3.07.1425(c)(1)-(9) and have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, Metro must determine which land in the next priority is suitable to

accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(d) Notwithstanding subsection (a) to (c) of this section, Metro may consider land of lower priority as specified in ORS 197.298(3).

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(e) For purposes of this section, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(2) Notwithstanding OAR 660-024-0050(4) and subsection (1)(c) of this rule, except during a legislative review of the Metro UGB, Metro may approve an application under ORS 197.610 to 197.625 for a Metro UGB amendment proposing to add an amount of land less than necessary to satisfy the land need deficiency determined under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

Hearings Officer Analysis: This provision is not applicable.

(3) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all the factors were considered and balanced.

Hearings Officer Analysis: This provision is consistent with how Metro interprets its analogous boundary location factors in MC 3.07.1425(c), which were applied to the District's Major Amendment application.

(4) In determining alternative land for evaluation under ORS 197.298, "land adjacent to the UGB" is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.

Hearings Officer Analysis: The District's analysis took into account all of the land in the urban reserves that otherwise met the District's siting criteria. Some of the land analyzed did not abut the UGB, but was rejected for other reasons.

(5) If Metro has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, Metro may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(6) The adopted findings for a Metro UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.

Hearings Officer Analysis: The District mapped all of the alternative areas evaluated in the boundary location alternatives analysis and evaluated them separately.

(7) For purposes of Goal 14 Boundary Location Factor 2, "public facilities and services" means water, sanitary sewer, storm water management, and transportation facilities.

Hearings Officer Analysis: The District took into account the public facilities and services enumerated in this provision when it evaluated MC 3.07.1425(c)(2), which is the analog to Goal 14 Boundary Location Factor 2.

(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative Metro UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation (ODOT) with regard to impacts on the state transportation system. "Coordination" includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include:

(a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the Metro UGB;

(b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the Metro UGB; and

(c) The need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.

Hearings Officer Analysis: As set forth in the responses to Goals 11 and 12, Sherwood West has been concept planned pursuant to MC 3.07.1110, and so the provision of public

facilities and services within the Sherwood West concept plan area and as those services relate to the rest of the city have been studied extensively, as required by MC 3.07.1110. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, stormwater, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West without adversely impacting the existing city development. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, and Washington County.[15]

Additional Issues Raised by Opponents

1. **Metro Staff Provided Proper Notice to DLCD.**

Opponents allege that Metro failed to provide notice to DLCD of a proposed plan map amendment under ORS 197.610. *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 8. This is not correct. Metro submitted the requisite notice to DLCD on April 20, 2017, as evidenced on the weekly DLCD notice summary dated April 21, 2017, which is attached to the June 30, 2017 letter from Metro counsel Roger Alfred.

2. **The Fair Housing Act Is Inapplicable.**

The opponent argues that Metro must apply the Fair Housing Act ("FHA") to the Major Amendment application, because "Metro has a duty to affirmatively further fair housing." *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 3-5.

The opponent does not point to any approval criterion that requires Metro to apply the FHA directly to this application, and did not include any convincing argument as to why a UGB expansion to accommodate a new public high school would require the FHA to be addressed. As best as the hearings officer can ascertain, the opponent's core argument is that the FHA is a *de-facto* approval standard for every Comprehensive Plan Amendment and zone change decision. In this regard, Ms. Brager states that "Metro has a duty to affirmatively further fair housing" and that "Metro needs to address fair housing implications in this Major Amendment application through analysis under Goal 10 and under Metro's locational factors, Metro Code 3.07.1425(c)(5) regarding equitable and efficient distribution of housing." The argument is not well-developed; the opponent seems to be arguing that the FHA must be complied with, but that compliance with Goal 10 and the Metro Code establishes compliance with the FHA.

Beyond that, the opponent complains that Sherwood does not have enough subsidized housing, which "does not properly address the housing issues in Washington County for low-income households, especially protected classes." That statement is followed up with the conclusion that the "failure to analyze the school siting in context of the regional need for fair housing only exacerbates the inequitable distribution of affordable housing in the Metro region."

[15] This coordination effort included service provider interviews included as Appendix 6 of the Sherwood West Concept Plan. Appendix 8 provides more detail regarding the provision of transportation infrastructure to the Sherwood West Concept Plan area.

Letter from Jennifer Bragar dated June 23, 2017, at p. 5. Again, the hearings officer is at a loss to understand the opponent's argument, especially since the opponent does not tie their ultimate policy concern back to any specific language in the FHA or any other law for that matter. This argument is simply not developed sufficiently to allow for its review and evaluation. If the argument is that every school siting project has an inclusionary zoning requirement for additional low-income / subsidized housing, that argument is rejected.

SECTION IV: HEARINGS OFFICER'S SUMMARY, RECOMMENDATION, AND PROPOSED CONDITIONS OF APPROVAL.

The applicant seeks to amend the UGB to include approximately 82 acres for a high school with sports fields and the realignment of SW Elwert and SW Kruger Roads. The Applicant has provided sufficient evidence to demonstrate that the criteria are satisfied and the locational factors have been addressed. As detailed herein, the applicant has demonstrated that the high school is currently over capacity and by 2025 will be severely over capacity. Delaying the decision to await a legislative amendment of the UGB by the Metro Council which may or may not occur in the 2018 timeframe only exacerbates the capacity issues which impacts the District's ability to meet the goals of its strategic plan. The applicant provided adequate comparison of the proposed UGB expansion area with other possible expansion areas in seven different urban reserve areas and a determination that the need cannot be met on land currently within the urban growth boundary. In addition the applicant has shown the proposed use can be made compatible with adjacent uses through site design and the city's development design review process provides for public involvement. Additionally the adjacent land is within an urban reserve and is expected to urbanize over time, allowing for the development of a cohesive neighborhood and school/park facility.

Therefore, the hearings officer forwards a recommendation to the Metro Council for ***approval*** of this petition, with the following two conditions of approval:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application are required for this Major Amendment.

2. The applicant must comply with the Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

Respectfully submitted this 21st day of July, 2017.

ANDREW H. STAMP, P.C.

Andrew H. Stamp

Andrew H. Stamp

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ATTACHMENTS

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Attachment 2: Current Enrollment and School Building Capacities, Table 1 of petition
Attachment 3: Projected Enrollment, Table 2 of petition
Attachment 4: Existing High School Campus, Figure 5of petition
Attachment 5: 2014 Sherwood Residential Buildable Lands Inventory Map, Figure 6 of petition
Attachment 6: Urban Reserve Areas within Sherwood School District Boundary, Figure 7 of petition
Attachment 7: Sherwood West Planning Area, Figure 8 of petition
Attachment 8: Sherwood West Alternative High School Sites, Figures 9-14 of petition

METRO HEARINGS OFFICER'S ANALYSIS, CONCLUSIONS, AND RECOMMENDATIONS TO THE METRO COUNCIL

Sherwood School District Urban Growth Boundary
Major Amendment, Case 17-02

JULY 21, 2017

ANDREW H. STAMP, P.C.
KRUSE-MERCANTILE PROFESSIONAL OFFICES, SUITE 16
4248 GALEWOOD STREET
PORTLAND, OR 97035

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SECTION I: APPLICATION SUMMARY

FILE NAME:	UGB Case 17-02: Sherwood School District Urban Growth Boundary Major Amendment
APPLICANT:	Sherwood School District 23295 SW Main Street Sherwood, OR 97140
PROPOSAL:	82-acre expansion of the urban growth boundary (UGB) for a high school campus with sports fields. Realign SW Elwert Road and SW Kruger Road in Sherwood.
LOCATION:	Tax Lots 2S236-200, -201, -206, and -207
SITE ADDRESSES:	18880 SW Haide Road, 22895 SW Elwert Road and 18985 SW Kruger Road, Sherwood, Oregon 97140
URBAN RESERVE AREA:	Area 5B.
CURRENT ZONING:	AF-20
METRO CODE:	Metro Code Sections 3.07.1425 (B, C, D, E & F) and 3.07.1440 (A & B). Code Section 3.07.1425(C)(1-9)

SECTION II: BACKGROUND INFORMATION

Proposal Description: The applicant requests an expansion of the City of Sherwood UGB to include approximately 82 acres for a high school campus with sports fields. This proposal also seeks to realign the intersection of SW Elwert Road and SW Kruger Road for improved and safer traffic flow.

Site Information: The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Rd and SW Kruger Rd as shown in Attachment 1. The property has frontage on SW Elwert, SW Haide and SW Kruger Roads. The entire property is zoned AF-20 (Agricultural and Forest District) by Washington County with a minimum lot size of 80 acres. The entirety of the property is located within the Sherwood West Preliminary Concept Plan area (Metro Urban Reserve Area 5B). The site slopes

gently down to the east towards SW Elwert Road with approximately 40 foot grade change across the site. There is a shallow valley and ridge within this slope.

The properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the road realignment. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

Case History: The Sherwood School District (District) is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Local Government Statement: This UGB major amendment is being considered at the request of the Sherwood School District. The City of Sherwood completed the Sherwood West Preliminary Concept Plan for urban reserve area 5B and submitted a service provider form supporting the school district's application. The school district participated in the concept planning process and the subject site is one of the school locations identified in the preliminary concept plan. Washington County submitted a written statement supporting the application with proposed conditions for Metro to consider. Tualatin Valley Fire and Rescue submitted a written statement supporting the application and Clean Water Services is neutral on the application.

SECTION III: APPLICABLE REVIEW CRITERIA

The criteria for a Major Amendment to the UGB are contained in Metro Code Section 3.07.1425(B, C, D, E, & F) and 3.07.1440 (A & B). The approval criteria appear ***bold 12-pt Aerial Narrow font),*** and the hearings officer's analysis follows.

> ***Metro Code Section 3.07.1440(A) The purpose of the major amendment process is to provide a mechanism to address needs for land that cannot wait until the next analysis of buildable land supply under ORS 197.299. Land may be added to the***

UGB under this section only for the following purposes: public facilities and services, public schools, natural areas, land trades and other non-housing needs;

This code section requires that the applicant show, by substantial evidence in the whole record, that it is an eligible entity allowed to use the interim ORS 197.299 Major Amendment UGB process rather than wait until the next regular Metro UGB amendment cycle (in December, 2018).

Hearings Officer's Analysis: Title 14 of the Metro Code (*i.e.* Metro's Urban Growth Management Functional Plan) includes the Major Amendment process to amend the UGB for a number of specific non-housing needs, including schools and public parks. This process, which is designed to implement ORS 197.299(4), is intended to provide an opportunity to meet these specific land needs outside of the legislative housing needs process the Metro Council conducts on a six-year cycle as required by ORS 197.299(1) and ORS 197.296.

As part of the six-year legislative housing needs process, Metro conducts an inventory of the current residential and employment capacity within the UGB, forecasts population and employment growth over a 20-year timeframe, determines the capacity of the current UGB to accommodate that growth and documents the results of these analyses in an urban growth report. ORS 197.296(6)(a), which is one of the state's needed housing statutes, envisions that local governments with populations over 25,000 will factor in land for schools at the same time as they determine the amount of land needed to be brought in to the UGB for housing. In this regard, the need for land for schools under ORS 197.296(6)(a) is a "derivative need" which is linked to, and dependent upon, a finding that there is a need for land to be brought into the UGB to accommodate an identified housing need. As noted in more detail below, this process has proven to be long, drawn out affair, which is not sensitive to short-term needs. Furthermore, because it is done on a large-scale regional basis, is not always sensitive to more localized school and park needs.

In fact, Metro's most recent urban growth report, adopted in 2015, did not address school and park land needs at the regional level at all. Some school districts anticipate growth, others see declining enrollment and none look out over the 20-year timeframe that the urban growth report considers. Depending on the particular physical, financial and expected growth characteristics of each school district, plans for accommodating projected increases in enrollment vary. Similarly, park districts acquire property and develop park facilities based on numerous operational and funding parameters that can't be considered at the regional level. In addition, it is quite common for school districts and cities to collaborate on opportunities to meet the city's recreation needs as well as the school district's team needs. For these reasons, the Major Amendment process is the appropriate means of addressing specific school district and park needs that can be accommodated through UGB expansions.

Metro has adopted specific criteria to implement ORS 197.299(4). There are two criteria contained in Metro Code section 3.07.1440(A) that are analyzed separately below:

1) The proposal must be for a non-housing need, and

> 2) The proposal must be intended to meet needs that cannot wait until the next analysis of land supply (December 2018).

There does not appear to any disagreement that the first criterion is met: the applicant proposes to add land to the boundary for a public school and a public facility need, both of which are non-housing needs. The Sherwood School District's Sherwood High School is a "public school" within the meaning of Metro Code Section 3.07.1440(A).

However, whether the applicant has met the second criterion has proven to be more controversial. The applicant addresses its need as follows:

> As of 2015, the Sherwood School District encompasses 4.31 square miles serving a population of approximately 18,884 residents and 5,000 students. The Sherwood School District includes:
> - The City of Sherwood city limits;
> - Portion of the western area of the City of Tualatin (mostly industrial land);
> - Rural Clackamas County (primarily between Sherwood and Wilsonville); and
> - Rural Washington County north and west of Sherwood, as well as a small area east of I-5 between Wilsonville and Tualatin.
>
> To facilitate future planning and to comply with State requirements for a fast-growing school district, the District adopted a long-term facilities plan in January of 2008, which assumed that additional school capacity would therefore likely be needed within ten years of the plan's adoption. As predicted school facilities have recently become overtaxed. In 2015, to assess current resources, the Sherwood School District completed a Facilities Planning and Assessment Report to determine both condition and available capacity. Enrollment based on the most current demographic data and capacity shows that school capacity is near or over capacity at all school levels as shown in Staff Report Attachment 2 (Table 1 in petition).
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the

high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

From the updated capacity assessment and demographic data, it became apparent that facilities must be expanded to keep pace with continued student enrollment growth. A Long Range Planning Committee, Bond Steering Committee, Bond Visioning Committee and Sherwood High School Programming Committee were formed to study facility needs. Led by the Bond Management Team, these committees met from 2014 to 2016, making recommendations to the Sherwood School District Board. The process included input from a number of participants from the community including City Council and staff representation, School District staff, architects, civil engineers, financial advisors, business leaders, citizens, parents and students. Throughout this process, the Sherwood City Council was provided with updates and community input was sought via various public outreach methods.

As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth. With the conclusion that the existing high school cannot be upsized to meet demand, the District's Bond Management Team began looking for a long-term solution and the School Board, with voter approval, ultimately decided to build a new high school. The new high school is planned to be sized to initially accommodate 2,000 students, but allow for easy expansion to 2,400 students. This size will allow for projected growth over the next 10 years and foreseeable future.

Once a new high school is online, the existing high school building can be repurposed as a consolidated middle school with both existing middle schools (Laurel Ridge and Sherwood Middle) being relocated to the existing high school campus. Once this occurs, the two existing middle schools can be converted to elementary school use to expand needed elementary school capacity. Finally, the proposal allows for Hopkins Elementary School, a building nearing its useful lifespan, to be taken out of

> school service and converted to administrative functions. The existing administrative offices consist of portable buildings in varying locations and with the conversion of Hopkins, office space can be centralized for increased efficiencies.

The primary opponent argues that the applicant has not justified the use of the Major Amendment process instead of waiting until the normally scheduled Metro 2018 UGB expansion. Their attorney states: "Metro's scheduled UGB expansion in 2018 is the appropriate time to analyze the expansion for the proposed high school because more data will be available and the full set of impacts can be analyzed. The delay will also resolve the issues with inadequate notice in the current application." *See* Letter from Jennifer Bragar dated June 6, 2017, at p. 8.

What the opponents appear to be arguing is that this application is premature, and the applicant should wait until 2018 when the 20-year buildable lands analysis will be available. Furthermore, the opponents do believe that the Major Amendment process authorized by ORS 197.299(4)(a)(A) requires the same type and level of analysis required when Metro conducts its periodic legislative housing need analysis required by ORS 197.299(1) and ORS 197.296. The opponent's unstated assumption is that school needs must be evaluated as a derivative need of housing using the ORS 197.296(6) process.

Metro staff weighed in on the debate via a Memorandum dated June 9, 2017, which states, in relevant part:

> Metro's legislative process for reviewing the UGB is guided partially by ORS 197.296. Subsection 197.296(2) directs Metro to demonstrate that there is sufficient buildable land within the UGB to accommodate estimated housing needs for 20 years. A housing need is the only need identified in the statute. ORS 197.296(6) says if the housing need is greater than the capacity of the UGB Metro shall take one or more actions that could include amending the UGB to include sufficient buildable lands to accommodate housing needs for 20 years. Subsection (6)(a) goes on to say that if the UGB was amended to accommodate housing needs for the next 20 years, then the amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities.
>
> The statutory directive to Metro is to include sufficient land for school facilities as part of any UGB expansion that is required to meet a 20-year need for housing. In Metro's most recent analysis of the 20-year housing supply (the 2015 UGR), Metro determined there was sufficient capacity inside the existing UGB to accommodate housing needs; therefore, no corresponding analysis for public school facilities was required.

> Even if the Metro Council had determined there was a need to expand the UGB in 2015 to accommodate a 20-year housing need, there is no certainty that the location where the land would be added to meet the housing need is also a location where a local school district needs additional land to meet its facility needs. Likewise there is no certainty that the specific land needs of a school district are coordinated with the local jurisdictions desire for additional housing. For instance, a UGB expansion adjacent to Hillsboro to meet a regional housing need would not support the Sherwood School District's need for a new high school.
>
> These difficulties arise, in part, from the size of the Metro region and the fact that it consists of 24 individual cities and 17 different school districts. It is important to recognize that the provisions of ORS 197.296(6)(a) regarding planning for accommodation of new school facilities is included in the statutory section that describes the analysis required for all cities in the State of Oregon. While it would not be as difficult for a smaller jurisdiction to coordinate future public school needs with future housing needs in making UGB expansions, that task is much more complicated in the Metro region.
>
> The disconnect in the Metro region between the location of UGB expansions to meet a 20-year housing need and the needs of existing school districts is addressed, in part, by ORS 197.299(4)(a), which is the statute that directs Metro to establish the process being utilized by the Sherwood School District in this proceeding. ORS 197.299(4)(a) requires Metro to allow "off-cycle" UGB expansions as necessary to accommodate a need for land for a public school that cannot reasonably wait.

Given that the opponents have a very different interpretation of the purpose and meaning of ORS 197.299(4) when compared to Metro staff and the applicant, a discussion of statutory interpretation is in order.

A statute is considered "ambiguous" if it is capable of at least two reasonable interpretations. *State v. Tarrence*, 161 Or App 583, 985 P2d 225 (1999); *Kenton Neighborhood Ass'n v. City of Portland and Oregon Waste Systems, Inc.*, 17 Or LUBA 784, 797 (1990) (when code is internally inconsistent, it is ambiguous).[1] If the legislation is unambiguous, local governments and courts are bound to apply the statute in that manner, regardless of how inartful the enactment seems. *Sanchez v. Clatsop County*, 146 Or App 159, 164 n 4, 932 P2d 557 (1997). Stated another way, an unambiguous statute should not be "interpreted." *City of Hillsboro v. Housing Dev'l Corp of Washington County*, 61 Or App 484, 488, 657 P2d 726 (1983). *See GTE*

[1] *See also Fisher v. City of Gresham*, 69 Or App 411, 416, 685 P2d 486 (1984); *McCoy v. Linn County*, 90 Or App 271, 276 nl, 752 P2d 323 (1988).

Northwest, Inc., v. Oregon Public Utility Comm'n, 179 Or App 46, 39 P3d 201 (2002). Rather, unambiguous words should be given their plain, natural, and ordinary meaning. *PGE v. BOLI*, 317 Or at 611.[2]

In this case, the hearings officer believes that the relationship between ORS 197.296 and ORS 197.299 creates sufficient ambiguity to warrant an exercise of statutory interpretation.

Text and Context.

When construing a statute, the court will often first look directly at the text of the statute itself. *See Whipple v. Howser*, 291 Or 475, 635 P2d 782 (1981) (citing *Greyhound Corp. v. Mount Hood Stages, Inc.*, 437 US 322, 330, 98 S Ct 2370, 2375 (1978)). Emphasizing the need to look first to the language of the statute, the *Whipple* court stated:

> "The cardinal rule for the construction of a statute is to ascertain from the language thereof the intent of the law makers as to what the purpose was to be served, or what the objective was designed to be attained."

Whipple, 291 Or at 479 (citing *Swift & Co. and Armour & Cove, Co. v. Peterson*, 192 Or 97, 233 P2d 216 (1951). *See also State of Oregon v. Buck*, 200 Or 87, 92, 262 P2d 495 (1953). The *Whipple* court also cited to *State ex rel. Cox v. Wilson*, 277 Or 747, 562 P2d 172 (1977), in which the court stated:

> "There is, of course, no more persuasive evidence of the purpose of a statute then the words by which the legislature undertook to give impression to its wishes."

Courts do not view the text in a vacuum; they consider the context of the language at issue as well. In fact, the context of the statute is as important to the interpretation as the text. *State v. Webb*, 324 Or 380, 927 P2d 79 (1996); *Friends of Neaback Hill v. City of Philomath*, 139 Or App 39, 48, 911 P2d 350 (1996). *See e.g., Shadrin v. Clackamas County*, 34 Or LUBA 154 (1998). In some cases, the court may consider the context before examining the text, in situations where the context "provided perspective on the text." *See Plotkin v. Washington County*, 165 Or App 246, 250, 997 P2d 226 (2000). In this case, consider the two statutes in tandem.

ORS 197.299 provides as follows:

---

[2] *See also OSHU v. Hass*, 325 Or 492, 501, 942 P2d 261 (1997); *Zidell Marine Corp. v. West Painting, Inc.*, 322 Or 347, 906 P2d 809 (1995); *State v. Langley*, 314 Or 247, 256, 839 P2d 692 (1992); *Curly's Dairy, Inc. v. State Dept of Agriculture*, 244 Or 15, 415 P2d 740 (1966) (If statute is clear and unambiguous, the court may not resort to rules of statutory construction in ascertaining and declaring the legislative intent.); *Sullivan v. City of Ashland*, 130 Or App 480, 882 P2d 633, *rev den*, 320 Or 453, 887 P2d 792 (1994) (An unambiguous code provision cannot be interpreted, even if that provision is contrary to the express purposes of the provision.); *City of Portland v. White*, 61 Or App 120, 655 P2d 629 (1982).

197.299 Metropolitan service district analysis of buildable land supply; schedule for accommodating needed housing; need for land for school; extension of schedule.

(1) A metropolitan service district organized under ORS chapter 268 shall complete the inventory, determination and analysis required under ORS 197.296(3) not later than six years after completion of the previous inventory, determination and analysis.

(2)(a) The metropolitan service district shall take such action as necessary under ORS 197.296(6)(a) to accommodate one-half of a 20-year buildable land supply determined under ORS 197.296 (3) within one year of completing the analysis.

(b) The metropolitan service district shall take all final action under ORS 197.296(6)(a) necessary to accommodate a 20-year buildable land supply determined under ORS 197.296 (3) within two years of completing the analysis.

(c) The metropolitan service district shall take action under ORS 197.296(6)(b), within one year after the analysis required under ORS 197.296(3)(b) is completed, to provide sufficient buildable land within the urban growth boundary to accommodate the estimated housing needs for 20 years from the time the actions are completed. The metropolitan service district shall consider and adopt new measures that the governing body deems appropriate under ORS 197.296 (6)(b).

(3) The Land Conservation and Development Commission may grant an extension to the time limits of subsection (2) of this section if the Director of the Department of Land Conservation and Development determines that the metropolitan service district has provided good cause for failing to meet the time limits.

(4)(a) The metropolitan service district shall establish a process to expand the urban growth boundary to accommodate a need for land for a public school that cannot reasonably be accommodated within the existing urban growth boundary. The metropolitan service district shall design the process to:

(A) Accommodate a need that must be accommodated between periodic analyses of urban growth boundary capacity required by subsection (1) of this section; and

(B) Provide for a final decision on a proposal to expand the urban growth boundary within four months after submission of a complete application by a large school district as defined in ORS 195.110.

(b) At the request of a large school district, the metropolitan service district shall assist the large school district to identify school sites required by the school facility planning process described in ORS 195.110. A need for a public school is a specific type of identified land need under ORS 197.298 (3). [1997 c.763 §2; 2001 c.908 §2; 2005 c.590 §1; 2007 c.579 §2; 2014 c.92 §5]

As quoted above, ORS 197.299(1) cross-references ORS 197.296(3), which, in term, cross-references to ORS 197.296(2). These two statutes together set forth a process for evaluating and accommodating housing needs:

> *(2) At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use, a local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years. The 20-year period shall commence on the date initially scheduled for completion of the periodic or legislative review.*
>
> *(3) In performing the duties under subsection (2) of this section, a local government shall:*
>
> *(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and*
>
> *(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.* (Underlined emphasis added).

As the underlined language indicates, ORS 197.296 is a statute narrowly-tailored towards the process used to establish and fulfill an identified *housing* need. It is an expansion of the basic concepts set forth in Statewide Planning Goal 10, but it goes beyond Goal 10 in scope.

As part of that process, the effect of ORS 197.296(6) should also be considered as context:

> *(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need:*
>
> *(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school*

districts and the local government that has the authority to approve the urban growth boundary;

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall monitor and record the level of development activity and development density by housing type following the date of the adoption of the new measures; or

(c) Adopt a combination of the actions described in paragraphs (a) and (b) of this subsection.

A few key points can be quickly gleaned from ORS 197.296. First, by its terms, ORS 197.296(2) only applies to periodic review or another "*legislative* review of the [.. .] regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use. " This Major Amendment application is not periodic review and is also not a legislative review of Metro's regional framework plan, *i.e.*, the every six-year UGB amendment cycle. The Major Amendment application is subject to a quasi-judicial process and will result in a quasi-judicial decision by the Metro Council.

Strawberry Hill 4 Wheelers v. Board of Comm'rs sets out a list of factors to be weighed to determine whether a land use decision is legislative or quasi-judicial. 287 Or 591, 602-603, 601 P2d 769 (1979). Under *Strawberry Hills*, the Major Amendment is quasi-judicial because (a) the application process is bound to result in a decision, (b) the decision must apply pre-existing criteria to concrete facts, and (c) the action is directed at a closely circumscribed factual situation.

With regard to the first question, the *Strawberry Hills 4-Wheelers* Court asks practitioners to consider the following question: "Does the statute require the [local government] to reach a decision after the hearing, as in an adjudication, or may it indefinitely postpone or abandon the issue, like a legislative proposal?" 287 Or at 605. At first glance, one might assume that any land use decision that originates from an application being submitted (as opposed to be initiated by the local government itself) would be "bound to result in a decision." Indeed, that seems to have been the original intent of the *Strawberry Hill* Court. However, over the years LUBA and the Court of Appeals have increasingly read this factor more and more narrowly and will only find that that a decision is "bound to result in a decision" if the code either expressly requires a decision to be made, or if that requirement can be fairly read into the language of the code based on the context. *Estate of Gold v. City of Portland*, 87 Or App 45, 48, 740 P2d 812 (1987) ("the statute simply says that the governing body *may* approve the proposal, not that it *must* do anything."); *Johnson v. City of La Grande*, 37 Or LUBA at 388; *Valerio v. Union County*, 33 Or LUBA 604 (1997); *Miner v. Clatsop County*, 46 Or LUBA 467 (2004). In some cases, LUBA has not been as exacting in its analysis, holding that although the code did not:

> "expressly state that once a person requests an interpretation of a provision of the city's zoning ordinance that the person is entitled to a decision. We believe, however, that any reasonable person reading this ordinance would conclude that if a person requested an interpretation from the planning director, received that interpretation and then appealed the interpretation to the planning commission and to the city council, the person filing the appeal would be entitled to a decision from the city council."

Hoffman Ind. Inc. v. City of Beaverton, 2 Or LUBA 411 (1981); *Dean v. City of Oakland*, 33 Or LUBA 806, 809 (1997)("While the cited policy does not require a decision within a specified time, the most natural reading of its terms requires a decision.") The fact that any given ordinance in question states that the decision-maker "may" make a decision should not be a fact which is determined to be indicative of a legislative decision, but unfortunately, in practice it is just that. In this regard, the statute at issue in *Strawberry Hill* did not expressly require that a decision be made. However, the Supreme Court found no difficulty in concluding that "although affirmative action is optional, the statute appears to contemplate that the County Court will *eventually* reach and pronounce some decision whether to act or not. *Id*. at 606. (Emphasis added).

In this case, the MC 3.07.1440(g) requires the Metro Council to make a final decision on the petition. Therefore, this factor suggests that the decision is quasi-judicial.

The second of the *Strawberry Hill* questions has, in practice, become somewhat of a non-factor. Both LUBA and the Court of Appeals have recognized that all land use decisions in Oregon are subject to "preexisting criteria" and apply to concrete facts. LUBA has addressed this issue as follows:

> Turning to the "apply existing criteria to concrete facts" factor, that factor is present to some extent in all land use decisions. *Valerio*, 33 Or LUBA at 607. This factor is therefore less important than the other two factors, particularly where, as is the case here, the decisions are adopting new land use laws rather than applying existing land use laws to grant land use approval for a single property or a small number of properties. *Churchill v. Tillamook County*, 29 Or LUBA 68, 71 (1995); *McInnis v. City of Portland*, 27 Or LUBA 1, 5-7 (1994).

Carver v. Deschutes County, 58 Or LUBA 323 (2009). *See also Casey Jones Well Drilling, Inc. v. City of Lowell*, 34 Or LUBA 263, 271 (1998); *Johnson v. Jefferson Country*, 56 Or LUBA 72 (2008). In this case, the MC 3.07.1440 sets forth criteria for a Major Amendment to a UGB. Therefore, this factor suggests that the decision at issue is quasi-judicial.

Under the third factor, LUBA and the Courts are supposed to assess whether the decision either (1) affects either a small number of owners and properties or (2) the "action directed at a closely circumscribed factual situation," or whether the decision has more broad

applicability. According to early decisions by the Court of Appeals, "the number of people affected and the size of the area covered are less important considerations," and the focus should instead be on "the importance of assuring that the decision is factually correct and that the decision-maker gives fair attention to affected individuals." *1000 Friends of Oregon v. Wasco Co. Court*, 80 Or App 532, 536, 723 P2d 1034 (1986), *rev'd on other grounds*, 304 Or 76, 742 P2d 39 (1987). In practice, this third bean-counting "factor" has become the most critical issue to LUBA, and, despite suggestions to the contrary, in most cases it is more-or-less the dispositive factor. In fact, LUBA has found decisions to be legislative even when the other two factors favored a determination that a decision was quasi-judicial. *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992).

In this case, the proposal involves 82 acres consisting of four tax lots in unknown ownerships. This is well within the size and ownership limits that would allow the conclusion that the decision is quasi-judicial.

The primary opponent argues that this Major Amendment is a "legislative decision," The primary opponent states that "[t]he decision amends the Metro Boundary map that is incorporated into the Metro Urban Growth Functional Plan, and as such the change is legislative." *See* Letter from Jennifer Brager dated June 23, 2017 at p. 1. However, map amendments are not necessarily or inherently legislative or quasi-judicial in nature. *Compare Thomas v. City of Veneta*, 44 Or LUBA 5 (2003) (TSP and zoning map amendment affecting two tax lots comprising 6.4 acres); *Dan Giles & Assoc., Inc. v. McIver*, 113 Or App 1, 3, 831 P2d 1024 (1992)(zone change for single 29-acre parcel in unified ownership is quasi-judicial); *Neuberger v. City of Portland*, 288 Or 155, 603 P2d 771 (1979) (re-zoning involving 601 acres of land owned by three landowners is quasi-judicial).[3] *Contrast Valerio v. Union County*, 33 Or LUBA 604 (1997) (comprehensive plan amendment and zone change pertaining to 185 acres in a "number of different ownerships" is legislative); *Friends of Cedar Mill v. Washington County*, 28 Or LUBA 477 (1995) (PAPA relocating arterial and changing it from 5 lanes to 3 lanes is legislative, where it affects 40 properties and will carry 17,000 – 18,000 trips per day.); *McInnis v. City of Portland*, 27 Or LUBA 1 (1994) (Proposal which rezones 5000 acres in 110 different ownerships is legislative.); *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992) (Transportation plan map amendment that directly involves nine property owners, but has "indirect effects" on a broader population is legislative). Nor is a UGB amendment inherently legislative in nature. *BenjFran Development, Inc. v. Metro*, 17 Or LUBA 30 (1988) (denial of request for UGB amendment comprising almost 500 acres in three ownerships is quasi-judical).

Cases such as *Davenport* and *Friends of Cedar Mill* suggest that large transportation projects will be considered legislative due to the broad secondary effects that transportation facilities can have on commuters. The hearings officer does not believe that this line of cases can be extended to a school, however, based simply on the fact that many kids will attend the school. If that were the case, then any land use decision involving a Wal-Mart or Home Depot store would be legislative, because those uses have higher usage / trip generation rates than a typical school.

[3] *See Neuberger v. City of Portland*, 37 Or App 13 (1978), *rev'd in part, aff'd in part*, 288 Or 155, 603 P2d 771 (1979).

Opponent's counsel cites *Colwell v. Washington County*, 79 Or App 82, 87-8 (1986) for the proposition that this Major Amendment is a legislative (and not a quasi-judicial) decision (*see* Bragar letter dated 23 June 2017, pp 1-2). *Colwell* does not support that conclusion, and is easily distinguished. In *Colwell*, the Washington County Planning Commission made a land use decision which opponents wished to appeal to the Board of Commissioners, but their appeal was dismissed for failure to timely pay for the quasi-judicial Planning Commission hearing transcript. *Colwell*, 79 Or App at 85. Opponents appealed to the LUBA, which dismissed the appeal for failure to exhaust remedies at the local (County) level. The Oregon Court of Appeals reversed and remanded, finding that the Washington County governing body (*i.e.* the elected Board of County Commissioners) - and not the unelected County Planning Commission - must make Comprehensive Plan amendments, pursuant to ORS 215.050(1) and ORS 215.060.

Opponent's argument might have some merit if this unelected hearings officer was the one to make the final decision on this Major Amendment land use application. Only the elected Metro Council has that authority, however. This hearings officer's findings and determination are merely a recommendation to the Metro Council, and the Council is free to accept or reject this Hearings officer's decision, as the Council sees fit. Since the Metro Council will be the governmental body to make the final land use decision in this case, the Court of Appeals' holding in *Colwell* shall be followed for this application.

Despite the lengthy analysis set forth above, the hearings officer does not really believe that the quasi-judicial vs. legislative debate is dispositive, in any event. Rather, it is a red herring. Stated another way, the hearings officer does not believe that ORS 196.296 would apply to this UGB Amendment even it was a legislative decision. By its terms, ORS 197.296 only applies to UGB amendments that "require the application of a statewide planning goal relating to buildable lands for residential use." As discussed elsewhere in this recommendation, an amendment to a UGB which adds AF-20 zoned land for use as a school does not implicate Goal 10 in any meaningful way .

Second, ORS 197.296 sets forth a mandatory periodic process that is focused on only one type of land need: a need for housing. We can credit the Home Builder Association for being active in the legislature over the past 30+ years and influencing the adoption of specific statutory language, such as ORS 197.296, which relates specifically to their industry. But we should also not lose sight of the fact that there are other types of land need under Goal 14 that don't implicate ORS 197.296.

Taking a step back, recall that Goal 14 states that a UGB amendment must be based on consideration of six factors set forth in the Goal. The first two factors are commonly referred to as the "need" factors. The need factors require either a demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, <u>*or*</u> a demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories. While the need for housing is governed by ORS 197.296, other land needs are governed by Statewide Planning Goal 14, and in some cases, by OAR Ch. 660, Div 24. Note, as an example, that OAR Ch. 660, Div. 24 does not address now a livability need is established; Goal 14 seems to be the sole administrative pronouncement of its use. What is important to understand for purposes of this case is that ORS 197.296 is not the sole way to

establish land need, and a school need is not limited to being established as a derivative need of housing under ORS 197.296(6).

Among the more common types of land need mentioned in Goal 14 include a need for employment land, a need for public facilities, a need for schools, a need for parks, and the amorphous catch-all known as a "livability need."[4] With one exception related to public schools, ORS 197.296 does not govern substantively how these other types of land needs are established. Nor does it establish a *process* by which those other needs are established. Rather, ORS 197.296(2) & (3) are narrowly focused on accommodating a housing need, and as shown below, accommodating land for public schools as a derivative need stemming from housing need.

Consider ORS 197.296(6) as context: this statute applies when a local government is undertaking periodic review or a legislative review of a UGB that implicates Goal 10. If during such a process, the local government determines that a need exists for additional residential land and that accommodating that land need must necessarily involves a UGB amendment, then ORS 197.296(6)(a) requires that local government to "include sufficient land reasonably necessary to accommodate the siting of new public school facilities." Thus, under that process, a public school facility is considered a derivative need that arises by operation of a demonstrated need for housing. However, there is nothing in ORS 197.296(6) that makes ORS 197.296 the exclusive process by which a need for schools can be established. As demonstrated by the applicant a need for new school facilities can exist independent of housing needs. And while the primary opponent chalks up the applicant's current need to poor planning on the District's part (a sentiment that may have some basis in fact), ORS 197.299(4) appears to written as a safety value that can be used by school districts regardless of the causes that led to the need.

ORS 197.299(4)(a)(A) provides additional key textual clues which helps understand the nature of the process currently being undertaken. This provision authorizes Metro to "establish" and "design" a "process" that will fulfill a need that must be accommodated "*between*" periodic analyses of urban growth boundary capacity required by subsection (1) of this section." By giving Metro the authority to "establish" and "design" a unique UGB amendment process for schools, the statute makes clear that the school need specific "4(a)" process is not the *same* process as the legislative six-year process required by ORS 197.299(1) and 197.296(3). The ORS 197.296 process is already "established" and "designed" by statute, and really only puts a regional government much as Metro in an implementation role. On the other hand, ORS 197.299 delegates to Metro a role that is greater than mere implementation of a pre-existing process. Furthermore, ORS 197.299(4)(a)(4) further emphasizes that the school-specific process is only supposed to be used "between" the 6-year legislatively-mandated processes for accommodating housing needs, and it can only be invoked if the identified school need cannot wait until the next scheduled six-year legislative process.

[4] LUBA cases confirm that a need to improve livability can provide a basis for adding land to a UGB. Such an analysis requires, in addition to identifying a significant livability problem, an evaluation of probable and negative impacts on livability that may occur if the UGB is amended, and an explanation of why the livability benefits outweigh negative impacts on livability. *1000 Friend of Oregon v. City of North Plains*, 27 Or LUBA 372, 383, *aff'd.*, 130 Or App 406 (1994); *1000 Friends of Oregon v. Metro Service Dist.*, 18 Or LUBA 311, 320 (1989).

The gravamen of opponents' complaints with respect to ORS 197.299(4) stem from a misunderstanding of the relationship between the ORS 197.299(1) six-year UGB amendment process with the ORS 197.299(4) public school amendment process. Much of opponent counsel's testimony at the June 13, 2017, hearing and again in her June 23, 2017 letter, was directed generally at a dissatisfaction with how Metro plans for regional housing and employment needs and opponents' opinion that allowing out-of-cycle UGB expansions for public schools exacerbates Metro's alleged poor planning. In its June 23, 2017 letter, opponents argued that this Major Amendment application does not meet the requirements of ORS 197.296(2).

At its core, the opponent's argument hinges on the assumption that the school-specific process must be substantively the same as the periodic six-year legislative process. Stated another way, the opponents argue that the substantive standards and criteria that govern the school specific process are the same as the housing-specific legislative process under which school need can be established as a derivative need. However, if that were truly the case, however, there would be no need for Metro to "establish" and "design" a new process. Rather, if the legislative intent was to mandate the same rigorous process that is used to establish housing need and to otherwise limit school need as a derivative need, the legislature would have simply stated that a school-related need can form the basis for accelerating the time frame under which the legislative housing need process is conducted. And that in itself does not make any sense because nothing in ORS 197.299(1) or ORS 197.296 prohibits Metro from conducting the legislative housing-needs process sooner than on a 6-year increment. In fact, ORS 197.299(1) merely states that Metro must undertake the ORS 197.296 process "*not later than six years after completion of the previous inventory, determination and analysis.*" In theory, Metro could voluntarily conduct that inventory and analysis on a bi-annual or other timeline. In light of this observation, ORS 197.299(4) would be a redundancy if interpreted in the manner that the primary opponent advocates.

Courts strive to give effect to all parts of a statute, in order to produce a harmonious whole. ORS 174.010.[5] As a corollary, courts will avoid interpretations that render a portion of the statute redundant or meaningless surplusage.[6] *See State v. Stamper,* 197 Or.App. 413, 418, 106 P.3d 172, *rev. den.*, 339 Or. 230, 119 P.3d 790 (2005) ("we assume that the legislature did not intend any portion of its enactments to be meaningless surplusage"). If the school-specific process were not a separate process governed by different substantive criteria than ORS 197.296, it would not accomplish anything that Metro did not already have the right to do.

Rather than being drafted as an authorization to conduct the existing six-year legislative housing needs process at any time increment earlier than six years if a need exists that cannot wait six years, ORS 197.299(4)(a)(A) contemplates a *new* process *designed* by Metro to cater to

[5] *Lane County v. LCDC*, 325 Or 569, 578, 942 P2d 278 (1997); *Bolt v. Influence, Inc.*, 333 Or. 572, 581, 43 P.3d 425 (2002) ("we are to construe multiple provisions, if possible, in a manner that will give effect to all"). *See also Davis v. Wasco IED*, 286 Or 261, 267, 593 P2d 1152 (1979); *Tatum v. Clackamas County*, 19 Or App 770, 775, 529 P2d 393 (1974); *Plotkin v. Washington County*, 36 Or LUBA 378 (1996); *Walz v. Polk County*, 31 Or LUBA 363 (1996); *Fechtig v. City of Albany*, 31 Or LUBA 410 (1996) (Ordinance).

[6] *Certain Underwriters at Lloyd's London and Excess Ins. Co., Ltd. v. Massachusetts Bonding and Ins. Co.*, 235 Or.App. 99, 230 P.3d 103 (2010); *State v. Stamper*, 197 Or.App. 413, 417, 106 P.3d 172, *rev. den.*, 339 Or. 230, 119 P.3d 790 (2005); *EQC v. City of Coos Bay*, 171 Or.App. 106, 110, 14 P.3d 649 (2000).

school needs as a primary independent need, not as a secondary derivative need resulting from a housing need. Because it is a different process that is intended to evaluate a needs other than a housing needs, the process and requirements (*i.e.* inventory, determination, and analysis) of ORS 197.296 do not apply to this separate process. And discussed below, the legislative history confirms this analysis.

Legislative History

Prior to 2001, the case of *Portland Gen. Elec. Co. v. Bureau of Labor & Indus.*, 317 Or 606, 611–612, 859 P2d 1143 (1993) (hereinafter *PGE*) made clear that legislative history could not be used to determine legislative intent if the text and context of the law made the meaning of that law unambiguous. The case of *State v. Gaines*, 346 Or 160, 171–172, 206 P3d 1042 (2009) essentially acknowledges that the *PGE v. BOLI* approach was legislatively modified in 2001 via amendments to ORS 174.020, and that the statute now permits the consideration of legislative history even when the text and context seem to make the meaning unambiguous. For this reason, a careful treatment of *Gaines* is warranted here.

The OSB publication entitled "Interpreting Oregon Statutes" Steve Johansen, Hon. Jack Landau, and Anne Villella ed. OSB CLE (2009) contains a lengthy but highly relevant discussion of *Gaines*, as follows:

> In *Gaines*, the defendant was convicted of obstructing governmental administration when she refused to cooperate in being photographed after her arrest. On appeal, she argued that her behavior did not constitute a "'means of . . . physical . . . interference or obstacle' "within the meaning of the relevant statute. *Gaines*, 346 Or at 162 (quoting ORS 162.235(1)). She argued further that the 2001 amendments to ORS 174.020 required the court to consider the legislative history of ORS 162.235(1) along with the text and context of the statute, even if the court found that its analysis of the text and context did not render the legislative intent ambiguous. *Gaines*, 346 Or at 165. Interestingly, in assessing the meaning of the 2001 amendments to ORS 174.020, the court found that a text-and-context analysis suggested that the amendments did not significantly change the *PGE* standard. *Gaines*, 346 Or at 166. However, the court did not stop its analysis at the text-and-context level. As the plaintiff argued that ORS 174.020 required, the court went on to examine the legislative history. The legislative history revealed a clear legislative intent to eliminate the requirement that a court only look to legislative history "if but only if" the text and context left the meaning ambiguous. *Gaines*, 346 Or at 169.
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> * * * * *.

> The court will now consider proffered legislative history even when the text and context of a statute appear to render it unambiguous. In effect, *Gaines* brings legislative history into the step-one analysis along with the text and context of a statute. That said, legislative history remains a second step of statutory analysis—the court will consider it only after analyzing the text and context of a statute. The weight the court gives that legislative history also remains within the discretion of the court. A party attempting to overcome seemingly plain and unambiguous text through reference to legislative history has "a difficult task before it." *Gaines,* 346 Or at 172.

Although *Gaines* modifies the *PGE* methodology, the full extent of that modification remains to be seen. However, a recent appellate court decision suggests the extent may be relatively slight. *State v. Kelly,* 229 Or App 461, 211 P3d 932 (2009). *Kelly* raised the issue of the meaning of ORS 811.335(1)(b), which requires drivers to signal a turn "during not less than the last 100 feet traveled by the vehicle before turning." The defendant, who signaled a turn after he had stopped at an intersection, argued that the legislative history showed that the intent of the statute was to require a signal for at least as long as it took to travel the last 100 feet, but not to signal for the specified distance. The court agreed that under *Gaines* it needed to consider the legislative history. The court also made several points as to what weight it would give that legislative history.

The court first made clear that legislative history alone cannot overcome statutory text that is truly capable of only one interpretation. *Kelly,* 229 Or App at 466. Beyond that caution, the court explained the traditional limits of legislative history: legislative history is most helpful when it uncovers the general legislative intent of a statute (*Kelly,* 299 Or App at 466); statements of single legislators or non-legislators are generally, though not always, less helpful (*Kelly,* 299 Or App at 466–467), and the existence of a particular problem that precipitated a bill does not necessarily mean the statute was intended to address only that problem (*Kelly,* 299 Or App at 468). What *Kelly* does not suggest is that *Gaines* changes in any significant way *how* courts use legislative history. Rather, it only changes *when* the court will consider legislative history. Thus, even under *Gaines,* legislative history will be most helpful when an analysis of the text and context does not resolve an ambiguity of the statute. Legislative history may also be useful to reinforce an apparently unambiguous interpretation of a statute. (Emphasis added).

Courts are not likely to be persuaded by legislative history when that history does not give any indication that the precise legal question at issue was considered during the legislative enactment.[7]

The subsection in question, subsection 4, was added to ORS 197.299 in 2005 as part of Senate Bill 1032. Testimony at legislative committee hearings from bill authors and proponents indicates SB 1032 was intended to grant Metro new expedited authority to expand the UGB for the purpose of allowing construction of new schools, and such a process would be separate from the "normal" UGB expansion process typically required by state statutes.

Testimony of several speakers during the May 17, 2005 public hearing provide insight regarding the policy goals behind SB 1032. The main speaker, Gary Conkling, represented the Beaverton School District and was one of the authors of the bill. Mr. Conkling began his testimony in favor of the bill by outlining the pressing problems that face the city of Beaverton. He stated that "in the last decade or so the Beaverton School District has added more than ten thousand students" and that those students alone would make up the fifteenth largest school district in the state.[8]

Mr. Conkling explained that overabundance problems are common in the metropolitan areas of Portland, and most suitable plots of land for schools have been used for other projects intended to spur economic development. Mr. Conkling "anticipate[d] [Beaverton] will have to look outside the UGB for one or more additional school sites" to meet the growing demand. He ended his testimony by stating two main objectives of SB 1032. First, the bill is designed to gain "guidance from Metro, cities, and urban service providers as to where we should look outside the UGB" for suitable plots of land for schools. Second, the bill has language that "will encourage Metro to provide an accelerated process to add those lands once . . . the need has been established . . . so that lands can be added on an accelerated basis to the UGB."[9]

Metro Legislative Affairs Director Randy Tucker, a second advocate of SB 1032, added some additional points regarding the purpose and scope of the bill. Mr. Tucker explained that developing lands for schools requires additional planning considerations than developing lands for other purposes because schools must be located in particular locations. These additional considerations include that ideally, schools should be located near city centers, and schools must fall within existing school district boundaries. This makes it even more difficult to find suitable land for new school construction without expanding the UGB.

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[7] For example, the court often dispense with legislative history in one sentence by stating simply that the legislative history is silent on the particular issue facing the court. *Ritcherson v. State*, 131 Or App 183, 186, 884 P2d 554 (1994) (seeking to determine if ORS 138.510(2) included retroactive application of its two-year statute of limitations period); *see also Windsor Ins. Co. v. Judd*, 321 Or 379, 387, 898 P2d 761 (1995) ("[W]hat little [discussion of the amendment] there was reveals nothing that sheds light directly on the question posed in this case."); *State v. Holloway*, 138 Or App 260, 267, 908 P2d 324 (1995) ("Unfortunately, our examination of the legislative history sheds no light on the matter."); *In Def. of Animals v. Or. Health Scis. Univ.*, 199 Or App 160, 173 n 9, 112 P3d 336 (2005) ("We note that the legislative history . . . provides no assistance in determining the provision's meaning.").

[8] Hearing on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Gary Conkling, Representative of Beaverton School District).

[9] *Id.*

Finally, Mr. Tucker added that Metro intended to implement SB 1032 by amending its own code to make it easier to expand the UGB for schools "when [new schools] cannot be reasonably accommodated in the UGB, and when they must be accommodated before we would normally do an UGB expansion." Here, Mr. Tucker indicated that Metro should be authorized to quickly initiate UGB expansion for schools outside of the "typical" or "normal" legislative process of reevaluating the buildable land supply inside the UGB every [six] years.

Later, in a May 31, 2005 work session on SB 1032, Messrs. Conkling and Tucker again provided testimony in support of the bill and explained its purpose and scope. Mr. Conkling stated the bill's main purpose is to provide Metro "[with a] process that can work in between its periodic review, and provide for an accelerated process to bring these school sites inside the UGB."

After the testimony of Mr. Tucker, Senator Charlie Ringo, Chair of the Committee, asked if the bill will "facilitate Metro addressing the problem with high growth districts not finding land for schools."[10] Mr. Tucker stated his answer was yes, and that the bill would provide the basis for immediate negotiation as to what land should be included in the UGB as part of an amendment. Mr. Tucker explained that the bill would be beneficial to districts like Beaverton because "it facilitates the process for expanding the UGB for a school district that has need." Mr. Tucker stated that ideally, after revising the Metro code to implement the statute, the process to expand the UGB to include land for a school would take only four months.

The legislative history of HB 1032 indicates that one main purpose of the bill was to streamline the process for amending the UGB for the purpose of building new schools. The testimony of both Conkling and Tucker describe a pressing need for land in metropolitan areas for new school construction that cannot always be met within the typical five-year UGB cycle. Proponents of the bill clearly express intent to grant Metro authority to amend the UGB through a process that would be separate from the regular review cycle and corresponding 20-year need analysis.

Proponents of the bill used words such as "streamline" and "accelerated" in the context of a new expansion process that could occur outside and separate from the "normal" time intensive 20-year need analysis, and described a process that would be based exclusively on a demonstrated need for additional school facilities. Testimony regarding the purpose of SB 1032 indicates that the purpose of the legislation was to allow a separate and expedited process exclusively for school siting, which would not be tied to the 20-year buildable land supply analysis that is required under ORS 197.296.

As described above, it is clear from legislative history that the 2005 Oregon legislature was acutely aware of the problem of holding school districts to a six year Metro planning cycle during the enactment of SB 1032. Metro's Randy Tucker specifically stated that SB1032

[10] Work Session on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Sen. Charlie Ringo, Chair, S. Comm. on Environment & Land Use).

"facilitated" school districts obtaining a UGB amendment for school facilities.[11] According to the Merriam-Webster dictionary, the word "facilitate" means "to make (an action or process) easy or easier." It makes little sense to believe that the legislature would desire to make obtaining a Metro UGB amendment *just as, or even more difficult* for schools while simultaneously creating an "accelerated" process specifically for schools. Indeed, Metro's own Legislative Affairs Director – no stranger to tightly-crafted statutory language - was quite clear in stating that the purpose of SB 1032 was to "facilitate" (that is, make easier) the process for Metro-area schools.

In addition, the hearings officer finds that the ORS 197.299's school-specific UGB amendment process is no less thorough or exacting than an application that could have been filed in due course of the next six-year Metro planning cycle. It is true, as opponents claim, that the next Metro 20-year buildable lands analysis is not yet available, and thus cannot be taken into account during this application. The law does not require that, however, and requiring school applicants to wait until the next six-year Metro planning cycle would render the passage of ORS 197.299 pointless. The entire point of ORS 197.299 was to provide schools with an interim, accelerated, easier ("facilitated") application process, rather than waiting for the next 6 year Metro planning cycle. Statutes should not be construed such that they make other statutes completely meaningless.

As noted above, the Metro Council is required to complete a 20-year forecast and analysis of land need to maintain a 20-year supply of residential and employment land inside the UGB on a six-year cycle. However the Metro Council has directed staff to complete an urban growth report in 2018, three years after the urban growth report was adopted in 2015, with a possible growth management decision occurring in December 2018 that may or may not result in an expansion of the UGB. Delaying the proposed amendment for these specific school and park needs until that time, when these types of specific needs are not addressed in the regional analysis, is not an appropriate or an efficient way to provide these needed services and would result in the District experiencing ever-increasing overcrowding of their facilities.

Thus, in summary, review of the text and context of ORS 197.299 and ORS 197.296 in combination with the legislative history of the 2005 Amendments which created ORS 197.299(4) bring the legislative intent into clear focus. ORS 197.299(4) explicitly provides a "safety valve" of sorts for public school needs. The statute de-couples the need for schools from the derivative secondary needs analysis set forth in ORS 197.296(6). The legislature apparently understood the critical nature of schools to serve the community and felt strongly enough about that to provide a mechanism to ensure that needed schools can be built. Opponents' attempt to saddle Major Amendments with all of the trappings of a six-year legislative review of the region's UGB is contrary to both the plain text of ORS 197.299(4) and its legislative history.

Having resolved the statutory interpretation question, we turn back to the evidence of need. The District originally adopted a long-term facilities plan in January 2008 that assumed additional school capacity would be needed in ten years. This proved true, as of 2017 the high

[11] Testimony before the Senate Environment and land Use Committee, May 31, 2005, beginning at minute 1.13, available at http://records.sos.state.or.us/webdrawer/webdrawer.dll/webdrawer/rec/4193397/ Mr. Tucker's statement is found at minute 1.18, in response to a question from Senator Ginnie Burdick.

school is at 109% of capacity and the four elementary schools are at 99% capacity. A ten-year demographic study by Davis Demographics & Planning Inc., completed in May 2016, forecasted a deficit in capacity at all levels with the high school operating at 141% of capacity. In order to meet the growing need, the District determined, with the assistance of numerous committees, that a new high school would be needed. Voters approved a bond measure in 2016 to construct a new high school and make other facility improvements. The applicant adequately addressed the urgent need for the new high school by substantial evidence in the whole record in its application submittal and its subsequent submittals. (*See* application narrative ("Narrative") at 14-15, 33, Appendices G, H, and I; June 8, 2017, District letter at 1-3, Attachment i; June 13, 2017, District letter at 5.)

The applicant has met its burden of showing compliance of the two criteria found in Metro Code section 3.07.1440(A) by substantial evidence in the whole record.

Metro Code Section 3.07.1440(B)

> **3.07.1440 Major Amendments - Criteria**
> **(b) The applicant shall demonstrate that the proposed amendment to the UGB will provide for an orderly and efficient transition from rural to urban land use and complies with the criteria and factors in subsections (b), (c), (d), (e), and (f) of section 3.07.1425. The applicant shall also demonstrate that: (1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land; (2) If the amendment would add land for public school facilities, the coordination required by subsection (c)(5) of section 3.07.1120 of this chapter has been completed; and (3) If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot reasonably be created by land assembly or reclamation of a brownfield site.**

[Note: This Provision Incorporates by Reference: 3.07.1425(B), (C), (D), (E), & (F), which are Discussed Below].

***MC** 3.07.1425(B)(1): Demonstrated need to accommodate future urban population, consistent with a 20-year population range forecast coordinated with affected local governments;*

Hearing Officer's Analysis: MC 3.07.1425(b)(1) requires that the Major Amendment application show a [d]emonstrated need to accommodate future urban population, consistent with a 20-year population forecast coordinated with affected local governments. " This criterion is taken word for word from the first need factor set forth in Statewide Planning Goal 14. In the context of periodic review, Factor 1 pertains to a determination of overall land need in order to accommodate population growth. In this case, the need is for additional school capacity to alleviate an overcrowding situation at the Sherwood high School. For this reason, the first need factor set forth at MCC 3.07.1425(B)(1) is to be considered, but it is not determinative by itself.

In *Residents of Rosemont v. Metro*, 173 Or App 321, 328, 21 P3d 1108 (2001), the Court of Appeals explained that "[w]e held in *Baker [v. Marion County,* 120 Or App 50, 852 P2d 254, *rev den*, 317 Or 485, 858 P2d 875 (1993),] that factors 1 and 2 of Goal 14 are interdependent and

that, if one of the factors is not fully satisfied, or is less determinative, that factor must still be considered and discussed in deciding if a need for expansion of a UGB has been shown under factors 1 and 2 of Goal 14."

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable need for the new Sherwood High School based on a forecast that is consistent with the adopted 20-year population range forecast which has been coordinated with affected local governments.

The District and Metro staff address this provision at: Application Narrative at pp. 15, 34, App'x H; May 4, 2017, staff report ("Staff Report") at 5; June 9, 2017, Metro memo; June 13, 2017, District letter at 1-2. In particular, the applicant attempts to meet its burden of proof with the following analysis:

> *As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.*
>
> *The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.*

Metro's 20-year population range forecast is part of the 2015 urban growth report ("UGR"). Therein, the Metro Council determined that the region could meet the expected 20-year residential and employment forecast need within the UGB and no expansion of the UGB was needed to meet housing or employment needs. The UGR did not address specific school and park land needs. As a result, the District prepared a ten-year demographic study that supports a need for additional land for a new high school in order to accommodate future urban population. The District completed this demographic study using population and demographic projections for the cities of Sherwood and Tualatin.

The parties do not focus much, if any, of their debate on whether the population and demographic projections in the District's 10-year study are "consistent" with the assumptions in the 2015 UGR. Such as comparison is complicated by the fact that the UGR takes a high-level regional look at residential and employment needs, whereas the District's 10-year demographic study is much more narrowly focused on Sherwood's population. Nonetheless, the hearings officer reviewed both the 10-year study and the UGR and finds that there is no glaring inconsistency between them. The 2105 UGR anticipates continued high levels of growth in our region. The UGR further recognizes that there is still a considerable amount of vacant and redevelopable land located in and near the City of Sherwood. This would indicate that the District needs to be prepared to accommodate a large amount of additional school children. Given that the regional 20-year forecast did not address school and park land needs, the District's ten-year demographic study, which supplements the long-term facility plan completed in 2008, demonstrates a need to accommodate future urban population by substantial evidence in the whole record. The applicant has provided information regarding a ten-year demographic study showing a need for providing specific school facilities to meet present and future populations based on established methodologies for the proposed use. The applicant also provided written and verbal testimony from experts such as architect Karina Ruiz of Dull Olson Weekes IBI Group Architects, Inc, planner Keith Jones AICP of Harper Houf Peterson Righellis Inc, and traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates. Having reviewed these materials and observed their testimony, the hearings officer finds them more credible and assigns great weight to their views.

Staff is also correct when it states that even if Metro had expanded the UGB in 2015 for a 20-year housing need, there is no guarantee that the location of the added land would have accommodated the specific need for a new high school in Sherwood. ORS 197.299(4) provides a safety valve for such a situation.

The primary opponent argues that the District could only demonstrate consistency with the 2015 UGR by submitting a new 20-year demographic study. *See* letter from Jennifer Bragar dated June 23, 2017, at p. 20. The opponent points to no specific law which expressly states such a requirement, and the hearings officer does not believe that such a requirement exists. As far as the hearings officer can determine, "consistency" in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here. *See* the updated 10-year demographic study conducted by Davis Demographics & Planning Inc. dated May, 2016. This is consistent with Goal 2, which requires the factual inventories and assumptions included in the comprehensive planning documents to form the "basis for all decisions and actions related to land use." *Rivergate Residents Ass'n v. LCDC*, 38 Or App 149,

5990 P2d 1233, *rev den*. 286 Or 521 (1979); *Hildenbrand v. City of Adair Village*, 217 Or App 623, 177 P3d 401 (2008) ("Plan policies or inventories can serve to justify subsequent and related plan amendments because comprehensive plans must be internally consistent under Goal 2.)" *See also 1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 26 P3d 151 (2001). *Compare GMK Developments v. City of Madras*, 225 Or App 1, 199 P3d 882 (2008) (Nothing in Goal 2 itself requires the sort of continuous data correction that the opponents urge us to impose in this case).

MC 3.07.1425(B)(1) requires the District to demonstrate a need to accommodate future urban population; consistent with the demographic study contained in the 2015 UGR. The District has done that, and that is all that is required. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425(B)(2): Demonstrated need for land suitable to accommodate housing, employment opportunities, livability or uses such as public facilities and services, schools, parks, open space, or any combination of the foregoing in this paragraph;

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable "need for land suitable to accommodate * * * uses such as * * * schools * * *." The applicant presents its case as follows:

> As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment

3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

The City of Sherwood and the Sherwood School District have an intergovernmental agreement to share ballfields. The City of Sherwood owns an extensive system of parks and trails. However, the City's ballfield resources are very limited with only one soccer field located at the City's Snyder Park. In the early 1990s, prior to rapid growth in the preceding 20 years, the City took measures to protect natural resources. This included the protection of floodplains and wetland areas surrounding the Cedar Creek stream corridor that flows south to north through the center of the City limits to the Tualatin National Wildlife Refuge. The City acquired much of this land and maintains these areas as natural open space, wetlands and walking paths. Since most of the areas are sensitive and passive recreation areas, they are off limits to ballfield construction. Because Sherwood has a very active sports community, the City and School District decided to share sports fields with most of these facilities being on school grounds.

In the case of the new High School site, the City owns the approximately 20-acre parcel in the southeast corner of the property. Some of this land, approximately 4 acres, will be used for the Elwert and Kruger Road realignment and roundabout, but the remaining balance will become part of the new high school campus and allow for construction of additional ballfields to be shared with both school and City sports functions.

As documented in Section III of the petition, viable high school sites are not available within the current UGB. The only viable sites, including the proposed site, have been identified within the Sherwood West Concept Planning Area (Urban Reserve Area 5B).

The subject site ("Site C") is the best alternative site considering that it has:

- No mapped sensitive areas (habitats, wetlands or waterways),
- Gently sloping topography to allow for construction of ballfields,
- Close proximity to SW Elwert Road and Highway 99W for ease of access,
- Availability of public utilities (water and sewer),

- Available downstream discharge point for stormwater, and
- Sufficient area to provide high school campus for 2,400 students and needed City/School District shared ballfields.

As shown above, the applicant has shown a compelling need for providing specific school facilities to meet present and future populations.

The City of Sherwood and the District have an intergovernmental agreement to share sports fields with most of the facilities on school grounds. The City has an extensive system of parks and trails but sport field resources are very limited with one soccer field located in a city park. Thus, the applicant has shown there is a demonstrated land need to accommodate both school and park services by substantial evidence in the whole record. That evidence may be found in the following: Applicant's Narrative at p. 12-32, 34, Appendices C, G, H, and I; June 8, 2017, District letter pp 1-3. Additionally, the applicant demonstrated that district bond financing rules require moving ahead with the application now, rather than wait until the end of 2018. *See* letter from applicant's counsel Kelly Hossaini dated June 8, 2017, page 3 (discussing the district's finances).

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (B)(3): A demonstration that any need shown under paragraphs (1) and (2) of this subsection cannot be accommodated on land already inside the UGB.

MC 3.07.1425(B)(3) requires an alternatives sites analysis showing that the needed new school cannot be accommodated within the existing UGB. This requirement stems from state law. Among other laws, Statewide Planning Goal 14 requires the applicant to consider, as part of the needs analysis, all suitable lands inside the UGB as positive alternatives, and even requires the City to consider whether zone changes could make land suitable for the project. *See Brandt v. Marion County*, 22 Or LUBA 473, 481 (1991); *Turner v. Washington County*, 8 Or LUBA 234, 258 (1982), *aff'd*, 70 Or App 575,689 P2d 1318 (1984).

The applicant's narrative discusses MC 3.07.1425(B)(3) at p. 19-21, 34-35. For example, on pages 16-17 of the narrative, the applicant states as follows:

> As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth.
>
> **Expansion of Existing High School**
>
> The existing Sherwood High School is located on approximately 37.8 acres of land at 16956 SW Meinecke Road. The existing high

school has capacity for 1,550 students and, as of the writing of this report, is well over capacity with an enrollment of 1,689. This growth is expected to continue with a needed student capacity of approximately 2,200 by the year 2025 and peaking at approximately 2,400 students. Therefore, the School District will need a long-term high school capacity for 2,400 students.

Expanding the existing high school campus to meet this need is problematic on many fronts due to existing size limitation and irregular configuration of the site boundaries. Further, the campus cannot expand beyond its current boundaries as the campus is completely surrounded by existing residential development to the north, south and west and Stella Olsen Park and the sensitive wetland areas along Cedar Creek to the east as shown in Staff Report Attachment 4(Figure 5 in petition).

With respect to the buildings themselves, the School District has made additions over the years to accommodate growth, but the buildings are now completely overtaxed. Based on capacity analysis performed by the School District's contract architect, DOWA, the existing high school campus could be renovated to accommodate only another 450 students. This would increase capacity from 1,550 to approximately 2,000 students. However, at 2,000 students, the school would only have capacity for 7 years requiring the School District to add capacity again down the road. In review of the School District's bonding capacity, the School District will not be in a financial position to make any changes in 7 years and would be saddled with overcapacity schools for the foreseeable future. Therefore expanding the existing campus would provide for a short-term fix but would not provide the long-term solution the District is looking for.

New High School Siting Criteria

With the determination that a new high school is needed, the Bond Management Team identified the following criteria for aid in locating sites for further consideration:

1. Minimum Size: 50 acres
2. Zoning: Site must be zoned or planned for residential or institutional use that allow schools
3. Location: Site must be in Sherwood or contiguous to Sherwood (The City of Sherwood and mostly western Sherwood is where 90% of the student population resides)
4. Topography: Flat to mostly flat to accommodate ballfields

5. Wetlands and Waterways: No wetlands or minimal wetlands/waterways
6. Water and Sanitary Sewer: Adequate public utilities must be available or can feasibly be extended to serve the site
7. Stormwater Drainage: Downstream drainage capacity must exist to accommodate new impervious areas
8. Transportation: Site must be located near major streets to allow ease of access for students and limited routing of school traffic and buses through existing or planned residential areas

Inside the Current UGB

Using Metro's Regional Land Information System, City's Residential Buildable Lands Map and concept planning documents, potential sites were searched within the Sherwood School District Boundary that is inside the Existing Sherwood Urban Growth Boundary and within the Wilsonville or Tualatin existing Urban Grown Boundary.

Northeast Sherwood (Commercial and Industrial Land)

Sherwood City Limits

The northwest area of the City of Sherwood is zoned commercial and industrial, zoning that does not allow for school uses. In addition, much of the commercial and industrial land is built-out or contains wetlands and sensitive areas that cannot be developed. The largest vacant developable site in this area is located at the southeast corner of SW Langer Farms Parkway and SW Century Drive and is only 22 acres, too small for a high school.

Tonquin Employment Area

In 2004, 300 acres of industrial land was added to the Sherwood urban growth boundary in east Sherwood, known as the Tonquin Employment Area. A concept planning document was completed for this area in October of 2010. None of the area has of yet been annexed into the City of Sherwood to allow for urban development. There is an 88 acre parcel that fronts SW Tualatin-Sherwood Road that has potential to accommodate a new high school (12900 SW Tualatin Sherwood Road – 2S128D000100). However, this parcel was added to the UGB for the purpose of providing industrial uses and not for school uses. In addition, this site is located at the far east end of the existing Sherwood city limits and is not close to the student population that predominately resides on the west side of Sherwood. Therefore, locating the

school here would result in an inconvenient and isolated high school campus in the midst of industrial uses. Thus, the site was rejected from further consideration.

South and West Sherwood (Residential Land)

The southern and western areas of Sherwood are mostly residential. Residential zoning allows for school uses. This is also where most of the School District's student population resides (more than 90% of the student population lives in southern and western Sherwood). South of the existing city limits and within the urban growth boundary is the 250-acre Brookman Road Addition Concept Planning Area (Brookman Planning Area). The primarily-residential Brookman Planning Area has a completed concept plan from May of 2009. However, the area has not yet been annexed into the City of Sherwood and therefore has not been developed for urban uses.

The City of Sherwood recently completed a draft Housing Needs Analysis dated June 2015 for the existing urban growth boundary. The housing needs analysis contained a 2014 residential buildable lands inventory map that identified vacant buildable residential land within the City's UGB including the Brookman Planning Area. The residential buildable lands inventory map identified some available residential land. However, the available land is fragmented and/or constrained with no large developable sites that would accommodate a high school campus of 50 acres. Further there is no opportunity to consolidate this fragmented land in a way that would meet the District's criteria for a high school site. The Sherwood Buildable lands map is shown in Staff Report Attachment 5(Figure 6 in petition).

Within the Wilsonville or Tualatin Urban Growth Boundary

There are some limited areas of the Sherwood School District that are within Wilsonville and Tualatin's urban growth boundary, including the following:

Southwest Tualatin Concept Planning Area

Adjacent and east of the Sherwood Tonquin Employment Area is the Southwest Tualatin Concept Planning Area. Similar to Tonquin, this 614-acre area was added to the urban growth boundary in 2004. The area is planned for industrial use, and is even further away from west Sherwood students than Tonquin Road. Therefore, the area was rejected from further consideration.

Basalt Creek and Coffee Creek Planning Areas

Both of these planning areas are too far from the west Sherwood student population to be seriously considered. In addition, discussions with the City of Tualatin, who is leading the planning for Basalt Creek, indicates that there are no sites large enough with the correct zoning within Basalt Creek that would accommodate a new high school. The Coffee Creek planning area is designated by Metro as Regionally Significant Industrial land. This designation does not allow for school uses under any circumstances.

In summary as noted in Section III of the petition there are no suitable sites for a new high school within the current UGB to serve the Districts target population.

As noted in the findings set forth above, the District first examined the ability to expand the current high school to meet future capacity needs. However expanding the existing high school building is problematic due to existing size limitation and the configuration of the existing school campus. The current high school building includes a series of additions designed and constructed in an attempt to incrementally accommodate growth in the student population, resulting in a crowded non-operational and functional facility. Thus additional expansions to meet long term needs are not possible. In addition, the current high school campus is surrounded by residential development on three sides with the fourth side bordering a city park and natural resource area, thereby not allowing expansion of the campus itself.

The District identified eight site location criteria to help guide their search for appropriate site locations within the Sherwood city limits as well as limited areas within Tualatin and Wilsonville that are within the District boundary. The analysis of land within the city limits offered no usable sites. The city's industrial and commercial zones don't allow school uses and the vacant and developable land within the residentially zoned portions of the city is fragmented and constrained with no large enough sites available. The industrial designated land within the UGB but not in the city (Tonquin Employment Area) does contain one site large enough to meet the need; however it was included in the UGB for industrial purposes, is adjacent to existing industrial uses including an active quarry site and is located away from the main student population base. The limited land area within Tualatin and Wilsonville also include either industrially zoned land or very limited parcel sizes that does not provide an opportunity to site a high school. In addition, these areas are even a longer distance from the main student population base in the central and western portions of the city.

No opponents take issue with the applicant's analysis.

The hearings officer believes that it is relatively obvious that there are no sites within the City limits that could meet the need, even considering rezoning as an option. While there is vacant land in the existing UGB, the applicant has shown there are no suitable sites within the

UGB to meet the identified land need. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (C)(1): If the Council determines that there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering the following factors:

(1) efficient accommodation of identified land needs;

Hearing Officer's Analysis: Once a local government establishes a "demonstrated need" to expand the urban growth boundary, it then must apply the Goal 14's four "locational factors." When Goal 14 was amended in 2005, the locational factors were amended to make clear that the analysis is to be comparative in nature, as opposed to establishing minimum thresholds. The rule now states:

> The location of the urban growth boundary and changes to the boundary shall be determined *by evaluating alternative boundary locations* consistent with ORS 197.298 and with consideration of the following factors:
>
> (1) efficient accommodation of identified land needs
> (2) orderly and economic provision of public facilities and services;
> (3) *comparative* environmental energy, economic and social consequences; and
> (4) compatibility of the proposed urban uses with nearly agricultural and forest activities accruing on farm and forest land outside the UGB. (Underline emphasis added).

Metro has taken the four state-mandated locational factors set forth in Goal 14 and expended them to nine factors. Regardless of this, the goal of the locational analysis remains the same as state law, which is to determine the "best" land to include within the UGB to meet the land need**,** based on appropriate *consideration and balancing* of each factor. *1000 Friends of Oregon v. Metro (Ryland Homes)*, 38 Or LUBA 565, 584 (2000), *rev'd in part on other grounds* 174 Or App 406, 26 P3d 151 (2001). In *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), the court stated that consideration of factors means that the local government must:

> "(a) apply and evaluate each factor, (b) weigh and balance the factors which are not independent approval criteria-as a whole, and (c) meaningfully explain why a designation as urban or rural reserves is appropriate. "

Barkers Five, 261 Or App at 300.

OAR 660-024-0060(3) also provides guidance for how one "considers" the location factors and states:

> The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all of the factors were considered and balanced.

In conducting this analysis, one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a *balancing* of all these factors, rather than reliance on any one factor. OAR 660-024-0060(3). *See also Branscomb v. LCDC*, 64 Or App 738, 745, 669 P2d 1192 (1983)(Court held that land could not be excluded from consideration *solely* because it was agricultural land and, as such, fared badly under factor 6). *D.S. Parklane*, 165 Or App at 25; *1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 409-10 (2001).

A related issue is that local governments often incorrectly treat the locational factors as threshold criteria. In fact, this misunderstanding was so pervasive that at one point LUBA even wrongly suggested that each of the locational factors had a "minimum objective threshold" that had to be identified and met by each site included in a UAR/UGB. *See D.S. Parklane Development, Inc., v. Metro*, 35 Or LUBA 516, 572-3 (1999), *aff'd as modified*, 165 Or App 1, 24, 994 P2d 1205 (2000). However, on appeal, the Court of Appeals clarified that the locational factors were not intended to be applied as threshold ("go - no go") criteria. *Id.* In other words, the intent is *not* to confirm that the preferred site was "good enough" to urbanize based on minimum threshold standards. Rather, the locational factors were intended to be "applied equally" to include lands into a UGB only "where all of the factors justify that inclusion." *Id.* In other words, the intent in establishing these factors was to assist in evaluating and ranking which site(s) amongst *all* potential candidate sites were, relative to one another, the *best* sites to urbanize in order to meet the demonstrated land need.

With that introduction in mind, we turn to a discussion of the first factor. The applicant discusses the first locational factor as follows:

> Urban reserves are lands outside the existing urban growth boundary that are considered suitable for accommodating urban development and expanding the growth boundary when additional urban land is determined to be needed over a 50-year period. The following urban reserve areas are within the Sherwood School District Boundary and are identified in Staff Report Attachment 6 (Figure 7 in petition):
>
> Sherwood North – North of Sherwood UGB
> Sherwood South – South of Sherwood UGB
> Sherwood West – West of Sherwood UGB
> Tonquin – South and West of Sherwood UGB
> Grahams Ferry – Northwest of Wilsonville

I-5 East – East of I-5 and north of Wilsonville
Elligsen Road - East of I-5 and north of Wilsonville

I-5 East, Elligsen Road and Grahams Ferry Urban Reserve Areas
These urban reserve areas were immediately rejected from further consideration due to the distance from west and south Sherwood where the majority of the student enrollment resides. These areas are 2 to 5 miles away in a straight line and even further when traveling on the road network.

Tonquin Urban Reserve Area
This area is directly south of the Sherwood Tonquin Employment UGB area and west of the Southwest Tualatin UGB area. The Tonquin Urban Reserve area encompasses approximately 571 acres. The area has parcels large enough to accommodate the high school site. However, much of the property is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II and III (Metro Title 3). This urban reserve area and it is likely to be designated industrial and/or employment due to its close proximity to other industrial areas. This urban reserve area is on the east side of the City and not centrally located for use by the majority of the School District students. The area is further isolated by a rock bluff that forms the eastern boundary of the current urban growth boundary and Sherwood City limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates this area from the existing residential neighborhoods of Sherwood. Finally, the area does not have adopted concept plan or plan for how utilities will be extended to serve the area.

Sherwood North Urban Reserve Area
This area represents slivers of land along the existing urban growth boundary at the north end of the City of Sherwood. The area was designated urban reserve because it is not within the floodplain of the Tualatin River. However, this land is not large enough to accommodate a high school site and therefore was rejected from further consideration.

Sherwood South Urban Reserve Area
This area is directly south of the Brookman Road UGB area. This area consists of rolling hills with much of the area identified by Metromap online mapping system having slopes greater than 10%. There is also two stream corridors that travel through the area with many areas mapped by Metromap as being riparian or upland habitat. One potential site is located between Oberst Road and Labrousse Road that is not mapped as having upland habitat or

riparian areas. However, this land is mapped by Metro as having slopes of greater than 10% making development of a high school campus and ballfields difficult. The biggest challenge of developing in this area is that the Brookman Road UGB area would need to be annexed and developed first before this area can be made available for development. Therefore, development in this urban reserve area is likely years away and the only promising site is at the south end of and not next to the existing Brookman Road UGB area. This area also does not have a concept plan. For these reasons, this area was rejected from further consideration.

Sherwood West Urban Reserve Area

In February 2016, Sherwood completed a Preliminary Concept Plan for the Sherwood West Planning area (aka Metro Urban Reserve Area 5B). Sherwood West encompasses 1,291 acres along the west border of Sherwood's existing urban growth boundary. The Sherwood West Planning Area is shown in Staff Report Attachment 7 (Figure 8 in petition).

Six alternative high school sites (A-F) were identified within the Sherwood West Urban Reserve Area that are large enough to accommodate a new high school. The six alternative sites (A-F) within the Sherwood West Concept Plan Area were evaluated based on site selection criteria. The site locations and evaluation criteria are indicated in Staff Report Attachment 8 (Figures 9 to 14 in petition). The School District's site alternative analysis is summarized in the table below.

(Table 1 – Alternative Sites Summary in petition)

Alternative Selection Criteria	***Alternative Sites****					
	A	***B***	***C***	***D***	***E***	***F***
Flat Topography	*N*	***U***	***Y***	*U*	*U*	*U*
Wetlands	*N*	***Y***	***Y***	*U*	*Y*	*N*
Water Service	*N*	***Y***	***Y***	*Y*	*N*	*N*
Sanitary Sewer Service	*N*	***Y***	***Y***	*N*	*N*	*Y*
Storm Drainage	*Y*	***Y***	***U***	*N*	*N*	*Y*
** Y-Meets Criteria - N-Does Not Meet Criteria – U-Undetermined*						

From the site alternatives analysis, it became clear that Sites B and C were the most promising with other sites lacking utilities, having significant wetlands, drainage issues and/or significant topography that would make construction challenging. Alternative Sites B and C are located near each other both west of SW Elwert Road at SW Haide Road, just north of Highway 99W. Site C was selected due

to having more of a gentle slope and less grade changes. Most of Site C has a consistent slope change of approximately 40 feet over the length of the site with only a small valley and ridge. Site B has a more drastic slope change of 50 to 60 feet with a more defined ridge running through the middle of the site. Site B would be far more challenging to grade and develop for a high school than Site C. The Sherwood West Concept Plan contained a phasing and funding strategy. The phasing plan identified six phases (A-F). The subject site (Site C) is located within Phase A of the concept plan.

The subject site represents an efficient location because:

- The location is next to existing western Sherwood and close to the vast majority of the District's student population (90%).
- City utilities are available to serve this site or can be extend as the site is adjacent to the city limits.
- Direct and efficient access will be available via major streets that are intended to accommodate significant motor vehicle, pedestrian and bicycle needs.
- The site will be developed on the north, south and west along existing right-of-ways and will be developed to the existing City limits and UGB. This location is a logical location to develop first within the Sherwood West Concept Plan, as it is really the first site north of 99W. Other sites in Sherwood West would result in undesirable leapfrog development.
- Utilizing the approximate 76-acre site to ultimately accommodate the large 2,400-student high school and the School District/City shared ballfields will provide greater efficiency than developing play fields independently. The district and City have a long history of partnering to maximize use of shared ball field resources.

As set forth in the District's narrative and response to MC 3.07.1440(a), there is an identified need for a major amendment of the UGB to provide for a new high school site and this need cannot wait until the next analysis of the building land supply under ORS 197.299. As allowed by MC 3.07.1425(b), the District specified characteristics necessary for land to be suitable for the identified need, *i.e.*, the new high school. *See* Applicant's Narrative at 18-19, 33-35. These characteristics included a minimum site size of 50 acres; zoning that would allow for an institutional use; within or contiguous to Sherwood, where 90% of the children served by the District reside; flat to mostly flat topography; no or minimal constraints such as streams, wetlands, intact upland habitat; adequate/feasible access to public utilities, including water, sanitary sewer, and storm sewer; and near to major (collector or arterial) streets to accommodate high school-level transportation impacts. As also required by MC 3.07.1425(b), the District has demonstrated that the need for the new high school cannot be accommodated on land already inside the UGB.

As shown above, the District undertook an analysis of seven urban reserve areas that are within the district boundary, three of which are not adjacent to the city of Sherwood. The Metro Code does not allow for the creation of an island of urban land so the analysis must be limited to those properties that are directly adjacent to the current UGB. MC 3.07.1425(f).

The Seven Urban Reserve Areas

Within the District's boundary, there are seven areas that contain urban reserves (*see* Application Narrative p. 22 of 39, showing map of all seven areas). They are:

- Sherwood North
- Sherwood South
- I-5 East
- Elligsen Road
- Tonquin
- Graham's Ferry
- Sherwood West

Each will be discussed in turn.

The Sherwood North Urban Reserve Area

The Sherwood North urban reserve area is comprised of slivers of land without flood plain constraints north of the existing city limits and south of Tualatin River. This area does not contain one or more contiguous parcels that would be large enough to meet any of the District's siting criteria for a high school site. Therefore, the hearings officer finds that the Sherwood North urban reserve area cannot accommodate the need for a new high school.

The Sherwood South Urban Reserve Area

The Sherwood South urban reserve area is adjacent to the Brookman Road UGB area. Some of the Brookman Road UGB area was recently annexed to the city, but much of it still has not been annexed. The Sherwood South area consists of rolling hills with much of the area identified by Metro Map as having slopes greater than ten percent, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 3.) There are also two stream corridors that traverse the area with many areas mapped by Metro as being riparian or upland habitat. (See Attachment 4.) There is a potential site located between Oberst Road and Labrousse Road that is not mapped as being constrained by upland habitat or riparian areas, but is mapped as having slopes greater than ten percent, which would not meet the District's siting criterion for a flat to relatively flat site. A challenge in the overall development of this area is that the Brookman Road area within the UGB must be annexed and developed first before the Sherwood South area will have the public services it needs to be able to develop. Further, Sherwood South is not even concept planned yet. As far as the hearings officer is aware, no such planning has been scheduled. As noted earlier, MC 3.07.1110 requires that urban reserve areas be concept planned before they be considered for inclusion in the UGB. As set forth in response

to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Sherwood South urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application. Therefore, the hearings officer concludes Sherwood South cannot accommodate the need for a new high school.

The I-5 East Urban Reserve Area

The I-5 East urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Elligsen Road Urban Reserve Area

Similarly, the Elligsen Road urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin, and immediately south of the I-5 East urban reserve area. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to western Sherwood would be at least five miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Tonquin Urban Reserve Area

The fifth urban reserve is the Tonquin urban reserve area. This area lies on the east side of Sherwood and is contiguous to Sherwood's city boundary. As set forth in the Narrative, this urban reserve area is directly south of the Sherwood Tonquin Employment UGB area and, according to Julia Hajduk, the City's Community Development Director, will be used to accommodate the City's future industrial and employment needs given its proximity to other industrial uses and Sherwood's employment/industrial core. Therefore it is not likely to allow for zoning for an institutional use. As noted in the staff report, another issue with building a new high school in this area is that the majority of adjacent land within the UGB is not yet developed to urban standards. Any out-of-sequence development in this area, then, would require a costly and inefficient extension of public services. Further, much of the property in this urban area is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II, and III (Metro Title 13). (See Attachment 1.) This area is further isolated by a rock bluff that forms the eastern boundary of the current UGB and city limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates the area from the existing residential neighborhoods of Sherwood, thereby making it less efficient to serve the student population

given that the bulk of that population is in the southern and western areas of the city. Significant areas of the urban reserve also have substantial slopes of ten percent and greater, along with floodplain constraints, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 2.) Further, this urban reserve area does not have a concept plan in place or a plan for how utilities might be extended to serve the area. Concept planning has not been completed for this area. MC 3.07.1110 requires that urban reserve areas be concept planned before these areas can be considered for inclusion in the UGB. As set forth in response to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Tonquin urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application.[12] Therefore, the hearings officer concludes the Tonquin urban reserve area cannot accommodate the need for a new high school.

The Grahams Ferry Urban Reserve Area

The Grahams Ferry urban reserve area is at the District's extreme southeast boundary next to Wilsonville. This urban reserve areas meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to from Graham's Ferry to western Sherwood would be at least seven miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, this urban reserve area is constrained by natural resources and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that these urban reserves cannot accommodate the new high school.

The Sherwood West Urban Reserve Area

The seventh and final urban reserve area studied was Sherwood West. The hearings officer finds this is the only urban reserve area that can efficiently accommodate a new high school consistent with the citing criteria, for these reasons: Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre Sherwood West urban reserve for places within it that could accommodate a new high school site. The applicant District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major (collector or arterial) street network. Findings addressing MC 3.07.1425(c) can be found in the Narrative and in the staff report. The applicant District included an analysis of the six areas within Sherwood West. Therefore, the hearings officer finds that, given the framework of MC 3.07.1425(b) and (c), no urban reserve except for

[12] Urban Reserve Areas are intended to provide a 50-year supply of land. Given that the City has no plans to complete a concept plan for the area, and because contiguous areas within the UGB would need to develop first to extend the needed infrastructure, it is safe to conclude that development of this area is at least several years away.

Sherwood West should advance to MC 3.07.1425(c) to determine which urban reserve can best meet the identified need, because no other urban reserve can meet that need.

The Six Sites Studied within the Sherwood West Urban Reserve Area

The District identified six sites (designates Sites A through F) within the Sherwood West urban reserve area that were large enough to accommodate a new high school campus. Each of the six is discussed in turn:

Site A – The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, public infrastructure issues or a combination of these factors. There is a small wetland in the center of this site. The western portion is mostly occupied by Chicken Creek. There is no water service available from SW Elwert Road, and water extensions would be required along Elwert frontage and east from SW Edy Road. The site is low-lying and sanitary sewer connection is not available from SW Edy Road, so a major pumping station would have to be built.

Site B - The hearings officer finds this site *could* possibly accommodate the new high school. However, it has a significant ridge running through the middle of the site, which would require extensive grading, with slopes running both east and west with a 50-60 foot grade change. Both public water and a 15" sanitary sewer pipe are available off SW Elwert Road.

Site C - This site is quite flat, with no more than a 40 foot grade change required. It has water and sewer connections off SW Elwert Road. There are no wetlands. The hearings officer finds that Sites B and C are the two areas that can most efficiently accommodate a new high school, but Site C is clearly superior because Site B has a significant topographic ridge running north-south through the middle of the site with an approximately 50-60 foot grade change. Site C has less topography to manage, which is important when one considers that ballfields, tracks, and other sports facilities needed as part of the new high school cannot be developed on slopes. Therefore, the hearings officer concludes and finds Site C can most efficiently meet the identified need of a new high school.

Site D - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards private property, with a grade change in excess of 50 feet. There is no sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity. Street improvements on Kruger Road and offsite improvements would likely be required. Sites D also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Site E - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards Highway 99, with a grade change around 75 feet. There is no

sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity.

Site F - The hearings officer finds this site cannot efficiently accommodate the new high school due to wetlands, drainage, powerlines, and lack of public water supplu. While quite flat, this site has wetlands, drainage, and a BPA power line easement running through it. While there is a nearby sewer line, there is no water line, and costly improvements would have be made to supply the school with drinking and irrigation water as well as meeting firefighting needs. Site F is further constrained by a BPA easement that cuts diagonally through what would otherwise be the flattest, least constrained part of that area and this flat area is segregated from the existing UGB by Chicken Creek and protects a riparian corridor. Site F also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Conclusion of the Alternative Sites Analysis for the Six Sites in Sherwood West

The District evaluated the alternative sites related to five selection criteria noted above and determined that four of the six sites (A, D, E & F) lacked utilities, had significant wetlands, drainage issues or topography that restricted the ability to efficiently accommodate the identified land need. In addition, site D is not adjacent to the current UGB and therefore would create an island of urban land which is not allowed under Metro Code. Areas B & C better met the selection criteria with site C being the best site due to less grading and site work to accommodate the identified land need. Based on the urban reserve areas analyzed site C in the Sherwood West urban reserve best meets the need considering efficient accommodation of the identified land need. For these reasons, the hearings officer concludes and finds that proposed Site C (on the northwest corner of SW Elwert and Kruger Roads) can most efficiently meet the identified need of a new high school.

MC 3.07.1425(c)(2): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(2) the orderly and economic provision of public facilities and services.

Hearings Officer's Analysis: This suitability factor focuses on the orderly and economic provision of public facilities and services. Because Sherwood West has been concept planned pursuant to MC 3.07.1110, the provision of public facilities and services within the Sherwood West Concept Plan area has been studied to a larger degree than other URAs. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, storm water, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. (See Sherwood West Concept Plan, pages 15-21, 40-44, Appendix 3 (Existing Conditions Report), and Appendix 8 (Transportation Options Alternative Analysis Report and Cost Estimates). The concept plan was prepared in coordination with all of the future service providers, including those services that

will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, Tualatin Valley Fire & Rescue, and Washington County. (*See* Sherwood West Concept, acknowledgements page and Appendix 6 (Service Provider Interviews). The District was also part of the Technical Advisory Committee that informed the concept planning effort. Because all of this extensive analysis and coordination work had already been done for Sherwood West, the District used that work as the jumping off point for its analysis of the area for orderly and efficient accommodation of public services.

As demonstrated in the Narrative, pages 24-31, four of the six sites (A, D, E, and F) have significant barriers to provision of public infrastructure. Sites B and C have the fewest barriers and are most feasible for public infrastructure service. This is consistent with the findings of the Sherwood West Concept Plan, which anticipates phasing public infrastructure to serve the area encompassed by Sites B and C first, i.e., Area A. (*See* Sherwood West Concept Plan, pages 40-44.) Service provider interviews conducted as part of the concept planning effort also identified Area A as the "first stage development area." (*See* Sherwood West Concept Plan, Appendix 6, page 5.) It is also worth noting that, according to the concept plan, Area A of the concept plan has most infrastructure in place, "presents the best near-term opportunity for development in Sherwood West," and the cost to serve is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address effects of a new high school on Site C on the surrounding transportation system. The Transportation Study found that, with appropriate mitigation, Site C can accommodate the new high school while maintaining an adequate transportation system. See also District's findings in response to Goals 11 and 12 with respect to the provision of public facilities and services to Site C.

As part of this UGB amendment application effort, the District obtained service provider comments from the City of Sherwood, Washington County, Tualatin Valley Fire and Rescue, and Clean Water Services, all of whom supported the siting of the new school on Site C from an infrastructure provision standpoint, consistent with the Sherwood West Concept Plan.

In sum, Sites B and C best meet the need for a new high school considering the orderly and economic provision of public services per the Sherwood West Concept Plan and the District's own analysis.

The primary opponent makes only a desultory effort to challenge the applicant's proposed findings. *See* letter from Jennifer Brager dated June 23, 2017, at p. 7. Ms. Bragar concludes, without much in the way of analysis, that "Site C is unworkable." The only evidence that the opponent cites as support for this theory is the DKS Traffic Study dated March 15, 2017, which shows that currently there are several failing intersections in the vicinity. However, failing intersections is not in any way determinative when considering the locational factors.

The proposed site has positive attributes from the transportation and traffic perspective. The site is close to the area's major north-south highway (Highway 99) and east-west arterial (the Tualatin-Sherwood Road). It has a relatively flat topography, reducing hazards in wet or snowy conditions. With the planning modifications, the site will have adequate access and

capacity for peak school commuting times (7.15 to 8 am and 2.50 to 3:45 pm). Road widths and sightlines will be sufficient for safety purposes, an important consideration for less-experienced drivers, such as high school juniors and seniors.

The traffic issue has been addressed by unrebutted evidence from the applicant's civil and traffic engineers - the *only* expert testimony in the record - and is belied by the fact that all of the public service providers for the Sherwood West area, including Washington County, the City of Sherwood, and Clean Water Services, submitted service provider letters that support the new high school on Site C, and state that such services can be provided. (*see* Appendix to the Application Narrative for copies of these letters).

At the public hearing, local residents Carolyn McBee and Karen Labahn raised issues of traffic safety at the proposed site, specifically on Kruger and Elwert Roads. They testified, convincingly, that the roads abutting the preferred alternative site are rural in nature and not capable of handling the traffic generated by the school. As the hearings officer emphasized at the hearing, the analysis is comparative in nature. A site does not have to be good; it just has to be better than the alternatives. This is true even if all of the alternatives are objectively bad. In fact, it will undoubtedly be the case that the roads in all seven of the candidate urban reserve areas are rural in nature and incapable of handling urban levels of traffic. At this stage, the analysis is high level and really only focused on identifying issues that made any one site particularly good or horrendously bad in relation to the others.

In this case, the applicant's traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates wrote the following in a June 28, 2017 memorandum:

> DKS prepared the March 15, 2017, Sherwood High School UGB Expansion Transportation Study ("March Transportation Study"). The March Transportation Study assesses the proposed UGB amendment impacts and identifies a roster of system improvements for the short-term and long-term. This study acknowledges that several local intersections are heavily congested during peak hours, and that the rural street infrastructure nearby the proposed UGB amendment site does not meet either the City's or the County's facility design standards today. What this study also tells us, however, is that with proper mitigation the proposed school site can be adequately served with transportation infrastructure. The next step in the planning process is the post-UGB amendment Title 11 planning, as required by Metro, and it is during that process that the next transportation planning steps will be taken. These planning steps include designating urban zoning and land use types within the newly added UGB area. During this stage, we will engage in additional technical studies, including a second transportation impact study, to (1) refine the specific project needs, (2) ensure that the Transportation Planning Rule is met, (3) ensure that performance standards can be maintained over time, and (4) ensure that a safe transportation network is provided for the new

> high school. Based on our transportation analyses so far, we are confident that the Sherwood School District can provide adequate state and local transportation facilities to support the proposed Site C high school.

While the residents' traffic safety concerns are well meant, and taken seriously by the hearings officer, the engineers are undoubtedly correct that the applicant's preferred alternative site can be improved with reasonable cost expenditure. The improvements discussed at the hearing were typical of what one would expect when land urbanizes, and do not involve any highly extravagant technical solutions such as bridges over wetlands / streams, or expensive highway overpasses. The hearings officer had the opportunity to evaluate these engineering experts and considers their representations highly credible. No evidence was presented pertaining to other sites that would suggest that any other site would be significantly better from a transportation standpoint, and several of the sites required more expensive improvements.

The opponents argue that the applicant gamed the system by counting traffic in the middle of winter. *See* letter from Jennifer Brager dated June 23, 2017, at p. 8. Again, this argument seems to lose focus of the intended exercise. That argument might have merit if the applicant's traffic engineers had performed their traffic counts at some locations in winter, but at other locations in summer (when traffic is lighter because school is out of session and many workers are not commuting, due to vacations). That did not happen. The applicant's traffic study clearly states:

> To perform the intersection analysis, traffic counts were collected during the AM peak (7:00 – 9:00 am) on Feb 1, 2017 and the PM peak (4:00-6:00 pm) on Jan 31, 2017. Study intersections on ODOT facilities (i.e. OR 99W) were analyzed using estimated 30th highest hour traffic volume (30 HV) conditions. The 30 HV development process for existing conditions *includes the determination of seasonal adjustments.* (DKS "Sherwood High School UGB Expansion Transportation Study" dated March 15, 2017, p. 9, italic emphasis added).

Site C is located in close proximity to existing urban arterials, which in and of itself makes it a better site as compared to alternatives such as Sites D and F, which are more isolated and remote. Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography.

The hearings officer wishes to emphasize that the public will have many additional opportunities to comment on and influence the types of transportation improvements that will be built.

MC 3.07.1425(c)(3): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(3) comparative environmental, energy, economic, and social consequences.

A comparison of the six sites with respect to environmental, energy, economic, and social consequences of development is set forth below:

Environmental Consequences: There are areas within Sherwood West that have significant natural resources within them. The maps at Figure 6 of the Sherwood West Concept Plan and Appendix B of Appendix 3 of the Sherwood West Concept plan are instructive in this regard. From those maps one can see that Sites A, D, and F have significant areas of floodplains, wetlands, protected stream corridors, and inventoried wildlife habitat. In contrast, Sites B and C have little to no environmental resources on them. Further, Sites B and C are closest to the city's existing urban core, which give them the most direct transportation connections, thus limiting air quality degradation. Therefore, development of these sites with a high school would have the least negative environmental consequences of all of the alternative sites.

Energy Consequences: From an energy standpoint, all of the sites are reasonably close to the bulk of the student population to be served, but Sites E and F are more remote. This will be exacerbated as Sherwood West develops with mostly residential uses. Sites A, B, C, and D are most centrally located, which will allow more students to walk and bike to school and reduces the number of students being bused and driven to school, and allows for the least vehicle miles traveled for those who use cars and buses. Site D would require an out-of-sequence extension of public infrastructure to the more interior of the urban reserve, however, which ticks its adverse energy consequences somewhat higher than Sites A, B and C.

Economic Consequences: Public bond dollars are finite and must not be wasted. Taxpayers expect that school districts will be good stewards of the public money and building new school facilities is no exception. Being more remote from the existing urban area and public infrastructure, Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography. The effect of topography on the cost of building a high school site with its need for ball fields and other sports facilities should not be under estimated. Even small amounts of slope will have significant, expensive consequences on a school site due to the cost of grading.

Site C has another factor that weighs in its favor over Site B, which is that Site B contains a number of single-family residences that would have to be purchased and demolished to build the new high school. Purchasing houses to tear them down is not a good use of bond dollars if it can be avoided. Therefore, Site C clearly comes out ahead in this consideration.

Social Consequences: Siting the new high school in the most centrally located area possible is important to fostering a sense of civic and school pride. Although high schools can have fairly significant impacts on an area, they should be sited where the bulk of the population resides and be a use that brings people together in a place that the citizens identify as an integral part of their community. One of the alternatives that the District considered in its facilities planning to alleviate the capacity issue at the existing Sherwood High School was building a second high school. The community, however, was very much opposed to that idea. A small, cohesive community like Sherwood wants to remain bound together not divided by different allegiances to different high schools. All of the sites analyzed in Sherwood West would be superior to any sites in any other urban reserve for these reasons alone; however, within Sherwood West Sites B and C are most centrally located - both now and in the future as the city continues to grow to the south and west. Even so, development of Site B has a more immediate social consequence that Site C does not have. There are a number of residences in Site B that would have to be purchased and demolished in order to develop the new high school. Displacing residents from their homes needlessly is a very adverse social consequence and should not occur if it can be avoided, which in this case it can. Therefore, Site C comes out ahead here, too.

Conclusion: Sites B and C are the two sites that come out the most favorably when one factors in the environmental, energy, economic, and social consequences. However, Site C edges ahead of Site B due to Site B's increased adverse economic and social consequences.

MC 3.07.1425(c)(4): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(4) compatibility of proposed urban uses with nearby agricultural and forest activities occurring on land outside the UGB designated for agriculture or forestry pursuant to a statewide planning goal.

Hearings Officer's Analysis: The District identified a number of site characteristics that a new site would need to meet in order to accommodate a new high school. As discussed above, is one urban reserve area that can efficiently accommodate a new high school - Sherwood West. Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre urban reserve for areas within it that could accommodate a new high school site. The District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major street network. This analysis yielded six sites, which were then ranked according to the site criteria.

With respect to how the six sites meet the need for a new high school considering the compatibility of proposed urban uses with nearby agricultural and forest activities, it is important to note that the entire Sherwood West area is slated for eventual urban development, regardless of the current uses and zoning of land within it. It was designated as an urban reserve instead of a rural reserve partly due to its small-scale, intermittent farming and forestry activity, parcelization, and rural residential development. That said, urbanizing land that is adjacent to existing urban development is more consistent with this boundary location factor than urbanizing land further into the undeveloped portions of an area, which will likely remain in rural use much longer whether the new high school is built in the area or not. Sites A, B, and C are closest to existing urban development. Sites D, E, and F are more remote from existing urban development. Therefore, in this respect, A, B, and C will have fewer impacts on any nearby agricultural and forest activities. Site A does not appear to have any adjacent agricultural or forest activities occurring adjacent to it. The other sites have very minor to small amounts of agricultural activities occurring on adjacent land. Therefore, none of the sites would appear to have much impact on agricultural or forest activities. Given the sites' rough equivalency in this regard, Sites B and C are the least costly to serve and most readily developable according to the Sherwood West Concept Plan, so developing in those areas "now" will have fewer impacts on nearby agricultural and forest activities than jumping ahead to an area that might have otherwise remained rural for the next 20 years. This gives Sites B and C the edge in considering this factor.

MC 3.07.1425(c)(5): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(5) equitable and efficient distribution of housing and employment opportunities throughout the region.

Hearings Officer's Analysis: This factor is not directly relevant to the siting of a new high school and therefore is not determinative in any way.

MC 3.07.1425(c)(6): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(6) contribution to the purposes of Centers and Corridors.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro. According to Metro's 2040 Growth Concept Map, the proposed site is not in a Regional or Town center, nor is it directly on a Corridor. Site A is closest to a Corridor, but as staff pointed out in the staff report, it is mostly undeveloped or in single-family residential use. None of the other sites are close enough to any Centers or Corridors to contribute to them at this point in time. Therefore, none of the alternatives support the purposes of Centers and Corridors in any significant way.

MC 3.07.1425(c)(7): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(7) protection of farmland that is most important for the continuation of commercial agriculture in the region.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

As noted by staff in the staff report, Metro and Washington County completed an urban and rural reserve process that designated the most important land for commercial agriculture in the county as rural reserve and the land most suitable for urban development as urban reserve. This means that development within any urban reserve will, at least presumptively, protect farmland that is most important for the continuation of commercial agriculture in the region.

However, this factor seems to reach beyond that concern and require further differentiation of urban reserve areas, at least to the extent that any of these urban reserves are still in commercial agricultural production. Of the six sites studied in Sherwood West urban reserve area, none appear to have any significant commercial agriculture. As such, it seems their agricultural output does not form a significant component of the Sherwood area's economy.

The applicant points out that development of sites within an urban reserve that are closest to the existing UGB and to areas within the UGB that actually contain urban-level development, helps to keep agricultural and forest land further from the UGB and urban areas in unaffected operation until such time as urban development grows further in that direction.

MC 3.07.1425(c)(8): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(8) avoidance of conflict with regionally significant fish and wildlife habitat.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The Sherwood West urban reserve has some significant fish and wildlife habitat within in it, much of which is associated with Chicken Creek. According to the Sherwood West Concept Plan, Steelhead *(Oncorhynchus mykill),* a federally listed species, are known to exist within Chicken Creek. Sites located closer to Chicken Creek would therefore tend to be less suitable for this project.

All of the sites *except* for Sites B and C are constrained by a significant or moderate level of natural resources:

Site A has a wetland right in the middle, and the entire western portion of this site is mostly creek, and its drainage discharge is right into Chicken Creek (see Narrative, p. 25).

Site D has creek drainage running through the southern portion of the site. Since there is no established public storm drainage anywhere in the vicinity, so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site E is steeply sloped down to the east towards Highway 99, with a grade change around 75 feet. There are no established public storm drains in the vicinity. so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site F has creek drainage and potential wetlands running through the entire site (see Narrative, p. 30), so extensive mitigation measures could be required to avoid negatively effecting significant fish and wildlife habitat.

As shown on Figure 6 of the Sherwood West Concept Plan, the western edge of Site B abuts a tributary of Chicken Creek and includes some associated wildlife habitat. Site C has no such identified resources, and, therefore, the hearings officer concludes and finds that Site C best avoids conflicts with regionally significant fish and wildlife habitat.

MC 3.07.1425(c)(9): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(9) *a clear transition between urban and rural lands, using natural and built features to mark the transition***.**

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The boundaries of Sherwood West do not appear to have been designated according to providing a clear transition between urban and rural reserves using natural or built features. It is bisected in large part at its northern end by Chicken Creek. But Chicken Creek will not form a natural barrier between urban and rural uses, as the Sherwood West Concept Plan contemplates development on either side of the creek. So, Chicken Creek will end up being a natural area within an urban area - not a boundary between urban and rural uses. Because the boundaries of Sherwood West were not created according to natural or built features, and because all of the six sites studied within Sherwood West for a new high school are internal to Sherwood West and will eventually be in the midst of other urban area, this factor is not particularly relevant to this application. Even so, as staff notes in the staff report, there are no built or natural features that would mark even an internal transition from urban to rural lands for Sites C and E. Site B is flanked by Chicken Creek, which could form such a barrier, but, again, there will be urban development on the other side of that "barrier" one day. Site A is also flanked by Chicken Creek, but the creek and natural resources associated with that site also limit the development

potential of that site for a new high school. Further, there will be urban development on the other side of those natural barriers one day, so they will not really mark the transition that this factor contemplates. Site D has some natural resources on it that could provide a barrier of sorts, but which also reduce the buildable area, and, again, the concept plan does not contemplate these natural areas being any sort of permanent barrier between urban and rural uses. Site F has a large amount of wildlife habitat, but that habitat, too, cuts into the buildable area and will provide no such barrier as contemplated by this factor.

Hearings Officer's Analysis and Summary of the Nine MC 3.07.1425(c) Locational Factors

In summary, little weighing and balancing is needed in this case, because the applicant's preferred alternative, Site C, nearly always came out as the site that best met the intent of each individual factor. With respect to two factors, Sites B and C equally met the intent of the factor, and with respect to another factor Site B came in a fairly close second to Site C. All in all, however, Site C best met all of the factors. In sum, all of the factors were applied and evaluated, and on-balance, Site C came out ahead. Thus, whatever weighing and balancing of all of the nine locational factors with respect to the six sites that could potentially accommodate a new high school is required, the Hearings officer finds that the applicant's analysis clearly demonstrates that the proposed site, Site C, better meets the applicable locational factors than the other sites.

No discussion presented by any opponent to the contrary is convincing. In disputing the District's location factor analysis, the primary opponent pointed to individual aspects of different sites and argued why it believed those aspects made one site better than another with respect to a given, discrete aspect. The opponent's sniping is ineffective, however, because unlike the applicant, the opponent did not evaluate the sites *holistically* based on the nine enumerated factors. Stated it another, it may be the case, that some of the alternative sites fair better than the applicant's preferred alternative in some particular or another. No site is perfect, after all, and each site has its positives and its negatives. However, when viewed as a whole, on balance, the applicant's preferred alternative fairs the best over the broadest consideration of the nine factors. Therefore, the opponent failed to demonstrate that the MC 3. 07.1425(C) factors findings are deficient.

The opponent also argues that Sherwood South cannot be ruled out as a possible area for the Major Amendment even though it has not been concept planned under MC 3.07.1110, because MC 3.07.1110(6) provides that such an area can be added even if it has not yet been concept planned. *See* Brager letter dated June 23, 2017 at p.7. MC 3.07.1110(6) states:

> *"If the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan by the date set under subsection (a), then the Metro Council may nonetheless add the area to the UGB if necessary to fulfill its responsibility under ORS 197.299 to ensure the UGB has sufficient capacity to forecasted growth."*

First, the MC 3.07.1110(6) exception is restricted to situations where "the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan." There is no evidence that any local governments responsible for a concept plan for Sherwood South are unable to reach agreement on that concept plan. In fact, there seems to be no question that the City of Sherwood will be planning for Sherwood South-it just hasn't done it yet, and has no current plans to do so. Second, the fact that no pre-UGB expansion concept planning has been done for Sherwood South is just one of many reasons the District gave for why Sherwood South ceased to be considered as a viable area for the new high school. The opponent has not pointed to an area within Sherwood South that would meet the District's siting criteria. In fact, in the opponent's June 23, 2017, letter, the opponent points to "a large block of property" south of the recent Brookman Road annexation area, but then appears to agree that it is too sloped to work as a high school site. See Letter from Jennifer Brager dated June 23, 2017, at p.6.

Metro Code section 3.07.1425(D) The Council may consider land not designated urban or rural reserve for possible addition to the UGB only if it determines that:

1. *Land designated urban reserve cannot reasonably accommodate the need established pursuant to subsection B of this section; or*
2. *The land is subject to a concept plan approved pursuant to section 3.07.1110 of this chapter, involves no more than 50 acres not designated urban or rural reserve and will help the concept plan area urbanize more efficiently and effectively.*

Hearing Officer's Analysis: The proposed expansion is within an urban reserve. This criterion is not relevant because the site and surrounding properties to the north, east and south are within an Urban Reserve area (no property within or next to the subject site is outside of urban reserve areas).

This criterion is not applicable.

Metro Code section 3.07.1425(E): The Council may not add land designated rural reserve to the UGB.

Hearing Officer's Analysis: The proposed expansion is not within a rural reserve. This criterion is not relevant because the subject site and surrounding properties to the north, east and south are within an Urban Reserve area.

This criterion is either not applicable or has been met.

Metro Code section 3.07.1425(F): The Council may not amend the UGB in such a way that would create an island of urban land outside the UGB or an island of rural land inside the UGB.

Hearing Officer's Analysis: The subject site and the remaining portion of the Sherwood West urban reserve are adjacent to the City of Sherwood. The transformation of this area from rural to urban represents a logical and methodical way to enlarge an urban area, which will not create an island of urban development outside of the UGB.

The proposed expansion will not create an island of urban land outside the UGB or an island of rural land inside the UGB. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.07.1440 (B)(1) The applicant shall also demonstrate that:

(1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land.

Hearing Officer's Analysis: The applicant addresses this criterion as follows:

> The proposed major amendment site is surrounded by land that is either within the City of Sherwood or the Sherwood Urban Reserve Area 5B (aka Sherwood West Preliminary Concept Plan Area) (see Attachment 6). The land in the City located north and east of SW Elwert Road is fully urbanized with single-family subdivisions and constructed houses. City land located south and east of SW Elwert Road is the location of the Sherwood Elks Lodge. The Elks Lodge site contains a large area of vacant land around the existing building and parking lot. The Elks Lodge and undeveloped surrounding land is zoned Low Density Residential (LDR).
>
> Land to the north, south and west is currently rural and within the urban reserve area (Sherwood West Concept Plan). This County land is zoned Agricultural Forest (AF) and is a patchwork of sites zoned AF-5, AF-10 and AF-20 with the subject site zoned AF-20. AF-5 has a minimum lot size of 5 acres, AF-10 of 10 acres and AF-20 has a minimum lot size of generally 80 acres. The surrounding property has been highly parcelized and consists of a patchwork of small forests/farms and rural residential properties with none more than 80 acres and many under five acres in size.
>
> The site is compatible with surrounding residential properties as the property has separation provided by existing streets on the north (Haide Road), south (Kruger Road) and west (Elwert Road) boundaries. The eastern boundary consists of mostly forestland with only one house near the site boundary near the northwest corner of the site. All school traffic will be able to access the site

> from Elwert Road and will not be routed through existing or proposed residential areas or streets.
>
> While the development of a school site will be the first urban development in the Sherwood West Concept Plan Area, the regional and local plans anticipate redevelopment of this entire area for primarily residential land. Schools typically locate within residential areas and are considered to be compatible with residential land uses when the impacts of the school on residential uses are considered within the design.
>
> The first urban development projects to occur within rural areas typically can cause some tension between existing residents who welcome the change, and those who are content with its current rural character. So well-designed solutions to deal with compatibility issues may still feel like "encroachment" to rural residents. The development of the site will include public involvement during the design development and permit approval process, allowing ample opportunity for the neighbors to help address specific compatibility issues. In the long term, establishing the school will provide the opportunity for subsequent urban developments to be oriented and designed to optimize their physical relationship with the school. This will allow the development of future Sherwood West properties to "grow up together" compared to infilling a large public facility into an established residential neighborhood.

The subject site borders the UGB on the east along SW Elwert Road. Adjacent land uses include single family homes and the Sherwood Robin Hood Elk Lodge that also includes some vacant land that is zoned for residential use, which is expected to develop over time. Directly to the southeast across Highway 99W is the Sherwood Regional Family YMCA. To the north across SW Haide Road is mostly open land with some out-buildings and one dwelling that appears to be vacant. To the west are forested parcels with one dwelling adjacent to the NW corner of the subject parcel. To the south across SW Kruger Road is the Countryside Community Church, limited agricultural activities and four dwellings. The typical weekend use of the church complements the weekday uses of a school. The land to the south also borders Highway 99W.

The District has developed a preliminary site plan that shows the school buildings located in the center of the property with sports fields generally to the south and west and parking located to the north. The southeast corner of the site will contain the realignment of SW Elwert and SW Kruger Roads. The three adjacent roads provide some buffering for the very few adjacent homes and the NW Natural Gas Easement also buffers the southwest corner of the site. The district currently has a High School Design Committee charged with working with the design team to provide advice on a number of design elements and a couple of community input meetings will be scheduled in 2017. In addition there will be public input opportunities during the City's development review and permit approval process.

Finally the subject site is within a very large urban reserve area that has the potential to urbanize over time. As noted previously this portion of the Sherwood West urban reserve was identified as phase A in the preliminary concept plan the City completed. This allows the adjacent land to be designed and developed in a manner that enhances and embraces this important community facility. Therefore the proposed use of the site can be made compatible, through measures, with the uses of the adjacent land.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440 (B)(2) The applicant shall also demonstrate that:

If the amendment would add land for public school facilities, the coordination required by subsection C(5) of section 3.07.1120 of this chapter has been completed.

Hearing Officer's Analysis: MC 3.07.1120(C)(5) states:

> *"Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110."*

The applicant addresses this requirement as follows:

> This requirement is satisfied as described in Section III of the application. In summary, the Sherwood School District adopted a long-term facilities plan in January of 2008. The long-term plan assumed that additional school capacity would likely be needed within 10 years of the plan's adoption. (The 2008 Long Term Facilities Plan is provided in Appendix C).
>
> In 2014 to 2016, the School District did significant planning prior to placing a bond on the November 2016 ballot that was ultimately approved by voters. This included inventorying existing school facilities, completing updated demographic information, as well as significant planning and public outreach to identify a plan for school facilities that includes the proposed new high school.

As the District points out, it experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. The District completed a long term facilities plan in 2008. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school

year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District and the city of Sherwood have an intergovernmental agreement to share sport fields with most of the facilities occurring on school grounds. Thus the coordination required by subsection C(5) of Metro Code Section 3.07.1120 has been completed.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440(B)(3) The applicant shall also demonstrate that:

If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot be reasonably be created by land assembly or reclamation of a brownfield site.

Hearing Officer's Analysis: The proposed expansion is not for industrial use. This criterion is not applicable.

Findings Addressing OAR 660- Division 24 and the Applicable Statewide Planning Goals.

OAR 660-024-0020 requires that all UGB amendments apply the Statewide Planning Goals to the amendment process. This directive applies to the whole gamut of UGB amendments, from the every-six-year Metro legislative review of its UGB to a quasi-judicial major amendment under the Metro code to provide land for a specific public need, such as a school or other public facilities. However, this does not mean that the Goals will apply equally and in the same way in each situation. It may even be that one or more of the Goals may not apply at all to a given situation.

The primary opponent asserts that the applicant failed to adequately address the Statewide Planning Goals. *See* Letter from Jennifer Bragar dated June 6, 2017. While that was correct at the time Ms. Brager wrote her letter, the applicant followed up two days later with proposed findings. The Hearings officer finds that the applicant did adequately demonstrate compliance with the applicable Statewide Planning Goals by substantial evidence in the whole record, and adopts the applicant's suggested findings, with slight modification, as set forth below. The opponent's specific objections are also addressed below.

OAR 660-024 -0020

OAR 660-024-0020 sets out which of the Statewide Planning Goals are applicable to UGB amendments. The Goals will have a somewhat limited applicability to a UGB amendment for a specific need, but the relevant Goals are addressed below.

Goal 1 - Citizen Involvement

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

Hearings Officer Analysis: This Major Amendment application does not alter Metro's citizen involvement program. Consequently, compliance with Goal 1 is established through compliance with the public involvement requirements of Metro's code. Those requirements have been followed.

Goal 2 - Land Use Planning
"To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Hearings Officer Analysis: OAR 660-024-0020(1)(a) states that the exceptions process in Goal 2 and OAR 660, Division 4 are not applicable unless a goal exception is part of the application. A goal exception is not part of the Major Amendment application and so those provisions will not be addressed. Other than goal exceptions, Goal 2 requires the establishment of a comprehensive plan, a need for coordination of government entities in planning, and the need for public hearings and an opportunity for comment and review.

1) Coordination: This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred.

2) Public Hearings/Opportunities for Comment and Review: Metro staff sent the required notice for the hearing before the hearings officer, and there has been opportunity for comment and review of the application materials. The hearing was continued, which provides additional opportunity for comment and review, and the hearings officer has stated he is likely to leave the record open after the second hearing concludes. There will also be at least one hearing before Metro Council. Further, the proposed high school will have additional approvals to obtain after the Major Amendment application has been approved, such as annexation, a zone change and a conditional use permit, all of which include a public involvement component. Therefore, there has been and will continue to be public hearings and an opportunity for comment and review.

Goal 3- Agricultural Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 4 - Forest Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 5 - Natural Resources, Scenic and Historic Areas, and Open Spaces

"To protect natural resources and conserve scenic and historic areas and open spaces."

Hearings Officer Analysis: OAR 660-024-0020(1)(c) requires states that Goal 5 and its related rules apply only in areas added to the UGB. The area to be added to the UGB is the site identified in this application. There are no Goal 5 resources on the site identified by Metro, Washington County or the City of Sherwood in the Sherwood West Concept Plan. Therefore, this goal is not applicable.

Goal 6 - Air, Water and Land Resources Quality
"To maintain and improve the quality of the air, water and land resources of the state."

Hearings Officer Analysis: As LUBA recently stated:

> "[t]he relevant Goal 6 inquiry for a decision that amends comprehensive plan and zoning map designations, without approving any particular new development, is whether there is a reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed in the future. *See Friends of the Applegate Watershed v. Josephine County*, 44 Or LUBA 786, 802 (2003), (at the post-acknowledgment plan amendment stage, a local government need only show it is reasonable to expect that applicable state and federal environmental quality standards can be met); *see also Salem Golf Club v. City of Salem*, 28 Or LUBA 561, 583 (1995) (same).

See Nicita v. City of Oregon City, ___ Or LUBA ___ (LUBA No. 2016-045, Jan 25, 2017, slip op. at 27.

The hearings officer does not see how there could not be any "reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed [as a school]." The proposed school campus poses no significant adverse air, land or water quality impacts. There are no expected significant "waste or process discharges" from the new high school campus. The high school does not "process" anything and so there are no process discharges associated with the high school. Any waste that will be produced by high school activities will be handled through the normal course of business. For example, any solid waste generated by the school will be subject to recycling and solid waste collection by the franchised garbage hauler for the area. Any waste associated with sanitary sewers or storm events will be handled as part of the public sanitary and storm water facilities. As the property develops, the District will be required to coordinate with the state Department of Environmental Quality and with Clean Water Services to ensure that air, land and water resources are not degraded. As noted in response to Goal 5, no significant Goal 5 resources have been mapped on this property by Metro, Washington County or the City. Further, the proposed new high school site is adjacent to the existing UGB and will allow for efficient multi-modal transportation of the

bulk of the student population - especially as Sherwood West builds out with primarily residential uses in the decades to come.

The primary opponents make a half-hearted attempt to challenge the applicant's Goal 6 compliance, but its argument is too vague and too unfocused to provide a basis for denial. First, the opponent state that "air quality issues should be examined for a new school to be built near Highway 99." *See* letter from opponent's counsel Jennifer Brager, at p. 2, 6. This argument appears to assume that highway 99 causes sufficient level of pollution that a school should not be located in close proximity thereof. The opponents suggest that a "buffer" and "distancing is needed. The opponent never suggests what a proper buffer would be. The Hearings officer finds this concern to be speculative, unsupported by substantial evidence in the record, and beyond the scope of Goal 6's reach. Even if the hearings officer believed this was a valid concern, the hearings officer finds the air quality benefits of locating a school away from a major arterial would be offset by the additional VMT needed to transport school children a further distance.

Goal 7- Natural Hazards

"To protect life and property from natural disasters and hazards."

Hearings Officer Analysis: Goal 7 (Areas Subject to Natural Hazards). Goal 7 requires local governments to evaluate risks to people "upon receiving notice" of new hazard information from DLCD, and based on evaluation of that risk to prohibit development in areas "where the risk to public safety cannot be mitigated." Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires.

No natural hazards have been mapped on the properties that comprise the proposed school site. (*See*, *e.g.*, Sherwood West Concept Plan, figures 6 and 7.) The applicant's proposed site appears to be devoid of any natural hazards: It is not in a flood plain or a coastal zone. It does not have steep slopes that would be vulnerable to landslides. It does not contain soils that are exceptionally vulnerable to being an earth quake hazard (at least any more so in comparison to the rest of the Portland Metro region generally). Therefore, this goal is inapplicable.

Goal 8- Recreational Needs

"To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Hearings Officer Analysis: As set forth in the Narrative, the District provides most of the athletic fields for the City of Sherwood. The City and the District have had a long history of partnering in the provision, use, and maintenance of these fields so that recreational opportunities are provided as efficiently as possible. The new high school campus will include a number of new fields and sports facilities on which the City and the District will continue to partner. The new fields and sports facilities will be in addition to the existing fields and sports facilities already in use as part of the existing school facilities. See page 32 of the Narrative for additional

detail. The new high school campus, then is supportive of this goal, as it will help satisfy the need for recreational facilities in the city and in the District.

Goal 9 - Economic Development

> *"To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens."*

Hearings Officer Analysis: Goal 9 applies to areas within an urban growth boundary. OAR 660-09-0010(1). *Port of St. Helens v. Land Conservation & Development Committee*, 164 Or App 487, 495, 996 P 2d 1014 (2000). Goal 9 requires that jurisdictions provide adequate opportunities for a variety of economic activities. Goal 9 planning is limited to areas within UGBs, and local land use plans are required to comply with Goal 9 at periodic review and whenever a jurisdiction undergoes a post-acknowledgment plan amendment that changes the plan designation of more than two acres of land from industrial/employment use to a nonindustrial/non-employment use. OAR 660-009-0010(1), 0010(2), and 0010(4).)

Pursuant to OAR 660-024-0020, certain Goals, including Goal 9, are also applicable when the UGB is amended. The Major Amendment application expands the UGB to allow an existing high school to move several miles away from one site within the City of Sherwood to another site that will be annexed into the City of Sherwood for that purpose. This appears to be fairly neural from the standpoint of economic opportunities.

The opponent cites *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), and states that Goal 9 "requires a determination of the potential future land need for employment and is supposed to occur at the time the UGB is expanded, " and that "the school itself has to be analyzed as an 'other employment use' as defined under OAR 660-009-0005 because it will involve a governmental employment activity. " *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. That might be true for a UGB amendment that proposes to add employment land, but it not explain the relevance of Goal 9 to this particular UGB application, which is specific to a need for land for a new high school. In this case, the UGB amendment is targeting a specific need, *i.e.*, the relocation of an existing high school several miles away within the same city. Goal 9 is not applicable as the UGB expansion is for a specific need for a high school.

The cited passage from *Barkers Five* should be read in context. LCDC was referring to OAR 660-027-0050(2) and Metro's analysis for employment land needs occurring as part of its urban growth report. There is nothing in that passage that would make such an analysis a requirement for a major amendment application submitted under ORS 197.299(4). As stated in the findings for Goal 9, this goal is not applicable to a UGB amendment for a specific high school need. To the extent that the high school will have any Goal 9 impacts, the Hearings officer finds those impacts will be positive in terms of temporary construction jobs during development and provision of part-and-full time employment year-round.

Furthermore, if the opponent is implying that Metro must engage in a full-blown economic opportunities analysis in the context of a major amendment application for a high school, that conclusion does not follow from the opponent's stated premises or from Goal 9. The

opponent's argument is not developed well enough to allow the hearings officer to evaluate it on the merits: the opponent has not explained how this application actually impacts the requirements or scope of Goal 9.

Goal 10 - Housing

"To provide for the housing needs of citizens of the state."

Hearings Officer Analysis: The applicant states that Goal 10 is not applicable as the UGB expansion is for a specific need for a high school. The opponent states that "Goal 10 is implicated because housing opportunities will be lost as a result of this large land grab by the school district." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. While it is true that any use of land for non-residential purposes results in that land not being available for housing, that truism does not create a Goal 10 violation. As best as the hearings officer can determine, the opponent is arguing that the Preliminary Sherwood West Concept Plan shows a small school site surrounded by housing, and the applicant's current plan shows the entire site being used for a school and no housing. The opponent concludes that this change in plans 'will limit the planned housing in the Sherwood West Concept Plan Area," which, according to the opponent, "has Goal 10 implications." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2-3. It appears that the opponent is arguing that the Concept Plan locks in the density and mix of housing, and any change to the Concept Plan requires an analysis of Goal 10 compliance.

The hearings officer finds that the concept plan does not have the regulatory effect that the opponent assigns to it. The opponent cites to nothing in any local zoning code or Comprehensive Plan that gives this sort of regulatory effect to this (or any other) concept planning effort. Goal 10 would not have that type of regulatory effect until the property subject to the Concept Plan is brought into the UGB and assigned urban zoning designations. As currently situated, the land at issue is not within the UGB and so is not considered "buildable lands" under Goal 10 and Goal 14, and is not included in any buildable land inventory. Therefore, there is no buildable lands inventory to measure the Major Amendment application against and Goal 10 does not anticipate that there would be in this situation. By its terms, Goal 14 requires that jurisdictions "provide for the housing needs of citizens of the state" by inventorying "buildable lands for residential use. " Goal 10 defines buildable lands as lands in "urban and urbanizable areas that are suitable, available and necessary for residential use. " Under the definitions section of the Statewide Planning Goals, "urban land" is defined as "land inside an urban growth boundary, " and "urbanizable land" is defined as urban land, i.e., land inside a UGB, that is presently unavailable for any number of reasons. Therefore, the opponent' argument that, in the context of a Major Amendment, Goal 10 requires Metro to "demonstrate that its actions do not leave it with less than adequate residential land supplies" is wrong..

Moreover, as the applicant points out, the City's urban reserves include a 50-year land supply for the City. There is no evidence that siting a new high school in Sherwood West, in the location that the Concept plan contemplated a new school, will in any way negatively impact the ability of the City to provide for its housing needs, especially when Sherwood West is combined with Sherwood North and Sherwood South.

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The opponent also complains that the applicant is seeking to bring in 82 acres when it defined its current need as requiring only a 50-acre site. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. The hearings officer is at a loss to understand the relevance of this argument to a Goal 10 challenge. The opponent's argument is simply not developed sufficiently to allow the hearings officer to understand the nature of the complaint.

The opponent also argues that an 82-acre school site "contradicts the two school sites considered in the Preliminary Sherwood West Concept Plan. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. However, Concept Plans are not regulatory documents in the sense that they do not limit the size of planned facilities. The Concept Plan took the provision of additional school sites into account when it was developed. Although the concept plan includes two identified school sites, it is important to remember that the Concept Plan is a general plan that addresses how the area will develop generally. The Concept Plan does not specify the types of schools that the conceptual school sites reflect, e.g., elementary, middle or high school. Therefore, one should not view the blue squares denoting school sites in the Concept Plan in the literal sense of trying to determine how big the Concept Plan believed the sites will ultimately be. Such information comes from future refinement of the Concept Plan after areas are brought into the UGB.

Moreover, as the applicant points out, Goal 10 concerns itself with land already within a UGB, which the subject property is not. Therefore, Goal 10 has very limited applicability to a Major Amendment application for a new public school site. That said, the justification for the proposed expansion area of 82 acres is included in the Narrative. (Narrative at 31-32.) As set forth in the Narrative, approximately seven of the 82 acres will be needed for transportation improvements that will support the new high school. There is also a 40-foot wide gas pipeline easement that runs across the site, occupying approximately 2.2 acres but requiring protection of additional, adjacent property of approximately 20 feet on either side. This pipeline easement essentially gives the site an irregular shape, which reduces the efficiency with which it can be developed. The Narrative also discusses the shared sports fields arrangement between the City of Sherwood and the District that provides for additional ballfields. The District would also note that Figure 3 of the Narrative depicts a conceptual layout of the high school site and related transportation improvements over the entire 82-acre area. (Narrative at 7.) As one can see on that conceptual layout, the entire site will be fully utilized.

In the Appendix 6 Service Provider Interviews, the District warns that the current high school was at-capacity at the time of the interview (the appendix is dated June 15, 2015), and with the growth expected in Sherwood the high school could be expected to become over-capacity. (See Appendix 6, pages 3-4.) The District stated that expanding the existing high school and adding a new high school to the District would both be explored. The relevant information to be gleaned from the Concept Plan is that the majority of Sherwood West is intended to be developed with varying densities of housing and that the Concept Plan integrated the need for at least two additional school sites, with an understanding that the existing Sherwood High School would soon be over-capacity.

In its June 23, 2017 letter, the opponent argues that Metro "must demonstrate that its actions do not leave it with less than adequate residential land supplies in the types, locations,

and affordability ranges affected." *See* letter from Jennifer Bragar dated June 23, 2017, at p.2. As support for this requirement, the opponent relies on *Burk v. Umatilla County*, 20 Or LUBA 54 (1990). In *Burk*, the Port of Umatilla filed an application with the City of Umatilla to amend the city's comprehensive plan map for a 42-acre area within the city's urban growth boundary, but outside the city limits, from single-family residential to industrial. The city's buildable land inventory for housing included the 42 acres, because that acreage was within its UGB. Even with the 42 acres included in the buildable lands inventory, the city was deficient in land available for single-family housing. The city approved the map amendment even though it increased that deficiency, which earned the city a remand by LUBA.

The facts of *Burk* are different than those presented by this Major Amendment application. The land in question in *Burk* was inside a UGB and was already planned for zoned and residential uses. That is a key factual difference from the present case, because the land in this case is planned for agriculture and forestry. The land proposed to be added to the UGB is not "buildable land," and is not in any current inventory. For this reason, the Goal 10 analysis required in *Burk* is not applicable here.

Goal 11 - Public Facilities and Services

> *"To Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."*

Hearings Officer Analysis: As set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services with respect to that urban reserve. The concept plan was prepared with analyses of existing sanitary sewer, water, and storm water conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services. The concept plan discusses the provision of public facilities and services to the area at pages 16-18 and 40-44, as well as in Appendix 3 (Existing Conditions Report) and Appendix 6 (Service Provider Interviews). According to the Concept Plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District used this work as a jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative, pages 24-31 and Application Appendix A (New High School Preliminary Site and Utility Exhibit) and Appendix B (Service Provider Letters). All of the foregoing information addresses the orderly and efficient arrangement of sanitary sewer, water, and storm drainage facilities to serve the new school property, as well as the larger Sherwood West area and all of the evidence consistently points to the chosen property as a property that can served in a timely, orderly, and efficient manner.

The opponents argue that Goal 11 is not met, because the local sewer and water agency (Clean Water Services) has a concern about the installation of a temporary pump station. *See* letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents offer no testimony, expert

opinion, or evidence that would call into question the conclusions reached by the applicant's engineers, KPFF. Goal 11 does not require that every technical engineering solution be worked out at the time of UGB amendment. The KPFF engineers seem to believe that an engineering solution is not only possible, but likely, which is all that is required at this stage. See KPFF memo dated June 13, 2017. This Hearings officer has evaluated the opinion of the KPFF engineers, and finds them more credible.

The opponents further argue that "fire flow tests have not been completed." *See* Letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents do not explain why fire flow tests are mandated by Goal 11 in the context of a UGB amendment, nor is it obvious why they would be. The KPFF engineers seem to be satisfied that the fire flow issue can be adequately handled, and this hearings officer finds them more credible.

Goal 12 - Transportation

> *"To provide and encourage a safe, convenient and economic transportation system."*

Hearings Officer Analysis: Early LUBA cases suggested that a local government could not "pass the buck" by deferring compliance with Goal 12 and the TPR until the time of site plan review.[13] However, more recent case law clarifies that conditions of approval can be used to limit new development until such time as the TPR is addressed. For example, in *Citizens for Protection of Neighborhoods v. City of Salem*, 47 Or LUBA 111 (2004) (*Citizens*), the City of Salem approved a zone change to allow mixed residential and commercial use of a 275-acre property. That approval included a condition that prohibited development of the property until later adoption of a master plan for the property. The City of Salem's code criteria applicable during the master plan process included requirements that were substantially identical to the requirements of the TPR. Based on the condition requiring master plan approval, the city found that the zone change did not significantly affect the transportation facility because no development could occur until the subsequent master plan phase. *Id*. at 115, 116. LUBA held that the city could properly conclude that the rezoning of the property did not significantly affect any transportation facility because the condition essentially prohibited development on the property without first showing that any allowed development is consistent with the function, capacity and performance standards of affected transportation facilities. *Id*. at 120.

In *ODOT v. City of Klamath Falls (Southview Dev'l, LLC)*, 39 Or LUBA 641, 660, *aff'd* 177 Or App 1, 34 P2d 667 (2001), LUBA affirmed that portion of a county decision which approved a zone change with a condition that prevented additional development from impacting a transportation facility until such a time in the future when the TPR is addressed. LUBA found that this condition was sufficient to ensure compliance with the TPR in the interim.

Finally, in *Willamette Oaks, LLC v. City of Eugene,* 59 Or. LUBA 60 (2009), the city approved a zone change, and imposed a condition of approval prohibiting development of the property without approval of a planned unit development (PUD) application and a showing of

[13] *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994), *aff'd*, 130 Or App 406 882 P2d 1130 (1994); *Concerned Citizens of the Upper Rogue v. Jackson County*, 33 Or LUBA 70 (1997).

consistency with the TPR as part of the PUD application and review. LUBA approved this approach, stating as follows:

> In sum, with one caveat discussed below,[14] we think it is permissible for the city to defer consideration of compliance with the TPR to a subsequent review process at the time actual development is proposed, provided that the zone change or plan amendment is effectively conditioned to prohibit traffic or other impacts inconsistent with the TPR's requirements unless and until those requirements are fully addressed. Applicant offers no reason in the present case why deferring the application of the provisions of the TPR to a later PUD application process is insufficient to ensure that allowed uses of the subject property are consistent with

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[14] LUBA stated in a footnote that the PAPA procedural requirements would still need to be satisfied as part of the deferred process:

> The caveat mentioned above is that unless the local government takes steps to ensure otherwise, the subsequent review process may not require a comprehensive plan or land use regulation amendment and therefore will not trigger [**12] the notice obligations of a post-acknowledgement action under ORS 197.610 *et seq*. Under those statutes, a local government that amends its comprehensive plan or land use regulations, including zone changes, must provide to the Department of Land Conservation and Development (DLCD) timely notice of the hearing on the proposed amendments as well the decision adopting the amendments. DLCD, in turn, provides notice of the proposed amendments and any subsequent adoption to persons or agencies who request such notice. OAR 660-018-0025. The requirement to provide notice of post-acknowledgment plan amendments to DLCD and other parties is a critical component of a statutory and rule-based scheme that is designed to ensure that post-acknowledgment plan and land use amendments comply with the applicable statewide planning goals and rules, including the TPR. *See Oregon City Leasing, Inc. v. Columbia County, 121 Or App 173, 177, 854 P2d 495 (1993)* (failure to provide DLCD the notice required under ORS 197.610 *et seq*. is a substantive, not procedural error). The efficacy of that scheme is undermined if a local government defers consideration [**13] of compliance with the TPR to a subsequent review process that does not provide equivalent notice to that required by ORS 197.610 *et seq*. Without such notice, it is possible that DLCD and parties who may rely on DLCD's re-notice, potentially including ODOT, may not learn of the review proceeding or have an opportunity to participate in that proceeding.

> the function, capacity and performance standards of the affected transportation facilities. *ODOT v. City of Klamath Falls,* 39 Or LUBA at 660.

Under OAR 660-024-0020(1)(d), the Transportation Planning Rule ("TPR") need not be applied to a UGB amendment if the land will remain zoned as urbanizable. That will be the case with the properties subject to the proposed UGB amendment. The current AF-20 zoning will remain until the is annexed into the City of Sherwood. During the forthcoming Metro Title 11 concept planning process for the properties, the City will determine the appropriate zone and this will include a TPR analysis. The zoning will not actually be changed, however, until after annexation.

With respect to Goal 12 generally, as set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services, including transportation, with respect to that urban reserve. The concept plan analyzed the existing transportation system and how that system will need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future transportation service providers, including Washington County and ODOT. The concept plan discusses the transportation system within the plan area at 18-21, 40-44, as well as in Appendix 3 (Existing Conditions Report), Appendix 6 (Service Provider Interviews), and Appendix 8 (Transportation Options Alternative Analysis Report). The District used this work as the jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative at pages 10-11, and Appendix B (Service Provider Letters). The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address the provision of a safe, convenient, and economic transportation system for the new high school site. (The Transportation Study has been submitted to the record.) The Sherwood West Concept Plan takes a higher-level look at the transportation needs of the Sherwood West area in general, including the need for new streets and intersection improvements. The Narrative provides general information about how the school site will be served and the Transportation Study provides more detail than is commonly found at the UGB expansion stage, but finds that, with some mitigation improvements, a new high school on the proposed site can be served by the appropriate transportation system. The Transportation Study will become more relevant at the Title 11 concept planning and annexation stages of the high school site development. Because the new high school is very near to an existing, urban-level street system, and because Washington County and the City will be constructing a new intersection improvement adjacent to the new high school, the provision of transportation services to the new school will be more economical. According to the concept plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) In sum, all of the cited evidence supports a finding that it is possible to safely, conveniently, and economically provide for the transportation needs of the new high school.

For this reason, the applicant proposes a condition of approval to the UGB amendment that prohibits any new development on the subject property until a Comprehensive Plan Map and Zoning Map Amendment are completed, and that the TPR will be addressed at that time.

Several opponents expressed concerns about the adequacy of the surrounding transportation system to support the proposed high school. It is tempting to jump ahead to the specific traffic impacts of a proposed use even at this early stage of the land use process. It is important to keep in mind, however, that the Major Amendment application is just the first application in a series of land use proceedings that must occur prior to the high school actually being approved on the property. With respect to the Major Amendment application, Goal 12, OAR 660-024-0060(8), and MC 3. 07. l425(c)(2) are applicable and implicate transportation facilities. The District has submitted findings with supporting substantial evidence to address all of those provisions. The District also submitted additional evidence from its traffic engineer to address particular issues raised with respect to the March 15, 2017, Sherwood High School UGB Expansion Transportation Study. (See June 28, 2017, DKS memorandum.)

No one besides the District provided any evidence or testimony from a traffic engineer regarding any aspect of the Major Amendment application. Opponents correctly point out that there are existing transportation deficiencies in the area that surrounds the proposed high school site. Those opponents also correctly point out that if those deficiencies are not addressed then the new high school will exacerbate them. All of that is true, but it would be expected to be true regardless of where the new high school is sited, *i.e.*, nearly every area in and around Sherwood has existing transportation deficiencies and siting a new high school in any of those areas would impact the transportation system. Where the opponent's logic fails is in the apparent assumption that the transportation impacts of the new high school will not be addressed as part of the planning and permitting processes that are required prior to the new school opening its doors in 2020. That assumption is incorrect.

The laws and regulations that govern the permitting of the new high school simply do not allow the new school to be plopped down anywhere without transportation impacts being analyzed and mitigated in accordance with the law. The specifics of that analysis and mitigation for the chosen site are largely irrelevant at the UGB amendment stage. Instead, those specific transportation impacts will be addressed through subsequent Title ll planning for the UGB amendment area, and through annexation, zone change, and conditional use permit processes. Through these processes, the Transportation Planning Rule will be addressed, appropriate off-site mitigation within an appropriate timeframe will be required, and appropriate frontage improvements for all of the abutting streets will be conditioned. Public involvement is included in each of those steps as part of each of the planning and permitting processes. (See June 28, 2017, DKS & Associates memorandum.)

Goal 13 - Energy Conservation

"To conserve energy."

Hearings Officer Analysis: LUBA and the Courts have never given any regulatory affect to this Goal. The Hearings officer views this goal as being essentially meaningless. The general practice has been for applicants and staff to write some flowery prose that extorts the energy

saving virtues of the project. In this vein, the applicant states:

> As explained under the District's response to MC 3.07.1425(c)(3), which is the analog of Goal 14, Location Factor 3 (ESEE energy consequences), the proposed school site's adjacency to the existing UGB, served by major streets, facilitates multi-modal access for students, teachers, families, and administrative staff to and from the school campus. This will multi-modal facilitation will only increase as Sherwood West builds out into a predominantly residential area with nodes of neighborhood commercial.

Without some baseline standard to measure against, it is difficult to evaluate whether any given proposal will "conserve energy" or not. But at least it sounds good.

For its part, the opponent's arguments do not shed much light on the issue. They merely state that an "energy analysis" must be provided. *See* Letter from Jennifer Brager dated June 6, 2017, at p. 3. The opponents do not explain exactly what an "energy analysis" entails, nor it is particularly apparent on its face. Given that no focused argument concerning Goal 13 was raised by any party, the hearings officer finds that the applicant's proposed findings comply with Goal 13 – whatever it means.

Goal 14 - Urbanization

> *"To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."*

Hearings Officer Analysis: Goal 14 is addressed throughout this submittal.

Goals 15 through 19

Hearings Officer Analysis: These goals are not applicable, as the proposed UGB expansion does not include Willamette River Greenway, Estuarine Resources, Coastal Shorelands, Beaches and Dunes or Ocean Resources.

OAR 660-024-0040 - 0050

OAR 660-024-0050 directs local governments to inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. The District's Major Amendment application does not directly implicate these rule provisions, because the need for the new high school site did not arise out of an OAR 660-024-0040 overall land needs analysis and subsequent OAR 660-024-0050 buildable lands analysis. A specific need for a new high school site arose out of long-term facilities planning engaged in by the District. However, once the need for the new high school was identified, the District analyzed land that was within both the District boundaries and the Sherwood, Wilsonville, and Tualatin UGBs for land that could accommodate the need for the

new high school based on its suitability criteria. (See Narrative at pages 8-21.) There was no suitable land within those areas. The analysis required by OAR 660-024-0050 tracks closely in some respects with the analysis required by MC 3.07.1425(a), which was addressed by the District in its application. The caveat, however, is that identified specific land need, such as land for a new school, is not the same as a generalized need for more residential land or employment land. Given the specific need for a new school site, MC 3.07.1440(a) allows a UGB expansion tailored to just that need under certain circumstances.

OAR 660-024-0060 - Metro Boundary Local Alternatives Analysis

OAR 660-024-0060 sets forth the provisions that apply when a need within the Metro UGB has been specified and there is no land within the UGB that can accommodate that need. The provisions in OAR 660-024-0060 track closely with the provisions contained in MC 3.07.1425(c), which have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

OAR 660-024-0060:

(1) When considering a Metro UGB amendment, Metro must determine which land to add by evaluating alternative urban growth boundary locations. For Metro, this determination must be consistent with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, Metro must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

Hearings Officer Analysis: The highest priority of land available is land designated urban reserve. (ORS 197.298(1)(a).) The District's application included an analysis of urban reserve land.

(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, Metro must apply the location factors of Goal 14 to choose which land in that priority to include in the Metro UGB.

Hearings Officer Analysis: As set forth in the District's Major Amendment application, there is suitable land within an existing urban reserve to satisfy the need deficiency, i.e., the new high school. Accordingly, the location factors of Goal 14 were applied to that land. Those location factors are the first four location factors found in MC 3.07.1425(c)(1)-(9) and have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, Metro must determine which land in the next priority is suitable to

accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(d) Notwithstanding subsection (a) to (c) of this section, Metro may consider land of lower priority as specified in ORS 197.298(3).

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(e) For purposes of this section, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(2) Notwithstanding OAR 660-024-0050(4) and subsection (1)(c) of this rule, except during a legislative review of the Metro UGB, Metro may approve an application under ORS 197.610 to 197.625 for a Metro UGB amendment proposing to add an amount of land less than necessary to satisfy the land need deficiency determined under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

Hearings Officer Analysis: This provision is not applicable.

(3) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all the factors were considered and balanced.

Hearings Officer Analysis: This provision is consistent with how Metro interprets its analogous boundary location factors in MC 3.07.1425(c), which were applied to the District's Major Amendment application.

(4) In determining alternative land for evaluation under ORS 197.298, "land adjacent to the UGB" is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.

Hearings Officer Analysis: The District's analysis took into account all of the land in the urban reserves that otherwise met the District's siting criteria. Some of the land analyzed did not abut the UGB, but was rejected for other reasons.

(5) If Metro has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, Metro may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(6) The adopted findings for a Metro UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.

Hearings Officer Analysis: The District mapped all of the alternative areas evaluated in the boundary location alternatives analysis and evaluated them separately.

(7) For purposes of Goal 14 Boundary Location Factor 2, "public facilities and services" means water, sanitary sewer, storm water management, and transportation facilities.

Hearings Officer Analysis: The District took into account the public facilities and services enumerated in this provision when it evaluated MC 3.07.1425(c)(2), which is the analog to Goal 14 Boundary Location Factor 2.

(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative Metro UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation (ODOT) with regard to impacts on the state transportation system. "Coordination" includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include:

(a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the Metro UGB;

(b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the Metro UGB; and

(c) The need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.

Hearings Officer Analysis: As set forth in the responses to Goals 11 and 12, Sherwood West has been concept planned pursuant to MC 3.07.1110, and so the provision of public

facilities and services within the Sherwood West concept plan area and as those services relate to the rest of the city have been studied extensively, as required by MC 3.07.1110. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, stormwater, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West without adversely impacting the existing city development. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, and Washington County.[15]

Additional Issues Raised by Opponents

1. **Metro Staff Provided Proper Notice to DLCD.**

Opponents allege that Metro failed to provide notice to DLCD of a proposed plan map amendment under ORS 197.610. *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 8. This is not correct. Metro submitted the requisite notice to DLCD on April 20, 2017, as evidenced on the weekly DLCD notice summary dated April 21, 2017, which is attached to the June 30, 2017 letter from Metro counsel Roger Alfred.

2. **The Fair Housing Act Is Inapplicable.**

The opponent argues that Metro must apply the Fair Housing Act ("FHA") to the Major Amendment application, because "Metro has a duty to affirmatively further fair housing." *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 3-5.

The opponent does not point to any approval criterion that requires Metro to apply the FHA directly to this application, and did not include any convincing argument as to why a UGB expansion to accommodate a new public high school would require the FHA to be addressed. As best as the hearings officer can ascertain, the opponent's core argument is that the FHA is a *de-facto* approval standard for every Comprehensive Plan Amendment and zone change decision. In this regard, Ms. Brager states that "Metro has a duty to affirmatively further fair housing" and that "Metro needs to address fair housing implications in this Major Amendment application through analysis under Goal 10 and under Metro's locational factors, Metro Code 3.07.1425(c)(5) regarding equitable and efficient distribution of housing." The argument is not well-developed; the opponent seems to be arguing that the FHA must be complied with, but that compliance with Goal 10 and the Metro Code establishes compliance with the FHA.

Beyond that, the opponent complains that Sherwood does not have enough subsidized housing, which "does not properly address the housing issues in Washington County for low-income households, especially protected classes." That statement is followed up with the conclusion that the "failure to analyze the school siting in context of the regional need for fair housing only exacerbates the inequitable distribution of affordable housing in the Metro region."

[15] This coordination effort included service provider interviews included as Appendix 6 of the Sherwood West Concept Plan. Appendix 8 provides more detail regarding the provision of transportation infrastructure to the Sherwood West Concept Plan area.

Letter from Jennifer Bragar dated June 23, 2017, at p. 5. Again, the hearings officer is at a loss to understand the opponent's argument, especially since the opponent does not tie their ultimate policy concern back to any specific language in the FHA or any other law for that matter. This argument is simply not developed sufficiently to allow for its review and evaluation. If the argument is that every school siting project has an inclusionary zoning requirement for additional low-income / subsidized housing, that argument is rejected.

SECTION IV: HEARINGS OFFICER'S SUMMARY, RECOMMENDATION, AND PROPOSED CONDITIONS OF APPROVAL.

The applicant seeks to amend the UGB to include approximately 82 acres for a high school with sports fields and the realignment of SW Elwert and SW Kruger Roads. The Applicant has provided sufficient evidence to demonstrate that the criteria are satisfied and the locational factors have been addressed. As detailed herein, the applicant has demonstrated that the high school is currently over capacity and by 2025 will be severely over capacity. Delaying the decision to await a legislative amendment of the UGB by the Metro Council which may or may not occur in the 2018 timeframe only exacerbates the capacity issues which impacts the District's ability to meet the goals of its strategic plan. The applicant provided adequate comparison of the proposed UGB expansion area with other possible expansion areas in seven different urban reserve areas and a determination that the need cannot be met on land currently within the urban growth boundary. In addition the applicant has shown the proposed use can be made compatible with adjacent uses through site design and the city's development design review process provides for public involvement. Additionally the adjacent land is within an urban reserve and is expected to urbanize over time, allowing for the development of a cohesive neighborhood and school/park facility.

Therefore, the hearings officer forwards a recommendation to the Metro Council for ***approval*** of this petition, with the following two conditions of approval:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application are required for this Major Amendment.

2. The applicant must comply with the Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

Respectfully submitted this 21st day of July, 2017.

ANDREW H. STAMP, P.C.

Andrew H. Stamp

Andrew H. Stamp

AHS:ahs

ATTACHMENTS

Attachment 1: Subject Property Map
Attachment 2: Current Enrollment and School Building Capacities, Table 1 of petition
Attachment 3: Projected Enrollment, Table 2 of petition
Attachment 4: Existing High School Campus, Figure 5of petition
Attachment 5: 2014 Sherwood Residential Buildable Lands Inventory Map, Figure 6 of petition
Attachment 6: Urban Reserve Areas within Sherwood School District Boundary, Figure 7 of petition
Attachment 7: Sherwood West Planning Area, Figure 8 of petition
Attachment 8: Sherwood West Alternative High School Sites, Figures 9-14 of petition

The high tech employment Sherwood is targeting for its employment lands in the norther district, is disproportionately white and male; 83% of Executive positions are held by whites and 80% by males. By contrast, employment in agriculture and forestry, which will be displaced and compromised by the Sherwood UGB expansion, is 32.3% Hispanic.

U.S. Equal Employment Opportunity Commission

DIVERSITY IN HIGH TECH

Excerpt from Executive Summary

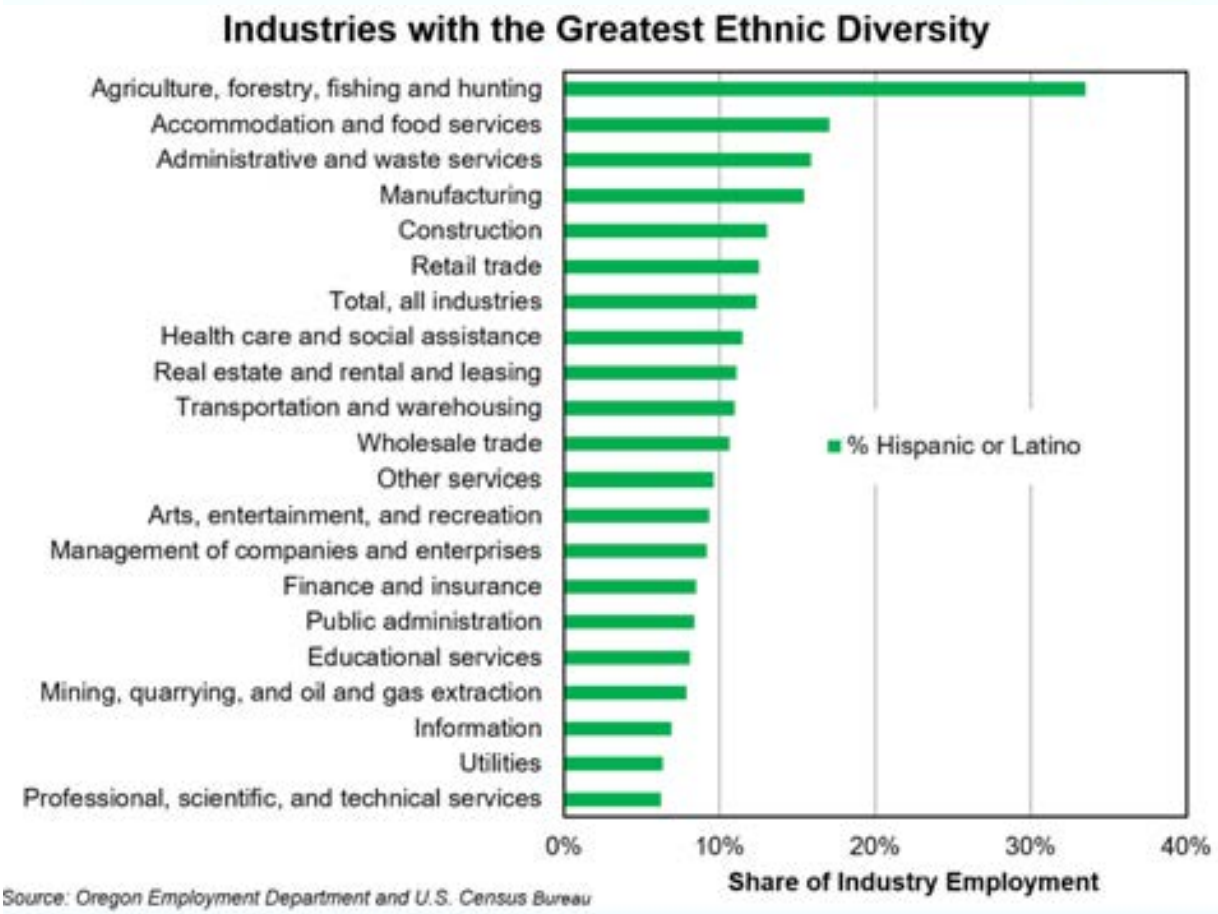
- Compared to overall private industry, the high tech sector employed a larger share of whites (63.5 percent to 68.5 percent), Asian Americans (5.8 percent to 14 percent) and men (52 percent to 64 percent), and a smaller share of African Americans (14.4 percent to 7.4 percent), Hispanics (13.9 percent to 8 percent), and women (48 percent to 36 percent).
- In the tech sector nationwide, whites are represented at a higher rate in the Executives category (83.3 percent), which typically encompasses the highest level jobs in the organization. This is roughly over 15 percentage points higher than their representation in the Professionals category (68 percent), which includes jobs such as computer programming. However, other groups are represented at significantly lower rates in the Executives category than in the Professionals category; African Americans (2 percent to 5.3 percent), Hispanics (3.1 percent to 5.3 percent), and Asian Americans (10.6 percent to 19.5 percent).
- Of those in the Executives category in high tech, about 80 percent are men and 20 percent are women. Within the overall private sector, 71 percent of Executive positions are men and about 29 percent are women.

https://www.eeoc.gov/special-report/diversity-high-tech

The Diversity of Oregon's Industries

October 6, 2022

by Jake Procino



Source: Oregon Employment Department and U.S. Census Bureau

Information on Average Rents in Cities in the Portland Metro Area

Submitted by West of Sherwood Farm Alliance

Website data from November 15, 2024

Apartments.com™

Rental Market Trends in Sherwood, OR

What is the average rent in Sherwood, OR?

$1,797/month	728 Sq Ft	+8.8%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Sherwood, OR is $1,797 per month. This is 15% higher than the national average rent price of $1,559/month, making Sherwood one of the most expensive cities in the US. When you rent an apartment in Sherwood, you can expect to pay about $1,545 per month for a studio, $1,797 for a one-bedroom apartment, and around $1,887 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,265 or more.

Rental Market Trends in Beaverton, OR

What is the average rent in Beaverton, OR?

$1,519/month	683 Sq Ft	+1%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Beaverton, OR is $1,519 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Beaverton rent prices are 3% lower than the national average. When you rent an apartment in Beaverton, you can expect to pay about $1,452 per month for a studio, $1,519 for a one-bedroom apartment, and around $1,746 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,034 or more.

Rental Market Trends in Gresham, OR

What is the average rent in Gresham, OR?

$1,362/month	670 Sq Ft	+1.8%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Gresham, OR is $1,362 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Gresham rent prices are 13% lower than the national average. When you rent an apartment in Gresham, you can expect to pay about $1,266 per month for a studio, $1,362 for a one-bedroom apartment, and around $1,584 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,053 or more.

Rental Market Trends in Hillsboro, OR

What is the average rent in Hillsboro, OR?

$1,681/month	725 Sq Ft	-0.1%
Average Rent	Average apartment size	Decrease in the Last Year

As of November 2024, the average rent in Hillsboro, OR is $1,681 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Hillsboro rent prices are 8% higher than the national average. When you rent an apartment in Hillsboro, you can expect to pay about $1,525 per month for a studio, $1,681 for a one-bedroom apartment, and around $1,923 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,379 or more.

Rental Market Trends in Milwaukie, OR

What is the average rent in Milwaukie, OR?

$1,461/month	661 Sq Ft	+1.7%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Milwaukie, OR is $1,461 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Milwaukie rent prices are 6% lower than the national average. When you rent an apartment in Milwaukie, you can expect to pay about $1,323 per month for a studio, $1,461 for a one-bedroom apartment, and around $1,637 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,023 or more.

Rental Market Trends in Oregon City, OR

What is the average rent in Oregon City, OR?

$1,513/month	672 Sq Ft	+1.3%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Oregon City, OR is $1,513 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Oregon City rent prices are 3% lower than the national average. When you rent an apartment in Oregon City, you can expect to pay about $1,315 per month for a studio, $1,513 for a one-bedroom apartment, and around $1,718 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,386 or more.

Rental Market Trends in Portland, OR

What is the average rent in Portland, OR?

$1,508/month	647 Sq Ft	+0.8%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Portland, OR is $1,508 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Portland rent prices are 3% lower than the national average. When you rent an apartment in Portland, you can expect to pay about $1,249 per month for a studio, $1,508 for a one-bedroom apartment, and around $1,787 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,089 or more.

Rental Market Trends in Tigard, OR

What is the average rent in Tigard, OR?

$1,569/month	683 Sq Ft	+4.6%
Average Rent	Average apartment size	Increase in the Last Year

As of November 2024, the average rent in Tigard, OR is $1,569 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Tigard rent prices are 1% higher than the national average. When you rent an apartment in Tigard, you can expect to pay about $1,578 per month for a studio, $1,569 for a one-bedroom apartment, and around $1,753 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,159 or more.

Rental Market Trends in Tualatin, OR

What is the average rent in Tualatin, OR?

$1,586/month	652 Sq Ft	+2.4%
Average Rent	Average apartment size	Increase in the Last Year

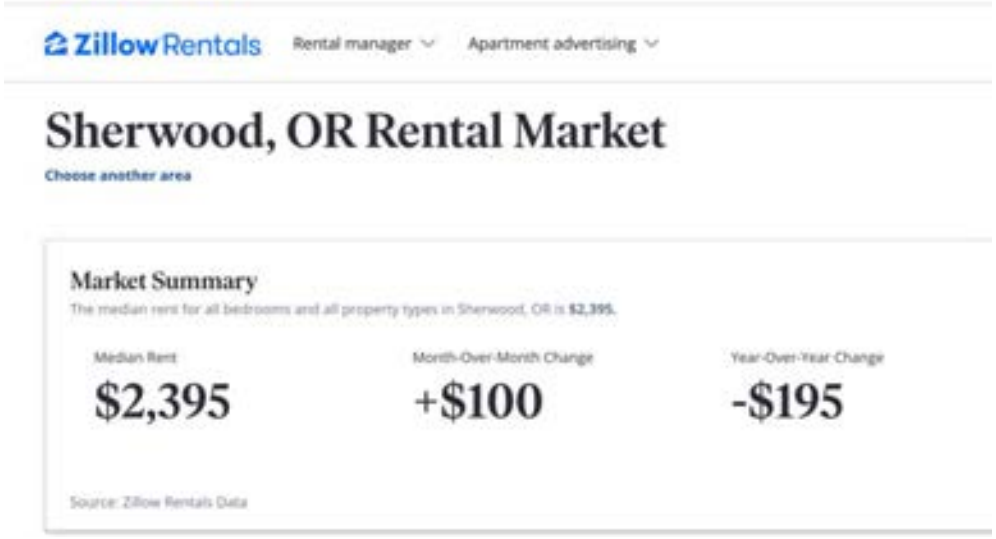
As of November 2024, the average rent in Tualatin, OR is $1,586 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Tualatin rent prices are 2% higher than the national average. When you rent an apartment in Tualatin, you can expect to pay about $1,480 per month for a studio, $1,586 for a one-bedroom apartment, and around $1,780 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,154 or more.

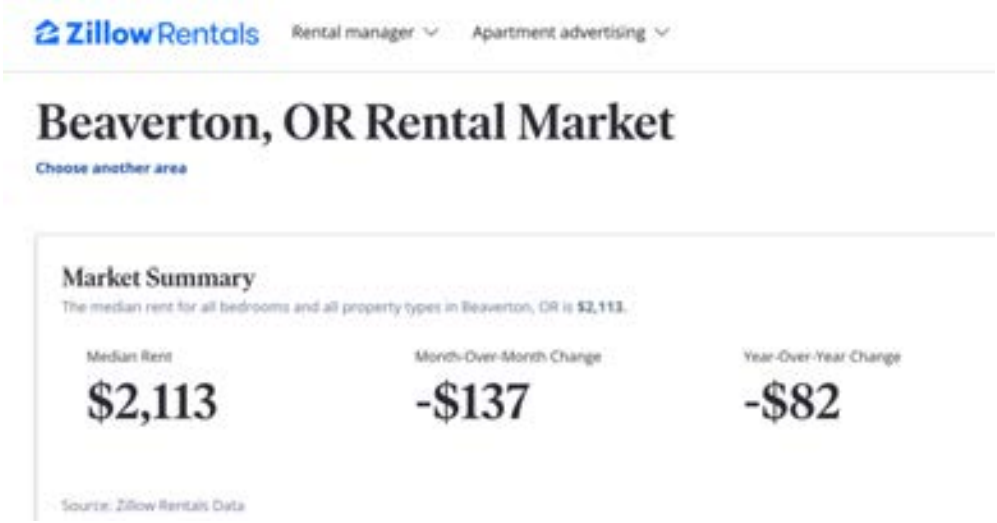
Rental Market Trends in Wilsonville, OR

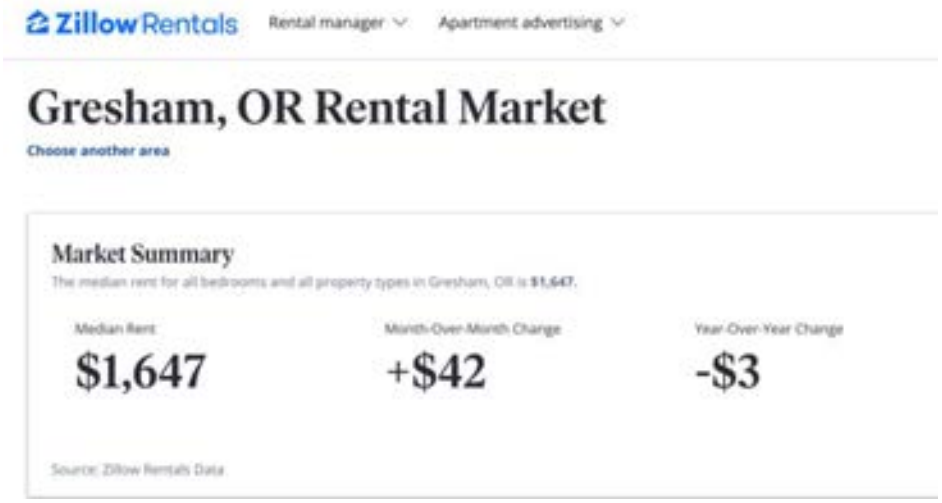
What is the average rent in Wilsonville, OR?

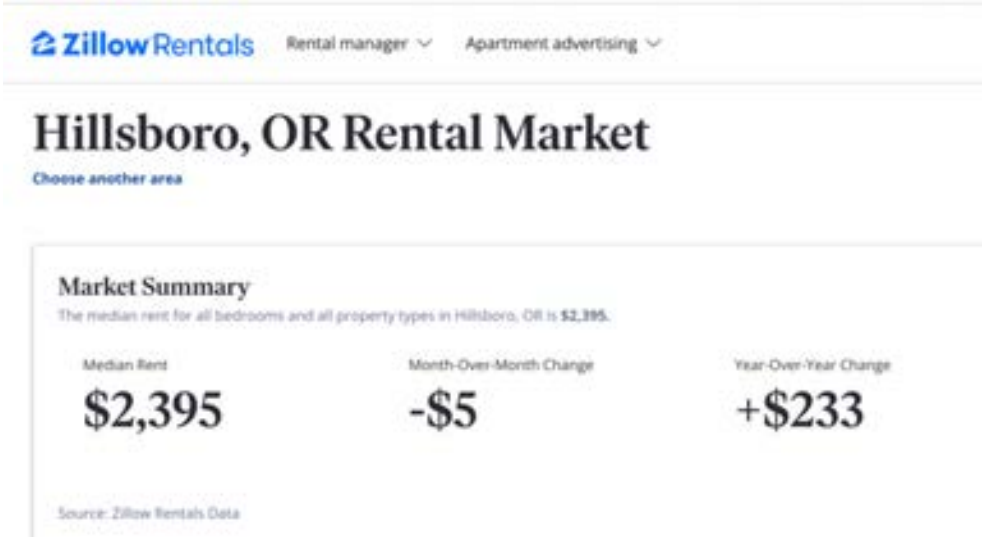
$1,582/month	711 Sq Ft	+1.3%
Average Rent	Average apartment size	Increase in the Last Year

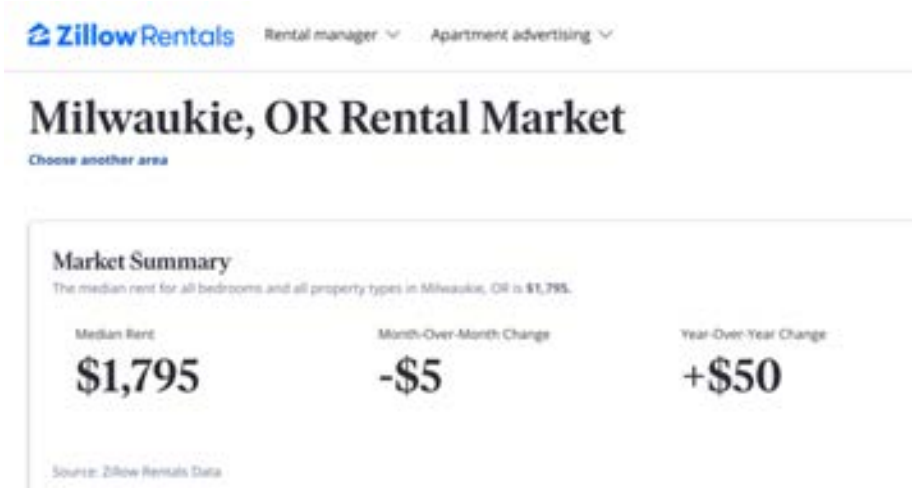
As of November 2024, the average rent in Wilsonville, OR is $1,582 per month. For comparison, the national average rent price in the US is currently $1,559/month, which means Wilsonville rent prices are 1% higher than the national average. When you rent an apartment in Wilsonville, you can expect to pay about $1,407 per month for a studio, $1,582 for a one-bedroom apartment, and around $1,767 for a two-bedroom apartment. If you opt for a three-bedroom rental, you could pay $2,256 or more.

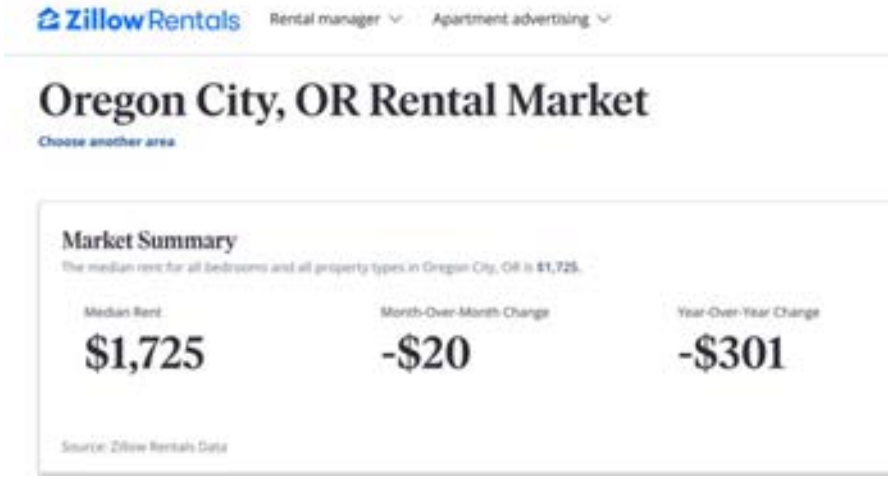

Zillow Rentals
Rental manager
Apartment advertising
Sherwood, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Sherwood, OR is $2,395.
Median Rent
$2,395
Month-Over-Month Change
+$100
Year-Over-Year Change
-$195
Source: Zillow Rentals Data

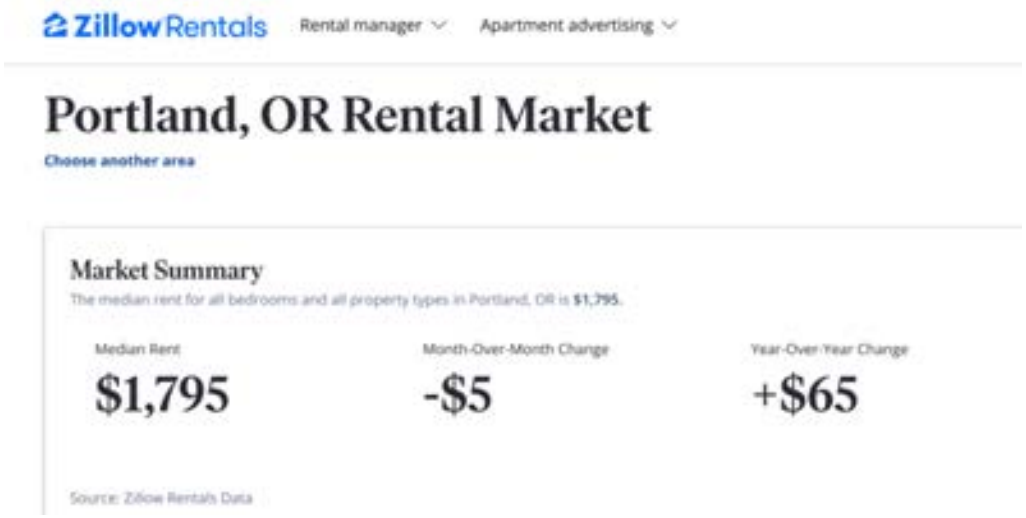

Zillow Rentals
Rental manager
Apartment advertising
Beaverton, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Beaverton, OR is $2,113.
Median Rent
$2,113
Month-Over-Month Change
-$137
Year-Over-Year Change
-$82
Source: Zillow Rentals Data

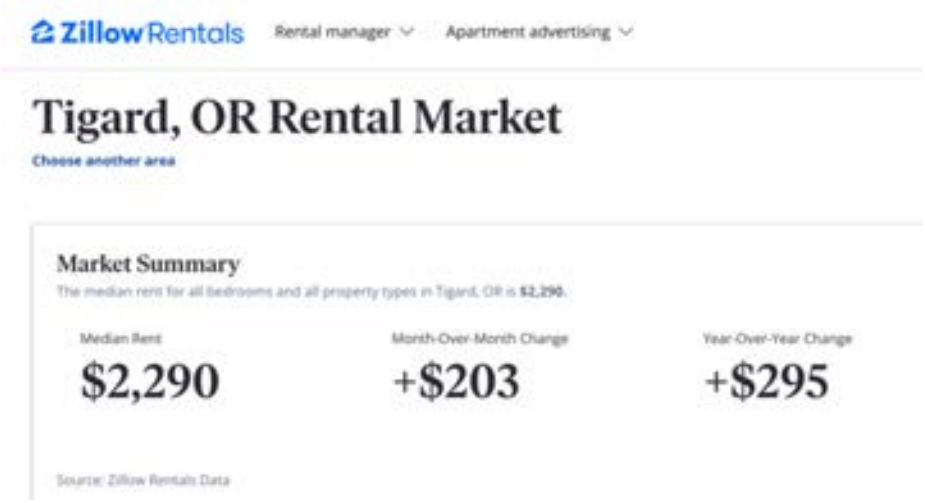

Zillow Rentals
Rental manager
Apartment advertising
Gresham, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Gresham, OR is $1,647.
Median Rent
$1,647
Month-Over-Month Change
+$42
Year-Over-Year Change
-$3
Source: Zillow Rentals Data

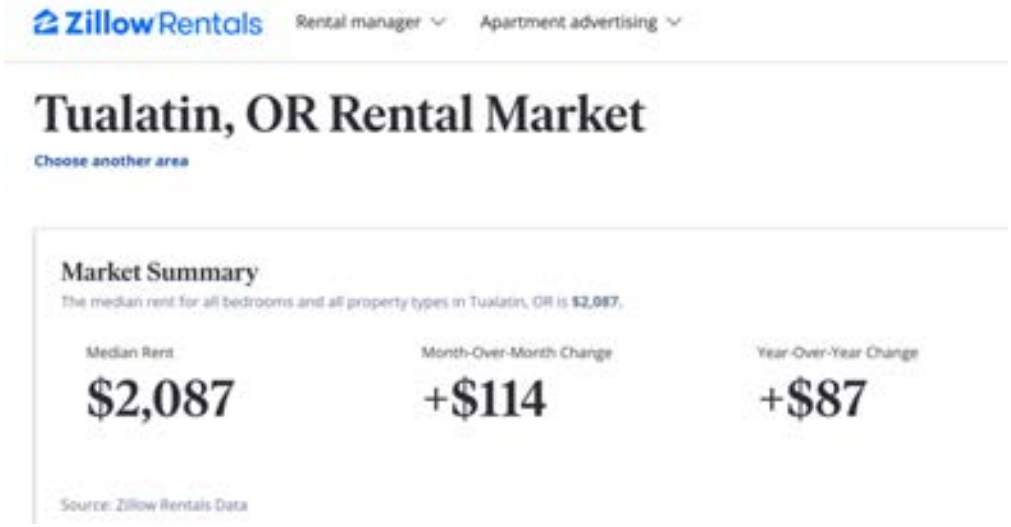

Zillow Rentals
Rental manager
Apartment advertising
Hillsboro, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Hillsboro, OR is $2,395.
Median Rent
$2,395
Month-Over-Month Change
-$5
Year-Over-Year Change
+$233
Source: Zillow Rentals Data

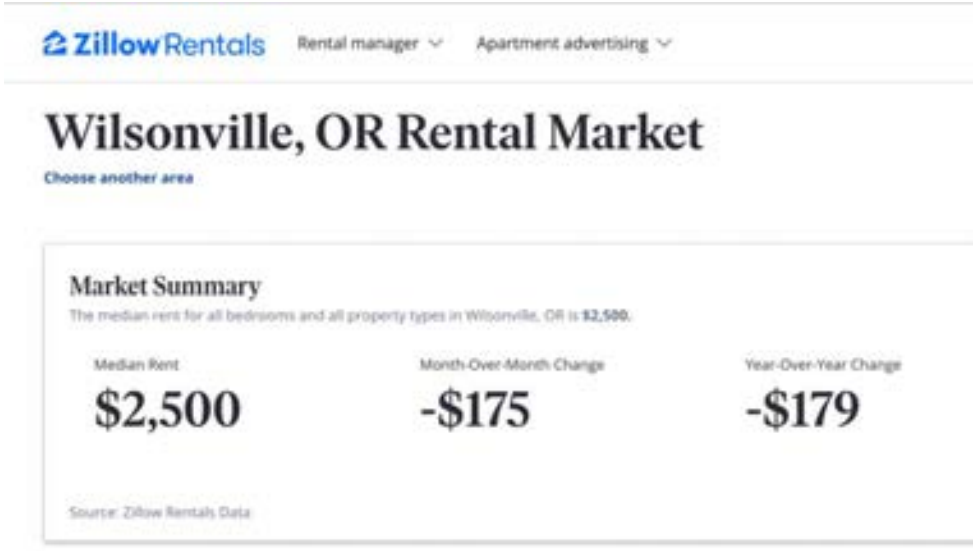

Zillow Rentals
Rental manager
Apartment advertising
Milwaukie, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Milwaukie, OR is $1,795.
Median Rent
$1,795
Month-Over-Month Change
-$5
Year-Over-Year Change
+$50
Source: Zillow Rentals Data


Zillow Rentals
Rental manager
Apartment advertising
Oregon City, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Oregon City, OR is $1,725.
Median Rent
$1,725
Month-Over-Month Change
-$20
Year-Over-Year Change
-$301
Source: Zillow Rentals Data


Zillow Rentals
Rental manager
Apartment advertising
Portland, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Portland, OR is $1,795.
Median Rent
$1,795
Month-Over-Month Change
-$5
Year-Over-Year Change
+$65
Source: Zillow Rentals Data


Zillow Rentals
Rental manager
Apartment advertising
Tigard, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Tigard, OR is $2,290.
Median Rent
$2,290
Month-Over-Month Change
+$203
Year-Over-Year Change
+$295
Source: Zillow Rentals Data


Zillow Rentals
Rental manager
Apartment advertising
Tualatin, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Tualatin, OR is $2,087.
Median Rent
$2,087
Month-Over-Month Change
+$114
Year-Over-Year Change
+$87
Source: Zillow Rentals Data


Zillow Rentals
Rental manager
Apartment advertising
Wilsonville, OR Rental Market
Choose another area
Market Summary
The median rent for all bedrooms and all property types in Wilsonville, OR is $2,500.
Median Rent
$2,500
Month-Over-Month Change
-$175
Year-Over-Year Change
-$179
Source: Zillow Rentals Data

Oregon Housing Needs Analysis Legislative Recommendations Report: *Leading with Production*

Legislative Report

December 2022

Oregon Department of Land Conservation and Development
Oregon Housing and Community Services

Acknowledgements

Housing Need Work Group Members

Mary Kyle McCurdy, 1000 Friends of Oregon
Mallorie Roberts, Association of Oregon Counties
Michael Burdick, Association of Oregon Counties
Jill Rolfe, Coos County
Mary Phillips, City of Gresham
Nick Snead, City of Madras
Carla Paladino, City of Medford
Dwight Jefferson, City of Portland
Miranda Bateschell, City of Wilsonville
Michael Szporluk, disability rights consultant
Allan Lazo, Fair Housing Council of Oregon
Taylor Smiley Wolfe, Home Forward
Ariel Nelson, League of Oregon Cities
Ted Reid, Metro
Renata Wakeley, Mid-Willamette Valley COG
Tamra Mabbott, Morrow County
Brock Nation, Oregon REALTORS
Samantha Bayer, Oregon Home Builders Association
Al Johnson, unaffiliated
Cristina Palacios, Unite Oregon

Housing Capacity Work Group Members

Mary Kyle McCurdy, 1000 Friends of Oregon
Michael Burdick, Association of Oregon Counties
Kaarin Knudson, Better Housing Together - Eugene
BreAnne Gale, City of Bend
Brian Rankin, City of Bend
Jeffrey Adams, City of Cannon Beach
Brian Latta, City of Dallas
Heather O'Donnell, City of Eugene
Chris Faulkner, Clean Water Services
Peter Gutowsky, Deschutes County Community Development
Emily Reiman, DevNW
Allan Lazo, Fair Housing Council of Oregon
Jonathan Trutt, Home Forward
Stacie Sanders, Housing Oregon
Ariel Nelson, League of Oregon Cities
Peggy Lynch, League of Women Voters
Matt Lawyer, Marion County Board of Commissioners
Anneliese Kohler, Metro Regional Government
Ted Reid, Metro Regional Government
Bill Van Vliet, Network of Oregon Affordable Housing
Justin Peterson, Oregon Cascades West Council of Governments
Mary Anne Cooper, Oregon Farm Bureau
Samantha Bayer, Oregon Home Builders Association
Kathy Wilde, Oregon Housing Land Advocates
Dave Hunnicut, Oregon Property Owners Association
Brock Nation, Oregon REALTORS
Yiping Fang, Portland State University
Al Johnson, unaffiliated
Garet Prior, Wilsonville Alliance for Inclusive Communities

DLCD Staff

Brenda Bateman
Kirstin Greene
Sean Edging
Ethan Stuckmayer
Mari Valencia Aguilar
Gordon Howard
Emma Land
Palmer Mason

OHCS Staff

Andrea Bell
Megan Bolton
Mitch Hannoosh
Rick Ruzicka
Nicole Stingh
Brit McLean
Natasha Detweiler-Daby
Kim Travis

Consultants

Lorelei Juntunen, ECONorthwest
Madeline Baron, ECONorthwest
Mike Wilkerson, ECONorthwest
Justin Sherrill, ECONorthwest
Ben Duncan, Kearns & West
Ellen Palmquist, Kearns & West
Violeta Alvarez, Kearns & West
Jamie Damon, Kearns & West
Arpana Nautiyal, Kearns & West
Noah Siegel, MSH Strategies
Deb Meihoff, Communitas

About this Report

The report responds to specific legislative direction dating back to House Bill 2003 (2019). This bill charted a new direction to more fully and equitably meet housing needs as required by Goal 10: Housing, of Oregon's statewide land use planning program. House Bill 2003 led to multiple reforms, including a requirement for local adoption of Housing Production Strategies (HPSs) and the development of a new pilot methodology for estimating statewide housing need. In House Bill 2003 and the pilot methodology the model to estimate statewide housing need was called the Regional Housing Needs Analysis (RHNA), but it is now called the Oregon Housing Needs Analysis (OHNA).

In a budget note in House Bill 5006 (2021), the Legislature then directed Oregon Housing and Community Services (OHCS) and the Department of Land Conservation and Development (DLCD) to deliver recommendations on how to implement the OHNA in advance of the 2023 Legislative Session. The Legislature followed up with additional direction in House Bill 5202 (2022) to address issues related to land capacity and the implementation of the OHNA.

This report documents the core components of the agencies' recommendations. While it may be possible to consider some of these recommendations in isolation from others, our core finding is that Oregon's ongoing housing crisis requires comprehensive and structural changes to Goal 10 implementation and housing production. Many precedent documents and processes inform these recommendations:

1. OHCS and DLCD each published reports in 2021 (OHCS summary report, OHCS technical report, and DLCD report) describing technical elements of the new statewide methodology for calculating housing need and recommending legislative action to implement it.
2. In early 2022, OHCS and DLCD developed an initial framework document, titled *Meeting Oregon's Housing Needs: Next Steps for Equitable Housing Production,* to describe how the new methodology might be incorporated into the state's Goal 10 processes. The recommendations herein build from this framework.
3. DLCD and Communitas Consulting facilitated a working group, which met six times to inform recommendations. To review meeting materials and summaries, visit the OHNA Project Webpage.
4. Kearns & West led six stakeholder focus groups and three follow-up sessions with partners from nonprofit, development, local government, and fair housing organizations to solicit input. A summary of all stakeholder engagement is included in Appendix E.
5. DLCD held 14 regional forums with local government planners, developers, elected officials, and advocacy groups around the state to inform recommendations. A summary of all stakeholder engagement is included in Appendix E.
6. In response to a 2022 legislative budget note and direction, DLCD led a parallel Housing Capacity Working Group, charged with considering specific reforms to the Housing Capacity Analysis and the process described in statewide planning Goal 14-Urbanization. This group met a total of seven times to inform recommendations, which are included in Recommendation 1.4 and Appendix A of this report.
7. ECONorthwest conducted best practices research into what is working in other states and reviewed an audit of California's housing planning system to inform these recommendations.
8. ECONorthwest completed a series of technical revisions to the initial pilot methodology and prepared a report summarizing these refinements, which is included in Appendix D of this report.

9. The University of Oregon conducted a literature review and a survey of planners, developers, and local governments regarding barriers to development and published a report summarizing their results, which is included in Appendix F of this report.

Relevant Acronyms

AFFH: Affirmatively Furthering Fair Housing
AMI: Area Median Income
BLI: Buildable Land Inventory
DLCD: Department of Land Conservation and Development
HCA: Housing Capacity Analysis
HPS: Housing Production Strategy
LCDC: Land Conservation and Development Commission
LIFT: Local Innovation Fast Track
LIHTC: Low-Income Housing Tax Credit
OHCS: Oregon Housing & Community Services Department
OHNA: Oregon Housing Needs Analysis
PAB: Private Activity Bond
RHNA: Regional Housing Needs Analysis (prior name for OHNA)
SDC: System Development Charge
UGB: Urban Growth Boundary

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Executive Summary

Oregon's housing undersupply threatens the very core of our common purpose as Oregonians. We cannot grow sustainably, move toward a more equitable economy, or address the full complexity of the homelessness crisis unless we substantially increase our supply of homes.

Making meaningful progress will require comprehensive system reforms. While Oregon has already made great strides, including through recent legislative initiatives such as House Bill 2001 and House Bill 2003 (2019), we are still falling behind. To continue, the state and its communities must now tackle the harder reforms needed to prioritize housing production.

Our current system plans for and invests in too little housing. The outcome is undersupply, rising home prices, segregation and displacement in some communities, and deepening inequities across all communities. Together, we must plan for and build the housing we need, where we need it.

The recommendations in this document describe the comprehensive, system-wide reforms needed to reverse decades of underinvestment in housing production and development readiness, organize our land use planning systems toward the common goal of building housing, and begin to redress disparities in housing outcomes. These recommendations can only make a difference if the Oregon Legislature commits to serious reform of the land use planning system, helps local governments pay for public infrastructure and affordable housing, and creates a cohesive state approach to housing production. Those comprehensive reforms will require significant investments, as well as changes to state statute, rule, and guidance to implement. In summary, they are:

Housing Under-Production is a National Problem

Oregon is not alone. While nearly every state is experiencing underproduction, Oregon's outcomes are among the worst.

Measured as a share of housing stock, **Oregon ranks 4th in under-producing housing in the country** behind California, Colorado, Utah, and ahead of Washington State.

Recommendation 1) Plan for what's needed.

Oregon's land use system needs to balance housing production with growth management, economic, and environmental goals. For this to work, the system requires a reorientation that starts with an updated and consistent statewide methodology to more clearly determine housing need and equitably distribute it among jurisdictions. Planning for what's needed requires that:

1.1 **Adopt OHNA Methodology.** Formalize the OHNA methodology as the standardized, statewide source for setting common goals for housing planning. OHCS and DLCD have extensively reviewed and refined the 2019 pilot methodology (see Appendix D for refinements) Maintaining and deploying it will require administrative and technical capacity, a regular cycle of review and update to incorporate new data, and annual database management to track statewide progress toward housing production targets.

What is the Oregon Housing Needs Analysis?

The OHNA is the cornerstone of a reformed housing planning system. It provides a comprehensive, city-by-city estimate of housing need by income, along with data and information about how local housing outcomes vary by race and ethnicity, age, disability status, and other identity markers. When implemented, it will be a regularly updated data suite that can be used to set state and local **housing production targets**. It provides a **more accurate representation** of full housing need and a **more equitable distribution of affordable housing** throughout regions.

In the methodology alone, the **ONHA takes a big step toward equitable outcomes** compared to the current Housing Capacity Analysis methods, by incorporating historic housing underproduction and housing needed for people experiencing homelessness into future production targets, and by **using regional incomes to project housing need** by income level. In addition, the OHNA would be the source of annual housing production dashboards that provide clear metrics that can be used to track and monitor real production outcomes and metrics related to housing equity.

1.2 **Establish Production Targets and Equity Indicators.** Establish housing production targets and equity indicators, produced by the state, for cities with a population above 10,000 people to help solve our crisis. The state would measure progress toward targets in an outcome-driven system that adjusts policies over time.

1.3 **Emphasize Housing Production Strategies.** With their OHNA-derived housing production targets and strengthened policy requirements, cities would craft community-led and implementable Housing Production Strategies (HPSs) that promote equitable housing production and overcome locally specific development barriers.

1.4 **Streamline UGB Amendments.** Improve and streamline land capacity and urbanization processes to expedite well-planned expansions that support needed housing where capacity is limiting production.

Recommendation 2) Build what's needed, where it's needed.

It's one thing to plan to accommodate housing and another for that housing to be built. Where housing is built and for whom dramatically impacts who prospers and how our neighborhoods function. Building what's needed where it's needed will require us to:

2.1. **Commit Sustained, Coordinated Investment.** Commit resources for housing production, affordable housing production, and development readiness, including infrastructure funding. This is not a one-time, small-scale investment. The state must sustain this effort over time and focus investments in the construction of housing that the market is least likely to produce without aid: housing for low- and middle-income households and housing in rural and coastal markets. Creative financing and funding sources that leverage private investment should be considered. Additionally, the state has the opportunity to better coordinate existing resources and focus funding toward the goal of housing production (see Recommendation 3.1).

2.2. **Reinforce Housing Choice for All.** Use the implementation of Housing Production Strategies to advance fair and equitable housing outcomes, including addressing segregation and displacement.[1] We must build more housing in the places where it is needed, with intentional strategies that aim for fair housing and enable housing choice for all.

Recommendation 3) Commit to working together with urgency.

Housing underproduction is a systemic problem that no one actor can resolve. Public, private, local, and statewide entities all have a role to play and can become obstacles when not coordinated. **There is no one entity or person responsible for the public sector role in housing production at the state level.** For our state to have an effective system to accelerate housing production, we must have coordinated administrative systems that can deliver. Working together with urgency requires us to:

3.1. **Establish a Coordinated Governance Structure.** Develop a mechanism for state agency administration, collaboration, and accountability, to make rapid progress toward housing production goals. The solution should encompass a housing production team composed of experts in development, affordable housing development, fair housing, planning and development code, permitting processes, etc. to diagnose and overcome development barriers to quickly identify and implement policy or funding interventions where needed.

3.2. **Continue State and Regional Policy Action.** Develop strategies in which the State and Metro Regional Government (Metro) clearly articulate the tools, actions, and policies the state and regional governments will employ to meet housing production targets. These strategies should describe what they will contribute to partnerships with local jurisdictions, consistent with their statutory and charter limitations. Metro will continue to manage its region's land use planning processes and will use housing projection methodologies consistent with the OHNA. The state will allocate housing production goals to local jurisdictions within the Portland Metropolitan Area.

Implementation Considerations

Few policy imperatives are more important to Oregon's future than increasing the pace of building new homes. Housing production is on the critical path to building Oregon's economic competitiveness, helping families prosper, and improving community resilience. Simply producing the units needed to meet current demand could generate up to $40 billion in additional economic growth, a boost that would benefit us all.[2]

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[1] Those who most often face housing discrimination, segregation, and displacement include, but are not limited to, low-income households, households of color, people with disabilities, large families, other federally protected classes, and households with other specific housing needs.

[2] This estimate is based on Oregon's share of the national economic benefits that come from producing 3.8 million housing units across the country over a 20-year time period (as described in Up for Growth's *Housing Underproduction in the U.S. 2022 Report*), scaled to match the OHNA estimates of current underproduction and units needed for people experiencing homelessness. Economic growth is measured as increase in gross domestic product.

Implementing these recommendations will likely need to be sequenced over more than one legislative cycle. To make near-term progress on their implementation, we recommend that the Legislature consider bills in the 2023 session that advance the goal of building more homes. DLCD and OHCS look forward to continuing conversations about solutions and refining these recommendations in advance of and during the 2023 legislative session.

A. Redefine Oregon's Planning Process for Housing

The Legislature should establish the OHNA as the foundation for Goal 10 planning processes in state statute, including directing cities to replace local projections of need in Housing Capacity Analyses (HCAs) with OHNA-generated 20-year need. It should strengthen HPSs by requiring actions that address housing barriers and advance fair housing outcomes, and by incorporating production targets based on the data provided in the OHNA. Additionally, the Legislature should make statutory changes necessary to make needed urban growth boundary (UGB) expansions[3] more efficient and certain and support housing production within the UGB.

B. Coordinate State Response

The Legislature should establish a Housing Production Team and administrative leadership position. This team should be deployed as quickly as possible to achieve early housing production wins by helping cities build on challenging development sites, removing barriers, and focusing state resources. Additionally, this team should be charged with developing the first ever statewide Housing Production Strategy, which can shift the state's energy and efforts to this urgent challenge. The Legislature should direct staff at a broad cross-section of agencies, including DLCD, Oregon Housing and Community Services, Business Oregon, the Oregon Health Authority, the Bureau of Labor and Industries, and the Oregon Department of Transportation, to coordinate their activities and (as appropriate) available funding toward the goal of housing production in coordination with the new Housing Production Team.

C. Create Innovative Funding and Finance Solutions

In addition to funding affordable housing production through OHCS, the Legislature should establish new housing production funding mechanisms aimed at housing the market cannot produce on its own, including middle-income housing. Along with better coordination of existing funding sources, new sources for infrastructure funding, systems development charges, and pre-development activities are needed. Several formal and informal groups of stakeholders are considering innovative funding and financing mechanisms that are resonant with the recommended fund types in this report.

[3] Each Oregon city is surrounded by an urban growth boundary (UGB); a line that designates where a city expects to grow over a 20-year period. Generally speaking, it's where the city ends, and the farms and forests begin.

I. Introduction: Our Housing Crisis

Oregon's lack of housing threatens the very core of our common purpose. Decades of underbuilding have driven up home prices and rents and left too many without adequate housing choices. Too often, people can't afford housing at all. We won't be able to grow sustainably, move toward a more equitable economy, or address the full complexity of the homelessness crisis unless we substantially increase our pace of building new homes. Over the next 20 years, Oregon's communities need to add more than 550,000 units, over 30 percent of which will house Oregon's lowest-income residents and will most likely require public funding or subsidy. We must organize our systems to plan for and build these homes.

We cannot equitably distribute what is being underproduced. The people who are suffering most acutely from our housing shortage are disproportionately lower income households and communities of color. The lack of housing options perpetuates segregation through economic exclusion. By restricting people's housing choices, we make Oregon less fair, deprive people of basic human dignity, and limit our collective growth and prosperity. Where housing is built and for whom dramatically impacts who prospers and how our neighborhoods function. We need a range of housing types for all income levels, distributed equitably around and within each region of the state, providing access to employment and critical services and reducing the overall cost-burden to families and individuals.

This applies to both renting and homeownership. For most Americans, homeownership is the primary path to building personal and generational wealth. However, housing scarcity inverts the American dream. The market caters mostly to wealthier buyers, while rising housing costs make it nearly impossible for many to buy their first homes. At the same time, the lack of housing increases the need for publicly financed units and ultimately forces the most vulnerable people to become unhoused. This is devastating for people experiencing homelessness and has negative social and economic impacts on communities.

Oregon's system of comprehensive land use planning describes a decades-old intention to do better. It embodies the state's core values and has long represented a consensus on the preservation of farm and forest land, the importance of community engagement, and the need to plan for a healthy economic future. It also includes a requirement that jurisdictions plan for the "availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households."[4] However, Oregon has not fully realized this vision and many thousands of Oregonians lack an affordable, accessible, or safe place to live.

A recent survey conducted by the University of Oregon sheds light on what is not working. The survey found broad agreement that we face significant challenges in the cost, availability, and readiness of land to support development as well as the prohibitive cost of infrastructure, materials, and labor. There are sharper divides among those surveyed, however, when

[4] Goal 10 of Oregon's Land Use Planning: https://www.oregon.gov/lcd/OP/Documents/goal10.pdf

determining who is responsible for causing and addressing the current crisis. The survey finds that local governments tend to implicate the lack of funding and inflexibility on the part of developers to deliver a broader range of housing types, while private and non-profit developers view over-regulation and onerous processes as the culprit. Meanwhile, for the most part, local governments interested in advancing affordable housing solutions have been left on their own, without meaningful coordination or investment from the state to help find and implement solutions.

By statute, DLCD regulates the land use planning and policy that is implemented at the local level. OHCS funds affordable housing production and preservation. However, *no state agency is directly responsible for overall housing production*. This has left some jurisdictions without workable solutions to incentivize market or affordable housing production and allowed others to avoid their housing obligations. We should not be surprised that, despite the best efforts of the agencies and local governments, the outcome of this disconnected system has been decades of housing underproduction and the perpetuation of housing inequities.

The recommendations offered in this report focus on streamlining statutory requirements and bureaucracy so that Oregon can deliver real outcomes -- more housing in all parts of the state, a diversity of housing types, and more affordable units where they are needed. We offer these recommendations with a great sense of urgency. While there are many efforts underway to address the immediate symptoms caused by our lack of housing, we will not be able to meaningfully address the hardships faced by Oregonians until we focus on the long-term solution: providing more housing options for everyone, everywhere.

A Shift in Focus That Benefits Us All: Leading with Production

While the originators of Goal 10 intended for careful planning that would result in balanced, diverse, and affordable outcomes, implementation has fallen far short of that intent. The historic implementation of Goal 10 has overemphasized "accommodation" of housing need by completing an accounting exercise of the theoretical capacity of land, while doing little to ensure that housing is built or address where it should be located and whether households are realistically able to access it. This has negative consequences for all Oregonians – with dramatic underproduction, rising rates of cost burdening and homelessness, and continued patterns of segregation and involuntary displacement. The state needs to make comprehensive updates to our planning systems to better produce needed housing.

The recommendations in this report shift the current system's focus on accommodating potential housing growth to building the housing Oregonians need. We do this by:

- Accurately identifying what housing is needed by income and holding ourselves accountable to action
- Equitably allocating housing need within and between communities
- Requiring jurisdictions to consider context-specific actions to address displacement and segregation

- Providing strategic, flexible funding for housing the market cannot build on its own
- Connecting existing Fair Housing[5] obligations to our land use system and Housing Production Strategies to support diverse, quality, physically accessible, affordable housing choices with access to economic opportunities, services, and amenities
- Measuring and evaluating progress towards improved housing outcomes, especially for those who have been historically underserved

Taken together, these recommendations can transform our system from one that plans for and invests in too little housing to one that plans for and builds the housing we need, where we need it.

Our Shared Housing Obligation

We all share a responsibility to find the solutions that let us build what's needed where it's needed. The lack of sufficient units affects every community, but the people who are suffering most acutely from our housing shortage are disproportionately lower income, communities of color, or people with disabilities. They cannot be asked to wait another decade or more for Oregon to reverse the discriminatory policies and practices that have limited their housing options.

Solutions include: policies that enable production, public and private investment in a range of housing types, and clear policy goals so we can hold ourselves and each other accountable to outcomes.

To make meaningful change, Oregon needs a comprehensive system reform that brings state and local governments and affordable and market-rate developers together with common goals for building more homes, building more publicly supported homes, and investing in inclusive communities. To achieve this aim, we need a clear shift in approach to lead with production.

Reforming the Goal 10 Planning System for Housing

Oregon does not have a clear roadmap to follow for state oversight of housing production. Few other states have attempted a production-focused strategy, and none of them share Oregon's statewide land use planning system. While our review of national best practices provides lessons learned from other states, applying them in Oregon requires a thoughtful, carefully implemented approach, at least in part because the Oregon Legislature has already taken some of the suggested steps. In House Bill 2001 (2019), it eliminated zoning exclusive to detached single-unit homes, allowing a greater diversity of housing to be built throughout the state, and required cities of over 10,000 to develop Housing Production Strategies (HPSs). While these are necessary steps that will yield long-term benefits, expedited housing production will also require an alignment of a full suite of policy tools, agency coordination, and public investment.

[5] All recipients of federal funds from the Department of Housing and Urban Development are required to affirmatively further the policies and purposes of the Fair Housing Act, also known as "affirmatively further fair housing" or "AFFH."

In many states that are newer to comprehensive planning initiatives, zoned capacity limits housing production. Oregon's problems are different. The state has already increased zoned capacity to enable production, including through recent legislative initiatives such as House Bill 2001 (2019). Now, we must tackle the harder reforms needed to lead with production. We need to make sure that enough zoned capacity is available in the right places so that community members, especially those who have experienced historic marginalization, have meaningful choices in where they live and what kind of housing choices are available to them. At present, our system generates lower housing production in whiter, more affluent communities and expands capacity mostly in lower-income and more diverse communities. We need to improve the often onerous and contentious system for allowing jurisdictions to add land needed to meet growth and current housing deficits. And, most importantly, we need to turn our attention and investments to making land ready for development, advance state and local policies that are supportive of increased production and housing options and accelerate affordable low- and middle-income housing construction.

The recommendations in this report are far-reaching and will fundamentally change the way Oregon plans for and produces housing. If adopted, these changes could modernize Goal 10 into a national model for housing production. Goal 10 systems reform can deliver:

- **Increased focus on local actions that enable land readiness and production**, including removal of zoning and regulatory barriers and access to infrastructure investment
- **A smoother and less litigious UGB expansion process**, supported by the land use efficiencies in housing production strategies, a more accurate representation of housing need and capacity, and increased flexibility to unlock land where it's needed
- **Advancing fair housing goals**, by expanding production and housing options in historically exclusionary areas and integrating diverse, affordable, quality, and accessible housing across regions
- **Better and clearer guidance on local actions**, clarifying the purpose of each planning function and reducing and streamlining current requirements

These improvements are anchored by the objectivity of the OHNA methodology, data, and unit allocation to local jurisdictions. It is critical that these goals be seen as achievable and not an unfunded mandate. Discussions with local governments, market rate and affordable housing developers, and various advocacy organizations throughout the state have clarified that the state needs to implement changes that foster **partnership** between state and local governments, **accountability** to working towards housing need, and **investment** to support affordable housing production that the private housing market cannot produce on its own.

II. Core Recommendations

Recommendation 1) Plan for what's needed

Overview: Lead with Production

Leading with production requires a fundamental shift from a more passive planning approach to accommodate growth to outcomes-based strategies that focus on production.

As directed by statute, our current system addresses housing need by using past development trends to calculate the land supply and zoning capacity needed to meet future demand. However, past trends may not reflect the actual regional housing need and demand for housing options in any particular location. In this current system, most jurisdictions systematically underestimate their future housing demand, and especially underestimate their demand for housing for lower income households, because the demand was not appropriately accounted for originally and was reinforced through low production performance. This creates a negative feedback loop where underproducing housing, especially affordable housing, causes future projections to further underestimate need. A consequence of this dynamic over several decades is that the Housing Capacity Analysis (or Housing Needs Analysis), the historic implementing document of Goal 10, has become a land supply calculation and growth management tool that has little to do with actual housing production needed for a healthy society and economy. Instead, Goal 10 implementation has enabled and reinforced housing inequities between and within communities.

Overcoming this challenge requires implementing a new methodology that better estimates total need and does not rely on past development trends to determine where growth will occur (recommendation 1.1), setting production targets and measuring progress toward those targets and equitable outcomes (recommendation 1.2), strengthening Housing Production Strategies so that they are better organized to remove barriers to development (recommendation 1.3), and streamlining the process for expanding urban growth boundaries when they are needed in a coordinated housing planning system (recommendation 1.4).

1.1 Formalize the OHNA as the foundation for housing planning in Oregon.

Part of 2019's House Bill 2003 directed OHCS to develop a pilot methodology to estimate Oregon's statewide housing need. In its inception, this methodology was called the Regional Housing Needs Analysis or RHNA, borrowing the term from California. In this implementation work, it is renamed the Oregon Housing Needs Analysis, or OHNA, to better reflect its evolution to a unique, Oregon-specific model. The pilot analysis was completed and extensively reviewed in 2020, including a full results report, technical methodology, and assessment report that documents how this methodology improves upon current processes.

The OHNA methodology is the cornerstone of a different approach to Goal 10 implementation. The recommendations in this report assume access to the data and information that would come from implementing the OHNA methodology. The OHNA methodology will provide a data-informed measurement of housing need in each area of the state that, (i) estimates units needed

to meet current and future housing need, (ii) catches up with past underproduction and the resulting pent-up demand, (iii) accounts for people experiencing homelessness, and (iv) ensures a more equitable distribution of affordable units within a region. Using this methodology, the state will calculate and allocate housing need with a standardized approach, replacing housing needs projections that are currently developed by local jurisdictions at great expense of time and resources.

As part of this implementation effort, DLCD and OHCS recommend changes to the pilot methodology to fully account for the impacts on housing markets from second and vacation homes, improve and broaden indicators of housing outcomes, and better align income brackets with funding sources available to support affordable housing production. These recommended changes are documented in the technical report included in Appendix D. The revised methodology suggests that **Oregon needs 554,691 new housing units** to accommodate 20 years of population growth and to account for current underproduction and the lack of units for people experiencing homelessness.[6] About 176,300 of these units, or 32 percent, will need to be affordable for households earning less than 60 percent of statewide area median income (AMI).

With these revisions, the OHNA contains the following parts:

1. **Needed Housing (20-year housing need).** For each city and county and for the state as a whole, the OHNA will provide estimates of housing need for 20 years, by income range. These estimates will replace the 20-year projection of housing need currently completed locally by cities in housing capacity analyses. Local jurisdictions will continue to make critical decisions about the types, characteristics, and location of housing based on the state methodology, community priorities, and context-sensitive local information, such as cost burden, accessibility, and household demographics.

2. **Housing Production Index (housing production targets).** The OHNA will also establish local housing production targets for cities over 10,000 (see recommendation 1.2). These targets set a baseline by which the state regularly tracks and evaluates progress on housing production.

3. **Housing Production Dashboard (measures progress toward meeting need).** Annually, for each city that has a six or eight-year production target, for Metro, and for the State, the state will compile and publish data showing progress toward production targets (see recommendation 1.2 for details) in a housing production dashboard.

4. **Housing Equity Indicators (measures housing outcomes).** For each city, the OHNA model will provide annual reports on housing outcomes. These include data and information about rates of rent burdening and homeownership by race and ethnicity, age,

[6] The pilot methodology estimated a total statewide need of about 554,000 units, of which 110,000 units were due to underproduction. The revised methodology shifts the income bins used and better accounts for the effects of second and vacation homes on total housing stock, which decreases the overall estimate for underproduction while increasing housing need in areas of the state with concentrations of second homes.

and disability status (as data allow for smaller jurisdictions). It can also be updated to include information about segregation and risk of gentrification, or other measures of housing outcomes, such as climate resilience within communities. The information provided will vary from geography to geography; for some smaller geographies, data are insufficient to provide reliable disaggregation. While DLCD and OHCS will lead further engagement and discussion following legislative adoption of these recommendations to confirm the specific measures that are most useful and appropriate, recommendation 1.2 provides initial concepts.

The OHNA will need to be reviewed and updated on a regular cycle as new data become available. This update process should include a process in which the implementing agency consults with a range of experts for peer review and publishes notice and review of the proposed methodology. The most appropriate schedule for significant revisions is likely to be every ten years, timed as new census data and geographic boundaries become available. Smaller mid-cycle adjustments and updates are possible if warranted and resources are available. To maintain and run the model on a regular basis, the OHNA will need to be housed in an agency with data capabilities including housing economics, modeling capacity, database management, and data visualization skills, and with the ability to gather information from local governments about actual rates of production to track progress toward targets.

OHCS oversaw the process of developing the methodology and could continue regularly running and updating the methodology on a regular basis. This work requires staff capacity commensurate with the analytical, procedural, and communications requirements as directed by the Legislature. We estimate that implementation would require a qualified staff person (1 FTE equivalent) to regularly complete and update the methodology, with additional staff capacity to continue work ancillary to the analysis itself, including external communications, public engagement, policy analysis, and data publication, mapping, and visualization. However, the exact number of staff necessary depend on the extent of analysis and engagement directed by the Legislature.

The Oregon Office of Economic Analysis is another possible lead agency for this work in the long run, as they are involved in neither the funding nor regulation of housing and may be seen as impartial. However, it is important to emphasize that this agency has much less programmatic infrastructure in place to conduct this analysis. Therefore, it would very likely take more staff capacity and funding appropriation to implement initially. Overall, regardless of which agency or office manages it, state government needs to closely coordinate the technical work of running and maintaining the OHNA model with implementation of the system (see recommendation 3.1 for more details about system administration).

Broadening "Needed Housing"

Under the current Goal 10 framework, Oregon cities are required to plan for "needed housing", which refers to housing types determined to meet locally identified need at a variety of price or rent ranges. Currently, this means that cities needed to plan for different housing types, such as single-family, multi-family, and manufactured housing types, based on locally-driven analyses. These analyses are conducted by individual cities and consider anticipated population growth, household demographics, local market trends, and various context-sensitive factors.

However, the implementation of this requirement has often overlooked a number of factors that affect need, especially for historically marginalized communities such as people experiencing homelessness, people with disabilities, and communities of color. Additionally, many of the housing types projected in local analyses are based primarily on past development trends, even if that housing is unlikely to meet need or be affordable to current and future residents.

To implement an OHNA, the Legislature would need to establish a statute that requires a state agency to regularly develops and conduct a methodology estimating and allocating housing need to local jurisdictions, including the number of units and the affordability ranges needed over the next twenty years. Additionally, existing statutes would need to be adjusted to better plan for a variety of housing needs, types, and characteristics, including factors that are currently omitted:

- Broadening the types of needed housing to include middle housing and accessible housing,
- Clarifying that household demographics include considerations of race and ethnicity, disability status, and student population (if applicable), and
- Including the effect of second and vacation homes on need, as estimated by the OHNA.

Note: specific changes to the needed housing statute are outlined in greater detail in Appendix C

This would establish a system in which the state estimates the **total amount of housing and affordability ranges** needed, while local jurisdictions make critical decisions about the **types, characteristics, and location of housing** based on the state methodology and context-sensitive local information, such as cost burden and disability status, as well as community priorities.

1.2 Create production targets and indicators and measure progress towards outcomes in local Housing Production Strategies.

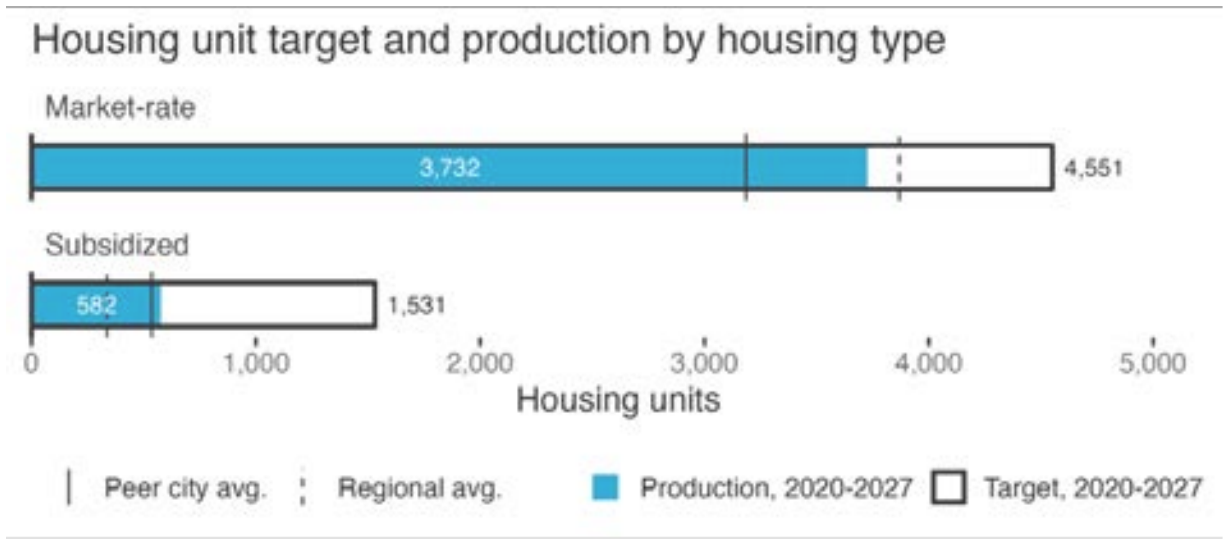
The proposed framework draws from the OHNA's Housing Production Index to set production targets that orient all partners toward common goals for market-rate and publicly supported housing production. Using the OHNA allows the state to benchmark housing production on an annual basis and informs local policy decisions, providing transparent, regular information about progress toward outcomes.

The OHNA methodology addresses inequities in the current system by allocating a share of regional demand to each community based on income, access to jobs, and population. In this way, the state and local governments can collectively begin to address chronic underproduction and geographic inequity at a regional scale. This will allow implementing jurisdictions to make informed decisions about how to plan for an increase in housing production and allow state agencies to partner with local jurisdictions to help fund and implement those plans. It also means

jurisdictions will not have to wait until the end of a six- or eight-year planning cycle to consider housing production.

The state will not expect jurisdictions to hit their targets exactly in each cycle. However, if it is clear that a jurisdiction's production is much lower than in regional or market-based peers,[7] there are likely locally specific development barriers that the jurisdiction must address. A production-focused system will use measurement of progress toward targets to identify these problem areas, and work proactively to address them, bringing state funding and expertise to support. Below is an example of what such a dashboard might look like, with commentary on the data options, for a fictional city.

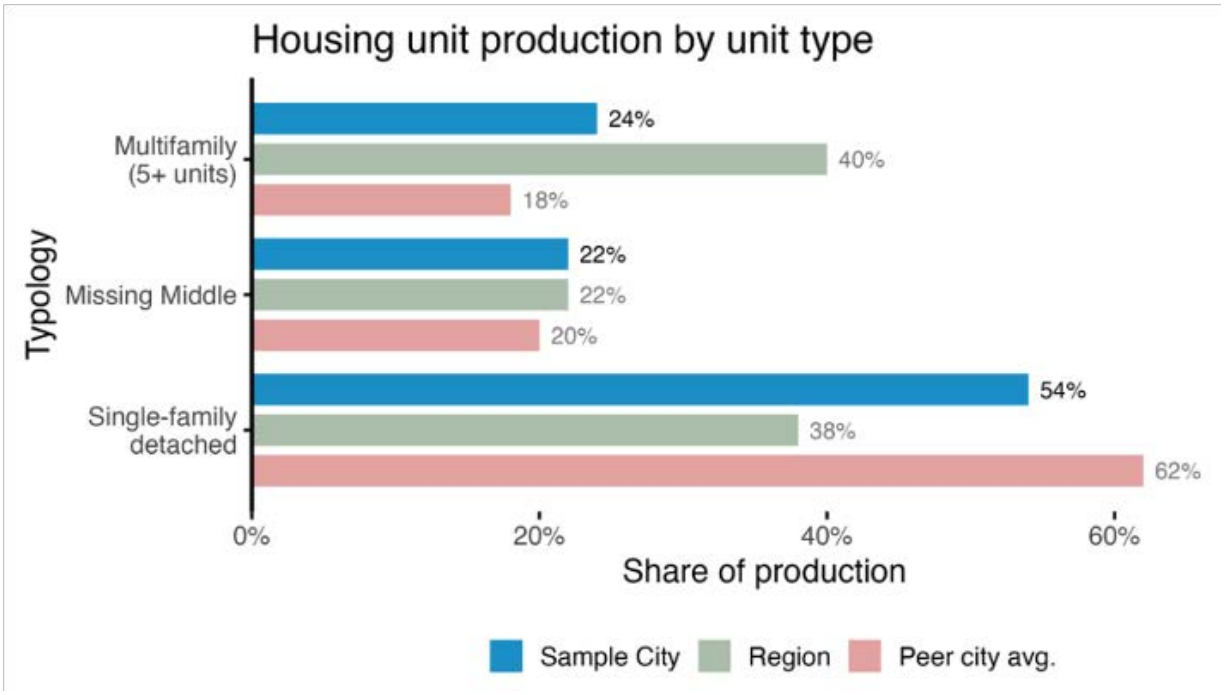
Figure 1. Sample Housing Production Dashboard



Production by housing type

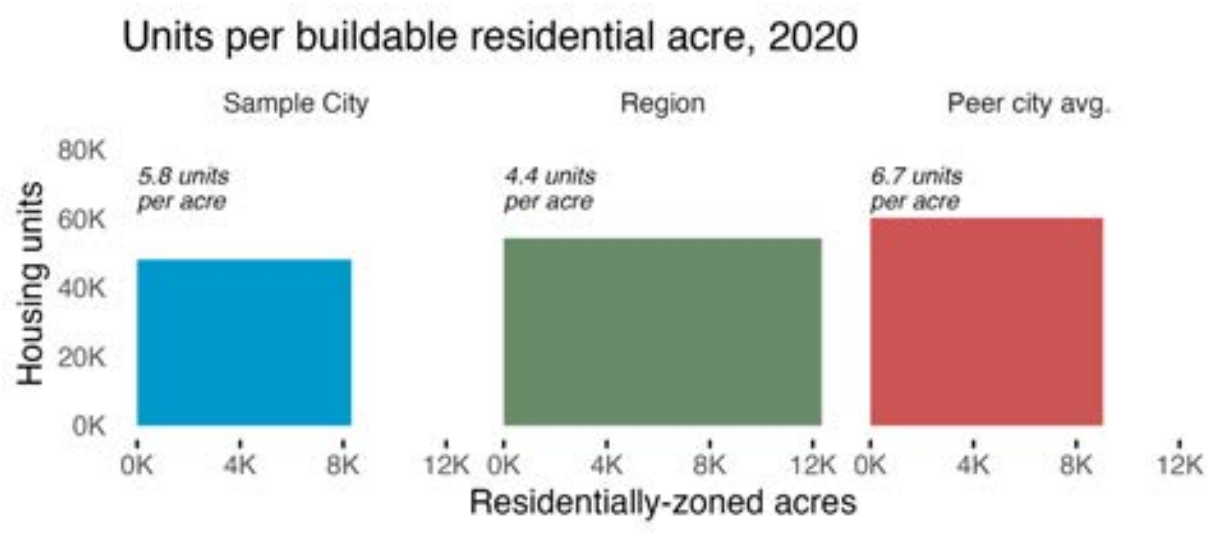
- Track permitting and production data that is already collected by DLCD.
- Compare to region and peer cities to highlight overall housing market.
- Could also provide trend-line.

[7] The technical report included in Appendix D describes how market-based peer cities could be determined.



Production by unit type

- Use DLCD data about the unit typology to track production (or permits) by basic housing typology (single-unit, middle housing, multi-unit).
- No "targets," just relative data and information.
- "Efficiency measures" in the HPS will consistently work towards greater housing diversity and choice.



Land use efficiency

- Could be based on calculations of buildable residential land from local Buildable Land Inventories.
- If a jurisdiction is "built up," the image should expand upwards.
- If a jurisdiction is sprawled, the image would expand to the right.
- No "targets," just relative data and information.

Twenty-year need (the basis for targets articulated in the Housing Production Index) can be produced on an annual basis, so that cities that are on different planning cycles can have access to the most current data inputs as they begin their analyses. For an individual city, production targets will be set for the entire six- or eight-year time period, as either 30 percent of 20-year need (for cities on a six-year cycle) or 40 percent of 20-year need (for cities on an eight-year cycle) and will be based on Needed Housing data available the year they begin their planning process. Progress toward the six- or eight-year target will be measured annually in the dashboard. New targets will be assigned in the next six- or eight-year cycle, based on updated data that reflect progress toward targets in previous cycles.

Targets should be set for both the **total number of units** and the **total number of affordable units** that should be constructed in six or eight years. By tracking progress toward total unit production, the system recognizes and encourages the production of units affordable to all residents and of all types. Achieving total production targets will help cities overcome past underproduction, which is necessary to allow the private market to better meet the needs of middle-income residents. By tracking progress toward publicly-supported units for lower-income Oregonians, the system recognizes that the private market, on its own, cannot meet all housing need. Even in a well-supplied market, these units will need public support, as market-rate units are unlikely to filter to these levels of affordability in a timeframe that will provide real relief to Oregonians in need.

A few considerations about determining thresholds for measuring publicly supported affordable units:

- To establish a target for affordable units, we recommend using one income category, all units affordable to households earning less than 60 percent of Area Median Income, (AMI). While there is substantial need for housing for the lowest income Oregonians (with incomes below 30 percent of AMI) it is not practical to track the production of units at these lower levels of affordability, because these units layer subsidies that are impracticable to measure. It is common to add rent subsidies to help very low-income residents access units that may technically be rent-restricted to those below 60 percent of AMI, rather than to build units that are rent-restricted below 30 percent of AMI.
- While the target is focused on one income category, the Housing Production Dashboard should track and report publicly-supported units at all income categories, including housing affordable to middle-income households earning between 60 and 120 percent AMI. In some instances, these are also publicly supported, with the goal of supporting middle-income or home ownership access. While these data will not fully represent the total amount of housing production affordable to these households, it will measure the impact of state and local subsidies aimed at this segment of the market.

Additionally, the OHNA model will track specific indicators of housing outcomes that can enable jurisdictions to better understand and support strategies designed to overcome inequities in the housing market. The pilot methodology included extensive data analysis and documentation for

cities across the state on indicators of housing outcomes that should be maintained as part of the OHNA dashboard going forward. These included cost burden, tenure, and other factors, by race, ethnicity, age, and disability status.

Additional indicators can and should be added to the dashboard, such as segregation, displacement, a deeper look at housing for people with disabilities, greenhouse gas emission reduction, or climate resilience, based on the priorities established by the Legislature and through rulemaking for implementation. The technical report (Appendix D) describes in more detail the data available to evaluate housing outcome disparities by race, ethnicity, age, and disability status, and offers a few example statistics and graphics. The report also summarizes the data limitations and ways to show as much detail as possible for smaller geographies.

Overall, the dashboard is envisioned as an accessible, publicly available web-based data interface that will provide relevant housing production and outcome data for each relevant geography. The dashboard reporting is a critical evaluative tool that will inform needed refinements to a local jurisdiction's Housing Production Strategies. Over time, the dashboard will also help jurisdictions across the state learn from one another about the types of policy and regulatory approaches that are working well and will provide a simple and transparent way for community members to track progress.

Implementing the OHNA in the Metro Region

Adopting the OHNA methodology will need to operate somewhat differently within the boundaries of the Portland Metro region. Metro Regional Government holds statutory responsibility for coordinating forecasts within its urban growth boundary. This entails Metro completing a regional forecast and distributing expected growth to its constituent cities and counties. This system has proven largely effective for integrating land use and transportation planning, resulting in livable communities and reduced greenhouse gas emissions. Metro and the region's cities have also developed a distinct system for identifying and planning for UGB expansions that includes urban and rural reserves, as well as concept planning for new urban areas. The region's approach recognizes that Metro is responsible for forecasts and managing the UGB while cities and counties are responsible for zoning and service provision. These differing responsibilities require coordination and a focus, not just on land need, but city readiness to urbanize land.

A core purpose of implementing an OHNA is to distribute housing more equitably between cities in a region. Under the current system, localized needs projections reinforce disparate responsibilities between cities in planning for a diversity of housing types and affordability. While the methodology addresses this dynamic statewide, in the Portland Metro, it will be critical that the resultant allocation of housing results in a more equitable distribution of housing in the region while maintaining Metro Regional Government's statutory responsibilities. More importantly, this allocation must be paired with systematic changes to the implementation of Goal 10 to ensure local governments are taking meaningful actions to increase production, diversity, and affordability within their communities. To do this, we recommend a partnership approach among the state, Metro Regional Government, and local jurisdictions, including the following core components:

1. **Metro should maintain its regional forecast coordination and growth management responsibilities** with its ongoing focus on readiness and requiring concept planning for urban reserves before expanding the UGB. Its 20-year regional forecast should include the same considerations that the OHNA considers, including the effect of underproduction, homelessness, and second/vacation homes.
2. **The state should allocate six-year production targets** for local governments above 10,000 population within the region, based on the 20-year regional forecast. These targets should be applied to local Housing Production Strategies and reflect an equitable distribution of housing between cities within the region. For neighboring communities outside of the Portland Metro region and within the tri-county region, the OHNA will estimate and allocate needed housing similar to other cities in the state.
3. **Local jurisdictions should continue conducting Housing Capacity Analyses** to ensure they adopt efficiency measures and strategize preparing buildable lands for development in subsequent cycles of their Housing Production Strategy.
4. **Accountability should be state-driven for local jurisdictions above 10,000 population** to implement meaningful actions that support production. See Recommendation 1.3 for more detail.
5. **Goal 10 should be applicable to urban, unincorporated areas in the Metro.** While cities above 10,000 population in the Metro must regularly plan for housing under Goal 10, there are substantial urban, unincorporated areas in the Metro UGB that are currently omitted from this requirement. Addressing this will require cities and counties in the Metro to amend or establish agreements to ensure urban, unincorporated areas are planned for under Goal 10. While the counties may in many cases have current zoning authority over these areas, it is important to stress that planning for these areas should not become the sole responsibility of counties, given that cities typically provide urban services to annexed areas. Further, in those areas not anticipated to be annexed by cities, the state must be prepared to provide on-going funding and investment to Metro counties to ensure they have sufficient resources to complete any needed interim Goal 10 requirements for urban, unincorporated areas.
6. **Metro Regional Government should complete a "Housing Coordination Strategy"** similar to local Housing Production Strategies but with an emphasis on regional coordination rather than local policies. See Recommendation 3.2 for detail.

1.3 Strengthen the Housing Production Strategy to promote production and overcome barriers.

The existing rules and laws governing HPS implementation provide a starting place to ensure state and local governments are doing everything they can to promote housing production.[8] According to House Bill 2003 (2019), the Legislature gave DLCD statutory authority to review, amend, and remand Housing Production Strategies. The current accountability system is designed to emphasize general *action towards addressing a need,* rather than achieving specific numerical targets or implementing any one particular action.

The implementation of the OHNA can build on this existing accountability framework and ensure that state agencies and local governments are taking meaningful and effective actions towards housing production. DLCD should incorporate a review of performance and progress

[8] Oregon Administrative Rules 660-008-0065 and 0070.

towards housing production outcomes and OHNA targets as part of its current review process that occurs at development of a new HPS, midway through the HPS implementation cycle, and then again at the six- or eight-year update of the HPS. With this addition, the system would then be organized to define clear goals, transparently show progress toward those goals, learn together about which actions are helping to make progress over time, and adjust strategies accordingly.

The proposed reforms focus community attention on building the housing we need where we need it (the desired outcome), rather than meeting administrative planning requirements that may or may not result in needed housing production. This makes HPSs – the set of identified local planning and policy changes to support housing production – the centerpiece of Goal 10 implementation.

Building Local Capacity

The vast majority of housing is built by the private sector. At the same time, local plans and development policies play a significant role in creating the conditions for housing production. Given the scope of the state's housing crisis, we recommend measuring the effectiveness of an HPS by the outcomes it produces. The goal is not to penalize jurisdictions for missing their targets – it will take time to dig ourselves out of our housing shortage – but to evaluate what is working and to course-correct when strategies are not leading to more housing for communities who need it most.

It is important to emphasize that the implementation of locally-focused policy and funding action on housing will require substantial investments in local capacity. DLCD's 2023-25 Agency Request Budget includes additional staff and a regular biennial investment of $2.5 million intended to provide jurisdictions technical and financial support for Goal 10 implementation. Additionally, the housing capacity recommendations discussed in Appendix A call for additional investment in urbanization planning and technical support. These investments are critical to support housing and urbanization planning, but they are insufficient on their own to fulfill the gap jurisdictions face. For example, the Oregon Office of Economic Analysis estimates that meeting housing production needs identified in the OHNA requires approximately 400-500 more public sector workers per year simply to approve, permit, and inspect the additional units at the local level.[9]

To address this gap, the state should partner with local jurisdictions and provide funding support (described in recommendation 2.1) tied to HPS implementation. Under the current and revised Goal 10 framework, cities above 10,000 in population are required to regularly complete housing planning requirements.

Small, Rural, and Coastal Communities

It is important to emphasize that small, rural, and coastal communities very often face significant and unique challenges with housing production. Many of these communities face significant

[9] Oregon Office of Economic Analysis. "Addressing Oregon's Housing Shortage". Accessed via: https://olis.oregonlegislature.gov/liz/2021I1/Downloads/CommitteeMeetingDocument/256863

economic challenges that significantly inhibit production and have limited resources and staff capacity to support housing planning and production.

While it is reasonable to require larger cities to periodically update plans and policies to support housing production, establishing the same requirements to smaller cities is impractical because they lack the financial and staffing resources needed to complete that work. Therefore, these recommendations seek to lift these communities up and provide them the support they need via the following actions and investments:

- Continue to enable, but do not require, communities below 10,000 to adopt HPSs and access the same funding resources that support production as larger jurisdictions.
- Enable county and regional entities to adopt county- or region-wide Housing Coordination Strategies in coordination with cities below 10,000 to access the same funding resources. See Recommendation 3.2 for more detail.
- Direct state investment to support housing production where the market is unable, with an emphasis on housing affordable to low- and middle-income households in rural and coastal markets.
- Establish a program that enables DLCD to provide funding and capacity to smaller communities without requiring submittal of competitive grant applications.
- Provide direct DLCD analytical support for smaller communities pursuing Goal 10 housing-related initiatives.
- Establish more streamlined analytical requirements and policy responses to housing need for smaller communities.

Housing Production Strategies

While cities are currently required to adopt strategies that comprehensively address identified needs, the current accountability framework does not require implementation of a particular strategy or to meet a specific production threshold. Currently, state administration of the HPS program progresses from collaboration, assisting jurisdictions in need of support, to increasingly more stringent measures should inaction continue. At the highest level of enforcement, if a jurisdiction is recalcitrant towards adopting meaningful strategies that address housing needs, DLCD has the authority to petition the Land Conservation and Development Commission (LCDC) to issue an enforcement order, requiring the jurisdiction to address the deficiency. These recommendations propose an important change to this system: integrating regular data-informed evaluation of progress toward targets and needed housing outcomes as part of the OHNA. This will help focus strategies and provide clear indicators of successful implementation. This additional data and information will help to focus collaborative conversations about the resources and strategies needed to overcome production barriers.

By establishing housing production as the primary indicator of progress, cities can orient their strategies toward the necessary policy changes, housing types, and measures of land readiness to

enable housing outcomes and break the negative feedback loop that leads to underproduction in the current system. Each HPS will be unique to local circumstances, and local expertise is essential to figuring out which strategies make sense in a specific context. At the same time, we can organize local actions into categories that are consistent with statewide goals and best practices for building the housing we need in the places we need it. Tighter definitions of HPS categories will also allow for more consistent evaluation by local jurisdictions and DLCD of their effectiveness and comparisons between peer cities.

The current administrative rule for HPSs requires jurisdictions to provide an interim, mid-cycle implementation report and a full report at the end/start of each cycle.[10] We recommend maintaining these existing reporting functions and will seek to help jurisdictions fulfill the requirements.

Through the OHNA, the state will provide baseline housing needs data that is currently the obligation of cities to generate, as described in recommendation 1.2 above. In addition, the table below provides an overview of the HPS elements that are currently required, and how we propose amending them with clarifications in existing rules and guidance. These changes will ensure that the actions are sufficiently and comprehensively focused on making land ready for development and for equitable housing production.

Figure 2. Suggested Revisions to Existing Housing Production Strategy Elements

Current elements of the HPS	Recommended revisions
Contextualized housing need	The state will provide OHNA-generated baseline data that is currently an obligation of local jurisdictions. Cities may add data necessary to help inform strategies.
Production strategies	When the HPS is adopted and approved, funding for implementing these strategies is unlocked. Strategies must address the following categories of actions: ▪ Zoning and code changes ▪ Reduce regulatory impediments ▪ Financial incentives and resources ▪ Land use efficiency measures ▪ Development readiness ▪ Fair housing (more details in recommendation 2.2) To support development of these strategies, new guidance will be needed regarding fair housing, housing mix and land use efficiency measures, and DLCD's defined HPS program outcomes.
Engagement	Local governments will continue to engage consumers and producers of needed housing, as required by current administrative rules. Future state level guidance will be needed to support this work and Goal 1.
Fair housing narratives	New data will be available to support cities' fair housing strategies and reporting through the OHNA, measured as annual indicators of housing outcomes. DLCD will provide additional guidance about how cities can use production-related policies and actions to advance fair housing.

[10] Oregon Administrative Rule 660-008-0060.

Accountability

Throughout this process, accountability at all levels of government was raised as a substantial condition for success needed to facilitate the development of needed housing. While DLCD has an existing accountability framework predicated on timely, good-faith implementation of tools, actions, and policies that promote production, participants raised a need to better clarify this framework. Specifically, it is not clear under the current framework how underperformance in market rate or affordable housing production will result in meaningful funding or policy interventions to increase production, nor is it sufficiently clear that failure to take meaningful action will be met with appropriate enforcement actions.

It is important to emphasize that under any accountability framework, it will take substantial investment at the state level to support the kinds of policy and funding interventions that are needed to increase production. This report calls for that investment in partnership with local governments to increase local capacity and funding needed to build housing, especially housing that the market would not otherwise produce on its own (see Recommendation 2.1). Additionally, while many participants have called for increased local accountability, many participants have also correctly asserted that local governments only control a portion of the policy levers that affect housing production and affordability. Underproduction of housing is a consequence of a myriad of policy and economic factors, and any accountability framework should acknowledge and reflect this dynamic.

Recognizing that accountability requires substantial Legislative decision-making, this report provides several considerations to inform future discussion that provides policy pathways that balance perspectives heard throughout the process. First and foremost, the project team recognizes that **unmet housing need should be addressed with meaningful action from all levels of government**. Achieving that goal requires three major components:

1. Clearly define "unmet housing need" through the OHNA
2. Respond to identified unmet housing need through local and state policy and funding interventions, in partnership.
3. Establish clear enforcement parameters to ensure timely action.

1. Define "unmet housing need"

Recommendation 1.2 establishes housing production targets and provides baseline data by which the state regularly tracks and reports housing outcomes, including annual market-rate and affordable housing production, for cities above 10,000 population. Additionally, it includes relative peer and regional assessments of local jurisdictions to assess the relative performance of jurisdictions by geography and market typology. While this information is not sufficient on its own to definitively assess underperformance, it provides a critical barometer to direct policy and funding interventions.

If a local jurisdiction consistently produces less housing in comparison to the region and other similar housing markets, it suggests that policy and funding interventions may be necessary to

facilitate the production of housing[11]. Thus, Recommendation 1.2 enables DLCD, with appropriate direction and parameters assigned by the Legislature, to define a threshold in which a response is warranted.

2. Respond to unmet housing need

Currently, jurisdictions regularly complete Housing Production Strategies to identify tools, actions, and policies that promote production of needed housing, and DLCD reviews and approves, amends, or remands submitted HPSs to ensure they substantially comply with administrative rule. By necessity, this framework requires substantial discretion, because the actions cities take to promote housing production will vary substantially based on local economic, political, and implementation dynamics. As a consequence, there is a lack of clarity on "how much is enough" with regard to identified strategies.

It is possible to provide more clarity through enhanced review and partnership by DLCD. If a jurisdiction is identified as consistently producing less housing than regional or market peers, this could trigger a requirement for DLCD to conduct an audit and review of city policies in advance of their next HPS, focused on identifying the following:

- Financial and regulatory impediments to production
- Financial and regulatory incentives, including available state resources
- Actions that advance fair and equitable outcomes

This audit should include a series of recommendations by which a city could address identified barriers to housing production, either through changes to local policies/actions, coordination of state resources, or other measures. After conducting the audit, DLCD could then be required to develop a performance plan in consultation with cities to establish a series of actions that address the barriers identified in the audit, timelines for the implementation of those actions, and coordination of state and local resources needed for implementation, such as financial or technical support.

This review and performance plan could be extended to a broader range of state agencies with the establishment of a coordinated statewide entity described in Recommendation 3.1, which could provide a much more comprehensive review of the full suite of tools a city could access than DLCD can alone. Additionally, the Legislature could also establish parameters that increase the likelihood of timely and coordinated action, including:

- Establishment of a timeframe by which implementation of actions must be implemented;

  Please note: The timeline must balance the need for urgent action with practicable local implementation, with flexibility to modify timelines to accommodate local circumstances. As a

[11] Interventions cannot be "one size fits all" and should respond to a variety of local contexts and conditions, especially in consideration of fair and equitable housing outcomes. See Recommendation 2.2 and the Technical Report (Appendix D) for more information.

starting place for discussion, one option could be adoption of actions within two years of the adoption of an HPS with flexibility for the state to amend deadlines to accommodate extenuating circumstances.

- Requiring DLCD (and potentially other agencies that distribute financial resources to local jurisdictions) to prioritize funding and technical support for jurisdictions with unmet housing need; and
- Establishing clear and scaling enforcement actions connected to the timely implementation of actions, discussed below.

3. Establish clear enforcement parameters

Communities throughout the state generally support the provision of adequate, affordable housing options within their community, and it is important to recognize that to increase the production of needed housing, most of the time this requires providing resources and tools to communities to support the implementation of that vision. However, it is equally important to recognize that appropriately-scaled enforcement provisions are an important tool in ensuring meaningful and timely action.

It is important to emphasize that **enforcement should only occur upon failure to act timely or act at all, not as a consequence of housing underproduction on its own**. Enforcement should begin collaboratively and take progressive steps in response to inaction, while providing opportunities for jurisdictions to readily come back into compliance. An enforcement policy must recognize that many factors operating at the national, state, and local levels can inhibit production and local capacity to address barriers. It is also critical to emphasize that **without substantial state investment in both local capacity and housing production writ large, it will not be possible to implement an accountability framework that delivers meaningful results**.

Additionally, it's important to recognize that there may be cases where, despite consistent good-faith implementation of strategies to facilitate production, housing production remains stymied due to factors outside of a jurisdiction's control. In these instances, there should be a list of policy options where a jurisdiction can demonstrate they are doing all they reasonably can to promote production, without risking the application of potential enforcement provisions.

Under the current framework, enforcement actions begin collaboratively and become progressively more substantial if delinquency continues, with the most substantial measure being an enforcement order issued by LCDC. A challenge with this approach is it 1) costs significant time and resources to compel action and 2) creates uncertainty as to whether failure to act will result in enforcement. Establishing **clear timelines** and **automatically applicable provisions** when a deadline passes addresses these shortcomings and enables city staff to clearly signal to local decisionmakers what needs to occur by when and what happens in lieu of local action.

Enforceable provisions must be established through legislative deliberation, but generally, the more impactful an enforcement provision is, the more contentious and challenging it will be to adopt, implement, and enforce. Additionally, it is important to consider how enforcement might differ between overall housing production and affordable housing production. Affordable

housing production faces a variety of barriers, and while overall production requires long-term policy solutions to create healthy market environments, there is a compelling argument to expedite and reduce barriers for subsidized affordable housing substantially to proportionally respond to the affordability crisis.

Below are a few examples of provisions the Legislature could consider, organized from less to more impactful:

1. Application of streamlined permitting processes for units that meet zoning requirements and specific criteria – e.g. California Assembly Bill No. 2011 (2022)
2. Application of a "development override" for subsidized affordable housing meeting specific criteria – e.g. Senate Bill 8 (2021) or Massachusetts Chapter 40 B (1969)
3. Application of a "model code" enabling a greater diversity of housing types in a defined area – e.g. House Bill 2001 (2019)
4. Application of tax incentives, such as property tax exemptions, for qualifying subsidized affordable housing meeting specific criteria – e.g. California Senate Bill 196 (2019)
5. Withholding certain state funding sources, such as state transportation funding – e.g. Utah House Bill 462 (2022)

All of the example provisions represent substantial enforcement actions that should not be applied lightly, and any inclusion of such provisions should not be applied until there has been substantial opportunity to address barriers, including state partnership and investment to overcome barriers to housing production.

Other Major Statewide Policy Initiatives

A critical dynamic in the implementation of the Oregon Housing Needs Analysis is how systemic changes to the housing planning system interface with other statewide policy initiatives. In particular, there is significant ongoing policy work related to climate change, wildfire, and housing preservation that stakeholders raised as intersecting with legislative recommendations.

Climate Change

The Land Conservation and Development Commission adopted rules for Climate-Friendly and Equitable Communities in July 2022. The rules require fifteen communities to designate "climate-friendly areas" – walkable, mixed-use neighborhoods where residents, workers, and visitors can meet most of their daily needs without having to drive. These areas are required to accommodate 30% or more of a community's projected 20-year housing need. This raises a critical question: how do we ensure that we are able to provide significantly more housing while planning for neighborhoods that mitigate greenhouse gas emissions?

This was a substantial consideration during rulemaking. Stakeholders and DLCD staff wanted to ensure that ambitious policy facilitating climate-friendly areas did not inhibit a community's ability to plan for an adequate supply of housing by creating "phantom capacity" – capacity on paper that is unlikely to be realized in practice. To achieve this, the rule requires cities to designate this capacity *in addition to* their 20-year land supply, but this capacity does not "count" until development occurs.

This is a key strategy in planning for significantly more housing. Climate policy and housing policy are inextricably linked, and addressing both requires building a substantial amount of housing in walkable, mixed-use neighborhoods that mitigate greenhouse gas emissions. In all Oregon communities, we need to plan for this abundance while also conservatively estimating land capacity to ensure that these policies do not artificially inhibit an adequate supply of land. In total, the OHNA recommendations ensure that communities are planning for this abundance, ensuring there is an adequate supply of developable land and preparing land to support housing production.

While adopted rules enable the possibility of "climate-friendly areas" through changes to land use, by itself, it does not guarantee that the housing will actually be built. To ensure climate-friendly areas result in actual production on the ground, implementation will need to ensure the designation of these areas is consistent with funding and policy actions identified in the local Housing Production Strategy. This will include a variety of strategies, ranging from reducing regulatory impediments to providing financial incentives, to support the production of housing in these communities and pair them with the needed investments in infrastructure, transit, and amenities to ensure these communities foster affordability, choice, and resilience in the future.

Wildfire Adapted Communities

As directed by Senate Bill 762, DLCD has published a Wildfire Adapted Communities Recommendations Report for consideration by the Oregon Legislature during the 2023 legislative session. The recommendations focus on potential ways the statewide land use planning program and local comprehensive plans and zoning codes can minimize risk, even as the frequency, intensity, and duration of wildfires continue to increase.

The wildfire report is complementary to this report, providing six recommendations and multiple implementation alternatives intended to increase the resiliency of communities. The emphasis of the report is *not* to prohibit the production of needed housing, but rather, to facilitate development in a manner that reduces wildfire risk and minimizes loss of life and property. Protecting existing homes from wildfires is necessary to prevent housing shortages in fire prone communities. DLCD's recommendations build on the protections recently adopted by the Legislature in SB 762 to minimize the spread of wildfires at the community and neighborhood level, thus further reducing the risks to individual homes and development.

Housing Preservation

This recommendations report makes clear that in order to address the housing affordability crisis Oregon faces today, state and local governments need to plan for substantially more housing and focus policy and funding interventions on increasing housing production. However, an important strategy to support affordability and promote housing stability is the preservation of existing housing supply, especially "naturally-occurring affordable housing" – housing that is relatively affordable without subsidy.

While the recommendations emphasize the need to focus on housing production at all levels of government, the framework should also facilitate the preservation of naturally occurring and subsidized affordable housing that would otherwise be lost to age or demolition. To do this, state and local policies should incentivize and encourage the rehabilitation or adaptive reuse of aging properties while focusing redevelopment on areas with lower risk of displacement, such as in underutilized parking lots or vacant large-scale retail/office sites. The housing capacity recommendations included in Appendix A include several recommendations that incorporate these principles in the local implementation of housing production strategies.

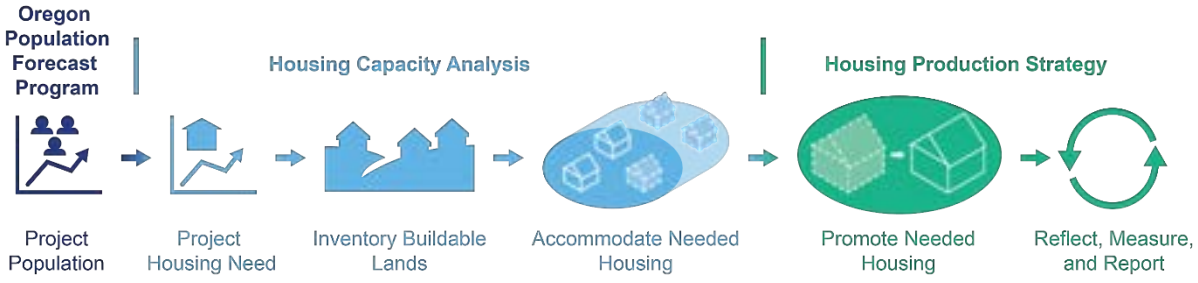
1.4 Streamline land capacity and urbanization processes to expedite well-planned expansions.

A renewed commitment to implementing Goal 10 for housing requires careful consideration of the relationship to Urban Growth Boundary (UGB) expansions. It is important to note that the adoption of OHNA-generated production targets and Housing Production Strategies are required for cities over 10,000, regardless of their existing built conditions and expansion context. In other words, jurisdictions that have achieved some level of infill or are "land-locked", i.e., physically unable to expand their UGB, will still be responsible for a share of the overall need.

UGB amendments are an existing tool to increase the supply of development ready land. Between 2016 and 2021, there have been a total of 35 successful UGB amendments (out of 37), 13 of which were to accommodate residential land needs.[12] Increasing housing supply and providing affordable options will require a combination of planning and policy actions at all levels, and when warranted, this should continue to include UGB amendments. To facilitate a smoother UGB amendment process, this report includes nine recommendations (see page 28) that increase the capacity and flexibility for local jurisdictions to pursue UGB amendments, reduce the likelihood of appeal or challenge of UGB decisions, and better prepare land within the UGB to support housing production.

Under the current system, jurisdictions conduct a Housing Capacity Analysis (HCA), which consists of two major components: a 20-year housing needs projection and a Buildable Lands Inventory. These two analyses answer a critical question: "Is there enough land within the UGB, zoned to sufficient capacity, to accommodate twenty years of projected growth?" If there is a deficiency of land, a jurisdiction must adopt measures to accommodate needed housing. First, the jurisdiction must adopt "efficiency measures," which are policies that increase development within a UGB. If a jurisdiction cannot reasonably accommodate needed housing within a UGB, the jurisdiction must expand its UGB, conducting a locational analysis under Goal 14 to determine which area would best suit the identified need.

Figure 3. The Current Goal 10 Process



The current process requires a local jurisdiction adopt a housing capacity analysis that projects past conditions into the future to determine whether increasing zoned capacity is necessary.

[12] Department of Land Conservation and Development. *Urban Growth Boundary Adjustments 2016-2021.* Accessed via: https://www.oregon.gov/lcd/UP/Documents/UGB_Amendments_2016-2021.pdf

Housing capacity analyses have emphasized characterizing density and counting the hypothetical capacity of lands for housing at the expense of supporting the actual production of housing. The consequence of this dynamic is that, while jurisdictions have substantial land and zoned capacity on paper, this land is not readily developable and housing production slows as available land supply becomes increasingly more costly to serve and prepare for development.

To put the emphasis on housing production, we recommend shifting the focus of land use efficiency measures from a Housing Capacity Analysis limited to analyzing the potential of lands for providing housing to the Housing Production Strategy (HPS) for cities over 10,000, which includes measures to support housing production, prepare land for development, and increase housing efficiency and diversity. Making this change in the HPS can serve a dual function, providing a policy and planning roadmap for housing production while also making the Goal 14: Urbanization process for land supply simpler and more efficient.

With the HPS at the center of housing implementation, communities can consider plans and policies specifically in terms of meeting their housing production goals. Cities can consider where it makes sense to upzone or rezone, where they should make capital investments in community amenities, where they should focus investments in low-cost market rental preservation efforts and affordable housing production, whether they can streamline their regulatory process to reduce costly delays in permitting, and what kinds of housing types match the OHNA-derived need, to name a few examples. Cities can then adopt these updates into local planning documents, ordinances, and/or comprehensive plans.

Leading with production requires some adjustments to the sequencing of Goal 10 compliance within Oregon's land use program. The current system begins with a local, city-based analysis to determine how many new households might demand housing in the future, translates that demand into unit types and income categories based on past development and demographic trends, and then determines whether there is sufficient land supply to meet the estimated future demand. Further, the method of analysis often varies by jurisdiction, meaning that local projections are not consistent and standardized across the state. When there is a gap, this is addressed either through land use efficiency measures such as rezoning and/or by expanding the urban growth boundary. Local governments often make this determination without consideration of the broader regional housing market, where economic growth is anticipated in the future, the current level of housing choice afforded in the region and other regional demographic distributions, desired equitable outcomes, fiscal impacts, or other systemic effects.

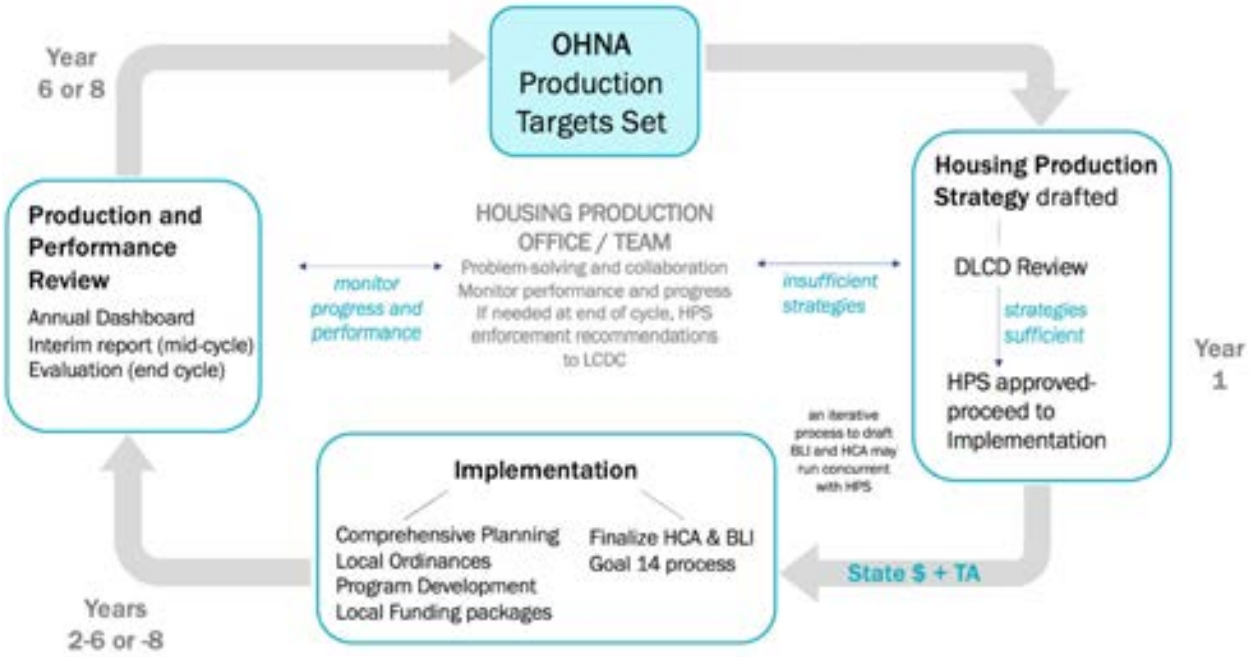
This means that production strategies are only factored in after the jurisdictions have forecast and planned for housing types and determined the need for additional land supply. The process does not take into account the impact that Housing Production Strategies – such as easing regulatory restrictions, minimizing procedural delay, preparing land for development, or increasing housing choices allowed in communities – may have on future development patterns.

This recommendation merges these two processes so OHNA targets inform HPSs, and implementation of those strategies can shape HCAs. In this way, HPS outcomes will inform

future Buildable Lands Inventories (BLIs) and HCAs. While in practice the two processes may inform one another, conceptually, it is helpful to consider this improved Goal 10 implementation process as a cycle in which we transform a negative feedback loop to positive by centering housing production targets. This outcome-focused and comprehensive housing production system will be implemented on a rolling basis, with new targets provided in each planning cycle. If a city is meeting the need and its rates of housing underproduction and cost burdening are declining, its future targets will reflect that progress.

Overall, these process revisions serve to streamline work for local governments by increasing certainty in land supply decisions, providing common datasets that are produced at the state level rather than locally, and creating a space for productive policy discussions in the HPS that are tied to a clear, measurable set of outcomes and targets.

Figure 4. Revised Housing Production Strategy Review Process



House Bill 5202 - Housing Capacity

This recommendation includes a series of refinements to Goal 10 and Goal 14 developed in consultation with a Housing Capacity Work Group, convened by DLCD in response to Legislative direction under House Bill 5202 (2022). Through this process, DLCD has identified a total of nine recommendations to streamline the HCA and UGB amendment process. The net effect of these recommendations would increase local capacity, reduce administrative burden, increase legal certainty, and build on existing tools to facilitate the timely expansion of UGBs and prepare land for development and redevelopment. These recommendations are summarized below. Specific housing capacity recommendations are included in Appendix A. Housing Capacity Recommendations included in this document and are also integrated with the policy outline included in Appendix C.

A. Better Utilize Land within the UGB

1. Enable the adoption of "efficiency measures" in the Housing Production Strategy, enabling a jurisdiction to adopt efficiency measures in advance of a UGB amendment.
2. Direct LCDC to adopt administrative rules and guidance on the local implementation of efficiency measures that support housing production and affordability, prioritizing the following outcomes:
   - Credit recent local implementation of statewide policy initiatives related to housing
   - Increase housing diversity, efficiency, and affordability
   - Enhance flexibility in housing choice and location
   - Reduce cost or delay and increase procedural certainty for housing production
   - Incentivize preservation and stability of naturally-occurring affordable housing
   - Prepare land for development and redevelopment, including underutilized commercial or employment lands

B. Streamline Establishing Need for a UGB Amendment

3. Amend the "needed housing" statute (ORS 197.303) to replace local housing needs projections with the OHNA and provide greater local discretion to plan housing types and characteristics in response to need and market feasibility, rather than primarily on past development trends.
4. Amend the "buildable lands" statute (ORS 197.296) to reflect a more realistic estimation of 20-year residential land supply and provide more options to discount land that is unlikely to develop.
5. Direct LCDC to refine administrative rules related to buildable lands inventories to provide more methodological options for local jurisdictions to estimate land capacity.

C. Streamline Regulatory Review of UGB Amendment

6. Adjust the "urban reserve" statute (ORS 197.145 and 197A.320) and related administrative rules to increase flexibility and ease of local implementation.
7. Facilitate the existing UGB land exchange process to remove lands within the UGB unlikely to develop within twenty years, while adding land that is more likely to develop.

D. Increase Local Capacity & Support

8. Appropriate funding to support local urbanization planning, including UGB amendments, UGB land exchanges, public facilities planning, urban reserve, and concept planning, prioritizing supporting smaller and more rural communities.
9. Focus new housing staff requested in DLCD's Agency Request Budget to focus on urbanization and public facilities planning to support local governments with analysis and technical assistance, prioritizing supporting smaller and more rural communities.

Additional Policy Considerations - Small-Scale UGB Amendment

The nine recommendations listed above reflect a substantial set of reforms developed in a very short timeframe prescribed by the Legislature. Critically, these recommendations reflect a series of refinements that have pretty broad support among stakeholders, even among those who often substantially disagree on urbanization-related policy. However, it is important to acknowledge that discussions surrounding urbanization are often significantly contentious, and given the short duration of the legislatively-prescribed deadline, DLCD staff recognized that consensus building for every policy option would be challenging.

DLCD staff believe that a core intent of the Legislative direction provided under HB 5202 required bona fide discussion on potential policy options that could reduce local analytical burden in pursuing a UGB amendment in exchange for delivery of statewide housing goals. The Legislative direction driving this work under HB 5202 is a direct response to a bill considered in the 2022 Session, House Bill 4118, which proposed requiring approval of UGB amendments in response to housing proposals affordable to households earning at or below area median income.

This proposal reflects a broader legislative discussion surrounding this kind of policy. Previously, House Bill 4079 (2016) was initially adopted to evaluate the barriers to affordable housing production arising from the UGB amendment process, and whether a removal of that process (with limitations) would stimulate provision of affordable housing. This legislation enabled two cities (later three) to pursue a UGB amendment without completing a Goal 10 and Goal 14 analysis for a qualifying proposal. To date, two of the three cities (Bend and Redmond) are in progress, but have not yet completed, projects, and the third (Pendleton) has not begun its process.

These policies, and similar policies modeled after these bills, were substantially contentious among work group members. In particular, many members raised significant concern about a potential bypass to the urbanization system that undermines the land use planning program at large, while other members maintain that a pathway could leverage the urbanization process to support statewide housing affordability goals.

While the short timeframe associated with the process was insufficient to establish a fully-developed and viable policy option with substantial buy-in from stakeholders, DLCD staff learned many important takeaways that warrant inclusion in this report. First, it is important to emphasize that **whether to advance a policy option that provides a streamlined UGB amendment in exchange for delivery of affordable housing is a legislative decision**. Should the Legislature decide to pursue this option, there are several considerations to improve its implementation, effectiveness, and political viability. This includes:

1. **A requirement for deed restriction guaranteeing delivery of affordable and diverse housing options in exchange for regulatory flexibility**. The Legislature would need to determine the types of housing outcomes that the pathway should require. Examples include:

- Regulated affordable housing for low-, moderate-, and mixed-income housing, including affordable rental, homeownership, and cooperative ownership housing.
- Diverse housing options the market is unlikely to produce, including manufactured, middle, and multi-family housing.

2. **Regulatory streamlining that reduces the analytical burden for small and capacity-constrained local jurisdictions** utilizing the pathway. Example approaches include:

   - A "shifted burden" approach, in which submittal of a qualifying project triggers a requirement for DLCD to conduct a limited Goal 10 and 14 analyses within a specified timeframe.
   - A "limited analysis" approach, in which a subset of jurisdictions identified as facing significant growth and affordability challenges under the OHNA qualify for a limited site alternative analysis, weighing priority and locational factors for several potential development areas.
   - An "analysis waiver" approach, in which small jurisdictions with constrained planning capacity submitting qualifying proposals would not be required to prepare Goal 10 or Goal 14-related analysis for limited UGB amendments, subject to a cap on the number of UGB amendments within a 5-year period.

3. **Limitations on the scope, scale, and applicability of the pathway.** Examples include:

   - Jurisdiction applicability, considering:
     - Population – The policy should emphasize providing an additional option to small jurisdictions with limited staff capacity and resources, not to larger jurisdictions with more capacity and resources to pursue a standard UGB amendment.
     - Population growth and cost burden – With the implementation of an OHNA, it is possible to measure and identify fast growing communities facing significant cost burden, enabling the option in communities where it is most needed.
     - Geographic or regional limitations – The policy should consider the exclusion of areas with significant concerns about the loss of resource lands, such as the Willamette Valley.
     - Frequency of use – The policy should have a limit on the frequency of use to ensure it does not overwhelm staff capacity or bypass the standard urbanization process.
   - Site applicability, considering:
     - Site size – There should be some upper acreage threshold for qualifying projects included in the policy. Examples of commonly suggested acreage thresholds include up to 50 or up to 100 acres.
     - Resource land exclusion – The policy should prohibit the inclusion of high-value farmland lands from the pathway and consider requiring a streamlined Goal 14 priority analysis. As discussed previously, the policy should consider excluding geographic areas where preservation of resource lands are a higher priority.

Recommendation 2) Build what's needed, where it's needed

Overview: Addressing housing need at all levels

On its own, the market will not meet the housing needs of all Oregonians. Housing for the lowest income Oregonians will always require public support, and the funding gap for meeting that need is daunting. Additionally, in most parts of the state, denser development, infill development, smaller product types, development in rural communities, and redevelopment of underutilized or contaminated parcels are harder for developers to get permitted, successfully finance, and feasibly build. These units are very important to meeting overall housing need, as they provide important workforce housing and homeownership opportunities, and help build climate-resilient communities and add needed units to an undersupplied market. Overall, approximately 49% of Oregon's needed housing over the next 20 years will require some public subsidy.

In many areas, denser development, infill development, smaller product types, and the redevelopment of underutilized or contaminated parcels are harder to build and require public subsidy.

While housing generally becomes more affordable as it ages, we cannot count on this process for several reasons: (a) it can take generations to reach lower affordability levels, (b) it almost never produces safe, adequate housing for the lowest income levels, and (c) it can halt or even reverse (for example, through gentrification) when a market is undersupplied.

Digging out of our housing deficit will require ongoing funding support from the Legislature that includes and extends beyond the traditional categories of affordable housing. Investments should be targeted to the development types that the market would not otherwise produce on its own, such as those listed above. **Without strong public investment in housing development, implementation of the OHNA will simply help us do a better job counting what we do not build**.

2.1 Commit sustained, coordinated investment

While simplifying and rationalizing our planning system is an important piece of the puzzle, there are many other significant barriers to housing production that communities face. Private market housing providers are not able to provide housing affordable to lower income households without subsidy, and local governments will need new tools to take on an expanded role in housing production. Success requires a new and expanded partnership between the state and local jurisdictions. Without significant state investment, OHNA implementation will likely be understood as an unfunded mandate that fails to provide the necessary conditions for local governments to comprehensively address housing need.

Oregon needs to produce about 27,000 housing units annually to meet the 20-year statewide production targets. In recent years the state has only produced 15,000-20,000 units per year.[13] To

[13] Source: U.S. Department of Housing and Urban Development's State of the Cities Data Systems (SCODS) database on Oregon housing permits. Between 2014 and 2021 annual permits have ranged from about 15,300 to 19,100 statewide.

close this gap, we need to look at which investments are best suited to overcome market barriers at all income levels with particular attention to the needs of historically underserved Oregonians.

Publicly Supported Affordable Housing

The most challenging unmet need to address is at the lower end of the income spectrum of households earning less than 60 percent of area median income (AMI). While public support is needed for many types of development, it is most acute to produce about 9,000 units per year that are affordable to low-income households. Lower-income Oregonians are affected most severely by the housing shortage and live with the greatest housing instability. This intervention point has the most urgent need for additional direct subsidies and support.

As the state's affordable housing financing agency, OHCS's funding mechanisms and allocation methodologies rely on complex and layered data and evaluation criteria designed to target resources toward strategic policy objectives. OHCS already prioritizes housing need in its allocation methodologies and can use the OHNA data to ensure that affordable housing production is equitably distributed across the state.

Affordable Housing Financing in Oregon is Changing

Affordable housing finance relies on layering local, state, federal, and philanthropic resources along with private equity and debt to fund development. These layered resources are necessary because the rents that are affordable to the intended tenants are below what it costs to develop and operate the property, leaving a "funding gap." This gap requires public subsidy or low-cost financing to pay for construction and ongoing operations along with large levels of mortgage or debt service payments.

To bring the impact of state resources to scale, OHCS has worked to maximize the use of federal Low Income Housing Tax Credits (LIHTCs) that are generated when the project includes financing with federally allocated Private Activity Bonds (PABs). Long an underutilized program, recent state and local investments in affordable housing were deliberately structured to leverage this 4% LIHTC and have successfully delivered new development. This increases utilization of the 4% LIHTC program has exhausted all built up capacity for the Private Activity Bond resource.

While the 4% LIHTC program will continue to operate and be a source of leverage for state Local Innovation and Fast Track (LIFT) investments, it is not a program that can continue to expand beyond that allowed by the annual federal Private Activity Bond authority allocated to Oregon. This means that the 4% LIHTC program cannot be used to increase the current rate of affordable housing development and future gap funding from the state or local jurisdictions is going to require either much higher per unit subsidy rates or some other source of fund leverage.

OHCS has managed unprecedented levels of investment in affordable housing

Despite federal constraints, OHCS hopes to continue recent momentum in affordable housing development. A major component of this is through a 2023-2025 funding request to the Oregon Legislature that includes $160 million for LIFT rental housing production and another $65 million for affordable homeownership. This would help create an estimated 1,200 rental units and 280 homeownership units, which, combined with the leveraging of available federal funds, would develop an estimated 4,000 new affordable homes for rent or purchase over the biennium. Additionally, OHCS is requesting more than $260 million to support affordable housing development and preservation of affordable homes. Even with this significant investment request, these resources are primarily required to continue funding at the level of recent years and will unfortunately fund less than a quarter of the documented need.

In summary, the landscape for affordable housing funding in Oregon has changed, and action at all levels of government is necessary to meet the moment and provide the funding required to continue developing the level of affordable housing needed by low-income Oregonians.

Additional funding for affordable housing development is critical to meet the needs of Oregon's lowest-income households. The Legislature should consider the investments included in OHCS' 2023-25 Agency Request Budget as an absolute minimum to maintain current production levels, which fall far short of actual needs as outlined in the OHNA. More resources from the state will be necessary to make more progress towards meeting these needs, the funding is only a part of the solution.

Federal caps on LIHTC and PABs currently limit the ability to utilize state and local funds most effectively. The Oregon Legislature must look to Congress as vital partners in housing solutions and pursue changes that will maximize the benefit of state and local investment. Legislation such as the Affordable Housing Tax Credit Improvement Act would, among other things, make technical adjustments to the PAB and 4% LIHTC program that would foster equity investment from the private sector into affordable housing developments and effectively stretch state investments further to allow for greater production. Combining federal action with more state resources for LIFT or other OHCS funding programs would have a substantial positive impact, augmenting unit production in the state beyond even the unprecedented growth in recent years.

Other types of support

Chronic underproduction has made it much harder for more people to afford the cost of housing. This now extends well beyond the traditional categories of publicly supported housing and affects higher income households as well. We need to pursue innovative tools that more effectively work with the market to support development types that might not be feasible. This can be especially true in smaller cities and more rural markets where infrastructure and land readiness costs are prohibitive for local budgets.

At a minimum, we recommend that the state coordinate existing funding sources that are currently distributed across many agencies and ensure that they are leveraged toward the goal of housing production. For example, Business Oregon already distributes some funds for the

purpose of infrastructure development, and recently produced an economic recovery plan that highlights workforce housing as a major impediment to achieving resilience in the business community. The Oregon Department of Transportation acquires land as it invests in transportation infrastructure, some of which might be used for housing development. The Department of Environmental Quality administers a Clean Water State Revolving Fund that has recently been significantly expanded with federal infrastructure funding and could be leveraged to support housing production. There are many other examples. While coordinating these investments and activities would require administrative structures that do not exist, this strategy is the most straightforward near-term option to make progress toward production goals, in part because it does not require new revenue sources.

At the same time, we know that additional, sustained resources will be needed. We cannot meaningfully move toward meeting housing need without aggressive investment in desired housing outcomes. The following types of funding would be particularly helpful to consider. Further inquiry with developers, lenders, and other partners in the development process can help to clarify how incentive programs might best be structured, funded, and targeted to needed types.

- **Infrastructure and development readiness**. Local governments will require infrastructure investments to jump-start housing production strategies both within existing UGBs and in expansion areas. This could take the form of a revolving loan fund or grant program such as those that currently exist within Business Oregon and would offer significant incentives for jurisdictions to play a more active role in housing production. Additional funds could be made available on a competitive basis to jurisdictions successfully meeting housing production metrics, such as the number of units permitted.

  Infrastructure funds would be used to support land acquisition, parcel consolidation, and infrastructure in expansion areas. It would also be available for retrofitting infrastructure for infill development, and master planning for larger sites. This could be structured like a block grant, such as those currently available for economic development. Ideally, these funds would be distributed with limited administrative requirements required from local entities, proportionate to the need identified in the OHNA.

- **Systems development charges** (SDCs) are fees charged to new development to help cover the incremental impact of new units and households on local infrastructure. While there is no question that these fees are necessary to the viability of public infrastructure, they also increase the cost of development and can be a barrier to production. A state-level fund to buy down the cost of SDCs for both affordable and market-rate workforce housing could support development that would not otherwise occur. Such a fund would create an incentive for needed housing types without affecting the revenues that local governments depend on for basic services in their communities. By backfilling these costs, the state could help make more units viable and affordable. Additionally, this could be set up as a local matching fund to maximize available resources for the greatest impact. As a very

rough starting-place estimate, an investment of $100 million could incentivize the creation of 5,000 - 10,000 units depending on program structure, that would not otherwise be built.

- **Gap funding.** Most local governments have extremely limited capacity and few resources to take an active role in housing development. The state could help jurisdictions achieve specific outcomes in their HPSs by providing access to capital for gap funding and assistance for workforce and missing middle housing (e.g., duplexes, triplexes, cottage clusters, etc.). We recommend that the state consider a revolving loan fund, capitalized by state dollars, to help overcome local barriers to production such as site acquisition, preparation, or rehabilitation, or gap funding directly to a project that helps a jurisdiction meet its production targets.
- **Funding for implementing fair housing strategies.** Housing production is one of several tools available to help cities advance fair housing outcomes. With expanded guidance, cities may be including additional strategies that better connect people to units, facilitate homeownership, increase unit accessibility, and reduce discriminatory practices. To support policy development and implementation, some grant or technical assistance funding for local governments will be helpful. Additional incentives should be made available by the state to support affordable housing development in areas of concentrated affluence, where higher land costs are often a barrier to development. By more equitably distributing affordable housing across communities, we can work toward equitable and fair housing goals such as dismantling segregation, preventing displacement, improving homeownership opportunities, or increasing the accessibility of existing or new housing, among others.
- **Technical assistance and capacity building.** Current staffing levels in local governments would be stretched beyond capacity by realizing the shared objective of catalyzing a rapid increase in statewide housing production. This requires a significant legislative investment to support implementation of Goal 10, which would include technical assistance for locally needed plans and permit capacity to speed up the building process.

  The Oregon Office of Economic Analysis estimates that 400-500 new local planners and inspectors would be needed statewide for a 10,000 increase in annual housing starts. Currently, many cities fund their permitting staff at least in part through permit fees charged on development. This means that cities must staff up quickly when the development market picks up and may have to lay off staff when development cools. This is highly inefficient and can lead to permitting delays. Additional funding for permitting staff, perhaps conditioned on decreased permitting fees to development, could help overcome this challenge.

  Additionally, the transition to an implementation-focused system suggests the addition of other types of local government staff, including planning staff who can create actionable Housing Production Strategies and coordinate policies and investments to support production. In the previous biennium alone, a historic investment from the Legislature in housing planning totaling $4.5 million supported 92 housing-related

projects in 75 jurisdictions. This translates to $1 million of investment supporting roughly 20 new housing projects in about 15-20 communities. DLCD has submitted an Agency Request Budget to establish a continuous biennial budget of $2.5 million for direct planning assistance to local jurisdictions in order to implement legislative housing direction. More funding support will directly result in increased local capacity to work on housing production, especially in small communities, and is an essential signal that the state is a true partner in housing production.

2.2 HPS implementation should advance fair housing outcomes

While housing abundance is a necessary precondition to housing equity, it is insufficient on its own. The people who are suffering most acutely from our housing shortage are disproportionately lower income and communities of color. They cannot be asked to wait another decade or more for Oregon to reverse the discriminatory policies and practices that have limited housing options for generations. Meaningful implementation of Goal 10 must provide a range of housing types for all income levels, distributed equitably around and within each region of the state, and for people of all ages and abilities. This provides access to employment and critical services and reduces the overall cost-burden to families and individuals. Centering the HPS in our Goal 10 system creates a new space for communities to address these issues directly.

Housing Production Strategies can serve as an important tool available to cities to help advance fair housing outcomes. Improved guidance to cities can help them consider how policies that influence housing production and the built environment intersect with fair housing outcomes. DLCD can begin by connecting existing, but currently separate, guidance regarding gentrification and anti-displacement into the HPS process, and cross-walking other existing guidance to more clearly demonstrate how the recommended tools can support land use efficiency.

Fair Housing Considerations

The Fair Housing Act prohibits discrimination in housing because of race, color, national origin, religion, sex (including gender identity and sexual orientation), familial status, or disability status.[14] Oregon's laws also protect people from discrimination based on source of income, domestic violence survivorship, and marital status.[15]

Furthermore, the Fair Housing Act requires the U.S. Department of Housing and Urban Development (HUD) and its recipients of federal financial assistance to Affirmatively Further Fair Housing, which means they must "do more than simply not discriminate… take meaningful actions to overcome patterns of segregation and foster inclusive communities."[16]

OHCS, Business Oregon and the Oregon Health Authority receive federal funds from HUD and as such have an obligation to affirmatively further fair housing. These agencies work together to comply with this mandate by engaging in fair housing planning through a process called the Analysis of Impediments to Fair Housing Choice every five years.

The OHNA housing equity indicators are intended to help provide standardized data across Oregon communities to monitor housing outcomes on a range of equity and fair housing concerns. The goal is that this data will help jurisdictions in their fair housing and equity reporting requirements and help communities track progress and hold jurisdictions and the state accountable with easy-to-read annual reports on progress.

In addition, these recommendations align local actions in a Housing Production Strategy with the Fair Housing obligations of combating housing discrimination, overcoming patterns of segregation, and fostering inclusive communities free from barriers that restrict access to opportunity.

In developing HPSs, local jurisdictions and state partners will need to consider which actions to deploy in which places to generate the desired outcomes, such as assessing where upzoning can help to undo patterns of exclusion and underproduction, or where is it necessary to consider stabilization and anti-displacement measures. These issues can be addressed using a decision-making framework similar to the example below. In the near term, jurisdictions can estimate current levels of production and patterns of growth using their permit data, recent HCAs, or other easily available sources. Over time, the OHNA will provide data to help jurisdictions understand what actions are most effective in individual census tracts and within jurisdiction as a whole.

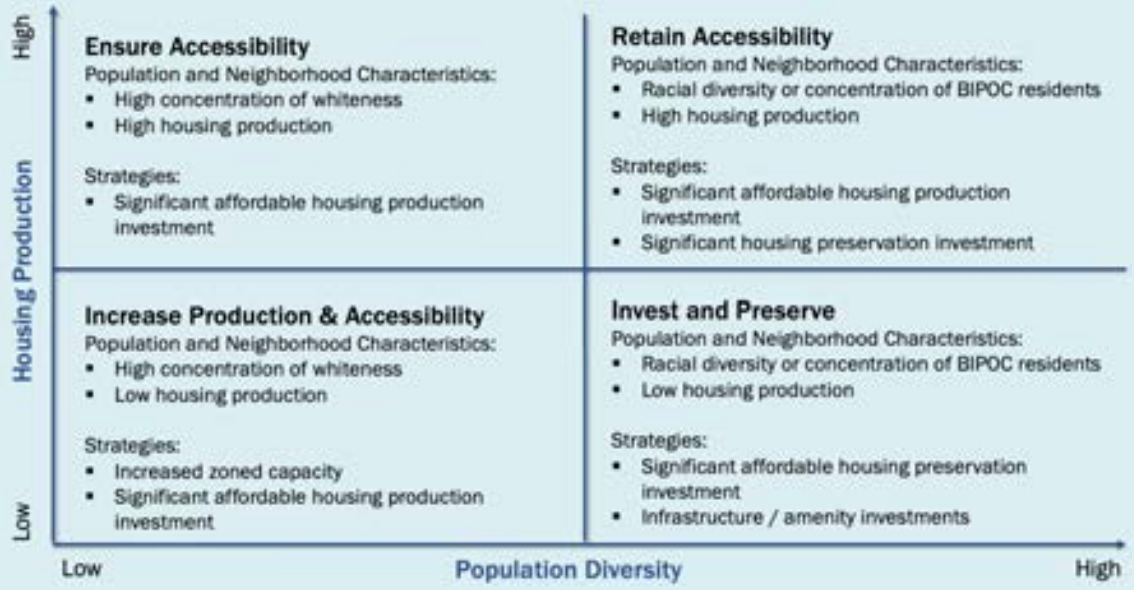
[14] U.S. Department of Housing and Urban Development. "Housing Discrimination Under the Fair Housing Act." https://www.hud.gov/program_offices/fair_housing_equal_opp/fair_housing_act_overview.

[15] State of Oregon Bureau of Labor and Industries. "Civil Rights and Fair Housing." https://www.oregon.gov/boli/civil-rights/Pages/fair-housing.aspx.

[16] U.S. Department of Housing and Urban Development. "Affirmatively Furthering Fair Housing." https://www.hud.gov/AFFH

Example Fair Housing Framework

Figure 5. Example Framework to Determine Strategies Needed for Fair Housing Production



The framework in Figure 4 is one way to think about organizing that guidance. On the vertical axis, the framework conceptually shows a range of housing production outcomes, from low production in slower growing or constrained environments to high production. On the horizontal axis, it conceptually shows community diversity, from low diversity, where there is a relative concentration of whiteness, to high. The fair housing challenges and solutions vary in each quadrant and so must the strategies. For example, areas with a high concentration of white households and corresponding concentration of affluence that have low housing production (in the bottom left-hand corner), restrictive zoning is likely reducing development capacity and should be increased. In the opposite corner, relatively high diversity combined with high housing production suggests a strong need for anti-displacement strategies and investment in preservation.

It is possible to place communities – either entire cities or census tracts – in these quadrants to provide a key input to cities as they complete their HPSs. The technical report included in Appendix D outlines recommended changes to the OHNA Pilot Methodology will provide more details and examples. Many of the tools that might be applied to fair housing outcomes are already listed in HPS guidance but are not clearly cross-walked to desired policy outcomes nor to the market characteristics that are likely to drive neighborhood change.

As described in the funding recommendations above, local governments will need new tools and technical assistance to plan and implement specific programmatic improvements aimed at fair housing outcomes and anti-displacement and gentrification. This could take the form of a specific housing equity fund.

Recommendation 3) Commit to working together with urgency

Overview: Dedicate state level staff to oversee and support housing production across the entire market spectrum

Currently, there is no specific agency of state government responsible for overall housing production, and many of the available regulatory tools are better suited to preventing unwanted developments than to encouraging those that are needed. As a result, the policy response to the current housing shortage has been disjointed, with siloed policy discussion and action occurring at several agencies without meaningful, systemic coordination between them or with local and regional partners.

A comprehensive, production-focused system needs leadership and coordination across the many entities engaged in some aspect of housing production. Simply put: someone needs to be in charge, to: (1) ensure coordination of available funding sources and regulatory authorities (currently spread across many agencies) toward meeting production targets, and (2) implement the OHNA model, including ongoing management of the data that measure progress toward targets.

Figure 6. State agency roles in housing production.

Agency	Roles in Housing Production
Oregon Housing and Community Services	Affordable Housing Finance, Fair Housing
Department of Land Conservation and Development	Planning & Zoning Rules, Public Facilities Planning, Land Use Regulation
Department of Administrative Services	Economic Analysis
Oregon Department of Transportation	Integrated Transportation and Land Use, Transportation Infrastructure and Planning
Department of Environmental Quality	Water and Wastewater Infrastructure, Environmental Regulation
Business Oregon	Infrastructure & Capital Improvements Funding, Economic Development, Community Development Block Grants, Brownfields Redevelopment
Bureau of Labor and Industries	Occupational Licensing, Fair Housing
Department of Consumer and Business Services	Building Codes, Lending & Financial Regulation

3.1 Develop a coordinated statewide administrative structure

Coordinated statewide action would require sufficient authority to (a) convene agency leadership, (b) develop and refine policies to achieve desired housing production outcomes, (c) administer programs with accountability in housing production as well as fiscal and budget, contracting, HR, and IT services, (d) provide specialized housing production expertise to local partners, (e) direct funding for housing and public infrastructure, and (f) provide regular reporting to the Legislature and Governor's office.

Recognizing an urgent need to begin addressing housing production barriers, we recommend establishing an interagency Housing Production Team and administrative leadership position. The leadership of this team should be housed at the coordinated statewide administrative entity, and staff assigned to the team should be drawn from multiple agencies, leveraging the expertise and programmatic knowledge of each agency. This team should respond to a legislative mandate that directs agencies to coordinate their existing and potential new funding sources and regulatory authorities toward the goal of housing production. This provides a clear focal point for communicating and partnering with local governments.

The Housing Production Team should have (or be able to contract for) expertise in affordable housing finance, market rate development, permitting and building code, land readiness, fair housing law, community engagement, and development policy analysis. The team would deliver a commitment to federal and state requirements for fair housing, including anti-displacement tools and other housing equity strategies. This would also facilitate better coordination of housing production with broader policy initiatives, including transportation, equity, infrastructure, environmental quality, and climate. This team would function in two ways:

A. As technical experts that can be called on to address specific site development challenges or policy questions in partnership with local governments. Local jurisdictions face numerous constraints that inhibit the development of sites that would otherwise support housing production and receive minimal support from the state in technical or financial assistance to address such constraints. This team would provide varied and specialized housing production expertise that can diagnose and overcome development barriers through policy and investment interventions. It should also be able to deploy technical assistance and consultant support to ensure that it can help unstick complex development sites or evaluate thorny policy questions.

B. As an accountability and review team, to oversee progress toward goals in HPSs. The team would recommend actions that may be missing in local strategies or need more attention on a regular review cycle. In its accountability function, we recommend that the inter-agency Housing Production Team incorporate the existing staff review of HPS documents. This will enable the team to partner with local jurisdictions on specific actions identified in the HPS to ensure they have the resources and state coordination needed for implementation. If necessary, they would also be able to recommend enforcement orders for cities that are not meeting targets and are not taking sufficient action to address those deficits.

Implementing the OHNA will require a high degree of trust, communication, and transparency, as jurisdictions become accustomed to the new methodology. The establishment of a coordinated statewide administrative structure and Housing Production Team may necessitate phasing, recognizing the substantial challenge of reorganizing power and responsibility among state government agencies. We recommend further discussion around the best models for building confidence, such as community and stakeholder engagement, contracting of experts in the field, and regular reporting to the Legislature.

3.2 State and Regional Continuing Policy Action

The goal in centering housing production and outcomes in Goal 10 implementation is to remove barriers to housing development and to align capacity for better outcomes. This is true at both the local level and across state and regional government. To ensure that we are bringing all resources to bear in addressing the housing crisis, we recommend that the state and Metro Regional Government adopt action plans similar to HPSs that would:

- Define new regional and state actions to meeting need, such as the LIFT affordable housing development program or Metro's voter-approved measures for affordable housing and permanent supportive housing
- Identify existing resources that could be invested or leveraged for better outcomes
- Coordinate with local implementation
- Report to legislature on regional and state progress
- Identify new opportunities for action

In contrast to locally-adopted HPSs, the action plan that Metro adopts must recognize the coordinating role that regional governments play in housing planning. Rather than adopting specific policies, such as local zoning codes and regulations, regional housing coordination strategies should emphasize the collaborative actions among local governments that can be facilitated regionally. For example, regional housing coordination strategies could include identifying shared funding sources, sharing staff capacity, or entering intergovernmental agreements to promote housing production.

While we recommend that Metro be required to periodically complete such a strategy, counties and other regional entities should be able to opt-in and collaborate with cities, especially those with populations under 10,000, making them eligible for funding, capacity, and resources to address shared housing priorities. This would be especially helpful in smaller, more rural communities.

At the state level, the administrative entity described in Recommendation 3.1 should periodically complete a coordinated state HPS. Such a requirement would help address significant data gaps and follow up policy work. At present, we do not have an accurate picture of how much housing exists or is being produced statewide. An Oregon HPS would create a baseline understanding and data standards to track new production and the equitable distribution of housing options. This would allow for comprehensive tracking of the state's progress towards closing the gap in underproduction.

Additionally, many of the policy issues DLCD and OHCS heard through engagement require follow-up and collaboration with other state agencies. See Appendix B for a detailed list of DLCD's follow-up policy work. These and other areas of follow-up work highlight the need for a statewide HPS in which the state is consistently working to promote housing production and evaluate progress towards equitable outcomes.

III. Conclusions and Next Steps

Housing underproduction is a systemic, nationwide challenge that has been decades in the making. Nearly every state has failed to produce enough homes to meet the need. In this respect, even with its comprehensive land use program, Oregon is not unique. Along with the other coastal and intermountain west states that have seen rapid population growth, Oregon's situation is dire. We rank fourth worst in states in terms of underproduction as a share of total housing units, better only than California, Colorado, and Utah.[17]

This crisis is felt throughout Oregon, whether in large urban areas with skyrocketing rent and home values, in more rural communities struggling to find construction workers and developers, or on the coast where the local workforce competes for housing with short-term rentals. While some important details remain to be resolved in the coming months, we believe that these recommendations will position Oregon to make the systemic changes necessary to confront this challenge.

Few policy imperatives are more important to Oregon's future than increasing the pace of building new homes. Housing production is essential for Oregon's economic competitiveness, helping families prosper, and improving community resilience. Simply producing the units needed to meet current demand could generate up to $40 billion in additional economic growth, a boost that would benefit us all.[18] Achieving this will take hard work, coordinated action and investment from many partners in the public and private sectors, and at the state, regional, and local levels.

The recommendations described in the pages above are complex and comprehensive. Implementing them will require significant investments, changes to state statute, rules, and guidance, and will likely need to be sequenced over more than one legislative cycle. To make near-term progress on their implementation, we recommend that the Legislature consider bills that advance the bipartisan goal of building more homes, as follows:

A. **Redefine Oregon's Planning Process for Housing.** The state should establish the OHNA as the foundation for Goal 10 planning processes in state statute. This should, at a minimum:

   - Adopt core components of the OHNA methodology into statute, including that the OHNA must account for underproduction and an estimate of housing needed to serve people experiencing homelessness, must be allocated based on regional incomes and job distributions, and must be reviewed and updated with appropriate new data on a regular cycle. (Recommendation 1.1)

[17] Up for Growth, 2022, Housing Underproduction in the U.S. 2022, https://www.upforgrowth.org/underproduction

[18] See footnote 2 on page 3.

- Create administrative capacity to run the OHNA and track progress toward targets on an annual basis. This could be in OHCS, or in the Office of Economic Analysis. (Recommendation 1.1)
- Direct cities to replace local projections of need in Housing Capacity Analyses with OHNA-generated 20-year need numbers, by income, produced by the state. (Recommendation 1.1 and 1.4)
- Direct cities to strengthen Housing Production Strategies by requiring actions that address housing barriers and advance fair housing outcomes (Recommendation 1.3 and 2.2) and by incorporating production targets based on the data provided in the OHNA (Recommendation 1.2).
- The state should make statutory changes necessary to make needed UGB amendments more efficient and better prepare land for development. This should include direction and funding/resources for DLCD and LCDC to continue work related to Goal 10 and facilitating timely expansion of Urban Growth Boundaries when a need is identified. (Recommendation 1.4 and Appendix A).

B. **Coordinate the state response.** The state should establish a coordinated statewide administrative structure with a Housing Production Team. If it is necessary to phase this in, a temporary Housing Production Team could be established as part of DLCD or OHCS while broader discussion occurs. The housing production issues facing many communities demand an immediate state response. This team should be deployed as quickly as possible to achieve early housing production wins by helping cities unstick challenging development sites, removing barriers and focusing state resources. Additionally, this team should be charged with developing the first ever statewide Housing Production Strategy, which will serve to shift the state's energy and efforts to this urgent challenge. Over time, as rules are developed and take effect, this team can begin to function in its review process to assist with HPS implementation and accountability. (Recommendations 3.1 and 3.2).

- Provide position authority and Legislative direction for staff at other agencies to work with the newly established Housing Production Team toward the goal of housing production. Meeting production goals will require coordinating existing funding sources to meet housing need, working across agencies to overcome site permitting challenges, and providing support to local staff to overcome affordable housing funding challenges. (Recommendation 3.1)

C. **Create innovative funding and finance solutions.** The state should establish new housing production funding mechanisms aimed at middle housing or workforce housing development. Several stakeholder forums are considering innovative funding and financing mechanisms that are resonant with the recommended fund types in this report. (Recommendation 2.1)

The process of developing a Statewide Housing Production Strategy will inevitably uncover additional changes that are needed, and iterative improvements should be expected. More work will undoubtedly be required in future Legislative sessions. The Housing Production Team may need to evolve as we learn from its initial successes. Additional funding sources are required to make meaningful progress. Further accountability mechanisms may be needed. However, the comprehensive legislative package described above would be a substantial movement in the right direction, putting Oregon on the trajectory to lead the nation with a new approach to housing production focused on meeting the needs of all Oregonians. These recommendations, and the associated increase in housing production, will only succeed with sustained Legislative leadership and action in the 2023 Session and beyond.

IV. Appendices

Appendix A. Housing Capacity Recommendations

Appendix B. Follow-up Policy Work – Basis for a Statewide Housing Production Strategy

Appendix C. OHNA Legislative Policy Outline

Appendix D. OHNA Technical Report

Appendix E. OHNA Engagement Summary

Appendix F. University of Oregon Development Barriers Survey Summary

RESIDENTIAL INFILL PROJECT

Year-One Report

JUNE 26, 2023

CASCADIA PARTNERS

Project Context

- The Residential Infill Project (RIP) Year-One Report was produced for the City of Portland's Bureau of Planning and Sustainability (BPS).
- It is an analysis of residential sales activity in the R2.5, R5, and R7 zones in the three years leading up to RIP adoption and permit activity during the first 12 months following its implementation (August 2021 – July 2022).
- Understanding RIP's longer-term impact on housing production will likely take continued monitoring. This period is also during the COVID-19 pandemic, which is not indicative of normal market trends.

How is the study organized?

➔ **Pre-RIP Context Analysis**: Analysis of residential sales in the three years prior to adoption of RIP:

- Sales Volumes
- Home Prices / Sizes
- Housing Unit Characteristics

➔ **RIP Permit Reporting:** Permit data was analyzed to identify common traits of Middle Housing development:

- Development Characteristics
- Locational Context

What is the Residential Infill Project (RIP)?

- The City of Portland adopted rules that govern the types of housing permitted in its neighborhoods to **allow more housing options** in Portland and also regulate the size and scale of new housing.
- Portland City Council adopted RIP 1 on August 12, 2020, and most changes went into effect on August 1, 2021. This report analyzed the first year of adoption **August 1, 2021-July 31, 2022**.
- RIP 1 allows **duplexes, triplexes and fourplexes, sixplexes, as well as additional/expanded ADU allowances**.
- **RIP** affects **R2.5, R5, and R7 zones** in the city.

Critical Takeaways

- ➔ Excluding ADUs, the **majority of housing units** permitted in the R2.5, R5, and R7 zones in the first year since adoption of RIP were in Middle Housing projects.
- ➔ **Fourplexes** accounted for more than ¾ of middle housing units in these zones.
- ➔ Middle housing uses land nearly **three times more efficiently** than single houses.
- ➔ **ADUs are still an important part of the housing mix**, producing an equal number of units as middle housing.
- ➔ But unlike ADU's, **over 99% of middle housing units had 2 or more bedrooms**, enabling growing or multigenerational households.
- ➔ Building size limits imposed by RIP have **prevented very large, and more expensive single dwelling homes** from being built.

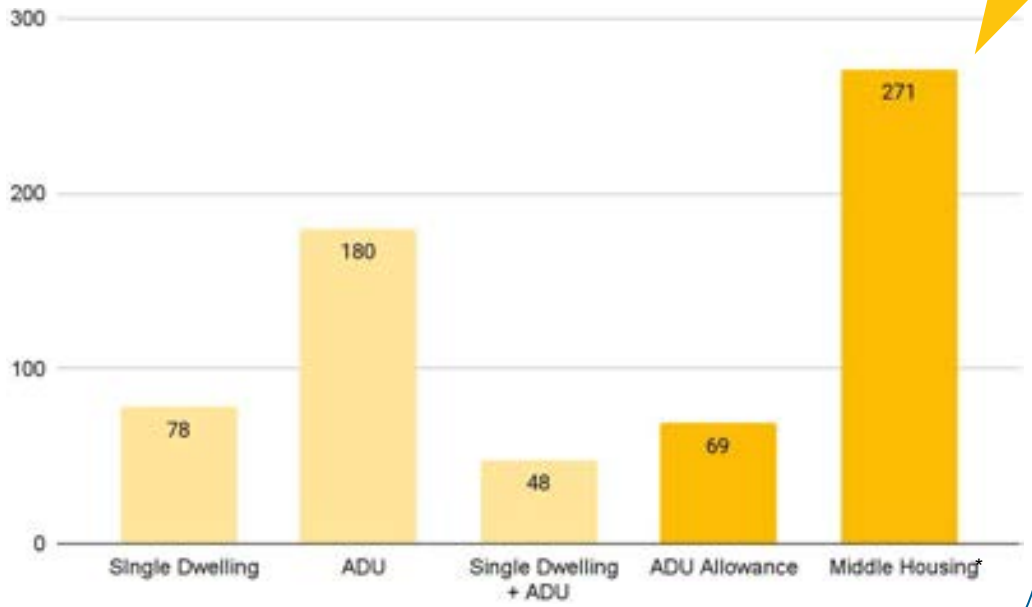
Image Source: Zillow

Permit Activity Overview

Key Finding

Three quarters of permitted middle housing units were in fourplexes

Permit Activity by Housing Type (R2.5, R5, and R7 Zones)

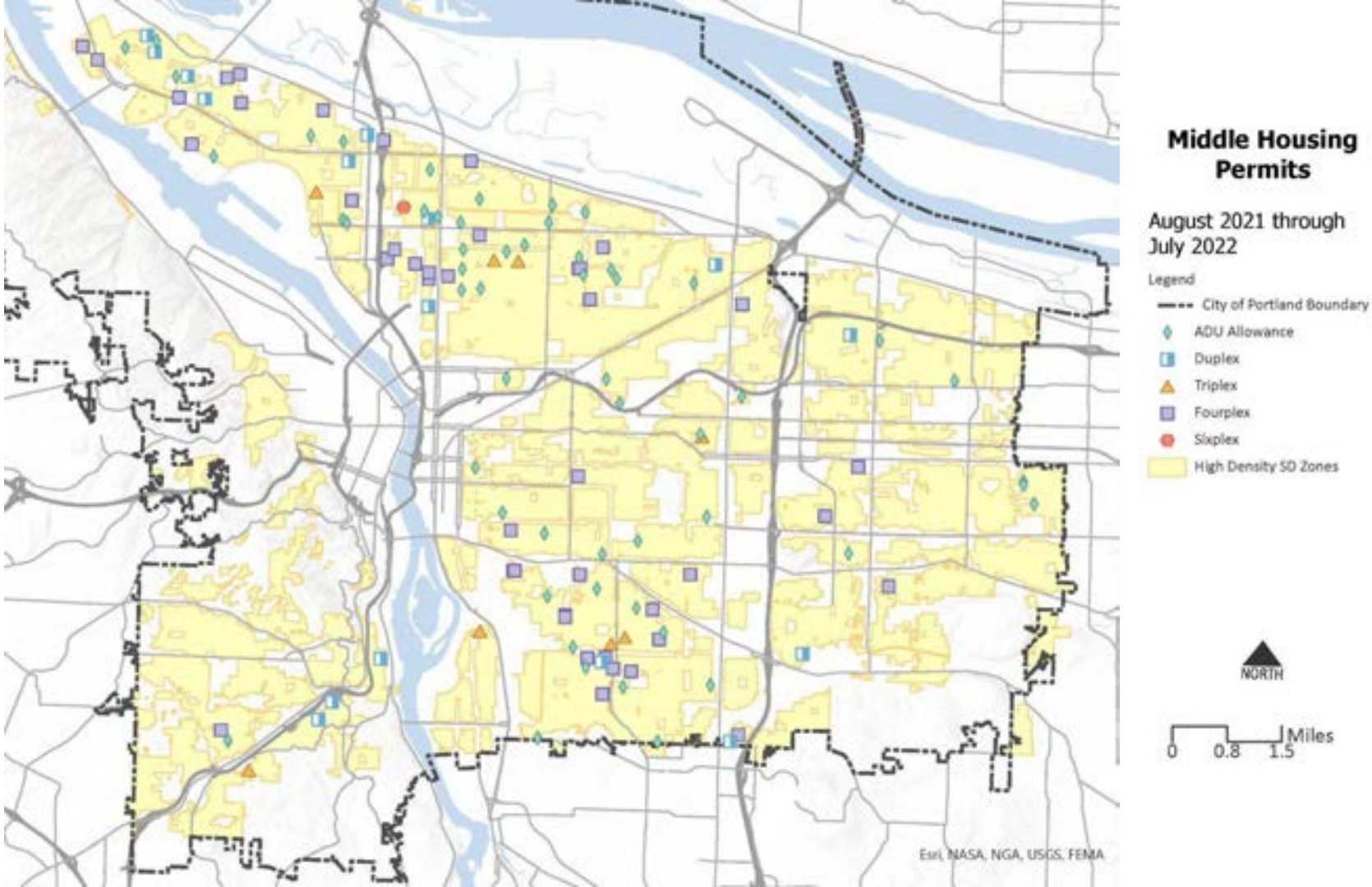


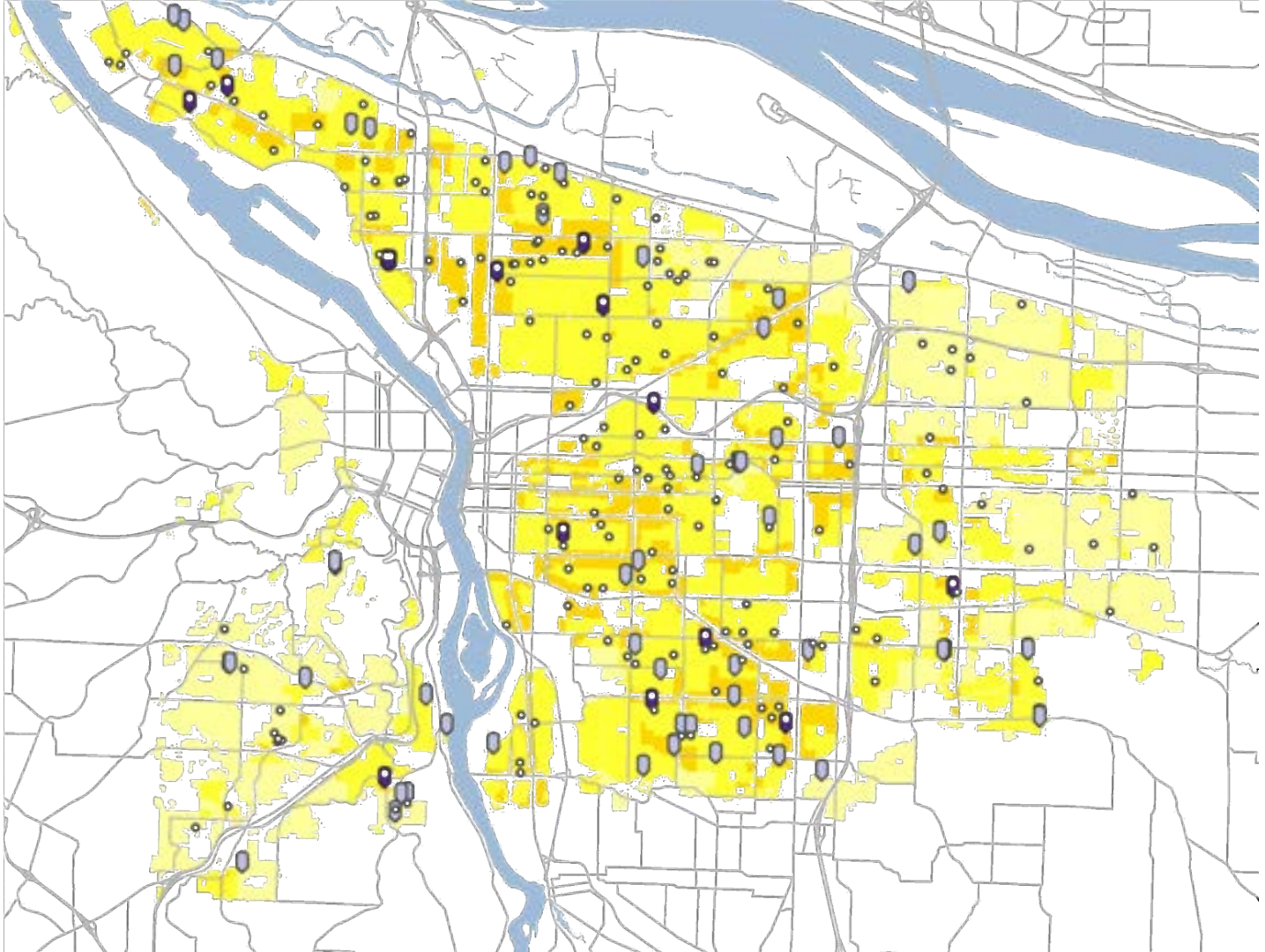
RIP-Enabled Units Permitted by by Housing Type

Aug 1, 2021- July 31, 2022

ADU Allowances	69
Duplex	34
Triplex	27
Fourplex	204
Sixplex	2

**Middle Housing category includes 4 corner duplexes*
Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22


Middle Housing Permits
August 2021 through July 2022
Legend
City of Portland Boundary
ADU Allowance
Duplex
Triplex
Fourplex
Sixplex
High Density SD Zones
NORTH
0 0.8 1.5 Miles
Esri, NASA, NGA, USGS, FEMA



Single Family Residence New Houses, ADUs

Legend

Permits August 1, 2021 - July 31, 2022

- ADU
- House (SD)
- House with ADU (SD w/ ADU)

Zone

- Single Dwelling Residential 2,500 (R2.5)
- Single Dwelling Residential 5,000 (R5)
- Single Dwelling Residential 7,000 (R7)

Glossary

Residential Infill Project (RIP): recent changes to zoning regulations for single-family lots, allowing for the construction of smaller, more varied housing types such as duplexes, triplexes, and fourplexes. For the purposes of this study, RIP implies the first phase of RIP implementation, often referred to as RIP 1.

Accessory Dwelling Unit (ADU): a self-contained living unit that is secondary to the main dwelling on a residential property.

Single Dwelling (SD): detached single-family dwelling on its own lot without an ADU

Middle Housing (MH): For the purposes of this study, middle housing refers to duplexes including corner lot duplexes, triplexes, fourplexes and sixplexes.

ADU Allowance: additional ADUs allowed as part of RIP. These could include 2nd ADUs with a house, an ADU with a duplex, and internal basement conversion ADUs of a larger size than were permitted before RIP.

Floor-to-Area Ratio (FAR): a measure of the total amount of floor area that can be developed on a particular piece of land, expressed as a ratio of the total area of the lot.

Table of Contents

The RIP Year-One Report includes findings from three years of home sales prior to adoption of RIP, data analysis of the first 12 months of permit activity in zones where RIP took effect, and case studies of RIP development projects.

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- Development Characteristics 19
- Locational Context 24

Case Studies 40

PRE-RIP CONTEXT ANALYSIS

Analysis of residential sales in the three years prior to adoption of RIP:

- ➔ Sales Volumes
- ➔ Home Prices / Sizes
- ➔ Housing Unit Characteristics

New Floor Area Ratio (FAR) Restrictions Imposed by RIP

In addition to allowing more units per parcel, RIP placed limits on the maximum floor area allowed for single unit dwellings. To understand the potential impact of these limits, residential sales were analyzed for the three years preceding RIP adoption.

The Pre-RIP Context Analysis focuses on detached single-family homes built between 2018 and 2022 that are above and below RIP floor-to-area (FAR) limits for single unit dwellings. Under RIP, there is a sliding scale for maximum FAR that varies by zone and number of units per lot.

Under RIP1, the FAR for four units was the same as for three units. This was changed with RIP2.

FAR by Zone and Units per Lot

Units	R7	R5	R2.5
1	0.4 to 1	0.5 to 1	0.7 to 1
2	0.5 to 1	0.6 to 1	0.8 to 1
3+	0.6 to 1	0.7 to 1	0.9 to 1

Source:
https://www.portland.gov/bds/zoning-land-use/residential-infill-project/residential-floor-area-ratio

Data Sources

The Pre-RIP Context Analysis relied on Regional Multiple Listing Service (RMLS) data which captures open market sales transactions.

RMLS data from Q1 2018 – Q2 2022 was studied to understand trends in housing production in the R2.5-R7 zones prior to RIP adoption. In order to focus only on new housing production, this data excluded sales of homes built prior to 2018. Home sales prices were inflation-adjusted to 2022 dollars.

Given the length of time housing development takes to move through the pipeline, the data includes homes sold during when RIP in effect.

Critical Questions:

- ➔ What proportion of houses built prior to RIP could not be built today?
- ➔ How much more expensive were these houses than those below current FAR limits?

Above RIP FAR (Zone R5 | .8 FAR)

Above RIP FAR (Zone R2.5 | 1.3 FAR)

Image Source: Zillow

Summary of Findings

Sales trends for new detached single-family homes in the years leading up to RIP adoption suggest that **RIP's impact is not just in what it allows, but also in what it does not**.

Key Finding #1

Nearly half of the new detached single-family homes built and sold from Q1 2018 to Q2 2022 are not possible to build under RIP. This means that RIP not only altered the nature of housing production, it also **truncated the most expensive segment of the detached single-family housing market.**

Pre-RIP Context Analysis Snapshot

1,178 Total new (built since 2018) detached single dwelling homes sold 2018 - 2022

44% Percent of new detached single dwelling homes sold over FAR threshold

$117k Average sale price difference between homes above and below FAR limits set by RIP

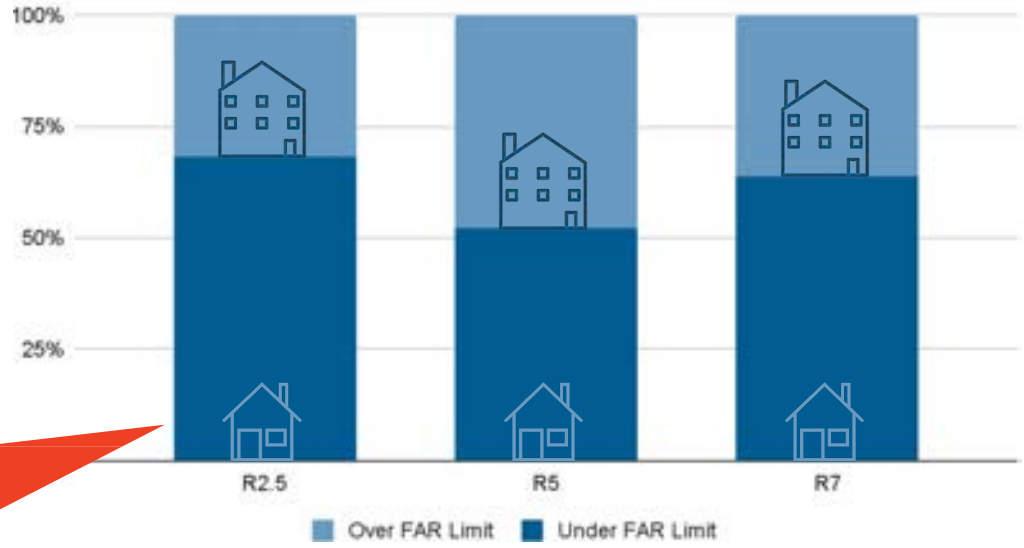
Source: RMLS data (Q1 2018 - Q2 2022)

Detached Single-Family Sales Trends

A large proportion of new detached single-family homes sold between 2018 and 2022 in the R2.5-R7 zones could not be built today under new FAR limits imposed by RIP.

Roughly one-third to one-half of new detached single-family homes built and sold between 2018 and 2022 are larger than the threshold set by RIP for single dwellings.

New Detached Single-Family Home Sales above and below RIP FAR Limits



Source: RMLS data (Q1 2018 - Q2 2022)

Pre-RIP house remodel

Post RIP duplex

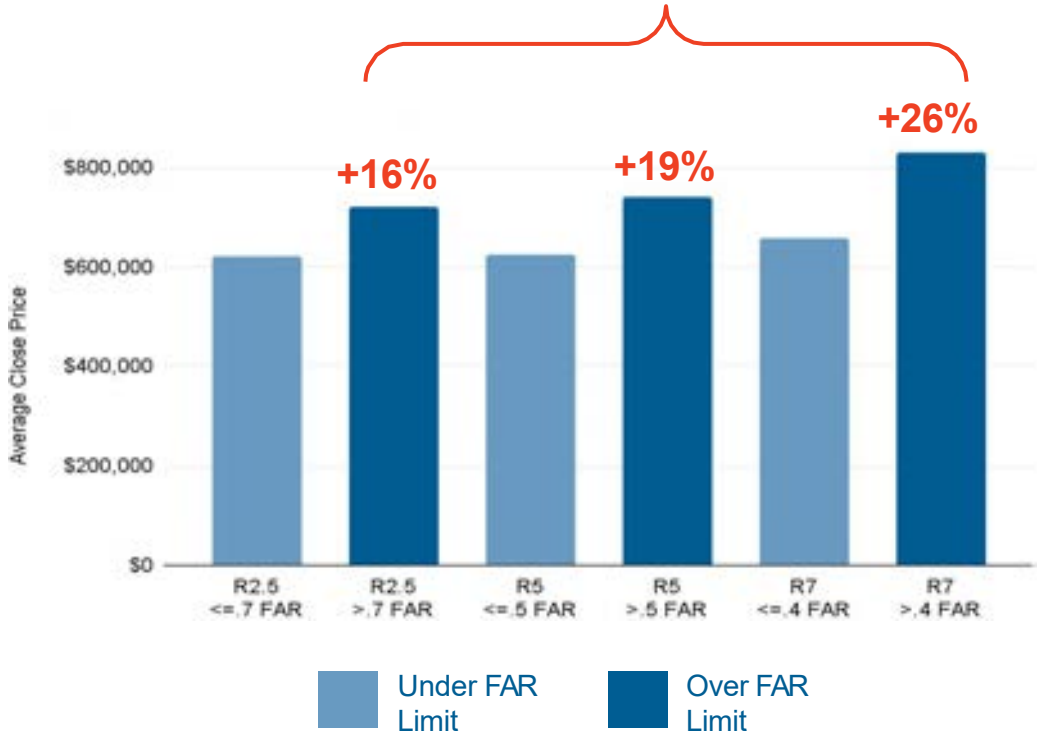
Image Source: Google maps

FAR Limits and Impacts to Home Sales Prices

Key Finding #2

Detached single-family homes with high FARs tend to sell for higher prices due to their size. By limiting the largest of these detached single-family homes, RIP prevents more expensive homes from being built and makes Middle Housing more competitive.

Detached single-family homes over the current FAR limit sold for substantially more than those below the limit. On average, the difference in sales price was over $117,000.



Source: RMLS data (Q1 2018 - Q2 2022)

RIP PERMIT DATA ANALYSIS

Permit data was analyzed to identify common traits of Middle Housing development:

- ➔ Development Characteristics
- ➔ Locational Context

RIP PERMIT DATA ANALYSIS

Overview

The RIP permit data analysis compares the housing production pipeline for all dwelling units in the R2.5, R5, and R7 zones for the 12 months following when RIP took effect.

It is organized in two data analysis categories. The first, *Development Characteristics,* includes detailed summaries of Middle Housing development projects. The second, *Locational Context* focuses on the location of new Middle Housing units relative to other forms of housing built over the same time period.

DATA ANALYSIS CATEGORIES

- DEVELOPMENT CHARACTERISTICS
  Parking, size, demolitions
- LOCATIONAL CONTEXT
  Parks, transit, centers & corridors, zones

Data and Methods

The RIP permit data analysis relies on information from the City of Portland's permitting system, *AMANDA*, demolition permits, and detailed information from 85 permit applications submitted for Middle Housing projects during the first 12 months after RIP took effect.

The City also conducted geospatial analysis that evaluated permit activity across multiple categories to add more context to the permit activity pulled from the first year of RIP.

Permit Classification

The following sections will refer to various housing types permitted in the R2.5–R7 zones. These housing types are listed below. Refer to the glossary for more information on each permit class.

01 – Single Dwelling 02 – ADU 03 – Single Dwelling + ADU 04 – Corner Duplex	Allowed Prior to RIP
05 – ADU Allowance 06 – Duplex 07 – Triplex 08 – Fourplex 09 – Sixplex	Allowed by RIP

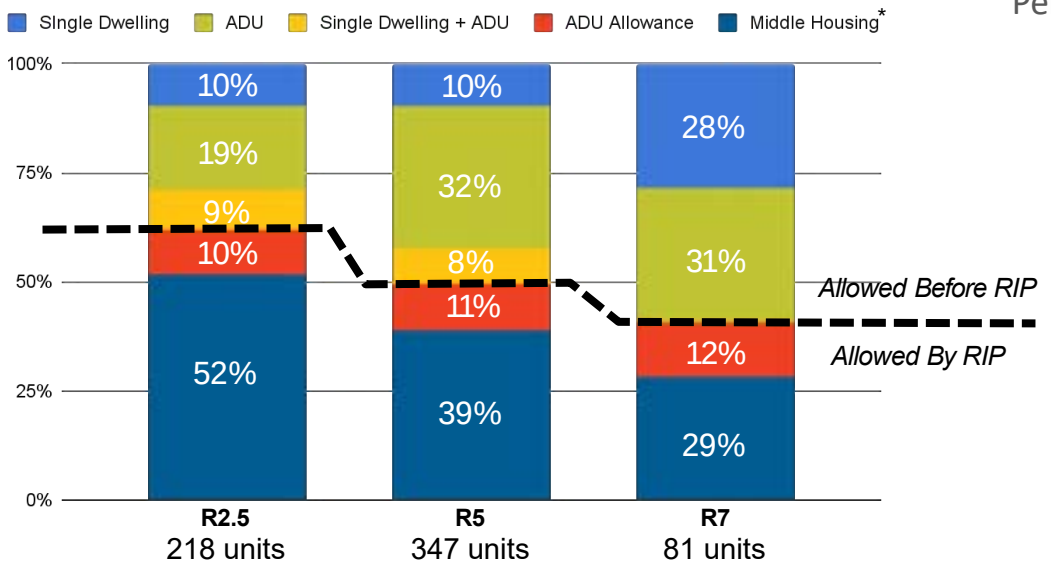
**When comparing the performance of single dwelling development against middle housing, this report includes corner duplexes as middle housing.*

RIP Permits at a Glance

Key Finding #3

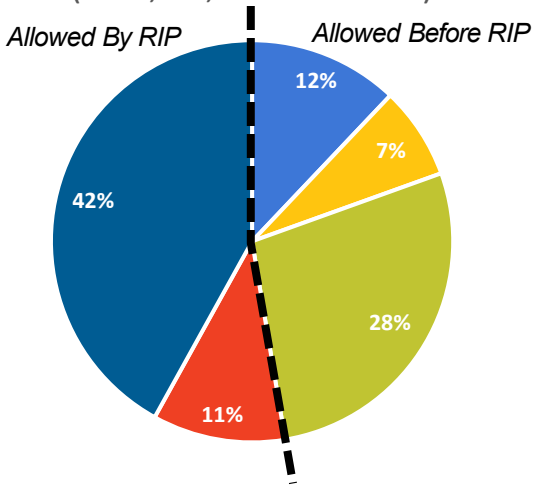
Units allowed by RIP represent the majority of permitted units

Percent of Units Permitted by Housing Type in RIP Zones



*Middle Housing category includes corner duplexes

Percent of Units Permitted by Housing Type (R2.5, R5, R7 combined)

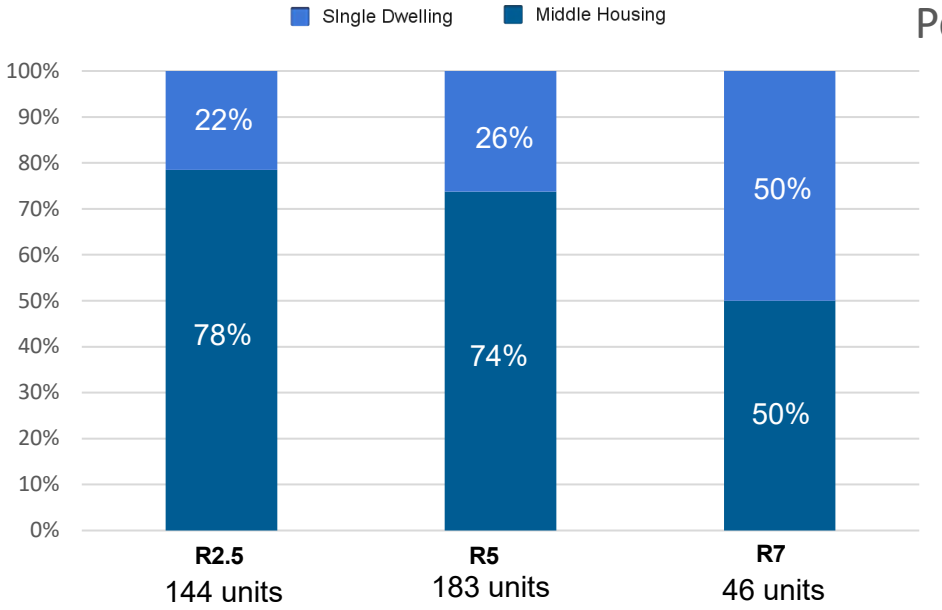


RIP Permits at a Glance

Key Finding

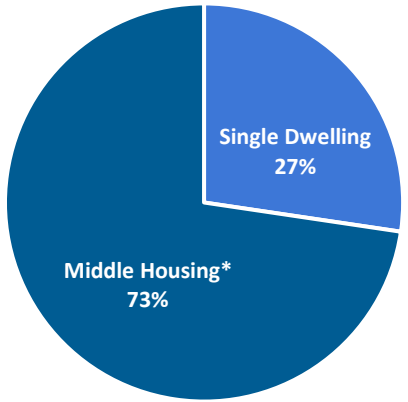
Excluding ADU's, middle housing units accounted for 73% of all units

Percent of Units Permitted by Housing Type in RIP Zones (excluding ADUs)



**Middle Housing category includes corner duplexes*

Percent of Units Permitted by Housing Type (R2.5, R5, R7 combined, excl ADUs)

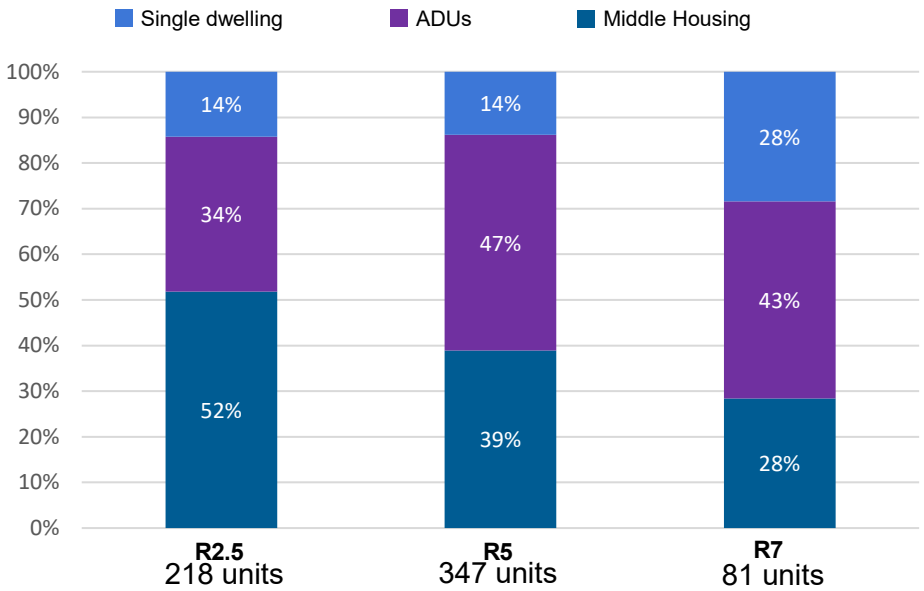


RIP Permits at a Glance

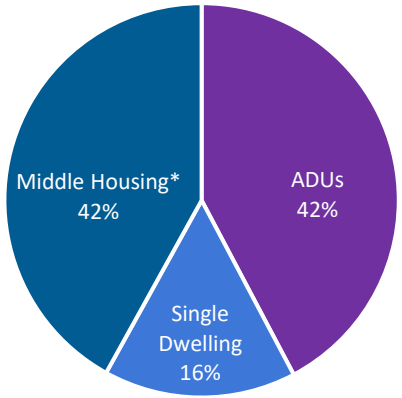
Key Finding

ADUs equaled middle housing units permitted overall

Percent of Units Permitted by Housing Type in RIP Zones (House, ADU, Middle Housing)



Percent of Units Permitted (SD, ADU, MH)
R2.5, R5, R7



*Middle Housing category includes corner duplexes. ADUs includes ADU, ADU w/house and ADU allowances

DEVELOPMENT CHARACTERISTICS

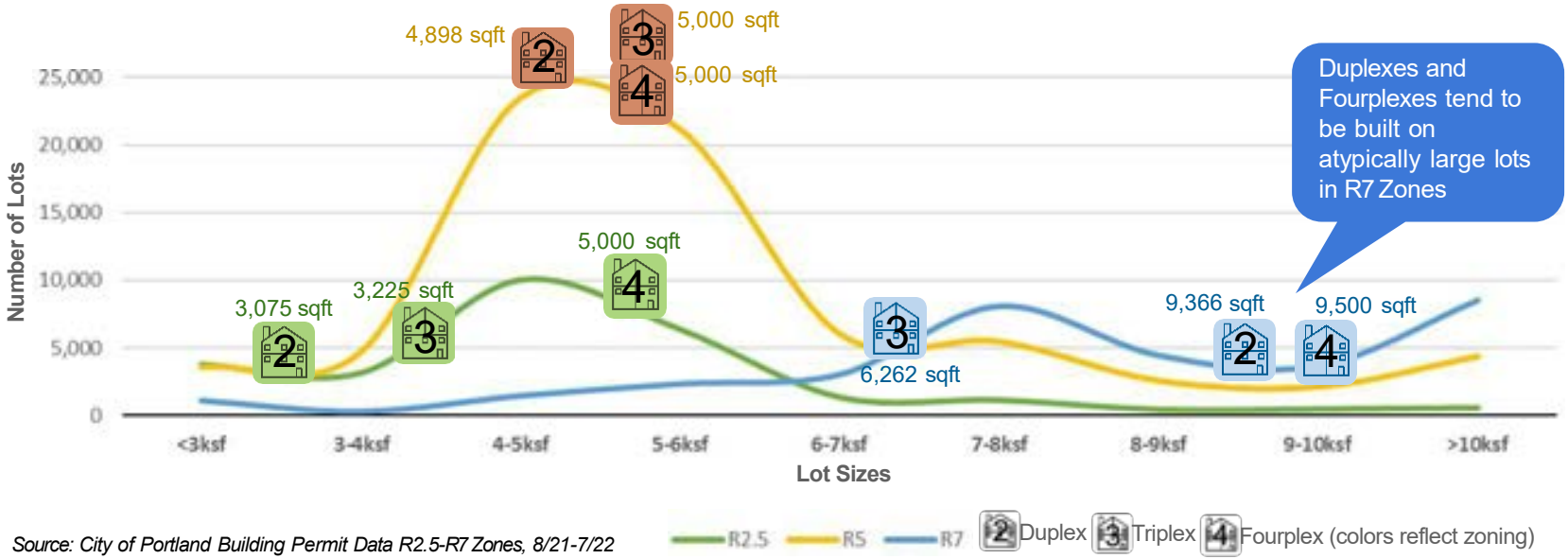
Development characteristics of RIP permits were analyzed to identify trends in lot sizes, development projects, and parking configurations.

Lot Size

Key Finding #5

Developers of fourplexes appear to prefer larger than average lots in the R2.5 and R7 zones.

Distribution of Lot Sizes Citywide by Zone vs Median Lot Sizes for Middle Housing Projects



Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Unit Size By Housing Type in Each Zone

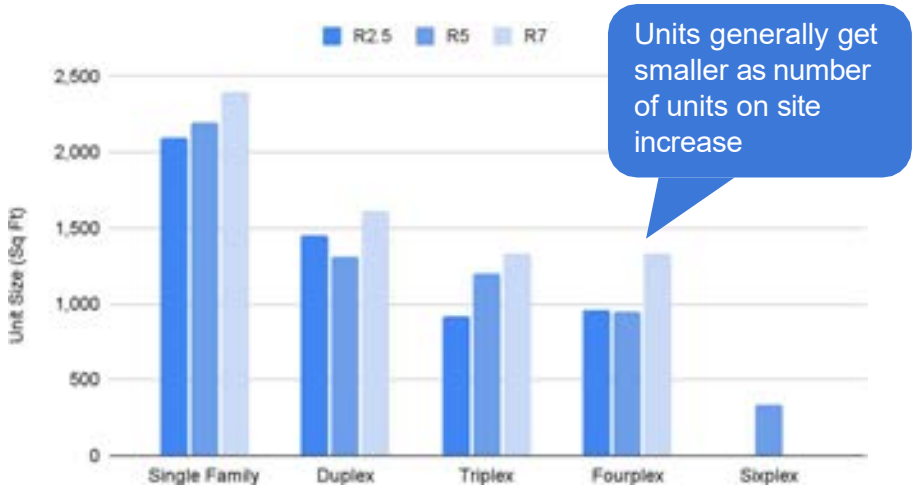
Key Finding #6

Even with new FAR limits for all building types, Middle Housing units tend to be much smaller than detached single dwellings.

This trend is also visible within Middle Housing types. For example, fourplexes tend to include smaller units than triplexes and duplexes.

The Planning Commission revised FAR limits for fourplexes as part of RIP2 to better enable larger sized units.

Average Unit Size (Sqft) by Housing Type and Zone



Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Number of Bedrooms by Housing Type

More units per building tends to produce less bedrooms per unit.

Developers tend to build smaller units with fewer bedrooms in fourplexes than they do in duplexes and triplexes.

Units Permitted by Housing Type and Bedroom Count*

Housing Type	1 Bedroom	2 Bedroom	3 Bedroom	4+ Bedroom
Duplex	1	13	20	2
Triplex	0	13	11	3
Fourplex	0	**176**	21	7

Key Finding #7

2 bedroom appears to be the "sweet spot" for fourplexes

**Does not include 2 unit conversion into sixplex*

Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Parking Spaces by Housing Type

Parking competes with site area for dwelling units.

Key Finding #8

For Middle Housing types with 3+ units, developers tend to provide less parking. This is likely a result of needing more site area to achieve desired FAR.

Number of Parking Spaces per Unit by Permit*

Housing Type	No Parking	< 1 Space per Unit	1 Space per Unit	> 1 Space per Unit
Duplex	5	1	11	2
Triplex	6	1	2	0
Fourplex	**46**	1	4	0

Fourplexes leverage flexible parking requirements

**Does not include 2 unit conversion into sixplex*

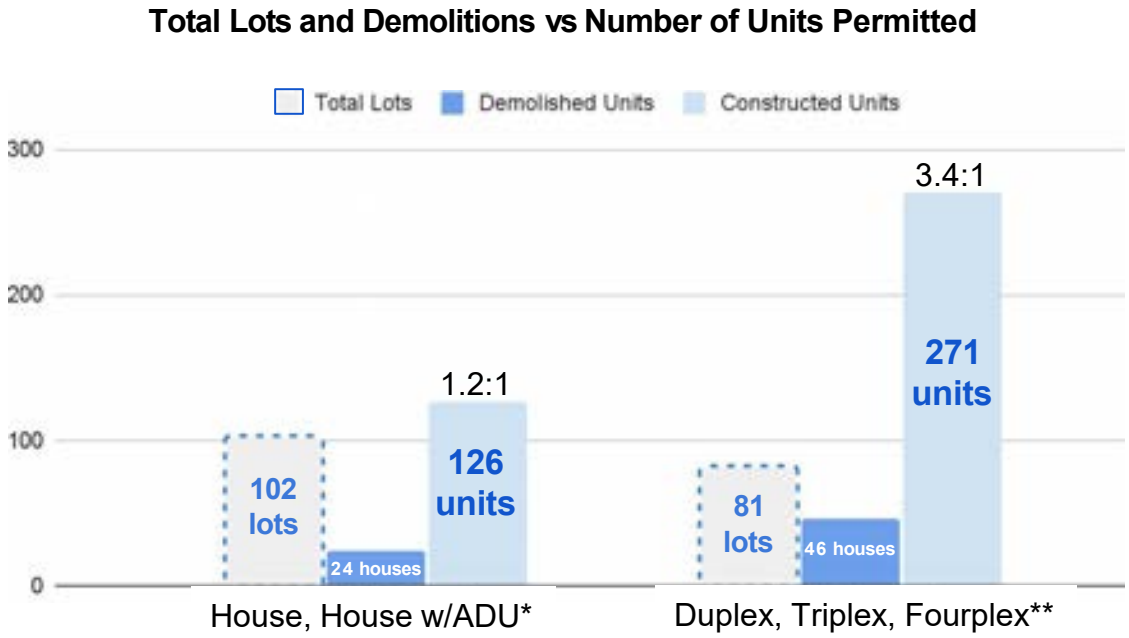
Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Demolitions and Replacements

The housing unit replacement rate is the ratio of new units built to units demolished.

Key Finding #9

The net number of units added for Middle Housing has been substantially higher than for single dwellings.



Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

** Count of primary single dwellings and ADUs on lots where single dwellings or single dwellings + ADU were permitted. Excludes sites where only ADUs were constructed.*

*** Excludes ADU allowances, includes corner duplexes*

Demolitions and Replacements

PERMIT REFERENCE DATA

	Unit Type	Demolished Units	Constructed Units
NON-RIP	Single Dwelling	21	78
	Single Dwelling + ADU	3	48
	Corner Duplex	2	4
RIP	Duplex	5	34
	Triplex	5	27
	Fourplex	34	204
	Sixplex	0	2*

**2 unit conversion from a fourplex into a sixplex*

Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

LOCATIONAL CONTEXT

Permit locations for all housing types were analyzed to examine location preferences relative to centers, corridors, zones, and pattern areas.

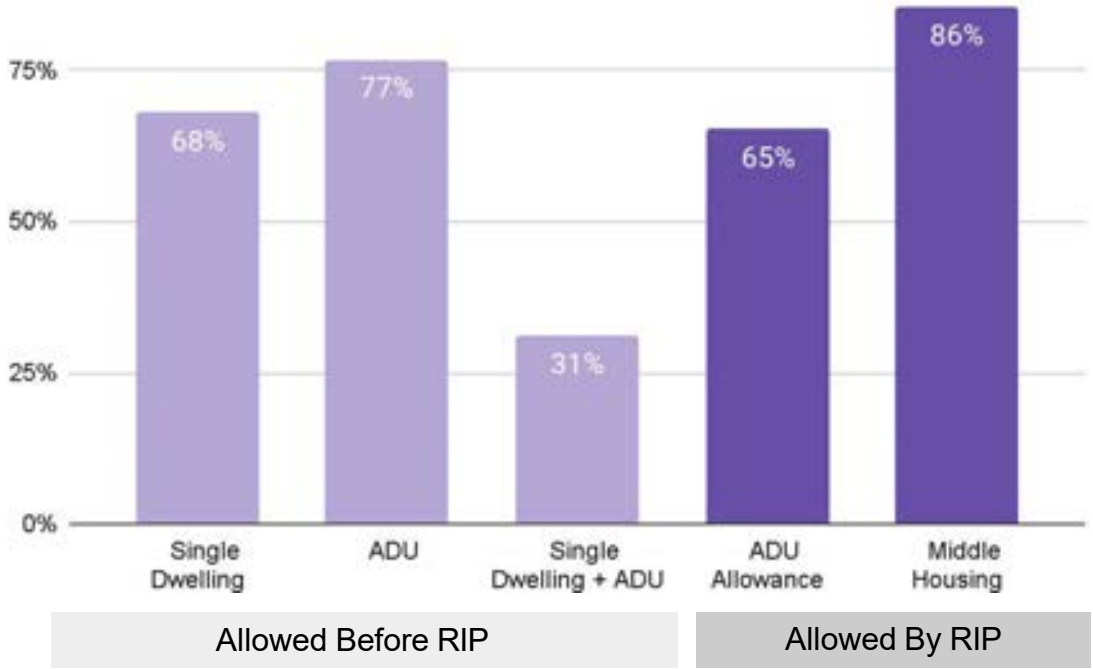
Proximity to Centers and Corridors

Key Finding #10

A greater share of permitted units newly allowed by RIP are near designated Centers and Corridors.

It is possible that developers of these units perceive benefits from proximity to amenities, such as public transportation and walkable retail.

Percent of Units Built Within ¼ Mile of a Center or Corridor



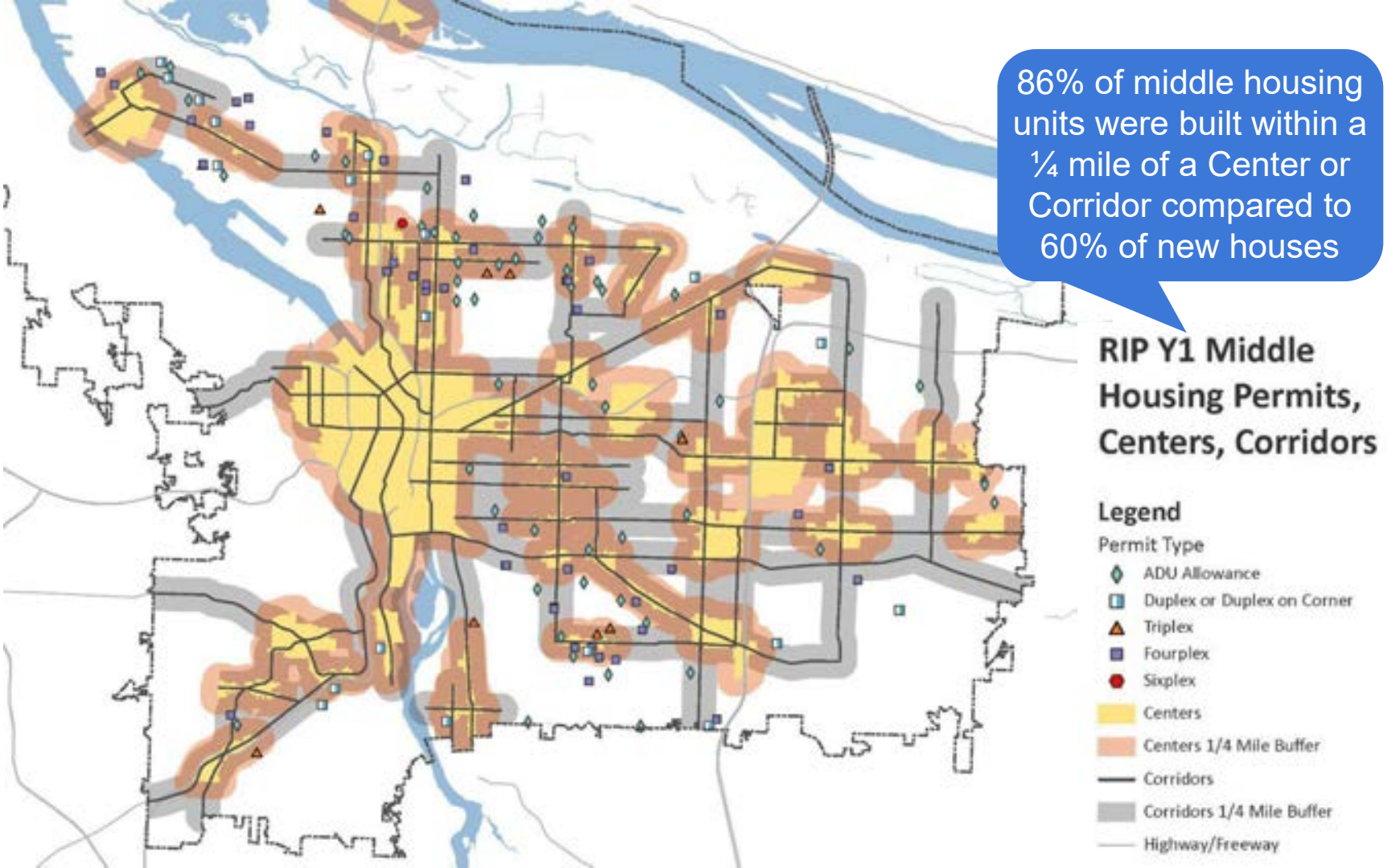
Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Proximity to Centers and Corridors

PERMIT REFERENCE DATA

	Unit Type	Total Units	Units within ¼ mile of Centers or Corridors
NON-RIP	**Single Dwelling**	78	53
NON-RIP	**ADU**	180	139
NON-RIP	**Single Dwelling + ADU**	48	15
RIP	**ADU Allowance**	69	45
RIP	**Middle Housing**	271	232

Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22


86% of middle housing units were built within a ¼ mile of a Center or Corridor compared to 60% of new houses
RIP Y1 Middle Housing Permits, Centers, Corridors
Legend
Permit Type
ADU Allowance
Duplex or Duplex on Corner
Triplex
Fourplex
Sixplex
Centers
Centers 1/4 Mile Buffer
Corridors
Corridors 1/4 Mile Buffer
Highway/Freeway

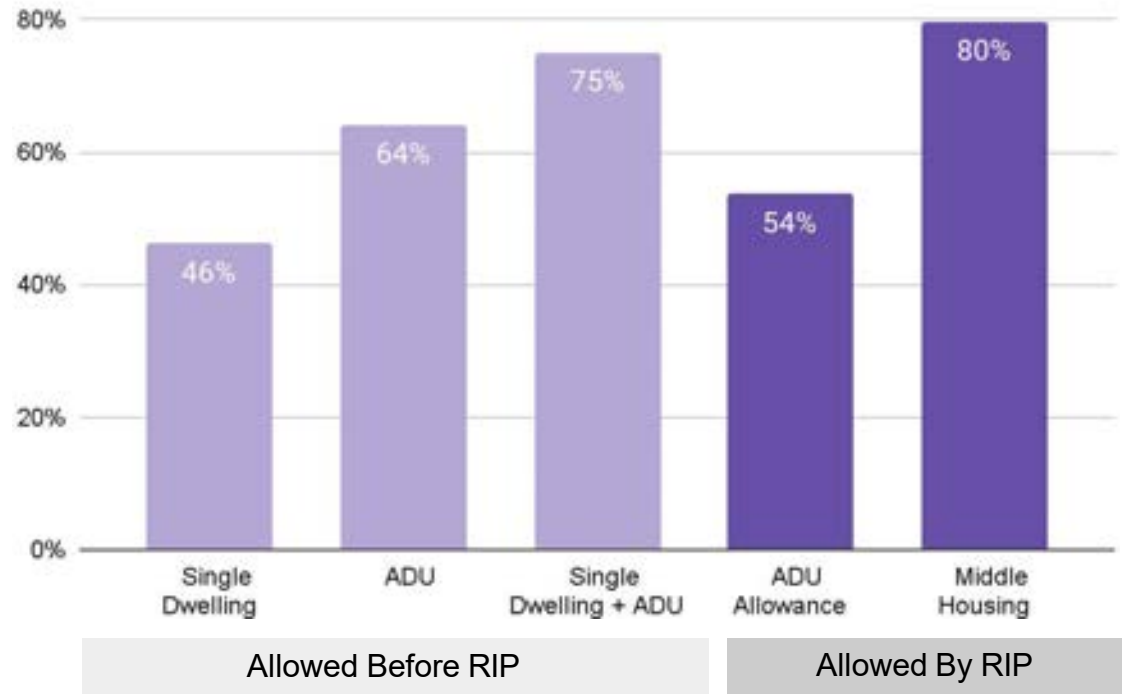
Proximity to Transit Stops

A greater share of permitted units newly allowed by RIP exist near a transit stop.

Key Finding #11

Just over half of Single Dwelling homes are within 1/4 of transit compared to over three-quarters of Middle Housing.

Percent of Units Built Within ¼ Mile of a Transit Stop



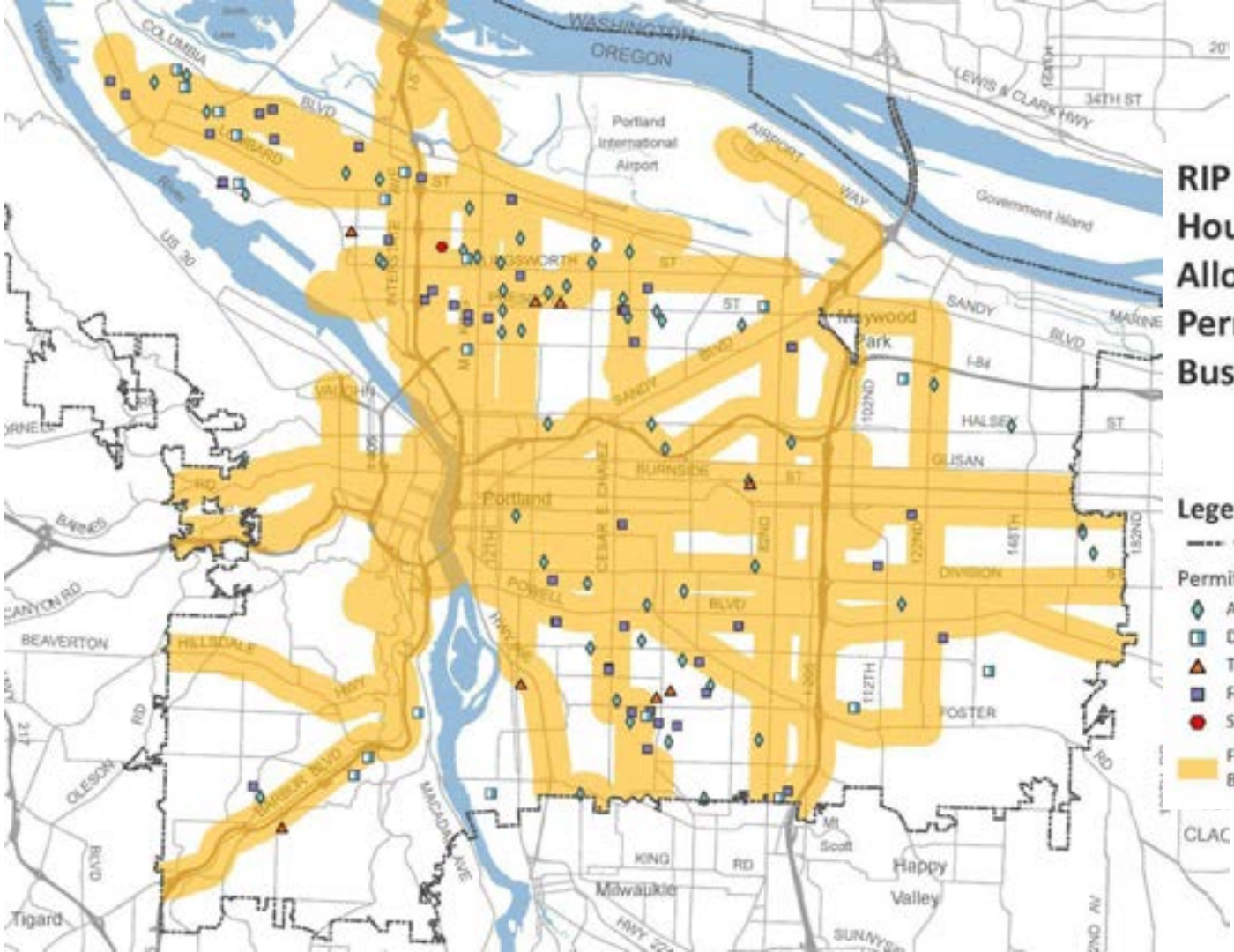
Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Proximity to Transit Stops

PERMIT REFERENCE DATA

	Unit Type	Total Units	Units Within 1/4 Mile of Transit	Percent
NON-RIP	**Single Dwelling**	78	36	46%
NON-RIP	**ADU**	180	116	64%
NON-RIP	**Single Dwelling + ADU**	48	36	75%
RIP	**ADU Allowance**	69	37	54%
RIP	**Middle Housing**	271	216	80%

Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22



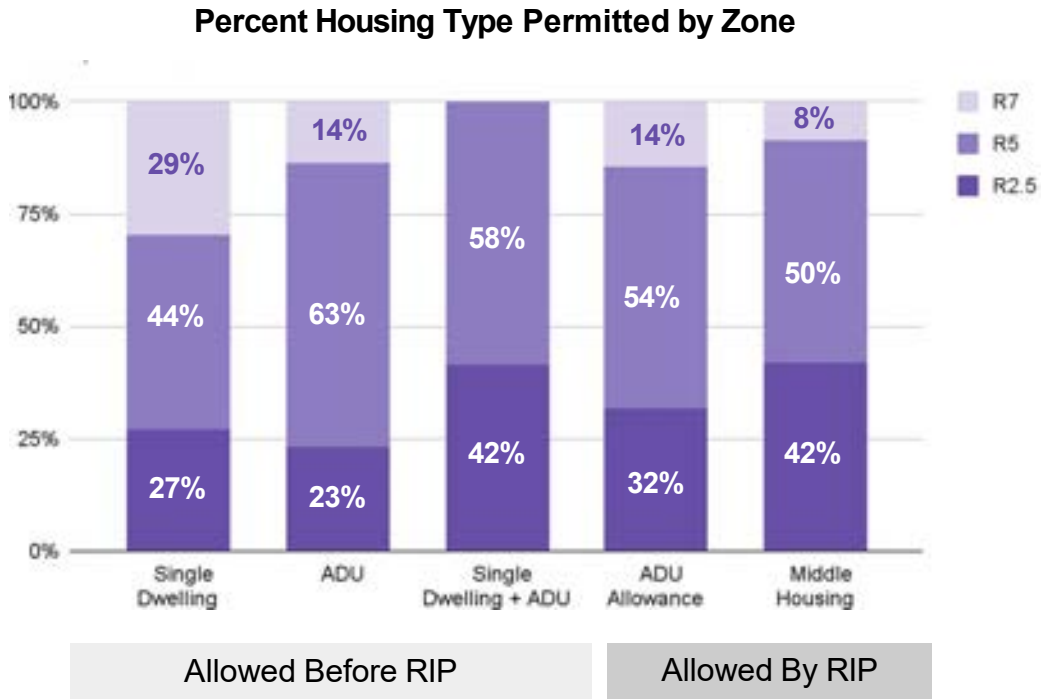
RIP Y1 Middle Housing, ADU Allowance Permits, Frequent Bus Lines

Housing Units Permitted by Zone

Middle Housing is the dominant housing type in R2.5 and R5.

Key Finding #12

Over 90% of Middle Housing units were constructed in the R2.5 and R5 zones, and they now represent the majority of units permitted in those zones.



Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

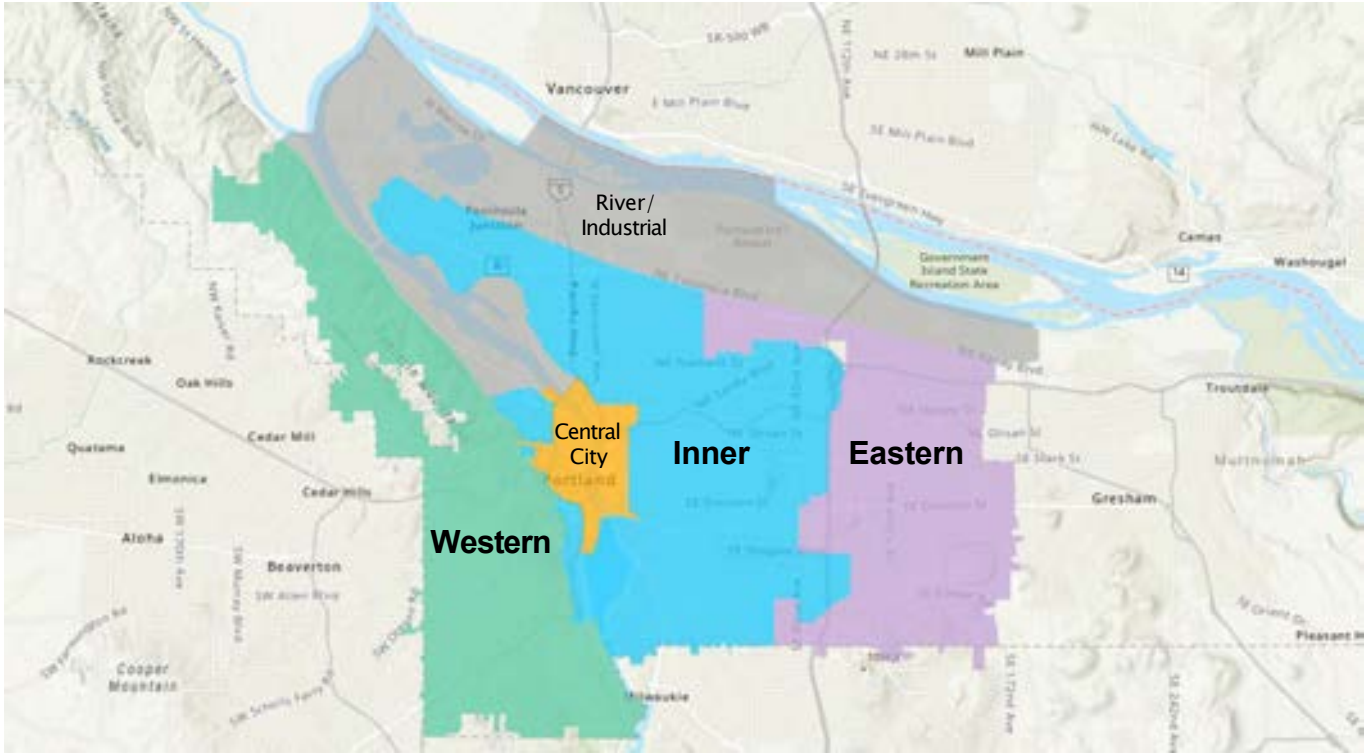
Housing Units Permitted by Zone

PERMIT REFERENCE DATA

	Unit Type	Total Units	R2.5	Percent	R5	Percent	R7	Percent
NON-RIP	**Single Dwelling**	78	21	27%	34	44%	23	29%
NON-RIP	**ADU**	180	42	23%	113	62%	25	14%
NON-RIP	**Single Dwelling + ADU**	48	20	42%	28	58%	0	0%
RIP	**ADU Allowance**	69	22	32%	37	54%	10	14%
RIP	**Middle Housing**	271	113	42%	135	50%	23	8%

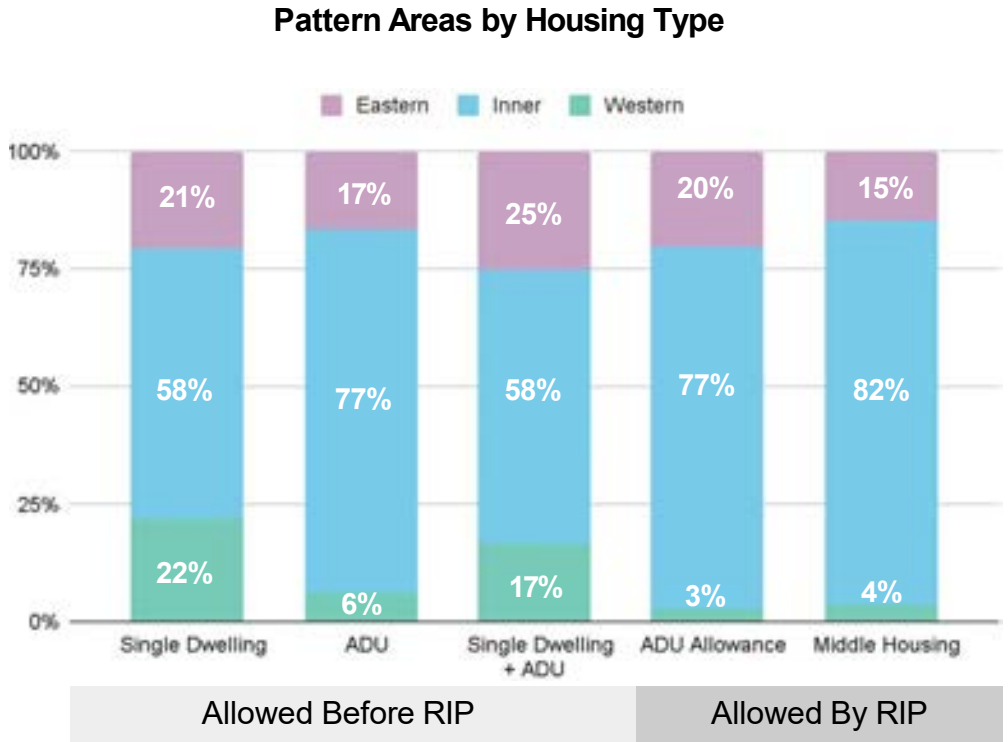
Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Pattern Areas Map



Pattern Areas

The market for Middle Housing in RIP zones is concentrated in inner neighborhoods. Over 80% of middle housing units were constructed in inner neighborhoods.



Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

Pattern Areas

PERMIT REFERENCE DATA

	Unit Type	Total Units	Inner	Western	Eastern
NON-RIP	**Single Dwelling**	78	45	17	16
	ADU	180	140	11	29
	Single Dwelling + ADU	48	28	8	12
RIP	**ADU Allowance**	69	53	2	14
	Middle Housing	271	221	10	40

Source: City of Portland Building Permit Data R2.5-R7 Zones, 8/21-7/22

CASE STUDIES

Six case studies are highlighted to represent the range of project types being developed and includes key characteristics.*

**Due to a lack of completed projects at the time this report was developed, no duplex or triplex case studies were included.*

CASE STUDIES

Fourplex

Fourplex

Fourplex

House + ADUs (2)

Fourplex

Single Family

CASE STUDIES

1 Creston–Kenilworth | Fourplex

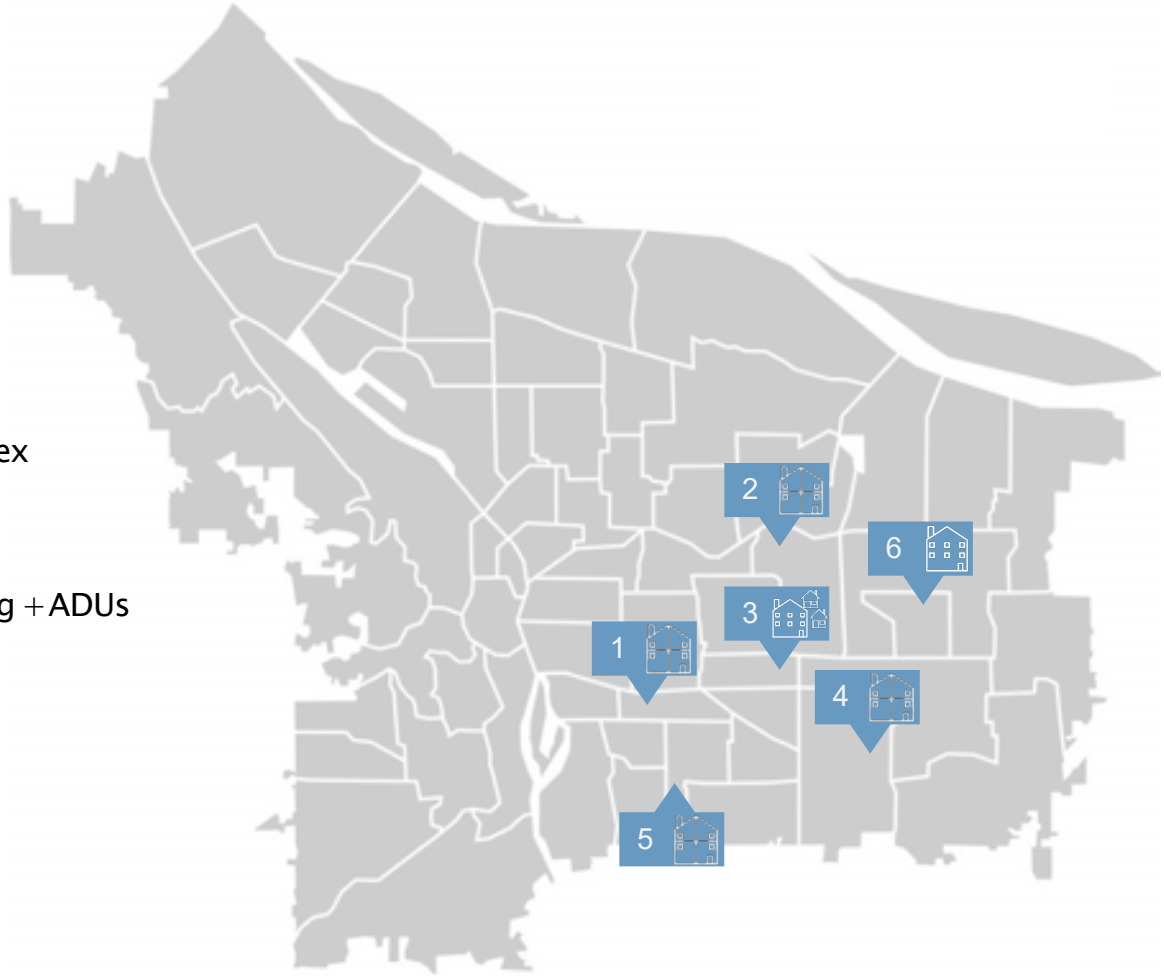
2 Montavilla | Fourplex

3 South Tabor | Single Dwelling + ADUs

4 Lents | Fourplex

5 Woodstock | Fourplex

6 Mill Park | Single Dwelling



*Price retrieved Apr 2023
**Sales price inflation-adjusted to 2023 dollars

Image Source: Redfin

Fourplex

Three four-unit townhomes on vacant lots

Case Study Overview	
Zone	R2.5
Avg Unit Size	1,008
FAR	0.8
Avg Price / Unit*	$419,900
Avg Bedrooms / Unit	2
Parking	Not included
HOA	$80
Lot Size	4,750 sq ft
Tenure	Ownership
Previous Lot Sale Price**	$1,232,000 – price for 3 lots

Image Source: Zillow

* *Townhomes only*
***Price Retrieved Aug 2022*
****Sales price inflation-adjusted to 2023 dollars*

Fourplex

Three-unit townhomes replaced a single-family home while retaining a detached ADU

Case Study Overview	
Zone	R5
Avg Unit Size*	1,150 sqft
FAR	0.7
Avg Rent / Unit**	$2,300/mo
Avg Bedrooms / Unit*	2–3
Parking	Not included
Lot Size	5,000 sqft
Tenure	Rental
Previous Lot Sale Price***	$375,669

Single Dwelling + 2 ADUs

Image Source: Zillow

Single Dwelling + 2 ADUS replaced a single-family home

Case Study Overview	
Zone	R5
Avg Unit Size*	888 sqft
FAR	0.5
Avg Price / Unit**	$456,950
Avg Bedrooms / Unit*	2
Parking	Not Included
HOA	$34/month
Lot Size	8,125 Sq.Ft
Tenure	Ownership
Previous Lot Sale Price***	$570,000

** ADUs only*
***Price retrieved Feb 2023*
****Sales price inflation-adjusted to 2023 dollars*

Fourplex

Image Source: Redfin

Four-unit townhomes replaced a single-family home

Case Study Overview	
Zone	R7
Avg Unit Size	1,527 sqft
FAR	0.3
Avg Price / Unit*	$406,000
Avg Bedrooms / Unit	4
Parking	1 surface, 1 garage
HOA	$61 / month
Lot Size	17,569 sqft
Tenure	Ownership (Condo)
Previous Lot Sale Price**	$215,000

**Price retrieved March 2023*
***Sales price inflation-adjusted to 2023 dollars*

Image Source: Zillow

**Price retrieved Feb 2023*
***Sales price inflation-adjusted to 2023 dollars*

Fourplex

Four-unit townhomes replaced a single-family home

Case Study Overview	
Zone	R2.5
Avg Unit Size	1,395 sqft
FAR	0.6
Avg Price / Unit*	$518,099
Avg Bedrooms / Unit	4
Parking	Not Included
HOA	$40/month
Lot Size	10,000 sqft
Tenure	Ownership (Condo/Co-op)
Previous Lot Sale Price**	$572,270

Single Dwelling

One single dwelling (SD) home on two lots was demolished and replaced with a SD home on each lot

Image Source: Redfin

Case Study Overview	
Zone	R5
Unit Size	2,076
FAR	0.4
Avg Price / Unit*	$579,900
Avg Bedrooms / Unit	4
Parking	1Car Garage
HOA	N/A
Lot Size	5,227 sq ft
Tenure	Ownership
Previous Lot Sale Price**	$220,335

**Price retrieved Apr 2023*
***Sales price inflation-adjusted to 2023 dollars*

RECOMMENDATIONS

The following recommendations are intended to improve the City of Portland's workflow in future years of reporting on RIP.

Recommendations for Ongoing Reporting

1

Because trends in housing production take time to identify, conduct recurring annual or bi-annual reporting on the residential development pipeline in zones where RIP took effect.

2

Develop a definitive list of permit classifications and definitions to differentiate Middle Housing from other housing types.

3

Cross reference Middle Housing permits with sales data to gain better understanding of the pricing of for-sale units as more come online.

4

Cross reference Middle Housing permits with "schedule R" rental property registration data to gain a better sense of tenure.

5

Conduct further interviews with Middle Housing developers to understand perceived barriers to development as well as location, site, and development project preferences.

6

For Middle Housing permits, develop a streamlined workflow for extracting development projects from plansets. For all other permits, track lot and building size at a minimum. Track unit sizes for ADUs.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE URBAN GROWTH BOUNDARY IN THE VICINITY OF THE CITY OF SHERWOOD UPON APPLICATION BY THE SHERWOOD SCHOOL DISTRICT	)	Ordinance No. 17-1406
	)	
	)	Introduced by Chief Operating Officer
	)	Martha Bennett with the Concurrence of
	)	Council President Tom Hughes

WHEREAS, the Metro Urban Growth Management Functional Plan Title 14: Urban Growth Boundary provides a mechanism to amend the urban growth boundary (UGB) through a major amendment process for public facilities and other non-housing purposes; and

WHEREAS, the Sherwood School District filed an application for a major amendment pursuant to Metro Code Section 3.07.1430 to add approximately 82 acres to the UGB for the purpose of constructing a new high school to serve the Sherwood area; and

WHEREAS, the application was considered by a hearings officer appointed by Metro at public hearings in the City of Sherwood on May 24, 2017 and June 6, 2017; and

WHEREAS, on July 21, 2017 the hearings officer submitted to Metro a proposed order recommending approval of the application, together with findings of fact and conclusions of law in support of a decision by the Metro Council that the application satisfies the requirements of the Metro Code and applicable state law; and

WHEREAS, the Council considered the proposed order and testimony at a public hearing on August 10, 2017 under the procedural requirements of Metro Code Section 3.07.1430(u); now, therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The UGB is hereby amended, as indicated in Exhibit A, attached and incorporated into this ordinance, to add 82.3 acres to the UGB for development of a high school with sports fields and a roadway improvement, subject to the following three conditions of approval:

    a. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this UGB amendment.

    b. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

    c. The City of Sherwood shall complete the requirements of Urban Growth Management Functional Plan Title 11, section 3.07.1120: Planning for Areas Added to the UGB, prior to development occurring.

2. The Findings of Fact and Conclusions of Law contained in the hearings officer's recommendation attached as Exhibit B and hereby incorporated into this ordinance, explain how this amendment to the UGB complies with applicable provisions of the Regional Framework Plan, Metro Code, and applicable statewide planning laws.

3. The Metro Council adopts as supplemental findings in support of its decision the legal memorandum dated August 15, 2017 attached as Exhibit C and hereby incorporated into this ordinance, which includes responses to issues raised at the public hearing by opponents of the application.

ADOPTED by the Metro Council this 17 day of August 2017.

Tom Hughes, Council President

Attest:

Nellie Papsdorf, Recording Secretary

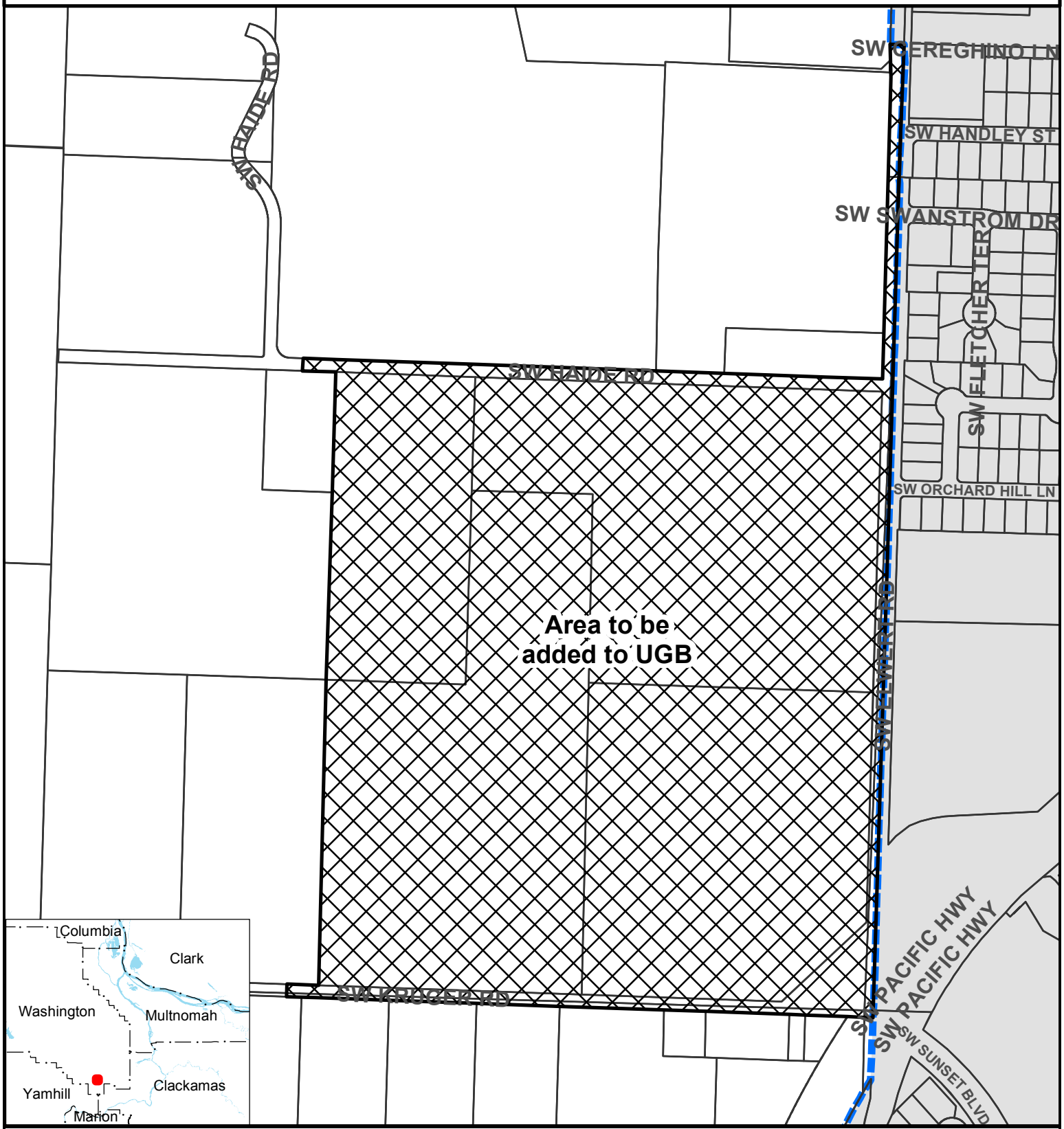
Approved as to form:

Alison R. Kean, Metro Attorney

EXHIBIT A

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

Document Path: R:\boundary\annexations\Maps\ZacMaps2017\UGB_17_02\UGB_17_02.mxd
Date: 3/22/2017

Exhibit B

METRO HEARINGS OFFICER'S ANALYSIS, CONCLUSIONS, AND RECOMMENDATIONS TO THE METRO COUNCIL

Sherwood School District Urban Growth Boundary
Major Amendment, Case 17-02

JULY 21, 2017

ANDREW H. STAMP, P.C.
KRUSE-MERCANTILE PROFESSIONAL OFFICES, SUITE 16
4248 GALEWOOD STREET
PORTLAND, OR 97035

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SECTION I: APPLICATION SUMMARY

FILE NAME:	UGB Case 17-02: Sherwood School District Urban Growth Boundary Major Amendment
APPLICANT:	Sherwood School District 23295 SW Main Street Sherwood, OR 97140
PROPOSAL:	82-acre expansion of the urban growth boundary (UGB) for a high school campus with sports fields. Realign SW Elwert Road and SW Kruger Road in Sherwood.
LOCATION:	Tax Lots 2S236-200, -201, -206, and -207
SITE ADDRESSES:	18880 SW Haide Road, 22895 SW Elwert Road and 18985 SW Kruger Road, Sherwood, Oregon 97140
URBAN RESERVE AREA:	Area 5B.
CURRENT ZONING:	AF-20
METRO CODE:	Metro Code Sections 3.07.1425 (B, C, D, E & F) and 3.07.1440 (A & B). Code Section 3.07.1425(C)(1-9)

SECTION II: BACKGROUND INFORMATION

Proposal Description: The applicant requests an expansion of the City of Sherwood UGB to include approximately 82 acres for a high school campus with sports fields. This proposal also seeks to realign the intersection of SW Elwert Road and SW Kruger Road for improved and safer traffic flow.

Site Information: The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Rd and SW Kruger Rd as shown in Attachment 1. The property has frontage on SW Elwert, SW Haide and SW Kruger Roads. The entire property is zoned AF-20 (Agricultural and Forest District) by Washington County with a minimum lot size of 80 acres. The entirety of the property is located within the Sherwood West Preliminary Concept Plan area (Metro Urban Reserve Area 5B). The site slopes

gently down to the east towards SW Elwert Road with approximately 40 foot grade change across the site. There is a shallow valley and ridge within this slope.

The properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the road realignment. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

Case History: The Sherwood School District (District) is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Local Government Statement: This UGB major amendment is being considered at the request of the Sherwood School District. The City of Sherwood completed the Sherwood West Preliminary Concept Plan for urban reserve area 5B and submitted a service provider form supporting the school district's application. The school district participated in the concept planning process and the subject site is one of the school locations identified in the preliminary concept plan. Washington County submitted a written statement supporting the application with proposed conditions for Metro to consider. Tualatin Valley Fire and Rescue submitted a written statement supporting the application and Clean Water Services is neutral on the application.

SECTION III: APPLICABLE REVIEW CRITERIA

The criteria for a Major Amendment to the UGB are contained in Metro Code Section 3.07.1425(B, C, D, E, & F) and 3.07.1440 (A & B). The approval criteria appear ***bold 12-pt Aerial Narrow font)***, and the hearings officer's analysis follows.

> ***Metro Code Section 3.07.1440(A) The purpose of the major amendment process is to provide a mechanism to address needs for land that cannot wait until the next analysis of buildable land supply under ORS 197.299. Land may be added to the***

UGB under this section only for the following purposes: public facilities and services, public schools, natural areas, land trades and other non-housing needs;

This code section requires that the applicant show, by substantial evidence in the whole record, that it is an eligible entity allowed to use the interim ORS 197.299 Major Amendment UGB process rather than wait until the next regular Metro UGB amendment cycle (in December, 2018).

Hearings Officer's Analysis: Title 14 of the Metro Code (*i.e.* Metro's Urban Growth Management Functional Plan) includes the Major Amendment process to amend the UGB for a number of specific non-housing needs, including schools and public parks. This process, which is designed to implement ORS 197.299(4), is intended to provide an opportunity to meet these specific land needs outside of the legislative housing needs process the Metro Council conducts on a six-year cycle as required by ORS 197.299(1) and ORS 197.296.

As part of the six-year legislative housing needs process, Metro conducts an inventory of the current residential and employment capacity within the UGB, forecasts population and employment growth over a 20-year timeframe, determines the capacity of the current UGB to accommodate that growth and documents the results of these analyses in an urban growth report. ORS 197.296(6)(a), which is one of the state's needed housing statutes, envisions that local governments with populations over 25,000 will factor in land for schools at the same time as they determine the amount of land needed to be brought in to the UGB for housing. In this regard, the need for land for schools under ORS 197.296(6)(a) is a "derivative need" which is linked to, and dependent upon, a finding that there is a need for land to be brought into the UGB to accommodate an identified housing need. As noted in more detail below, this process has proven to be long, drawn out affair, which is not sensitive to short-term needs. Furthermore, because it is done on a large-scale regional basis, is not always sensitive to more localized school and park needs.

In fact, Metro's most recent urban growth report, adopted in 2015, did not address school and park land needs at the regional level at all. Some school districts anticipate growth, others see declining enrollment and none look out over the 20-year timeframe that the urban growth report considers. Depending on the particular physical, financial and expected growth characteristics of each school district, plans for accommodating projected increases in enrollment vary. Similarly, park districts acquire property and develop park facilities based on numerous operational and funding parameters that can't be considered at the regional level. In addition, it is quite common for school districts and cities to collaborate on opportunities to meet the city's recreation needs as well as the school district's team needs. For these reasons, the Major Amendment process is the appropriate means of addressing specific school district and park needs that can be accommodated through UGB expansions.

Metro has adopted specific criteria to implement ORS 197.299(4). There are two criteria contained in Metro Code section 3.07.1440(A) that are analyzed separately below:

1) The proposal must be for a non-housing need, and

2) The proposal must be intended to meet needs that cannot wait until the next analysis of land supply (December 2018).

There does not appear to any disagreement that the first criterion is met: the applicant proposes to add land to the boundary for a public school and a public facility need, both of which are non-housing needs. The Sherwood School District's Sherwood High School is a "public school" within the meaning of Metro Code Section 3.07.1440(A).

However, whether the applicant has met the second criterion has proven to be more controversial. The applicant addresses its need as follows:

> As of 2015, the Sherwood School District encompasses 4.31 square miles serving a population of approximately 18,884 residents and 5,000 students. The Sherwood School District includes:
> - The City of Sherwood city limits;
> - Portion of the western area of the City of Tualatin (mostly industrial land);
> - Rural Clackamas County (primarily between Sherwood and Wilsonville); and
> - Rural Washington County north and west of Sherwood, as well as a small area east of I-5 between Wilsonville and Tualatin.
>
> To facilitate future planning and to comply with State requirements for a fast-growing school district, the District adopted a long-term facilities plan in January of 2008, which assumed that additional school capacity would therefore likely be needed within ten years of the plan's adoption. As predicted school facilities have recently become overtaxed. In 2015, to assess current resources, the Sherwood School District completed a Facilities Planning and Assessment Report to determine both condition and available capacity. Enrollment based on the most current demographic data and capacity shows that school capacity is near or over capacity at all school levels as shown in Staff Report Attachment 2 (Table 1 in petition).
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the

high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

From the updated capacity assessment and demographic data, it became apparent that facilities must be expanded to keep pace with continued student enrollment growth. A Long Range Planning Committee, Bond Steering Committee, Bond Visioning Committee and Sherwood High School Programming Committee were formed to study facility needs. Led by the Bond Management Team, these committees met from 2014 to 2016, making recommendations to the Sherwood School District Board. The process included input from a number of participants from the community including City Council and staff representation, School District staff, architects, civil engineers, financial advisors, business leaders, citizens, parents and students. Throughout this process, the Sherwood City Council was provided with updates and community input was sought via various public outreach methods.

As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth. With the conclusion that the existing high school cannot be upsized to meet demand, the District's Bond Management Team began looking for a long-term solution and the School Board, with voter approval, ultimately decided to build a new high school. The new high school is planned to be sized to initially accommodate 2,000 students, but allow for easy expansion to 2,400 students. This size will allow for projected growth over the next 10 years and foreseeable future.

Once a new high school is online, the existing high school building can be repurposed as a consolidated middle school with both existing middle schools (Laurel Ridge and Sherwood Middle) being relocated to the existing high school campus. Once this occurs, the two existing middle schools can be converted to elementary school use to expand needed elementary school capacity. Finally, the proposal allows for Hopkins Elementary School, a building nearing its useful lifespan, to be taken out of

> school service and converted to administrative functions. The existing administrative offices consist of portable buildings in varying locations and with the conversion of Hopkins, office space can be centralized for increased efficiencies.

The primary opponent argues that the applicant has not justified the use of the Major Amendment process instead of waiting until the normally scheduled Metro 2018 UGB expansion. Their attorney states: "Metro's scheduled UGB expansion in 2018 is the appropriate time to analyze the expansion for the proposed high school because more data will be available and the full set of impacts can be analyzed. The delay will also resolve the issues with inadequate notice in the current application." *See* Letter from Jennifer Bragar dated June 6, 2017, at p. 8.

What the opponents appear to be arguing is that this application is premature, and the applicant should wait until 2018 when the 20-year buildable lands analysis will be available. Furthermore, the opponents do believe that the Major Amendment process authorized by ORS 197.299(4)(a)(A) requires the same type and level of analysis required when Metro conducts its periodic legislative housing need analysis required by ORS 197.299(1) and ORS 197.296. The opponent's unstated assumption is that school needs must be evaluated as a derivative need of housing using the ORS 197.296(6) process.

Metro staff weighed in on the debate via a Memorandum dated June 9, 2017, which states, in relevant part:

> Metro's legislative process for reviewing the UGB is guided partially by ORS 197.296. Subsection 197.296(2) directs Metro to demonstrate that there is sufficient buildable land within the UGB to accommodate estimated housing needs for 20 years. A housing need is the only need identified in the statute. ORS 197.296(6) says if the housing need is greater than the capacity of the UGB Metro shall take one or more actions that could include amending the UGB to include sufficient buildable lands to accommodate housing needs for 20 years. Subsection (6)(a) goes on to say that if the UGB was amended to accommodate housing needs for the next 20 years, then the amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities.
>
> The statutory directive to Metro is to include sufficient land for school facilities as part of any UGB expansion that is required to meet a 20-year need for housing. In Metro's most recent analysis of the 20-year housing supply (the 2015 UGR), Metro determined there was sufficient capacity inside the existing UGB to accommodate housing needs; therefore, no corresponding analysis for public school facilities was required.

> Even if the Metro Council had determined there was a need to expand the UGB in 2015 to accommodate a 20-year housing need, there is no certainty that the location where the land would be added to meet the housing need is also a location where a local school district needs additional land to meet its facility needs. Likewise there is no certainty that the specific land needs of a school district are coordinated with the local jurisdictions desire for additional housing. For instance, a UGB expansion adjacent to Hillsboro to meet a regional housing need would not support the Sherwood School District's need for a new high school.
>
> These difficulties arise, in part, from the size of the Metro region and the fact that it consists of 24 individual cities and 17 different school districts. It is important to recognize that the provisions of ORS 197.296(6)(a) regarding planning for accommodation of new school facilities is included in the statutory section that describes the analysis required for all cities in the State of Oregon. While it would not be as difficult for a smaller jurisdiction to coordinate future public school needs with future housing needs in making UGB expansions, that task is much more complicated in the Metro region.
>
> The disconnect in the Metro region between the location of UGB expansions to meet a 20-year housing need and the needs of existing school districts is addressed, in part, by ORS 197.299(4)(a), which is the statute that directs Metro to establish the process being utilized by the Sherwood School District in this proceeding. ORS 197.299(4)(a) requires Metro to allow "off-cycle" UGB expansions as necessary to accommodate a need for land for a public school that cannot reasonably wait.

Given that the opponents have a very different interpretation of the purpose and meaning of ORS 197.299(4) when compared to Metro staff and the applicant, a discussion of statutory interpretation is in order.

A statute is considered "ambiguous" if it is capable of at least two reasonable interpretations. *State v. Tarrence*, 161 Or App 583, 985 P2d 225 (1999); *Kenton Neighborhood Ass'n v. City of Portland and Oregon Waste Systems, Inc.,* 17 Or LUBA 784, 797 (1990) (when code is internally inconsistent, it is ambiguous).[1] If the legislation is unambiguous, local governments and courts are bound to apply the statute in that manner, regardless of how inartful the enactment seems. *Sanchez v. Clatsop County*, 146 Or App 159, 164 n 4, 932 P2d 557 (1997). Stated another way, an unambiguous statute should not be "interpreted." *City of Hillsboro v. Housing Dev'l Corp of Washington County*, 61 Or App 484, 488, 657 P2d 726 (1983). *See GTE*

[1] *See also Fisher v. City of Gresham,* 69 Or App 411, 416, 685 P2d 486 (1984); *McCoy v. Linn County,* 90 Or App 271, 276 nl, 752 P2d 323 (1988).

Northwest, Inc., v. Oregon Public Utility Comm'n, 179 Or App 46, 39 P3d 201 (2002). Rather, unambiguous words should be given their plain, natural, and ordinary meaning. *PGE v. BOLI*, 317 Or at 611.[2]

In this case, the hearings officer believes that the relationship between ORS 197.296 and ORS 197.299 creates sufficient ambiguity to warrant an exercise of statutory interpretation.

Text and Context.

When construing a statute, the court will often first look directly at the text of the statute itself. *See Whipple v. Howser*, 291 Or 475, 635 P2d 782 (1981) (citing *Greyhound Corp. v. Mount Hood Stages, Inc.*, 437 US 322, 330, 98 S Ct 2370, 2375 (1978)). Emphasizing the need to look first to the language of the statute, the *Whipple* court stated:

> "The cardinal rule for the construction of a statute is to ascertain from the language thereof the intent of the law makers as to what the purpose was to be served, or what the objective was designed to be attained."

Whipple, 291 Or at 479 (citing *Swift & Co. and Armour & Cove, Co. v. Peterson,* 192 Or 97, 233 P2d 216 (1951). *See also State of Oregon v. Buck,* 200 Or 87, 92, 262 P2d 495 (1953). The *Whipple* court also cited to *State ex rel. Cox v. Wilson*, 277 Or 747, 562 P2d 172 (1977), in which the court stated:

> "There is, of course, no more persuasive evidence of the purpose of a statute then the words by which the legislature undertook to give impression to its wishes."

Courts do not view the text in a vacuum; they consider the context of the language at issue as well. In fact, the context of the statute is as important to the interpretation as the text. *State v. Webb*, 324 Or 380, 927 P2d 79 (1996); *Friends of Neaback Hill v. City of Philomath*, 139 Or App 39, 48, 911 P2d 350 (1996). *See e.g*., *Shadrin v. Clackamas County*, 34 Or LUBA 154 (1998). In some cases, the court may consider the context before examining the text, in situations where the context "provided perspective on the text." *See Plotkin v. Washington County*, 165 Or App 246, 250, 997 P2d 226 (2000). In this case, consider the two statutes in tandem.

ORS 197.299 provides as follows:

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[2] *See also OSHU v. Hass*, 325 Or 492, 501, 942 P2d 261 (1997); *Zidell Marine Corp. v. West Painting, Inc.*, 322 Or 347, 906 P2d 809 (1995); *State v. Langley*, 314 Or 247, 256, 839 P2d 692 (1992); *Curly's Dairy, Inc. v. State Dept of Agriculture*, 244 Or 15, 415 P2d 740 (1966) (If statute is clear and unambiguous, the court may not resort to rules of statutory construction in ascertaining and declaring the legislative intent.); *Sullivan v. City of Ashland*, 130 Or App 480, 882 P2d 633, *rev den*, 320 Or 453, 887 P2d 792 (1994) (An unambiguous code provision cannot be interpreted, even if that provision is contrary to the express purposes of the provision.); *City of Portland v. White*, 61 Or App 120, 655 P2d 629 (1982).

197.299 Metropolitan service district analysis of buildable land supply; schedule for accommodating needed housing; need for land for school; extension of schedule.

(1) A metropolitan service district organized under ORS chapter 268 shall complete the inventory, determination and analysis required under ORS 197.296(3) not later than six years after completion of the previous inventory, determination and analysis.

(2)(a) The metropolitan service district shall take such action as necessary under ORS 197.296(6)(a) to accommodate one-half of a 20-year buildable land supply determined under ORS 197.296 (3) within one year of completing the analysis.

(b) The metropolitan service district shall take all final action under ORS 197.296(6)(a) necessary to accommodate a 20-year buildable land supply determined under ORS 197.296 (3) within two years of completing the analysis.

(c) The metropolitan service district shall take action under ORS 197.296(6)(b), within one year after the analysis required under ORS 197.296(3)(b) is completed, to provide sufficient buildable land within the urban growth boundary to accommodate the estimated housing needs for 20 years from the time the actions are completed. The metropolitan service district shall consider and adopt new measures that the governing body deems appropriate under ORS 197.296 (6)(b).

(3) The Land Conservation and Development Commission may grant an extension to the time limits of subsection (2) of this section if the Director of the Department of Land Conservation and Development determines that the metropolitan service district has provided good cause for failing to meet the time limits.

(4)(a) The metropolitan service district shall establish a process to expand the urban growth boundary to accommodate a need for land for a public school that cannot reasonably be accommodated within the existing urban growth boundary. The metropolitan service district shall design the process to:

(A) Accommodate a need that must be accommodated between periodic analyses of urban growth boundary capacity required by subsection (1) of this section; and

(B) Provide for a final decision on a proposal to expand the urban growth boundary within four months after submission of a complete application by a large school district as defined in ORS 195.110.

(b) At the request of a large school district, the metropolitan service district shall assist the large school district to identify school sites required by the school facility planning process described in ORS 195.110. A need for a public school is a specific type of identified land need under ORS 197.298 (3). [1997 c.763 §2; 2001 c.908 §2; 2005 c.590 §1; 2007 c.579 §2; 2014 c.92 §5]

As quoted above, ORS 197.299(1) cross-references ORS 197.296(3), which, in term, cross-references to ORS 197.296(2). These two statutes together set forth a process for evaluating and accommodating housing needs:

> ***(2) At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use, a local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years. The 20-year period shall commence on the date initially scheduled for completion of the periodic or legislative review.***
>
> ***(3) In performing the duties under subsection (2) of this section, a local government shall:***
>
> ***(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and***
>
> ***(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.*** (Underlined emphasis added).

As the underlined language indicates, ORS 197.296 is a statute narrowly-tailored towards the process used to establish and fulfill an identified *housing* need. It is an expansion of the basic concepts set forth in Statewide Planning Goal 10, but it goes beyond Goal 10 in scope.

As part of that process, the effect of ORS 197.296(6) should also be considered as context:

> ***(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need:***
>
> ***(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school***

districts and the local government that has the authority to approve the urban growth boundary;

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall monitor and record the level of development activity and development density by housing type following the date of the adoption of the new measures; or

(c) Adopt a combination of the actions described in paragraphs (a) and (b) of this subsection.

A few key points can be quickly gleaned from ORS 197.296. First, by its terms, ORS 197.296(2) only applies to periodic review or another "*legislative* review of the [.. .] regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use. " This Major Amendment application is not periodic review and is also not a legislative review of Metro's regional framework plan, *i.e.*, the every six-year UGB amendment cycle. The Major Amendment application is subject to a quasi-judicial process and will result in a quasi-judicial decision by the Metro Council.

Strawberry Hill 4 Wheelers v. Board of Comm'rs sets out a list of factors to be weighed to determine whether a land use decision is legislative or quasi-judicial. 287 Or 591, 602-603, 601 P2d 769 (1979). Under *Strawberry Hills,* the Major Amendment is quasi-judicial because (a) the application process is bound to result in a decision, (b) the decision must apply pre-existing criteria to concrete facts, and (c) the action is directed at a closely circumscribed factual situation.

With regard to the first question, the *Strawberry Hills 4-Wheelers* Court asks practitioners to consider the following question: "Does the statute require the [local government] to reach a decision after the hearing, as in an adjudication, or may it indefinitely postpone or abandon the issue, like a legislative proposal?" 287 Or at 605. At first glance, one might assume that any land use decision that originates from an application being submitted (as opposed to be initiated by the local government itself) would be "bound to result in a decision." Indeed, that seems to have been the original intent of the *Strawberry Hill* Court. However, over the years LUBA and the Court of Appeals have increasingly read this factor more and more narrowly and will only find that that a decision is "bound to result in a decision" if the code either expressly requires a decision to be made, or if that requirement can be fairly read into the language of the code based on the context. *Estate of Gold v. City of Portland*, 87 Or App 45, 48, 740 P2d 812 (1987) ("the statute simply says that the governing body *may* approve the proposal, not that it *must* do anything."); *Johnson v. City of La Grande*, 37 Or LUBA at 388; *Valerio v. Union County*, 33 Or LUBA 604 (1997); *Miner v. Clatsop County*, 46 Or LUBA 467 (2004). In some cases, LUBA has not been as exacting in its analysis, holding that although the code did not:

> "expressly state that once a person requests an interpretation of a provision of the city's zoning ordinance that the person is entitled to a decision. We believe, however, that any reasonable person reading this ordinance would conclude that if a person requested an interpretation from the planning director, received that interpretation and then appealed the interpretation to the planning commission and to the city council, the person filing the appeal would be entitled to a decision from the city council."

Hoffman Ind. Inc. v. City of Beaverton, 2 Or LUBA 411 (1981); *Dean v. City of Oakland*, 33 Or LUBA 806, 809 (1997)("While the cited policy does not require a decision within a specified time, the most natural reading of its terms requires a decision.") The fact that any given ordinance in question states that the decision-maker "may" make a decision should not be a fact which is determined to be indicative of a legislative decision, but unfortunately, in practice it is just that. In this regard, the statute at issue in *Strawberry Hill* did not expressly require that a decision be made. However, the Supreme Court found no difficulty in concluding that "although affirmative action is optional, the statute appears to contemplate that the County Court will *eventually* reach and pronounce some decision whether to act or not. *Id*. at 606. (Emphasis added).

In this case, the MC 3.07.1440(g) requires the Metro Council to make a final decision on the petition. Therefore, this factor suggests that the decision is quasi-judicial.

The second of the *Strawberry Hill* questions has, in practice, become somewhat of a non-factor. Both LUBA and the Court of Appeals have recognized that all land use decisions in Oregon are subject to "preexisting criteria" and apply to concrete facts. LUBA has addressed this issue as follows:

> Turning to the "apply existing criteria to concrete facts" factor, that factor is present to some extent in all land use decisions. *Valerio*, 33 Or LUBA at 607. This factor is therefore less important than the other two factors, particularly where, as is the case here, the decisions are adopting new land use laws rather than applying existing land use laws to grant land use approval for a single property or a small number of properties. *Churchill v. Tillamook County*, 29 Or LUBA 68, 71 (1995); *McInnis v. City of Portland*, 27 Or LUBA 1, 5-7 (1994).

Carver v. Deschutes County, 58 Or LUBA 323 (2009). *See also Casey Jones Well Drilling, Inc. v. City of Lowell*, 34 Or LUBA 263, 271 (1998); *Johnson v. Jefferson Country*, 56 Or LUBA 72 (2008). In this case, the MC 3.07.1440 sets forth criteria for a Major Amendment to a UGB. Therefore, this factor suggests that the decision at issue is quasi-judicial.

Under the third factor, LUBA and the Courts are supposed to assess whether the decision either (1) affects either a small number of owners and properties or (2) the "action directed at a closely circumscribed factual situation," or whether the decision has more broad

applicability. According to early decisions by the Court of Appeals, "the number of people affected and the size of the area covered are less important considerations," and the focus should instead be on "the importance of assuring that the decision is factually correct and that the decision-maker gives fair attention to affected individuals." *1000 Friends of Oregon v. Wasco Co. Court*, 80 Or App 532, 536, 723 P2d 1034 (1986), *rev'd on other grounds*, 304 Or 76, 742 P2d 39 (1987). In practice, this third bean-counting "factor" has become the most critical issue to LUBA, and, despite suggestions to the contrary, in most cases it is more-or-less the dispositive factor. In fact, LUBA has found decisions to be legislative even when the other two factors favored a determination that a decision was quasi-judicial. *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992).

In this case, the proposal involves 82 acres consisting of four tax lots in unknown ownerships. This is well within the size and ownership limits that would allow the conclusion that the decision is quasi-judicial.

The primary opponent argues that this Major Amendment is a "legislative decision," The primary opponent states that "[t]he decision amends the Metro Boundary map that is incorporated into the Metro Urban Growth Functional Plan, and as such the change is legislative." *See* Letter from Jennifer Brager dated June 23, 2017 at p. 1. However, map amendments are not necessarily or inherently legislative or quasi-judicial in nature. *Compare Thomas v. City of Veneta*, 44 Or LUBA 5 (2003) (TSP and zoning map amendment affecting two tax lots comprising 6.4 acres); *Dan Giles & Assoc., Inc. v. McIver*, 113 Or App 1, 3, 831 P2d 1024 (1992)(zone change for single 29-acre parcel in unified ownership is quasi-judicial); *Neuberger v. City of Portland*, 288 Or 155, 603 P2d 771 (1979) (re-zoning involving 601 acres of land owned by three landowners is quasi-judicial).[3] *Contrast Valerio v. Union County*, 33 Or LUBA 604 (1997) (comprehensive plan amendment and zone change pertaining to 185 acres in a "number of different ownerships" is legislative); *Friends of Cedar Mill v. Washington County*, 28 Or LUBA 477 (1995) (PAPA relocating arterial and changing it from 5 lanes to 3 lanes is legislative, where it affects 40 properties and will carry 17,000 – 18,000 trips per day.); *McInnis v. City of Portland*, 27 Or LUBA 1 (1994) (Proposal which rezones 5000 acres in 110 different ownerships is legislative.); *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992) (Transportation plan map amendment that directly involves nine property owners, but has "indirect effects" on a broader population is legislative). Nor is a UGB amendment inherently legislative in nature. *BenjFran Development, Inc. v. Metro*, 17 Or LUBA 30 (1988) (denial of request for UGB amendment comprising almost 500 acres in three ownerships is quasi-judical).

Cases such as *Davenport* and *Friends of Cedar Mill* suggest that large transportation projects will be considered legislative due to the broad secondary effects that transportation facilities can have on commuters. The hearings officer does not believe that this line of cases can be extended to a school, however, based simply on the fact that many kids will attend the school. If that were the case, then any land use decision involving a Wal-Mart or Home Depot store would be legislative, because those uses have higher usage / trip generation rates than a typical school.

[3] *See Neuberger v. City of Portland*, 37 Or App 13 (1978), *rev'd in part, aff'd in part*, 288 Or 155, 603 P2d 771 (1979).

Opponent's counsel cites *Colwell v. Washington County*, 79 Or App 82, 87-8 (1986) for the proposition that this Major Amendment is a legislative (and not a quasi-judicial) decision (*see* Bragar letter dated 23 June 2017, pp 1-2). *Colwell* does not support that conclusion, and is easily distinguished. In *Colwell,* the Washington County Planning Commission made a land use decision which opponents wished to appeal to the Board of Commissioners, but their appeal was dismissed for failure to timely pay for the quasi-judicial Planning Commission hearing transcript. *Colwell*, 79 Or App at 85. Opponents appealed to the LUBA, which dismissed the appeal for failure to exhaust remedies at the local (County) level. The Oregon Court of Appeals reversed and remanded, finding that the Washington County governing body (*i.e.* the elected Board of County Commissioners) - and not the unelected County Planning Commission - must make Comprehensive Plan amendments, pursuant to ORS 215.050(1) and ORS 215.060.

Opponent's argument might have some merit if this unelected hearings officer was the one to make the final decision on this Major Amendment land use application. Only the elected Metro Council has that authority, however. This hearings officer's findings and determination are merely a recommendation to the Metro Council, and the Council is free to accept or reject this Hearings officer's decision, as the Council sees fit. Since the Metro Council will be the governmental body to make the final land use decision in this case, the Court of Appeals' holding in *Colwell* shall be followed for this application.

Despite the lengthy analysis set forth above, the hearings officer does not really believe that the quasi-judicial vs. legislative debate is dispositive, in any event. Rather, it is a red herring. Stated another way, the hearings officer does not believe that ORS 196.296 would apply to this UGB Amendment even it was a legislative decision. By its terms, ORS 197.296 only applies to UGB amendments that "require the application of a statewide planning goal relating to buildable lands for residential use." As discussed elsewhere in this recommendation, an amendment to a UGB which adds AF-20 zoned land for use as a school does not implicate Goal 10 in any meaningful way .

Second, ORS 197.296 sets forth a mandatory periodic process that is focused on only one type of land need: a need for housing. We can credit the Home Builder Association for being active in the legislature over the past 30+ years and influencing the adoption of specific statutory language, such as ORS 197.296, which relates specifically to their industry. But we should also not lose sight of the fact that there are other types of land need under Goal 14 that don't implicate ORS 197.296.

Taking a step back, recall that Goal 14 states that a UGB amendment must be based on consideration of six factors set forth in the Goal. The first two factors are commonly referred to as the "need" factors. The need factors require either a demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, <u>or</u> a demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories. While the need for housing is governed by ORS 197.296, other land needs are governed by Statewide Planning Goal 14, and in some cases, by OAR Ch. 660, Div 24. Note, as an example, that OAR Ch. 660, Div. 24 does not address now a livability need is established; Goal 14 seems to be the sole administrative pronouncement of its use. What is important to understand for purposes of this case is that ORS 197.296 is not the sole way to

establish land need, and a school need is not limited to being established as a derivative need of housing under ORS 197.296(6).

Among the more common types of land need mentioned in Goal 14 include a need for employment land, a need for public facilities, a need for schools, a need for parks, and the amorphous catch-all known as a "livability need."[4] With one exception related to public schools, ORS 197.296 does not govern substantively how these other types of land needs are established. Nor does it establish a *process* by which those other needs are established. Rather, ORS 197.296(2) & (3) are narrowly focused on accommodating a housing need, and as shown below, accommodating land for public schools as a derivative need stemming from housing need.

Consider ORS 197.296(6) as context: this statute applies when a local government is undertaking periodic review or a legislative review of a UGB that implicates Goal 10. If during such a process, the local government determines that a need exists for additional residential land and that accommodating that land need must necessarily involves a UGB amendment, then ORS 197.296(6)(a) requires that local government to "include sufficient land reasonably necessary to accommodate the siting of new public school facilities." Thus, under that process, a public school facility is considered a derivative need that arises by operation of a demonstrated need for housing. However, there is nothing in ORS 197.296(6) that makes ORS 197.296 the exclusive process by which a need for schools can be established. As demonstrated by the applicant a need for new school facilities can exist independent of housing needs. And while the primary opponent chalks up the applicant's current need to poor planning on the District's part (a sentiment that may have some basis in fact), ORS 197.299(4) appears to written as a safety value that can be used by school districts regardless of the causes that led to the need.

ORS 197.299(4)(a)(A) provides additional key textual clues which helps understand the nature of the process currently being undertaken. This provision authorizes Metro to "establish" and "design" a "process" that will fulfill a need that must be accommodated "*between*" periodic analyses of urban growth boundary capacity required by subsection (1) of this section." By giving Metro the authority to "establish" and "design" a unique UGB amendment process for schools, the statute makes clear that the school need specific "4(a)" process is not the *same* process as the legislative six-year process required by ORS 197.299(1) and 197.296(3). The ORS 197.296 process is already "established" and "designed" by statute, and really only puts a regional government much as Metro in an implementation role. On the other hand, ORS 197.299 delegates to Metro a role that is greater than mere implementation of a pre-existing process. Furthermore, ORS 197.299(4)(a)(4) further emphasizes that the school-specific process is only supposed to be used "between" the 6-year legislatively-mandated processes for accommodating housing needs, and it can only be invoked if the identified school need cannot wait until the next scheduled six-year legislative process.

[4] LUBA cases confirm that a need to improve livability can provide a basis for adding land to a UGB. Such an analysis requires, in addition to identifying a significant livability problem, an evaluation of probable and negative impacts on livability that may occur if the UGB is amended, and an explanation of why the livability benefits outweigh negative impacts on livability. *1000 Friend of Oregon v. City of North Plains,* 27 Or LUBA 372, 383, *aff'd.,* 130 Or App 406 (1994); *1000 Friends of Oregon v. Metro Service Dist*., 18 Or LUBA 311, 320 (1989).

The gravamen of opponents' complaints with respect to ORS 197.299(4) stem from a misunderstanding of the relationship between the ORS 197.299(1) six-year UGB amendment process with the ORS 197.299(4) public school amendment process. Much of opponent counsel's testimony at the June 13, 2017, hearing and again in her June 23, 2017 letter, was directed generally at a dissatisfaction with how Metro plans for regional housing and employment needs and opponents' opinion that allowing out-of-cycle UGB expansions for public schools exacerbates Metro's alleged poor planning. In its June 23, 2017 letter, opponents argued that this Major Amendment application does not meet the requirements of ORS 197.296(2).

At its core, the opponent's argument hinges on the assumption that the school-specific process must be substantively the same as the periodic six-year legislative process. Stated another way, the opponents argue that the substantive standards and criteria that govern the school specific process are the same as the housing-specific legislative process under which school need can be established as a derivative need. However, if that were truly the case, however, there would be no need for Metro to "establish" and "design" a new process. Rather, if the legislative intent was to mandate the same rigorous process that is used to establish housing need and to otherwise limit school need as a derivative need, the legislature would have simply stated that a school-related need can form the basis for accelerating the time frame under which the legislative housing need process is conducted. And that in itself does not make any sense because nothing in ORS 197.299(1) or ORS 197.296 prohibits Metro from conducting the legislative housing-needs process sooner than on a 6-year increment. In fact, ORS 197.299(1) merely states that Metro must undertake the ORS 197.296 process "*not later than six years after completion of the previous inventory, determination and analysis."* In theory, Metro could voluntarily conduct that inventory and analysis on a bi-annual or other timeline. In light of this observation, ORS 197.299(4) would be a redundancy if interpreted in the manner that the primary opponent advocates.

Courts strive to give effect to all parts of a statute, in order to produce a harmonious whole. ORS 174.010.[5] As a corollary, courts will avoid interpretations that render a portion of the statute redundant or meaningless surplusage.[6] *See State v. Stamper,* 197 Or.App. 413, 418, 106 P.3d 172, *rev. den.,* 339 Or. 230, 119 P.3d 790 (2005) ("we assume that the legislature did not intend any portion of its enactments to be meaningless surplusage"). If the school-specific process were not a separate process governed by different substantive criteria than ORS 197.296, it would not accomplish anything that Metro did not already have the right to do.

Rather than being drafted as an authorization to conduct the existing six-year legislative housing needs process at any time increment earlier than six years if a need exists that cannot wait six years, ORS 197.299(4)(a)(A) contemplates a *new* process *designed* by Metro to cater to

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[5] *Lane County v. LCDC*, 325 Or 569, 578, 942 P2d 278 (1997); *Bolt v. Influence, Inc.,* 333 Or. 572, 581, 43 P.3d 425 (2002) ("we are to construe multiple provisions, if possible, in a manner that will give effect to all"). *See also Davis v. Wasco IED*, 286 Or 261, 267, 593 P2d 1152 (1979); *Tatum v. Clackamas County*, 19 Or App 770, 775, 529 P2d 393 (1974); *Plotkin v. Washington County*, 36 Or LUBA 378 (1996); *Walz v. Polk County*, 31 Or LUBA 363 (1996); *Fechtig v. City of Albany*, 31 Or LUBA 410 (1996) (Ordinance).

[6] *Certain Underwriters at Lloyd's London and Excess Ins. Co., Ltd. v. Massachusetts Bonding and Ins. Co*., 235 Or.App. 99, 230 P.3d 103 (2010); *State v. Stamper,* 197 Or.App. 413, 417, 106 P.3d 172, *rev. den.,* 339 Or. 230, 119 P.3d 790 (2005); *EQC v. City of Coos Bay,* 171 Or.App. 106, 110, 14 P.3d 649 (2000).

school needs as a primary independent need, not as a secondary derivative need resulting from a housing need. Because it is a different process that is intended to evaluate a needs other than a housing needs, the process and requirements (*i.e.* inventory, determination, and analysis) of ORS 197.296 do not apply to this separate process. And discussed below, the legislative history confirms this analysis.

Legislative History

Prior to 2001, the case of *Portland Gen. Elec. Co. v. Bureau of Labor & Indus.,* 317 Or 606, 611–612, 859 P2d 1143 (1993) (hereinafter *PGE*) made clear that legislative history could not be used to determine legislative intent if the text and context of the law made the meaning of that law unambiguous. The case of *State v. Gaines,* 346 Or 160, 171–172, 206 P3d 1042 (2009) essentially acknowledges that the *PGE v. BOLI* approach was legislatively modified in 2001 via amendments to ORS 174.020, and that the statute now permits the consideration of legislative history even when the text and context seem to make the meaning unambiguous. For this reason, a careful treatment of *Gaines* is warranted here.

The OSB publication entitled "Interpreting Oregon Statutes" Steve Johansen, Hon. Jack Landau, and Anne Villella ed. OSB CLE (2009) contains a lengthy but highly relevant discussion of *Gaines,* as follows:

> In *Gaines,* the defendant was convicted of obstructing governmental administration when she refused to cooperate in being photographed after her arrest. On appeal, she argued that her behavior did not constitute a "'means of . . . physical . . . interference or obstacle' "within the meaning of the relevant statute. *Gaines,* 346 Or at 162 (quoting ORS 162.235(1)). She argued further that the 2001 amendments to ORS 174.020 required the court to consider the legislative history of ORS 162.235(1) along with the text and context of the statute, even if the court found that its analysis of the text and context did not render the legislative intent ambiguous. *Gaines,* 346 Or at 165. Interestingly, in assessing the meaning of the 2001 amendments to ORS 174.020, the court found that a text-and-context analysis suggested that the amendments did not significantly change the *PGE* standard. *Gaines,* 346 Or at 166. However, the court did not stop its analysis at the text-and-context level. As the plaintiff argued that ORS 174.020 required, the court went on to examine the legislative history. The legislative history revealed a clear legislative intent to eliminate the requirement that a court only look to legislative history "if but only if" the text and context left the meaning ambiguous. *Gaines,* 346 Or at 169.
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> * * * * *.

> The court will now consider proffered legislative history even when the text and context of a statute appear to render it unambiguous. In effect, *Gaines* brings legislative history into the step-one analysis along with the text and context of a statute. That said, legislative history remains a second step of statutory analysis—the court will consider it only after analyzing the text and context of a statute. The weight the court gives that legislative history also remains within the discretion of the court. A party attempting to overcome seemingly plain and unambiguous text through reference to legislative history has "a difficult task before it." *Gaines,* 346 Or at 172.

Although *Gaines* modifies the *PGE* methodology, the full extent of that modification remains to be seen. However, a recent appellate court decision suggests the extent may be relatively slight. *State v. Kelly,* 229 Or App 461, 211 P3d 932 (2009). *Kelly* raised the issue of the meaning of ORS 811.335(1)(b), which requires drivers to signal a turn "during not less than the last 100 feet traveled by the vehicle before turning." The defendant, who signaled a turn after he had stopped at an intersection, argued that the legislative history showed that the intent of the statute was to require a signal for at least as long as it took to travel the last 100 feet, but not to signal for the specified distance. The court agreed that under *Gaines* it needed to consider the legislative history. The court also made several points as to what weight it would give that legislative history.

The court first made clear that legislative history alone cannot overcome statutory text that is truly capable of only one interpretation. *Kelly,* 229 Or App at 466. Beyond that caution, the court explained the traditional limits of legislative history: legislative history is most helpful when it uncovers the general legislative intent of a statute (*Kelly,* 299 Or App at 466); statements of single legislators or non-legislators are generally, though not always, less helpful (*Kelly,* 299 Or App at 466–467), and the existence of a particular problem that precipitated a bill does not necessarily mean the statute was intended to address only that problem (*Kelly,* 299 Or App at 468). What *Kelly* does not suggest is that *Gaines* changes in any significant way *how* courts use legislative history. Rather, it only changes *when* the court will consider legislative history. Thus, even under *Gaines,* legislative history will be most helpful when an analysis of the text and context does not resolve an ambiguity of the statute. Legislative history may also be useful to reinforce an apparently unambiguous interpretation of a statute. (Emphasis added).

Courts are not likely to be persuaded by legislative history when that history does not give any indication that the precise legal question at issue was considered during the legislative enactment.[7]

The subsection in question, subsection 4, was added to ORS 197.299 in 2005 as part of Senate Bill 1032. Testimony at legislative committee hearings from bill authors and proponents indicates SB 1032 was intended to grant Metro new expedited authority to expand the UGB for the purpose of allowing construction of new schools, and such a process would be separate from the "normal" UGB expansion process typically required by state statutes.

Testimony of several speakers during the May 17, 2005 public hearing provide insight regarding the policy goals behind SB 1032. The main speaker, Gary Conkling, represented the Beaverton School District and was one of the authors of the bill. Mr. Conkling began his testimony in favor of the bill by outlining the pressing problems that face the city of Beaverton. He stated that "in the last decade or so the Beaverton School District has added more than ten thousand students" and that those students alone would make up the fifteenth largest school district in the state.[8]

Mr. Conkling explained that overabundance problems are common in the metropolitan areas of Portland, and most suitable plots of land for schools have been used for other projects intended to spur economic development. Mr. Conkling "anticipate[d] [Beaverton] will have to look outside the UGB for one or more additional school sites" to meet the growing demand. He ended his testimony by stating two main objectives of SB 1032. First, the bill is designed to gain "guidance from Metro, cities, and urban service providers as to where we should look outside the UGB" for suitable plots of land for schools. Second, the bill has language that "will encourage Metro to provide an accelerated process to add those lands once . . . the need has been established . . . so that lands can be added on an accelerated basis to the UGB."[9]

Metro Legislative Affairs Director Randy Tucker, a second advocate of SB 1032, added some additional points regarding the purpose and scope of the bill. Mr. Tucker explained that developing lands for schools requires additional planning considerations than developing lands for other purposes because schools must be located in particular locations. These additional considerations include that ideally, schools should be located near city centers, and schools must fall within existing school district boundaries. This makes it even more difficult to find suitable land for new school construction without expanding the UGB.

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[7] For example, the court often dispense with legislative history in one sentence by stating simply that the legislative history is silent on the particular issue facing the court. *Ritcherson v. State,* 131 Or App 183, 186, 884 P2d 554 (1994) (seeking to determine if ORS 138.510(2) included retroactive application of its two-year statute of limitations period); *see also Windsor Ins. Co. v. Judd,* 321 Or 379, 387, 898 P2d 761 (1995) ("[W]hat little [discussion of the amendment] there was reveals nothing that sheds light directly on the question posed in this case."); *State v. Holloway,* 138 Or App 260, 267, 908 P2d 324 (1995) ("Unfortunately, our examination of the legislative history sheds no light on the matter."); *In Def. of Animals v. Or. Health Scis. Univ.,* 199 Or App 160, 173 n 9, 112 P3d 336 (2005) ("We note that the legislative history . . . provides no assistance in determining the provision's meaning.").

[8] Hearing on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Gary Conkling, Representative of Beaverton School District).

[9] *Id.*

Finally, Mr. Tucker added that Metro intended to implement SB 1032 by amending its own code to make it easier to expand the UGB for schools "when [new schools] cannot be reasonably accommodated in the UGB, and when they must be accommodated before we would normally do an UGB expansion." Here, Mr. Tucker indicated that Metro should be authorized to quickly initiate UGB expansion for schools outside of the "typical" or "normal" legislative process of reevaluating the buildable land supply inside the UGB every [six] years.

Later, in a May 31, 2005 work session on SB 1032, Messrs. Conkling and Tucker again provided testimony in support of the bill and explained its purpose and scope. Mr. Conkling stated the bill's main purpose is to provide Metro "[with a] process that can work in between its periodic review, and provide for an accelerated process to bring these school sites inside the UGB."

After the testimony of Mr. Tucker, Senator Charlie Ringo, Chair of the Committee, asked if the bill will "facilitate Metro addressing the problem with high growth districts not finding land for schools."[10] Mr. Tucker stated his answer was yes, and that the bill would provide the basis for immediate negotiation as to what land should be included in the UGB as part of an amendment. Mr. Tucker explained that the bill would be beneficial to districts like Beaverton because "it facilitates the process for expanding the UGB for a school district that has need." Mr. Tucker stated that ideally, after revising the Metro code to implement the statute, the process to expand the UGB to include land for a school would take only four months.

The legislative history of HB 1032 indicates that one main purpose of the bill was to streamline the process for amending the UGB for the purpose of building new schools. The testimony of both Conkling and Tucker describe a pressing need for land in metropolitan areas for new school construction that cannot always be met within the typical five-year UGB cycle. Proponents of the bill clearly express intent to grant Metro authority to amend the UGB through a process that would be separate from the regular review cycle and corresponding 20-year need analysis.

Proponents of the bill used words such as "streamline" and "accelerated" in the context of a new expansion process that could occur outside and separate from the "normal" time intensive 20-year need analysis, and described a process that would be based exclusively on a demonstrated need for additional school facilities. Testimony regarding the purpose of SB 1032 indicates that the purpose of the legislation was to allow a separate and expedited process exclusively for school siting, which would not be tied to the 20-year buildable land supply analysis that is required under ORS 197.296.

As described above, it is clear from legislative history that the 2005 Oregon legislature was acutely aware of the problem of holding school districts to a six year Metro planning cycle during the enactment of SB 1032. Metro's Randy Tucker specifically stated that SB1032

[10] Work Session on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Sen. Charlie Ringo, Chair, S. Comm. on Environment & Land Use).

"facilitated" school districts obtaining a UGB amendment for school facilities.[11] According to the Merriam-Webster dictionary, the word "facilitate" means "to make (an action or process) easy or easier." It makes little sense to believe that the legislature would desire to make obtaining a Metro UGB amendment *just as, or even more difficult* for schools while simultaneously creating an "accelerated" process specifically for schools. Indeed, Metro's own Legislative Affairs Director – no stranger to tightly-crafted statutory language - was quite clear in stating that the purpose of SB 1032 was to "facilitate" (that is, make easier) the process for Metro-area schools.

In addition, the hearings officer finds that the ORS 197.299's school-specific UGB amendment process is no less thorough or exacting than an application that could have been filed in due course of the next six-year Metro planning cycle. It is true, as opponents claim, that the next Metro 20-year buildable lands analysis is not yet available, and thus cannot be taken into account during this application. The law does not require that, however, and requiring school applicants to wait until the next six-year Metro planning cycle would render the passage of ORS 197.299 pointless. The entire point of ORS 197.299 was to provide schools with an interim, accelerated, easier ("facilitated") application process, rather than waiting for the next 6 year Metro planning cycle. Statutes should not be construed such that they make other statutes completely meaningless.

As noted above, the Metro Council is required to complete a 20-year forecast and analysis of land need to maintain a 20-year supply of residential and employment land inside the UGB on a six-year cycle. However the Metro Council has directed staff to complete an urban growth report in 2018, three years after the urban growth report was adopted in 2015, with a possible growth management decision occurring in December 2018 that may or may not result in an expansion of the UGB. Delaying the proposed amendment for these specific school and park needs until that time, when these types of specific needs are not addressed in the regional analysis, is not an appropriate or an efficient way to provide these needed services and would result in the District experiencing ever-increasing overcrowding of their facilities.

Thus, in summary, review of the text and context of ORS 197.299 and ORS 197.296 in combination with the legislative history of the 2005 Amendments which created ORS 197.299(4) bring the legislative intent into clear focus. ORS 197.299(4) explicitly provides a "safety valve" of sorts for public school needs. The statute de-couples the need for schools from the derivative secondary needs analysis set forth in ORS 197.296(6). The legislature apparently understood the critical nature of schools to serve the community and felt strongly enough about that to provide a mechanism to ensure that needed schools can be built. Opponents' attempt to saddle Major Amendments with all of the trappings of a six-year legislative review of the region's UGB is contrary to both the plain text of ORS 197.299(4) and its legislative history.

Having resolved the statutory interpretation question, we turn back to the evidence of need. The District originally adopted a long-term facilities plan in January 2008 that assumed additional school capacity would be needed in ten years. This proved true, as of 2017 the high

[11] Testimony before the Senate Environment and land Use Committee, May 31, 2005, beginning at minute 1.13, available at http://records.sos.state.or.us/webdrawer/webdrawer.dll/webdrawer/rec/4193397/ Mr. Tucker's statement is found at minute 1.18, in response to a question from Senator Ginnie Burdick.

school is at 109% of capacity and the four elementary schools are at 99% capacity. A ten-year demographic study by Davis Demographics & Planning Inc., completed in May 2016, forecasted a deficit in capacity at all levels with the high school operating at 141% of capacity. In order to meet the growing need, the District determined, with the assistance of numerous committees, that a new high school would be needed. Voters approved a bond measure in 2016 to construct a new high school and make other facility improvements. The applicant adequately addressed the urgent need for the new high school by substantial evidence in the whole record in its application submittal and its subsequent submittals. (*See* application narrative ("Narrative") at 14-15, 33, Appendices G, H, and I; June 8, 2017, District letter at 1-3, Attachment i; June 13, 2017, District letter at 5.)

The applicant has met its burden of showing compliance of the two criteria found in Metro Code section 3.07.1440(A) by substantial evidence in the whole record.

Metro Code Section 3.07.1440(B)

> **3.07.1440 Major Amendments - Criteria**
> **(b) The applicant shall demonstrate that the proposed amendment to the UGB will provide for an orderly and efficient transition from rural to urban land use and complies with the criteria and factors in subsections (b), (c), (d), (e), and (f) of section 3.07.1425. The applicant shall also demonstrate that: (1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land; (2) If the amendment would add land for public school facilities, the coordination required by subsection (c)(5) of section 3.07.1120 of this chapter has been completed; and (3) If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot reasonably be created by land assembly or reclamation of a brownfield site.**

[Note: This Provision Incorporates by Reference: 3.07.1425(B), (C), (D), (E), & (F), which are Discussed Below].

MC 3.07.1425(B)(1): Demonstrated need to accommodate future urban population, consistent with a 20-year population range forecast coordinated with affected local governments;

Hearing Officer's Analysis: MC 3.07.1425(b)(1) requires that the Major Amendment application show a [d]emonstrated need to accommodate future urban population, consistent with a 20-year population forecast coordinated with affected local governments. " This criterion is taken word for word from the first need factor set forth in Statewide Planning Goal 14. In the context of periodic review, Factor 1 pertains to a determination of overall land need in order to accommodate population growth. In this case, the need is for additional school capacity to alleviate an overcrowding situation at the Sherwood high School. For this reason, the first need factor set forth at MCC 3.07.1425(B)(1) is to be considered, but it is not determinative by itself.

In *Residents of Rosemont v. Metro,* 173 Or App 321, 328, 21 P3d 1108 (2001), the Court of Appeals explained that "[w]e held in *Baker [v. Marion County,* 120 Or App 50, 852 P2d 254, *rev den*, 317 Or 485, 858 P2d 875 (1993),] that factors 1 and 2 of Goal 14 are interdependent and

that, if one of the factors is not fully satisfied, or is less determinative, that factor must still be considered and discussed in deciding if a need for expansion of a UGB has been shown under factors 1 and 2 of Goal 14."

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable need for the new Sherwood High School based on a forecast that is consistent with the adopted 20-year population range forecast which has been coordinated with affected local governments.

The District and Metro staff address this provision at: Application Narrative at pp. 15, 34, App'x H; May 4, 2017, staff report ("Staff Report") at 5; June 9, 2017, Metro memo; June 13, 2017, District letter at 1-2. In particular, the applicant attempts to meet its burden of proof with the following analysis:

> *As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.*
>
> *The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.*

Metro's 20-year population range forecast is part of the 2015 urban growth report ("UGR"). Therein, the Metro Council determined that the region could meet the expected 20-year residential and employment forecast need within the UGB and no expansion of the UGB was needed to meet housing or employment needs. The UGR did not address specific school and park land needs. As a result, the District prepared a ten-year demographic study that supports a need for additional land for a new high school in order to accommodate future urban population. The District completed this demographic study using population and demographic projections for the cities of Sherwood and Tualatin.

The parties do not focus much, if any, of their debate on whether the population and demographic projections in the District's 10-year study are "consistent" with the assumptions in the 2015 UGR. Such as comparison is complicated by the fact that the UGR takes a high-level regional look at residential and employment needs, whereas the District's 10-year demographic study is much more narrowly focused on Sherwood's population. Nonetheless, the hearings officer reviewed both the 10-year study and the UGR and finds that there is no glaring inconsistency between them. The 2105 UGR anticipates continued high levels of growth in our region. The UGR further recognizes that there is still a considerable amount of vacant and redevelopable land located in and near the City of Sherwood. This would indicate that the District needs to be prepared to accommodate a large amount of additional school children. Given that the regional 20-year forecast did not address school and park land needs, the District's ten-year demographic study, which supplements the long-term facility plan completed in 2008, demonstrates a need to accommodate future urban population by substantial evidence in the whole record. The applicant has provided information regarding a ten-year demographic study showing a need for providing specific school facilities to meet present and future populations based on established methodologies for the proposed use. The applicant also provided written and verbal testimony from experts such as architect Karina Ruiz of Dull Olson Weekes IBI Group Architects, Inc, planner Keith Jones AICP of Harper Houf Peterson Righellis Inc, and traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates. Having reviewed these materials and observed their testimony, the hearings officer finds them more credible and assigns great weight to their views.

Staff is also correct when it states that even if Metro had expanded the UGB in 2015 for a 20-year housing need, there is no guarantee that the location of the added land would have accommodated the specific need for a new high school in Sherwood. ORS 197.299(4) provides a safety valve for such a situation.

The primary opponent argues that the District could only demonstrate consistency with the 2015 UGR by submitting a new 20-year demographic study. *See* letter from Jennifer Bragar dated June 23, 2017, at p. 20. The opponent points to no specific law which expressly states such a requirement, and the hearings officer does not believe that such a requirement exists. As far as the hearings officer can determine, "consistency" in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here. *See* the updated 10-year demographic study conducted by Davis Demographics & Planning Inc. dated May, 2016. This is consistent with Goal 2, which requires the factual inventories and assumptions included in the comprehensive planning documents to form the "basis for all decisions and actions related to land use." *Rivergate Residents Ass'n v. LCDC*, 38 Or App 149,

5990 P2d 1233, *rev den*. 286 Or 521 (1979); *Hildenbrand v. City of Adair Village*, 217 Or App 623, 177 P3d 401 (2008) ("Plan policies or inventories can serve to justify subsequent and related plan amendments because comprehensive plans must be internally consistent under Goal 2.)" *See also 1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 26 P3d 151 (2001). *Compare GMK Developments v. City of Madras,* 225 Or App 1, 199 P3d 882 (2008) (Nothing in Goal 2 itself requires the sort of continuous data correction that the opponents urge us to impose in this case).

MC 3.07.1425(B)(1) requires the District to demonstrate a need to accommodate future urban population; consistent with the demographic study contained in the 2015 UGR. The District has done that, and that is all that is required. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425(B)(2): Demonstrated need for land suitable to accommodate housing, employment opportunities, livability or uses such as public facilities and services, schools, parks, open space, or any combination of the foregoing in this paragraph;

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable "need for land suitable to accommodate * * * uses such as * * * schools * * *." The applicant presents its case as follows:

> As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment

3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

The City of Sherwood and the Sherwood School District have an intergovernmental agreement to share ballfields. The City of Sherwood owns an extensive system of parks and trails. However, the City's ballfield resources are very limited with only one soccer field located at the City's Snyder Park. In the early 1990s, prior to rapid growth in the preceding 20 years, the City took measures to protect natural resources. This included the protection of floodplains and wetland areas surrounding the Cedar Creek stream corridor that flows south to north through the center of the City limits to the Tualatin National Wildlife Refuge. The City acquired much of this land and maintains these areas as natural open space, wetlands and walking paths. Since most of the areas are sensitive and passive recreation areas, they are off limits to ballfield construction. Because Sherwood has a very active sports community, the City and School District decided to share sports fields with most of these facilities being on school grounds.

In the case of the new High School site, the City owns the approximately 20-acre parcel in the southeast corner of the property. Some of this land, approximately 4 acres, will be used for the Elwert and Kruger Road realignment and roundabout, but the remaining balance will become part of the new high school campus and allow for construction of additional ballfields to be shared with both school and City sports functions.

As documented in Section III of the petition, viable high school sites are not available within the current UGB. The only viable sites, including the proposed site, have been identified within the Sherwood West Concept Planning Area (Urban Reserve Area 5B).

The subject site ("Site C") is the best alternative site considering that it has:

- No mapped sensitive areas (habitats, wetlands or waterways),
- Gently sloping topography to allow for construction of ballfields,
- Close proximity to SW Elwert Road and Highway 99W for ease of access,
- Availability of public utilities (water and sewer),

- Available downstream discharge point for stormwater, and
- Sufficient area to provide high school campus for 2,400 students and needed City/School District shared ballfields.

As shown above, the applicant has shown a compelling need for providing specific school facilities to meet present and future populations.

The City of Sherwood and the District have an intergovernmental agreement to share sports fields with most of the facilities on school grounds. The City has an extensive system of parks and trails but sport field resources are very limited with one soccer field located in a city park. Thus, the applicant has shown there is a demonstrated land need to accommodate both school and park services by substantial evidence in the whole record. That evidence may be found in the following: Applicant's Narrative at p. 12-32, 34, Appendices C, G, H, and I; June 8, 2017, District letter pp 1-3. Additionally, the applicant demonstrated that district bond financing rules require moving ahead with the application now, rather than wait until the end of 2018. *See* letter from applicant's counsel Kelly Hossaini dated June 8, 2017, page 3 (discussing the district's finances).

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (B)(3): A demonstration that any need shown under paragraphs (1) and (2) of this subsection cannot be accommodated on land already inside the UGB.

MC 3.07.1425(B)(3) requires an alternatives sites analysis showing that the needed new school cannot be accommodated within the existing UGB. This requirement stems from state law. Among other laws, Statewide Planning Goal 14 requires the applicant to consider, as part of the needs analysis, all suitable lands inside the UGB as positive alternatives, and even requires the City to consider whether zone changes could make land suitable for the project. *See Brandt v. Marion County*, 22 Or LUBA 473, 481 (1991); *Turner v. Washington County*, 8 Or LUBA 234, 258 (1982), *aff'd*, 70 Or App 575,689 P2d 1318 (1984).

The applicant's narrative discusses MC 3.07.1425(B)(3) at p. 19-21, 34-35. For example, on pages 16-17 of the narrative, the applicant states as follows:

> As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth.
>
> **Expansion of Existing High School**
>
> The existing Sherwood High School is located on approximately 37.8 acres of land at 16956 SW Meinecke Road. The existing high

school has capacity for 1,550 students and, as of the writing of this report, is well over capacity with an enrollment of 1,689. This growth is expected to continue with a needed student capacity of approximately 2,200 by the year 2025 and peaking at approximately 2,400 students. Therefore, the School District will need a long-term high school capacity for 2,400 students.

Expanding the existing high school campus to meet this need is problematic on many fronts due to existing size limitation and irregular configuration of the site boundaries. Further, the campus cannot expand beyond its current boundaries as the campus is completely surrounded by existing residential development to the north, south and west and Stella Olsen Park and the sensitive wetland areas along Cedar Creek to the east as shown in Staff Report Attachment 4(Figure 5 in petition).

With respect to the buildings themselves, the School District has made additions over the years to accommodate growth, but the buildings are now completely overtaxed. Based on capacity analysis performed by the School District's contract architect, DOWA, the existing high school campus could be renovated to accommodate only another 450 students. This would increase capacity from 1,550 to approximately 2,000 students. However, at 2,000 students, the school would only have capacity for 7 years requiring the School District to add capacity again down the road. In review of the School District's bonding capacity, the School District will not be in a financial position to make any changes in 7 years and would be saddled with overcapacity schools for the foreseeable future. Therefore expanding the existing campus would provide for a short-term fix but would not provide the long-term solution the District is looking for.

New High School Siting Criteria

With the determination that a new high school is needed, the Bond Management Team identified the following criteria for aid in locating sites for further consideration:

1. Minimum Size: 50 acres
2. Zoning: Site must be zoned or planned for residential or institutional use that allow schools
3. Location: Site must be in Sherwood or contiguous to Sherwood (The City of Sherwood and mostly western Sherwood is where 90% of the student population resides)
4. Topography: Flat to mostly flat to accommodate ballfields

5. Wetlands and Waterways: No wetlands or minimal wetlands/waterways
6. Water and Sanitary Sewer: Adequate public utilities must be available or can feasibly be extended to serve the site
7. Stormwater Drainage: Downstream drainage capacity must exist to accommodate new impervious areas
8. Transportation: Site must be located near major streets to allow ease of access for students and limited routing of school traffic and buses through existing or planned residential areas

Inside the Current UGB

Using Metro's Regional Land Information System, City's Residential Buildable Lands Map and concept planning documents, potential sites were searched within the Sherwood School District Boundary that is inside the Existing Sherwood Urban Growth Boundary and within the Wilsonville or Tualatin existing Urban Grown Boundary.

Northeast Sherwood (Commercial and Industrial Land)

Sherwood City Limits

The northwest area of the City of Sherwood is zoned commercial and industrial, zoning that does not allow for school uses. In addition, much of the commercial and industrial land is built-out or contains wetlands and sensitive areas that cannot be developed. The largest vacant developable site in this area is located at the southeast corner of SW Langer Farms Parkway and SW Century Drive and is only 22 acres, too small for a high school.

Tonquin Employment Area

In 2004, 300 acres of industrial land was added to the Sherwood urban growth boundary in east Sherwood, known as the Tonquin Employment Area. A concept planning document was completed for this area in October of 2010. None of the area has of yet been annexed into the City of Sherwood to allow for urban development. There is an 88 acre parcel that fronts SW Tualatin-Sherwood Road that has potential to accommodate a new high school (12900 SW Tualatin Sherwood Road – 2S128D000100). However, this parcel was added to the UGB for the purpose of providing industrial uses and not for school uses. In addition, this site is located at the far east end of the existing Sherwood city limits and is not close to the student population that predominately resides on the west side of Sherwood. Therefore, locating the

school here would result in an inconvenient and isolated high school campus in the midst of industrial uses. Thus, the site was rejected from further consideration.

South and West Sherwood (Residential Land)

The southern and western areas of Sherwood are mostly residential. Residential zoning allows for school uses. This is also where most of the School District's student population resides (more than 90% of the student population lives in southern and western Sherwood). South of the existing city limits and within the urban growth boundary is the 250-acre Brookman Road Addition Concept Planning Area (Brookman Planning Area). The primarily-residential Brookman Planning Area has a completed concept plan from May of 2009. However, the area has not yet been annexed into the City of Sherwood and therefore has not been developed for urban uses.

The City of Sherwood recently completed a draft Housing Needs Analysis dated June 2015 for the existing urban growth boundary. The housing needs analysis contained a 2014 residential buildable lands inventory map that identified vacant buildable residential land within the City's UGB including the Brookman Planning Area. The residential buildable lands inventory map identified some available residential land. However, the available land is fragmented and/or constrained with no large developable sites that would accommodate a high school campus of 50 acres. Further there is no opportunity to consolidate this fragmented land in a way that would meet the District's criteria for a high school site. The Sherwood Buildable lands map is shown in Staff Report Attachment 5(Figure 6 in petition).

Within the Wilsonville or Tualatin Urban Growth Boundary

There are some limited areas of the Sherwood School District that are within Wilsonville and Tualatin's urban growth boundary, including the following:

Southwest Tualatin Concept Planning Area

Adjacent and east of the Sherwood Tonquin Employment Area is the Southwest Tualatin Concept Planning Area. Similar to Tonquin, this 614-acre area was added to the urban growth boundary in 2004. The area is planned for industrial use, and is even further away from west Sherwood students than Tonquin Road. Therefore, the area was rejected from further consideration.

Basalt Creek and Coffee Creek Planning Areas

Both of these planning areas are too far from the west Sherwood student population to be seriously considered. In addition, discussions with the City of Tualatin, who is leading the planning for Basalt Creek, indicates that there are no sites large enough with the correct zoning within Basalt Creek that would accommodate a new high school. The Coffee Creek planning area is designated by Metro as Regionally Significant Industrial land. This designation does not allow for school uses under any circumstances.

In summary as noted in Section III of the petition there are no suitable sites for a new high school within the current UGB to serve the Districts target population.

As noted in the findings set forth above, the District first examined the ability to expand the current high school to meet future capacity needs. However expanding the existing high school building is problematic due to existing size limitation and the configuration of the existing school campus. The current high school building includes a series of additions designed and constructed in an attempt to incrementally accommodate growth in the student population, resulting in a crowded non-operational and functional facility. Thus additional expansions to meet long term needs are not possible. In addition, the current high school campus is surrounded by residential development on three sides with the fourth side bordering a city park and natural resource area, thereby not allowing expansion of the campus itself.

The District identified eight site location criteria to help guide their search for appropriate site locations within the Sherwood city limits as well as limited areas within Tualatin and Wilsonville that are within the District boundary. The analysis of land within the city limits offered no usable sites. The city's industrial and commercial zones don't allow school uses and the vacant and developable land within the residentially zoned portions of the city is fragmented and constrained with no large enough sites available. The industrial designated land within the UGB but not in the city (Tonquin Employment Area) does contain one site large enough to meet the need; however it was included in the UGB for industrial purposes, is adjacent to existing industrial uses including an active quarry site and is located away from the main student population base. The limited land area within Tualatin and Wilsonville also include either industrially zoned land or very limited parcel sizes that does not provide an opportunity to site a high school. In addition, these areas are even a longer distance from the main student population base in the central and western portions of the city.

No opponents take issue with the applicant's analysis.

The hearings officer believes that it is relatively obvious that there are no sites within the City limits that could meet the need, even considering rezoning as an option. While there is vacant land in the existing UGB, the applicant has shown there are no suitable sites within the

UGB to meet the identified land need. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (C)(1): If the Council determines that there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering the following factors:

(1) efficient accommodation of identified land needs;

Hearing Officer's Analysis: Once a local government establishes a "demonstrated need" to expand the urban growth boundary, it then must apply the Goal 14's four "locational factors." When Goal 14 was amended in 2005, the locational factors were amended to make clear that the analysis is to be comparative in nature, as opposed to establishing minimum thresholds. The rule now states:

> The location of the urban growth boundary and changes to the boundary shall be determined *by evaluating alternative boundary locations* consistent with ORS 197.298 and with consideration of the following factors:
>
> (1) efficient accommodation of identified land needs
> (2) orderly and economic provision of public facilities and services;
> (3) *comparative* environmental energy, economic and social consequences; and
> (4) compatibility of the proposed urban uses with nearly agricultural and forest activities accruing on farm and forest land outside the UGB. (Underline emphasis added).

Metro has taken the four state-mandated locational factors set forth in Goal 14 and expended them to nine factors. Regardless of this, the goal of the locational analysis remains the same as state law, which is to determine the "best" land to include within the UGB to meet the land need**,** based on appropriate *consideration and balancing* of each factor. *1000 Friends of Oregon v. Metro (Ryland Homes)*, 38 Or LUBA 565, 584 (2000), *rev'd in part on other grounds* 174 Or App 406, 26 P3d 151 (2001). In *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), the court stated that consideration of factors means that the local government must:

> "(a) apply and evaluate each factor, (b) weigh and balance the factors which are not independent approval criteria-as a whole, and (c) meaningfully explain why a designation as urban or rural reserves is appropriate. "

Barkers Five, 261 Or App at 300.

OAR 660-024-0060(3) also provides guidance for how one "considers" the location factors and states:

> The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all of the factors were considered and balanced.

In conducting this analysis, one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a *balancing* of all these factors, rather than reliance on any one factor. OAR 660-024-0060(3). *See also Branscomb v. LCDC*, 64 Or App 738, 745, 669 P2d 1192 (1983)(Court held that land could not be excluded from consideration *solely* because it was agricultural land and, as such, fared badly under factor 6). *D.S. Parklane*, 165 Or App at 25; *1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 409-10 (2001).

A related issue is that local governments often incorrectly treat the locational factors as threshold criteria. In fact, this misunderstanding was so pervasive that at one point LUBA even wrongly suggested that each of the locational factors had a "minimum objective threshold" that had to be identified and met by each site included in a UAR/UGB. *See D.S. Parklane Development, Inc., v. Metro*, 35 Or LUBA 516, 572-3 (1999), *aff'd as modified*, 165 Or App 1, 24, 994 P2d 1205 (2000). However, on appeal, the Court of Appeals clarified that the locational factors were not intended to be applied as threshold ("go - no go") criteria. *Id.* In other words, the intent is *not* to confirm that the preferred site was "good enough" to urbanize based on minimum threshold standards. Rather, the locational factors were intended to be "applied equally" to include lands into a UGB only "where all of the factors justify that inclusion." *Id.* In other words, the intent in establishing these factors was to assist in evaluating and ranking which site(s) amongst *all* potential candidate sites were, relative to one another, the *best* sites to urbanize in order to meet the demonstrated land need.

With that introduction in mind, we turn to a discussion of the first factor. The applicant discusses the first locational factor as follows:

> Urban reserves are lands outside the existing urban growth boundary that are considered suitable for accommodating urban development and expanding the growth boundary when additional urban land is determined to be needed over a 50-year period. The following urban reserve areas are within the Sherwood School District Boundary and are identified in Staff Report Attachment 6 (Figure 7 in petition):
>
> Sherwood North – North of Sherwood UGB
> Sherwood South – South of Sherwood UGB
> Sherwood West – West of Sherwood UGB
> Tonquin – South and West of Sherwood UGB
> Grahams Ferry – Northwest of Wilsonville

I-5 East – East of I-5 and north of Wilsonville
Elligsen Road - East of I-5 and north of Wilsonville

I-5 East, Elligsen Road and Grahams Ferry Urban Reserve Areas
These urban reserve areas were immediately rejected from further consideration due to the distance from west and south Sherwood where the majority of the student enrollment resides. These areas are 2 to 5 miles away in a straight line and even further when traveling on the road network.

Tonquin Urban Reserve Area
This area is directly south of the Sherwood Tonquin Employment UGB area and west of the Southwest Tualatin UGB area. The Tonquin Urban Reserve area encompasses approximately 571 acres. The area has parcels large enough to accommodate the high school site. However, much of the property is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II and III (Metro Title 3). This urban reserve area and it is likely to be designated industrial and/or employment due to its close proximity to other industrial areas. This urban reserve area is on the east side of the City and not centrally located for use by the majority of the School District students. The area is further isolated by a rock bluff that forms the eastern boundary of the current urban growth boundary and Sherwood City limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates this area from the existing residential neighborhoods of Sherwood. Finally, the area does not have adopted concept plan or plan for how utilities will be extended to serve the area.

Sherwood North Urban Reserve Area
This area represents slivers of land along the existing urban growth boundary at the north end of the City of Sherwood. The area was designated urban reserve because it is not within the floodplain of the Tualatin River. However, this land is not large enough to accommodate a high school site and therefore was rejected from further consideration.

Sherwood South Urban Reserve Area
This area is directly south of the Brookman Road UGB area. This area consists of rolling hills with much of the area identified by Metromap online mapping system having slopes greater than 10%. There is also two stream corridors that travel through the area with many areas mapped by Metromap as being riparian or upland habitat. One potential site is located between Oberst Road and Labrousse Road that is not mapped as having upland habitat or

riparian areas. However, this land is mapped by Metro as having slopes of greater than 10% making development of a high school campus and ballfields difficult. The biggest challenge of developing in this area is that the Brookman Road UGB area would need to be annexed and developed first before this area can be made available for development. Therefore, development in this urban reserve area is likely years away and the only promising site is at the south end of and not next to the existing Brookman Road UGB area. This area also does not have a concept plan. For these reasons, this area was rejected from further consideration.

Sherwood West Urban Reserve Area

In February 2016, Sherwood completed a Preliminary Concept Plan for the Sherwood West Planning area (aka Metro Urban Reserve Area 5B). Sherwood West encompasses 1,291 acres along the west border of Sherwood's existing urban growth boundary. The Sherwood West Planning Area is shown in Staff Report Attachment 7 (Figure 8 in petition).

Six alternative high school sites (A-F) were identified within the Sherwood West Urban Reserve Area that are large enough to accommodate a new high school. The six alternative sites (A-F) within the Sherwood West Concept Plan Area were evaluated based on site selection criteria. The site locations and evaluation criteria are indicated in Staff Report Attachment 8 (Figures 9 to 14 in petition). The School District's site alternative analysis is summarized in the table below.

(Table 1 – Alternative Sites Summary in petition)

Alternative Selection Criteria	***Alternative Sites****					
	A	***B***	***C***	***D***	***E***	***F***
Flat Topography	*N*	***U***	***Y***	*U*	*U*	*U*
Wetlands	*N*	***Y***	***Y***	*U*	*Y*	*N*
Water Service	*N*	***Y***	***Y***	*Y*	*N*	*N*
Sanitary Sewer Service	*N*	***Y***	***Y***	*N*	*N*	*Y*
Storm Drainage	*Y*	***Y***	***U***	*N*	*N*	*Y*
** Y-Meets Criteria - N-Does Not Meet Criteria – U-Undetermined*						

From the site alternatives analysis, it became clear that Sites B and C were the most promising with other sites lacking utilities, having significant wetlands, drainage issues and/or significant topography that would make construction challenging. Alternative Sites B and C are located near each other both west of SW Elwert Road at SW Haide Road, just north of Highway 99W. Site C was selected due

to having more of a gentle slope and less grade changes. Most of Site C has a consistent slope change of approximately 40 feet over the length of the site with only a small valley and ridge. Site B has a more drastic slope change of 50 to 60 feet with a more defined ridge running through the middle of the site. Site B would be far more challenging to grade and develop for a high school than Site C. The Sherwood West Concept Plan contained a phasing and funding strategy. The phasing plan identified six phases (A-F). The subject site (Site C) is located within Phase A of the concept plan.

The subject site represents an efficient location because:

- The location is next to existing western Sherwood and close to the vast majority of the District's student population (90%).
- City utilities are available to serve this site or can be extend as the site is adjacent to the city limits.
- Direct and efficient access will be available via major streets that are intended to accommodate significant motor vehicle, pedestrian and bicycle needs.
- The site will be developed on the north, south and west along existing right-of-ways and will be developed to the existing City limits and UGB. This location is a logical location to develop first within the Sherwood West Concept Plan, as it is really the first site north of 99W. Other sites in Sherwood West would result in undesirable leapfrog development.
- Utilizing the approximate 76-acre site to ultimately accommodate the large 2,400-student high school and the School District/City shared ballfields will provide greater efficiency than developing play fields independently. The district and City have a long history of partnering to maximize use of shared ball field resources.

As set forth in the District's narrative and response to MC 3.07.1440(a), there is an identified need for a major amendment of the UGB to provide for a new high school site and this need cannot wait until the next analysis of the building land supply under ORS 197.299. As allowed by MC 3.07.1425(b), the District specified characteristics necessary for land to be suitable for the identified need, *i.e.*, the new high school. *See* Applicant's Narrative at 18-19, 33-35. These characteristics included a minimum site size of 50 acres; zoning that would allow for an institutional use; within or contiguous to Sherwood, where 90% of the children served by the District reside; flat to mostly flat topography; no or minimal constraints such as streams, wetlands, intact upland habitat; adequate/feasible access to public utilities, including water, sanitary sewer, and storm sewer; and near to major (collector or arterial) streets to accommodate high school-level transportation impacts. As also required by MC 3.07.1425(b), the District has demonstrated that the need for the new high school cannot be accommodated on land already inside the UGB.

As shown above, the District undertook an analysis of seven urban reserve areas that are within the district boundary, three of which are not adjacent to the city of Sherwood. The Metro Code does not allow for the creation of an island of urban land so the analysis must be limited to those properties that are directly adjacent to the current UGB. MC 3.07.1425(f).

The Seven Urban Reserve Areas

Within the District's boundary, there are seven areas that contain urban reserves (*see* Application Narrative p. 22 of 39, showing map of all seven areas). They are:

- Sherwood North
- Sherwood South
- I-5 East
- Elligsen Road
- Tonquin
- Graham's Ferry
- Sherwood West

Each will be discussed in turn.

The Sherwood North Urban Reserve Area

The Sherwood North urban reserve area is comprised of slivers of land without flood plain constraints north of the existing city limits and south of Tualatin River. This area does not contain one or more contiguous parcels that would be large enough to meet any of the District's siting criteria for a high school site. Therefore, the hearings officer finds that the Sherwood North urban reserve area cannot accommodate the need for a new high school.

The Sherwood South Urban Reserve Area

The Sherwood South urban reserve area is adjacent to the Brookman Road UGB area. Some of the Brookman Road UGB area was recently annexed to the city, but much of it still has not been annexed. The Sherwood South area consists of rolling hills with much of the area identified by Metro Map as having slopes greater than ten percent, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 3.) There are also two stream corridors that traverse the area with many areas mapped by Metro as being riparian or upland habitat. (See Attachment 4.) There is a potential site located between Oberst Road and Labrousse Road that is not mapped as being constrained by upland habitat or riparian areas, but is mapped as having slopes greater than ten percent, which would not meet the District's siting criterion for a flat to relatively flat site. A challenge in the overall development of this area is that the Brookman Road area within the UGB must be annexed and developed first before the Sherwood South area will have the public services it needs to be able to develop. Further, Sherwood South is not even concept planned yet. As far as the hearings officer is aware, no such planning has been scheduled. As noted earlier, MC 3.07.1110 requires that urban reserve areas be concept planned before they be considered for inclusion in the UGB. As set forth in response

to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Sherwood South urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application. Therefore, the hearings officer concludes Sherwood South cannot accommodate the need for a new high school.

The I-5 East Urban Reserve Area

The I-5 East urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Elligsen Road Urban Reserve Area

Similarly, the Elligsen Road urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin, and immediately south of the I-5 East urban reserve area. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to western Sherwood would be at least five miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Tonquin Urban Reserve Area

The fifth urban reserve is the Tonquin urban reserve area. This area lies on the east side of Sherwood and is contiguous to Sherwood's city boundary. As set forth in the Narrative, this urban reserve area is directly south of the Sherwood Tonquin Employment UGB area and, according to Julia Hajduk, the City's Community Development Director, will be used to accommodate the City's future industrial and employment needs given its proximity to other industrial uses and Sherwood's employment/industrial core. Therefore it is not likely to allow for zoning for an institutional use. As noted in the staff report, another issue with building a new high school in this area is that the majority of adjacent land within the UGB is not yet developed to urban standards. Any out-of-sequence development in this area, then, would require a costly and inefficient extension of public services. Further, much of the property in this urban area is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II, and III (Metro Title 13). (See Attachment 1.) This area is further isolated by a rock bluff that forms the eastern boundary of the current UGB and city limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates the area from the existing residential neighborhoods of Sherwood, thereby making it less efficient to serve the student population

given that the bulk of that population is in the southern and western areas of the city. Significant areas of the urban reserve also have substantial slopes of ten percent and greater, along with floodplain constraints, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 2.) Further, this urban reserve area does not have a concept plan in place or a plan for how utilities might be extended to serve the area. Concept planning has not been completed for this area. MC 3.07.1110 requires that urban reserve areas be concept planned before these areas can be considered for inclusion in the UGB. As set forth in response to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Tonquin urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application.[12] Therefore, the hearings officer concludes the Tonquin urban reserve area cannot accommodate the need for a new high school.

The Grahams Ferry Urban Reserve Area

The Grahams Ferry urban reserve area is at the District's extreme southeast boundary next to Wilsonville. This urban reserve areas meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to from Graham's Ferry to western Sherwood would be at least seven miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, this urban reserve area is constrained by natural resources and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that these urban reserves cannot accommodate the new high school.

The Sherwood West Urban Reserve Area

The seventh and final urban reserve area studied was Sherwood West. The hearings officer finds this is the only urban reserve area that can efficiently accommodate a new high school consistent with the citing criteria, for these reasons: Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre Sherwood West urban reserve for places within it that could accommodate a new high school site. The applicant District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major (collector or arterial) street network. Findings addressing MC 3.07.1425(c) can be found in the Narrative and in the staff report. The applicant District included an analysis of the six areas within Sherwood West. Therefore, the hearings officer finds that, given the framework of MC 3.07.1425(b) and (c), no urban reserve except for

[12] Urban Reserve Areas are intended to provide a 50-year supply of land. Given that the City has no plans to complete a concept plan for the area, and because contiguous areas within the UGB would need to develop first to extend the needed infrastructure, it is safe to conclude that development of this area is at least several years away.

Sherwood West should advance to MC 3.07.1425(c) to determine which urban reserve can best meet the identified need, because no other urban reserve can meet that need.

The Six Sites Studied within the Sherwood West Urban Reserve Area

The District identified six sites (designates Sites A through F) within the Sherwood West urban reserve area that were large enough to accommodate a new high school campus. Each of the six is discussed in turn:

Site A – The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, public infrastructure issues or a combination of these factors. There is a small wetland in the center of this site. The western portion is mostly occupied by Chicken Creek. There is no water service available from SW Elwert Road, and water extensions would be required along Elwert frontage and east from SW Edy Road. The site is low-lying and sanitary sewer connection is not available from SW Edy Road, so a major pumping station would have to be built.

Site B - The hearings officer finds this site *could* possibly accommodate the new high school. However, it has a significant ridge running through the middle of the site, which would require extensive grading, with slopes running both east and west with a 50-60 foot grade change. Both public water and a 15" sanitary sewer pipe are available off SW Elwert Road.

Site C - This site is quite flat, with no more than a 40 foot grade change required. It has water and sewer connections off SW Elwert Road. There are no wetlands. The hearings officer finds that Sites B and C are the two areas that can most efficiently accommodate a new high school, but Site C is clearly superior because Site B has a significant topographic ridge running north-south through the middle of the site with an approximately 50-60 foot grade change. Site C has less topography to manage, which is important when one considers that ballfields, tracks, and other sports facilities needed as part of the new high school cannot be developed on slopes. Therefore, the hearings officer concludes and finds Site C can most efficiently meet the identified need of a new high school.

Site D - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards private property, with a grade change in excess of 50 feet. There is no sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity. Street improvements on Kruger Road and offsite improvements would likely be required. Sites D also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Site E - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards Highway 99, with a grade change around 75 feet. There is no

sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity.

Site F - The hearings officer finds this site cannot efficiently accommodate the new high school due to wetlands, drainage, powerlines, and lack of public water supplu. While quite flat, this site has wetlands, drainage, and a BPA power line easement running through it. While there is a nearby sewer line, there is no water line, and costly improvements would have be made to supply the school with drinking and irrigation water as well as meeting firefighting needs. Site F is further constrained by a BPA easement that cuts diagonally through what would otherwise be the flattest, least constrained part of that area and this flat area is segregated from the existing UGB by Chicken Creek and protects a riparian corridor. Site F also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Conclusion of the Alternative Sites Analysis for the Six Sites in Sherwood West

The District evaluated the alternative sites related to five selection criteria noted above and determined that four of the six sites (A, D, E & F) lacked utilities, had significant wetlands, drainage issues or topography that restricted the ability to efficiently accommodate the identified land need. In addition, site D is not adjacent to the current UGB and therefore would create an island of urban land which is not allowed under Metro Code. Areas B & C better met the selection criteria with site C being the best site due to less grading and site work to accommodate the identified land need. Based on the urban reserve areas analyzed site C in the Sherwood West urban reserve best meets the need considering efficient accommodation of the identified land need. For these reasons, the hearings officer concludes and finds that proposed Site C (on the northwest corner of SW Elwert and Kruger Roads) can most efficiently meet the identified need of a new high school.

MC 3.07.1425(c)(2): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(2) the orderly and economic provision of public facilities and services.

Hearings Officer's Analysis: This suitability factor focuses on the orderly and economic provision of public facilities and services. Because Sherwood West has been concept planned pursuant to MC 3.07.1110, the provision of public facilities and services within the Sherwood West Concept Plan area has been studied to a larger degree than other URAs. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, storm water, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. (See Sherwood West Concept Plan, pages 15-21, 40-44, Appendix 3 (Existing Conditions Report), and Appendix 8 (Transportation Options Alternative Analysis Report and Cost Estimates). The concept plan was prepared in coordination with all of the future service providers, including those services that

will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, Tualatin Valley Fire & Rescue, and Washington County. (*See* Sherwood West Concept, acknowledgements page and Appendix 6 (Service Provider Interviews). The District was also part of the Technical Advisory Committee that informed the concept planning effort. Because all of this extensive analysis and coordination work had already been done for Sherwood West, the District used that work as the jumping off point for its analysis of the area for orderly and efficient accommodation of public services.

As demonstrated in the Narrative, pages 24-31, four of the six sites (A, D, E, and F) have significant barriers to provision of public infrastructure. Sites B and C have the fewest barriers and are most feasible for public infrastructure service. This is consistent with the findings of the Sherwood West Concept Plan, which anticipates phasing public infrastructure to serve the area encompassed by Sites B and C first, i.e., Area A. (*See* Sherwood West Concept Plan, pages 40-44.) Service provider interviews conducted as part of the concept planning effort also identified Area A as the "first stage development area." (*See* Sherwood West Concept Plan, Appendix 6, page 5.) It is also worth noting that, according to the concept plan, Area A of the concept plan has most infrastructure in place, "presents the best near-term opportunity for development in Sherwood West," and the cost to serve is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address effects of a new high school on Site C on the surrounding transportation system. The Transportation Study found that, with appropriate mitigation, Site C can accommodate the new high school while maintaining an adequate transportation system. See also District's findings in response to Goals 11 and 12 with respect to the provision of public facilities and services to Site C.

As part of this UGB amendment application effort, the District obtained service provider comments from the City of Sherwood, Washington County, Tualatin Valley Fire and Rescue, and Clean Water Services, all of whom supported the siting of the new school on Site C from an infrastructure provision standpoint, consistent with the Sherwood West Concept Plan.

In sum, Sites B and C best meet the need for a new high school considering the orderly and economic provision of public services per the Sherwood West Concept Plan and the District's own analysis.

The primary opponent makes only a desultory effort to challenge the applicant's proposed findings. *See* letter from Jennifer Brager dated June 23, 2017, at p. 7. Ms. Bragar concludes, without much in the way of analysis, that "Site C is unworkable." The only evidence that the opponent cites as support for this theory is the DKS Traffic Study dated March 15, 2017, which shows that currently there are several failing intersections in the vicinity. However, failing intersections is not in any way determinative when considering the locational factors.

The proposed site has positive attributes from the transportation and traffic perspective. The site is close to the area's major north-south highway (Highway 99) and east-west arterial (the Tualatin-Sherwood Road). It has a relatively flat topography, reducing hazards in wet or snowy conditions. With the planning modifications, the site will have adequate access and

capacity for peak school commuting times (7.15 to 8 am and 2.50 to 3:45 pm). Road widths and sightlines will be sufficient for safety purposes, an important consideration for less-experienced drivers, such as high school juniors and seniors.

The traffic issue has been addressed by unrebutted evidence from the applicant's civil and traffic engineers - the *only* expert testimony in the record - and is belied by the fact that all of the public service providers for the Sherwood West area, including Washington County, the City of Sherwood, and Clean Water Services, submitted service provider letters that support the new high school on Site C, and state that such services can be provided. (*see* Appendix to the Application Narrative for copies of these letters).

At the public hearing, local residents Carolyn McBee and Karen Labahn raised issues of traffic safety at the proposed site, specifically on Kruger and Elwert Roads. They testified, convincingly, that the roads abutting the preferred alternative site are rural in nature and not capable of handling the traffic generated by the school. As the hearings officer emphasized at the hearing, the analysis is comparative in nature. A site does not have to be good; it just has to be better than the alternatives. This is true even if all of the alternatives are objectively bad. In fact, it will undoubtedly be the case that the roads in all seven of the candidate urban reserve areas are rural in nature and incapable of handling urban levels of traffic. At this stage, the analysis is high level and really only focused on identifying issues that made any one site particularly good or horrendously bad in relation to the others.

In this case, the applicant's traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates wrote the following in a June 28, 2017 memorandum:

> DKS prepared the March 15, 2017, Sherwood High School UGB Expansion Transportation Study ("March Transportation Study"). The March Transportation Study assesses the proposed UGB amendment impacts and identifies a roster of system improvements for the short-term and long-term. This study acknowledges that several local intersections are heavily congested during peak hours, and that the rural street infrastructure nearby the proposed UGB amendment site does not meet either the City's or the County's facility design standards today. What this study also tells us, however, is that with proper mitigation the proposed school site can be adequately served with transportation infrastructure. The next step in the planning process is the post-UGB amendment Title 11 planning, as required by Metro, and it is during that process that the next transportation planning steps will be taken. These planning steps include designating urban zoning and land use types within the newly added UGB area. During this stage, we will engage in additional technical studies, including a second transportation impact study, to (1) refine the specific project needs, (2) ensure that the Transportation Planning Rule is met, (3) ensure that performance standards can be maintained over time, and (4) ensure that a safe transportation network is provided for the new

> high school. Based on our transportation analyses so far, we are confident that the Sherwood School District can provide adequate state and local transportation facilities to support the proposed Site C high school.

While the residents' traffic safety concerns are well meant, and taken seriously by the hearings officer, the engineers are undoubtedly correct that the applicant's preferred alternative site can be improved with reasonable cost expenditure. The improvements discussed at the hearing were typical of what one would expect when land urbanizes, and do not involve any highly extravagant technical solutions such as bridges over wetlands / streams, or expensive highway overpasses. The hearings officer had the opportunity to evaluate these engineering experts and considers their representations highly credible. No evidence was presented pertaining to other sites that would suggest that any other site would be significantly better from a transportation standpoint, and several of the sites required more expensive improvements.

The opponents argue that the applicant gamed the system by counting traffic in the middle of winter. *See* letter from Jennifer Brager dated June 23, 2017, at p. 8. Again, this argument seems to lose focus of the intended exercise. That argument might have merit if the applicant's traffic engineers had performed their traffic counts at some locations in winter, but at other locations in summer (when traffic is lighter because school is out of session and many workers are not commuting, due to vacations). That did not happen. The applicant's traffic study clearly states:

> To perform the intersection analysis, traffic counts were collected during the AM peak (7:00 – 9:00 am) on Feb 1, 2017 and the PM peak (4:00-6:00 pm) on Jan 31, 2017. Study intersections on ODOT facilities (i.e. OR 99W) were analyzed using estimated 30th highest hour traffic volume (30 HV) conditions. The 30 HV development process for existing conditions *includes the determination of seasonal adjustments*. (DKS "Sherwood High School UGB Expansion Transportation Study" dated March 15, 2017, p. 9, italic emphasis added).

Site C is located in close proximity to existing urban arterials, which in and of itself makes it a better site as compared to alternatives such as Sites D and F, which are more isolated and remote. Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography.

The hearings officer wishes to emphasize that the public will have many additional opportunities to comment on and influence the types of transportation improvements that will be built.

MC 3.07.1425(c)(3): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(3) ***comparative environmental, energy, economic, and social consequences.***

A comparison of the six sites with respect to environmental, energy, economic, and social consequences of development is set forth below:

Environmental Consequences: There are areas within Sherwood West that have significant natural resources within them. The maps at Figure 6 of the Sherwood West Concept Plan and Appendix B of Appendix 3 of the Sherwood West Concept plan are instructive in this regard. From those maps one can see that Sites A, D, and F have significant areas of floodplains, wetlands, protected stream corridors, and inventoried wildlife habitat. In contrast, Sites B and C have little to no environmental resources on them. Further, Sites B and C are closest to the city's existing urban core, which give them the most direct transportation connections, thus limiting air quality degradation. Therefore, development of these sites with a high school would have the least negative environmental consequences of all of the alternative sites.

Energy Consequences: From an energy standpoint, all of the sites are reasonably close to the bulk of the student population to be served, but Sites E and F are more remote. This will be exacerbated as Sherwood West develops with mostly residential uses. Sites A, B, C, and D are most centrally located, which will allow more students to walk and bike to school and reduces the number of students being bused and driven to school, and allows for the least vehicle miles traveled for those who use cars and buses. Site D would require an out-of-sequence extension of public infrastructure to the more interior of the urban reserve, however, which ticks its adverse energy consequences somewhat higher than Sites A, B and C.

Economic Consequences: Public bond dollars are finite and must not be wasted. Taxpayers expect that school districts will be good stewards of the public money and building new school facilities is no exception. Being more remote from the existing urban area and public infrastructure, Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography. The effect of topography on the cost of building a high school site with its need for ball fields and other sports facilities should not be under estimated. Even small amounts of slope will have significant, expensive consequences on a school site due to the cost of grading.

Site C has another factor that weighs in its favor over Site B, which is that Site B contains a number of single-family residences that would have to be purchased and demolished to build the new high school. Purchasing houses to tear them down is not a good use of bond dollars if it can be avoided. Therefore, Site C clearly comes out ahead in this consideration.

Social Consequences: Siting the new high school in the most centrally located area possible is important to fostering a sense of civic and school pride. Although high schools can have fairly significant impacts on an area, they should be sited where the bulk of the population resides and be a use that brings people together in a place that the citizens identify as an integral part of their community. One of the alternatives that the District considered in its facilities planning to alleviate the capacity issue at the existing Sherwood High School was building a second high school. The community, however, was very much opposed to that idea. A small, cohesive community like Sherwood wants to remain bound together not divided by different allegiances to different high schools. All of the sites analyzed in Sherwood West would be superior to any sites in any other urban reserve for these reasons alone; however, within Sherwood West Sites B and C are most centrally located - both now and in the future as the city continues to grow to the south and west. Even so, development of Site B has a more immediate social consequence that Site C does not have. There are a number of residences in Site B that would have to be purchased and demolished in order to develop the new high school. Displacing residents from their homes needlessly is a very adverse social consequence and should not occur if it can be avoided, which in this case it can. Therefore, Site C comes out ahead here, too.

Conclusion: Sites B and C are the two sites that come out the most favorably when one factors in the environmental, energy, economic, and social consequences. However, Site C edges ahead of Site B due to Site B's increased adverse economic and social consequences.

MC 3.07.1425(c)(4): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(4) compatibility of proposed urban uses with nearby agricultural and forest activities occurring on land outside the UGB designated for agriculture or forestry pursuant to a statewide planning goal.

Hearings Officer's Analysis: The District identified a number of site characteristics that a new site would need to meet in order to accommodate a new high school. As discussed above, is one urban reserve area that can efficiently accommodate a new high school - Sherwood West. Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre urban reserve for areas within it that could accommodate a new high school site. The District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major street network. This analysis yielded six sites, which were then ranked according to the site criteria.

With respect to how the six sites meet the need for a new high school considering the compatibility of proposed urban uses with nearby agricultural and forest activities, it is important to note that the entire Sherwood West area is slated for eventual urban development, regardless of the current uses and zoning of land within it. It was designated as an urban reserve instead of a rural reserve partly due to its small-scale, intermittent farming and forestry activity, parcelization, and rural residential development. That said, urbanizing land that is adjacent to existing urban development is more consistent with this boundary location factor than urbanizing land further into the undeveloped portions of an area, which will likely remain in rural use much longer whether the new high school is built in the area or not. Sites A, B, and C are closest to existing urban development. Sites D, E, and F are more remote from existing urban development. Therefore, in this respect, A, B, and C will have fewer impacts on any nearby agricultural and forest activities. Site A does not appear to have any adjacent agricultural or forest activities occurring adjacent to it. The other sites have very minor to small amounts of agricultural activities occurring on adjacent land. Therefore, none of the sites would appear to have much impact on agricultural or forest activities. Given the sites' rough equivalency in this regard, Sites B and C are the least costly to serve and most readily developable according to the Sherwood West Concept Plan, so developing in those areas "now" will have fewer impacts on nearby agricultural and forest activities than jumping ahead to an area that might have otherwise remained rural for the next 20 years. This gives Sites B and C the edge in considering this factor.

MC 3.07.1425(c)(5): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(5) equitable and efficient distribution of housing and employment opportunities throughout the region.

Hearings Officer's Analysis: This factor is not directly relevant to the siting of a new high school and therefore is not determinative in any way.

MC 3.07.1425(c)(6): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(6) contribution to the purposes of Centers and Corridors.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro. According to Metro's 2040 Growth Concept Map, the proposed site is not in a Regional or Town center, nor is it directly on a Corridor. Site A is closest to a Corridor, but as staff pointed out in the staff report, it is mostly undeveloped or in single-family residential use. None of the other sites are close enough to any Centers or Corridors to contribute to them at this point in time. Therefore, none of the alternatives support the purposes of Centers and Corridors in any significant way.

MC 3.07.1425(c)(7): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(7) protection of farmland that is most important for the continuation of commercial agriculture in the region.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

As noted by staff in the staff report, Metro and Washington County completed an urban and rural reserve process that designated the most important land for commercial agriculture in the county as rural reserve and the land most suitable for urban development as urban reserve. This means that development within any urban reserve will, at least presumptively, protect farmland that is most important for the continuation of commercial agriculture in the region.

However, this factor seems to reach beyond that concern and require further differentiation of urban reserve areas, at least to the extent that any of these urban reserves are still in commercial agricultural production. Of the six sites studied in Sherwood West urban reserve area, none appear to have any significant commercial agriculture. As such, it seems their agricultural output does not form a significant component of the Sherwood area's economy.

The applicant points out that development of sites within an urban reserve that are closest to the existing UGB and to areas within the UGB that actually contain urban-level development, helps to keep agricultural and forest land further from the UGB and urban areas in unaffected operation until such time as urban development grows further in that direction.

MC 3.07.1425(c)(8): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(8) avoidance of conflict with regionally significant fish and wildlife habitat.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The Sherwood West urban reserve has some significant fish and wildlife habitat within in it, much of which is associated with Chicken Creek. According to the Sherwood West Concept Plan, Steelhead *(Oncorhynchus mykill),* a federally listed species, are known to exist within Chicken Creek. Sites located closer to Chicken Creek would therefore tend to be less suitable for this project.

All of the sites *except* for Sites B and C are constrained by a significant or moderate level of natural resources:

Site A has a wetland right in the middle, and the entire western portion of this site is mostly creek, and its drainage discharge is right into Chicken Creek (see Narrative, p. 25).

Site D has creek drainage running through the southern portion of the site. Since there is no established public storm drainage anywhere in the vicinity, so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site E is steeply sloped down to the east towards Highway 99, with a grade change around 75 feet. There are no established public storm drains in the vicinity. so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site F has creek drainage and potential wetlands running through the entire site (see Narrative, p. 30), so extensive mitigation measures could be required to avoid negatively effecting significant fish and wildlife habitat.

As shown on Figure 6 of the Sherwood West Concept Plan, the western edge of Site B abuts a tributary of Chicken Creek and includes some associated wildlife habitat. Site C has no such identified resources, and, therefore, the hearings officer concludes and finds that Site C best avoids conflicts with regionally significant fish and wildlife habitat.

MC 3.07.1425(c)(9): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(9) ***a clear transition between urban and rural lands, using natural and built features to mark the transition.***

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The boundaries of Sherwood West do not appear to have been designated according to providing a clear transition between urban and rural reserves using natural or built features. It is bisected in large part at its northern end by Chicken Creek. But Chicken Creek will not form a natural barrier between urban and rural uses, as the Sherwood West Concept Plan contemplates development on either side of the creek. So, Chicken Creek will end up being a natural area within an urban area - not a boundary between urban and rural uses. Because the boundaries of Sherwood West were not created according to natural or built features, and because all of the six sites studied within Sherwood West for a new high school are internal to Sherwood West and will eventually be in the midst of other urban area, this factor is not particularly relevant to this application. Even so, as staff notes in the staff report, there are no built or natural features that would mark even an internal transition from urban to rural lands for Sites C and E. Site B is flanked by Chicken Creek, which could form such a barrier, but, again, there will be urban development on the other side of that "barrier" one day. Site A is also flanked by Chicken Creek, but the creek and natural resources associated with that site also limit the development

potential of that site for a new high school. Further, there will be urban development on the other side of those natural barriers one day, so they will not really mark the transition that this factor contemplates. Site D has some natural resources on it that could provide a barrier of sorts, but which also reduce the buildable area, and, again, the concept plan does not contemplate these natural areas being any sort of permanent barrier between urban and rural uses. Site F has a large amount of wildlife habitat, but that habitat, too, cuts into the buildable area and will provide no such barrier as contemplated by this factor.

Hearings Officer's Analysis and Summary of the Nine MC 3.07.1425(c) Locational Factors

In summary, little weighing and balancing is needed in this case, because the applicant's preferred alternative, Site C, nearly always came out as the site that best met the intent of each individual factor. With respect to two factors, Sites B and C equally met the intent of the factor, and with respect to another factor Site B came in a fairly close second to Site C. All in all, however, Site C best met all of the factors. In sum, all of the factors were applied and evaluated, and on-balance, Site C came out ahead. Thus, whatever weighing and balancing of all of the nine locational factors with respect to the six sites that could potentially accommodate a new high school is required, the Hearings officer finds that the applicant's analysis clearly demonstrates that the proposed site, Site C, better meets the applicable locational factors than the other sites.

No discussion presented by any opponent to the contrary is convincing. In disputing the District's location factor analysis, the primary opponent pointed to individual aspects of different sites and argued why it believed those aspects made one site better than another with respect to a given, discrete aspect. The opponent's sniping is ineffective, however, because unlike the applicant, the opponent did not evaluate the sites *holistically* based on the nine enumerated factors. Stated it another, it may be the case, that some of the alternative sites fair better than the applicant's preferred alternative in some particular or another. No site is perfect, after all, and each site has its positives and its negatives. However, when viewed as a whole, on balance, the applicant's preferred alternative fairs the best over the broadest consideration of the nine factors. Therefore, the opponent failed to demonstrate that the MC 3. 07.1425(C) factors findings are deficient.

The opponent also argues that Sherwood South cannot be ruled out as a possible area for the Major Amendment even though it has not been concept planned under MC 3.07.1110, because MC 3.07.1110(6) provides that such an area can be added even if it has not yet been concept planned. *See* Brager letter dated June 23, 2017 at p.7. MC 3.07.1110(6) states:

> ***"If the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan by the date set under subsection (a), then the Metro Council may nonetheless add the area to the UGB if necessary to fulfill its responsibility under ORS 197.299 to ensure the UGB has sufficient capacity to forecasted growth."***

First, the MC 3.07.1110(6) exception is restricted to situations where "the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan." There is no evidence that any local governments responsible for a concept plan for Sherwood South are unable to reach agreement on that concept plan. In fact, there seems to be no question that the City of Sherwood will be planning for Sherwood South-it just hasn't done it yet, and has no current plans to do so. Second, the fact that no pre-UGB expansion concept planning has been done for Sherwood South is just one of many reasons the District gave for why Sherwood South ceased to be considered as a viable area for the new high school. The opponent has not pointed to an area within Sherwood South that would meet the District's siting criteria. In fact, in the opponent's June 23, 2017, letter, the opponent points to "a large block of property" south of the recent Brookman Road annexation area, but then appears to agree that it is too sloped to work as a high school site. See Letter from Jennifer Brager dated June 23, 2017, at p.6.

Metro Code section 3.07.1425(D) The Council may consider land not designated urban or rural reserve for possible addition to the UGB only if it determines that:

1. ***Land designated urban reserve cannot reasonably accommodate the need established pursuant to subsection B of this section; or***
2. ***The land is subject to a concept plan approved pursuant to section 3.07.1110 of this chapter, involves no more than 50 acres not designated urban or rural reserve and will help the concept plan area urbanize more efficiently and effectively.***

Hearing Officer's Analysis: The proposed expansion is within an urban reserve. This criterion is not relevant because the site and surrounding properties to the north, east and south are within an Urban Reserve area (no property within or next to the subject site is outside of urban reserve areas).

This criterion is not applicable.

Metro Code section 3.07.1425(E): The Council may not add land designated rural reserve to the UGB.

Hearing Officer's Analysis: The proposed expansion is not within a rural reserve. This criterion is not relevant because the subject site and surrounding properties to the north, east and south are within an Urban Reserve area.

This criterion is either not applicable or has been met.

Metro Code section 3.07.1425(F): The Council may not amend the UGB in such a way that would create an island of urban land outside the UGB or an island of rural land inside the UGB.

Hearing Officer's Analysis: The subject site and the remaining portion of the Sherwood West urban reserve are adjacent to the City of Sherwood. The transformation of this area from rural to urban represents a logical and methodical way to enlarge an urban area, which will not create an island of urban development outside of the UGB.

The proposed expansion will not create an island of urban land outside the UGB or an island of rural land inside the UGB. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.07.1440 (B)(1) The applicant shall also demonstrate that:

(1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land.

Hearing Officer's Analysis: The applicant addresses this criterion as follows:

> The proposed major amendment site is surrounded by land that is either within the City of Sherwood or the Sherwood Urban Reserve Area 5B (aka Sherwood West Preliminary Concept Plan Area) (see Attachment 6). The land in the City located north and east of SW Elwert Road is fully urbanized with single-family subdivisions and constructed houses. City land located south and east of SW Elwert Road is the location of the Sherwood Elks Lodge. The Elks Lodge site contains a large area of vacant land around the existing building and parking lot. The Elks Lodge and undeveloped surrounding land is zoned Low Density Residential (LDR).
>
> Land to the north, south and west is currently rural and within the urban reserve area (Sherwood West Concept Plan). This County land is zoned Agricultural Forest (AF) and is a patchwork of sites zoned AF-5, AF-10 and AF-20 with the subject site zoned AF-20. AF-5 has a minimum lot size of 5 acres, AF-10 of 10 acres and AF-20 has a minimum lot size of generally 80 acres. The surrounding property has been highly parcelized and consists of a patchwork of small forests/farms and rural residential properties with none more than 80 acres and many under five acres in size.
>
> The site is compatible with surrounding residential properties as the property has separation provided by existing streets on the north (Haide Road), south (Kruger Road) and west (Elwert Road) boundaries. The eastern boundary consists of mostly forestland with only one house near the site boundary near the northwest corner of the site. All school traffic will be able to access the site

from Elwert Road and will not be routed through existing or proposed residential areas or streets.

While the development of a school site will be the first urban development in the Sherwood West Concept Plan Area, the regional and local plans anticipate redevelopment of this entire area for primarily residential land. Schools typically locate within residential areas and are considered to be compatible with residential land uses when the impacts of the school on residential uses are considered within the design.

The first urban development projects to occur within rural areas typically can cause some tension between existing residents who welcome the change, and those who are content with its current rural character. So well-designed solutions to deal with compatibility issues may still feel like "encroachment" to rural residents. The development of the site will include public involvement during the design development and permit approval process, allowing ample opportunity for the neighbors to help address specific compatibility issues. In the long term, establishing the school will provide the opportunity for subsequent urban developments to be oriented and designed to optimize their physical relationship with the school. This will allow the development of future Sherwood West properties to "grow up together" compared to infilling a large public facility into an established residential neighborhood.

The subject site borders the UGB on the east along SW Elwert Road. Adjacent land uses include single family homes and the Sherwood Robin Hood Elk Lodge that also includes some vacant land that is zoned for residential use, which is expected to develop over time. Directly to the southeast across Highway 99W is the Sherwood Regional Family YMCA. To the north across SW Haide Road is mostly open land with some out-buildings and one dwelling that appears to be vacant. To the west are forested parcels with one dwelling adjacent to the NW corner of the subject parcel. To the south across SW Kruger Road is the Countryside Community Church, limited agricultural activities and four dwellings. The typical weekend use of the church complements the weekday uses of a school. The land to the south also borders Highway 99W.

The District has developed a preliminary site plan that shows the school buildings located in the center of the property with sports fields generally to the south and west and parking located to the north. The southeast corner of the site will contain the realignment of SW Elwert and SW Kruger Roads. The three adjacent roads provide some buffering for the very few adjacent homes and the NW Natural Gas Easement also buffers the southwest corner of the site. The district currently has a High School Design Committee charged with working with the design team to provide advice on a number of design elements and a couple of community input meetings will be scheduled in 2017. In addition there will be public input opportunities during the City's development review and permit approval process.

Finally the subject site is within a very large urban reserve area that has the potential to urbanize over time. As noted previously this portion of the Sherwood West urban reserve was identified as phase A in the preliminary concept plan the City completed. This allows the adjacent land to be designed and developed in a manner that enhances and embraces this important community facility. Therefore the proposed use of the site can be made compatible, through measures, with the uses of the adjacent land.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440 (B)(2) The applicant shall also demonstrate that:

If the amendment would add land for public school facilities, the coordination required by subsection C(5) of section 3.07.1120 of this chapter has been completed.

Hearing Officer's Analysis: MC 3.07.1120(C)(5) states:

> ***"Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110."***

The applicant addresses this requirement as follows:

> This requirement is satisfied as described in Section III of the application. In summary, the Sherwood School District adopted a long-term facilities plan in January of 2008. The long-term plan assumed that additional school capacity would likely be needed within 10 years of the plan's adoption. (The 2008 Long Term Facilities Plan is provided in Appendix C).
>
> In 2014 to 2016, the School District did significant planning prior to placing a bond on the November 2016 ballot that was ultimately approved by voters. This included inventorying existing school facilities, completing updated demographic information, as well as significant planning and public outreach to identify a plan for school facilities that includes the proposed new high school.

As the District points out, it experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. The District completed a long term facilities plan in 2008. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school

year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District and the city of Sherwood have an intergovernmental agreement to share sport fields with most of the facilities occurring on school grounds. Thus the coordination required by subsection C(5) of Metro Code Section 3.07.1120 has been completed.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440(B)(3) The applicant shall also demonstrate that:

If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot be reasonably be created by land assembly or reclamation of a brownfield site.

Hearing Officer's Analysis: The proposed expansion is not for industrial use. This criterion is not applicable.

Findings Addressing OAR 660- Division 24 and the Applicable Statewide Planning Goals.

OAR 660-024-0020 requires that all UGB amendments apply the Statewide Planning Goals to the amendment process. This directive applies to the whole gamut of UGB amendments, from the every-six-year Metro legislative review of its UGB to a quasi-judicial major amendment under the Metro code to provide land for a specific public need, such as a school or other public facilities. However, this does not mean that the Goals will apply equally and in the same way in each situation. It may even be that one or more of the Goals may not apply at all to a given situation.

The primary opponent asserts that the applicant failed to adequately address the Statewide Planning Goals. *See* Letter from Jennifer Bragar dated June 6, 2017. While that was correct at the time Ms. Brager wrote her letter, the applicant followed up two days later with proposed findings. The Hearings officer finds that the applicant did adequately demonstrate compliance with the applicable Statewide Planning Goals by substantial evidence in the whole record, and adopts the applicant's suggested findings, with slight modification, as set forth below. The opponent's specific objections are also addressed below.

OAR 660-024 -0020

OAR 660-024-0020 sets out which of the Statewide Planning Goals are applicable to UGB amendments. The Goals will have a somewhat limited applicability to a UGB amendment for a specific need, but the relevant Goals are addressed below.

Goal 1 - Citizen Involvement

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

Hearings Officer Analysis: This Major Amendment application does not alter Metro's citizen involvement program. Consequently, compliance with Goal 1 is established through compliance with the public involvement requirements of Metro's code. Those requirements have been followed.

Goal 2 - Land Use Planning
"To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Hearings Officer Analysis: OAR 660-024-0020(1)(a) states that the exceptions process in Goal 2 and OAR 660, Division 4 are not applicable unless a goal exception is part of the application. A goal exception is not part of the Major Amendment application and so those provisions will not be addressed. Other than goal exceptions, Goal 2 requires the establishment of a comprehensive plan, a need for coordination of government entities in planning, and the need for public hearings and an opportunity for comment and review.

1) Coordination: This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred.

2) Public Hearings/Opportunities for Comment and Review: Metro staff sent the required notice for the hearing before the hearings officer, and there has been opportunity for comment and review of the application materials. The hearing was continued, which provides additional opportunity for comment and review, and the hearings officer has stated he is likely to leave the record open after the second hearing concludes. There will also be at least one hearing before Metro Council. Further, the proposed high school will have additional approvals to obtain after the Major Amendment application has been approved, such as annexation, a zone change and a conditional use permit, all of which include a public involvement component. Therefore, there has been and will continue to be public hearings and an opportunity for comment and review.

Goal 3- Agricultural Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 4 - Forest Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 5 - Natural Resources, Scenic and Historic Areas, and Open Spaces

"To protect natural resources and conserve scenic and historic areas and open spaces."

Hearings Officer Analysis: OAR 660-024-0020(1)(c) requires states that Goal 5 and its related rules apply only in areas added to the UGB. The area to be added to the UGB is the site identified in this application. There are no Goal 5 resources on the site identified by Metro, Washington County or the City of Sherwood in the Sherwood West Concept Plan. Therefore, this goal is not applicable.

Goal 6 - Air, Water and Land Resources Quality
"To maintain and improve the quality of the air, water and land resources of the state."

Hearings Officer Analysis: As LUBA recently stated:

> "[t]he relevant Goal 6 inquiry for a decision that amends comprehensive plan and zoning map designations, without approving any particular new development, is whether there is a reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed in the future. *See Friends of the Applegate Watershed v. Josephine County*, 44 Or LUBA 786, 802 (2003), (at the post-acknowledgment plan amendment stage, a local government need only show it is reasonable to expect that applicable state and federal environmental quality standards can be met); *see also Salem Golf Club v. City of Salem*, 28 Or LUBA 561, 583 (1995) (same).

See Nicita v. City of Oregon City, ___ Or LUBA ___ (LUBA No. 2016-045, Jan 25, 2017, slip op. at 27.

The hearings officer does not see how there could not be any "reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed [as a school]." The proposed school campus poses no significant adverse air, land or water quality impacts. There are no expected significant "waste or process discharges" from the new high school campus. The high school does not "process" anything and so there are no process discharges associated with the high school. Any waste that will be produced by high school activities will be handled through the normal course of business. For example, any solid waste generated by the school will be subject to recycling and solid waste collection by the franchised garbage hauler for the area. Any waste associated with sanitary sewers or storm events will be handled as part of the public sanitary and storm water facilities. As the property develops, the District will be required to coordinate with the state Department of Environmental Quality and with Clean Water Services to ensure that air, land and water resources are not degraded. As noted in response to Goal 5, no significant Goal 5 resources have been mapped on this property by Metro, Washington County or the City. Further, the proposed new high school site is adjacent to the existing UGB and will allow for efficient multi-modal transportation of the

bulk of the student population - especially as Sherwood West builds out with primarily residential uses in the decades to come.

The primary opponents make a half-hearted attempt to challenge the applicant's Goal 6 compliance, but its argument is too vague and too unfocused to provide a basis for denial. First, the opponent state that "air quality issues should be examined for a new school to be built near Highway 99." *See* letter from opponent's counsel Jennifer Brager, at p. 2, 6. This argument appears to assume that highway 99 causes sufficient level of pollution that a school should not be located in close proximity thereof. The opponents suggest that a "buffer" and "distancing is needed. The opponent never suggests what a proper buffer would be. The Hearings officer finds this concern to be speculative, unsupported by substantial evidence in the record, and beyond the scope of Goal 6's reach. Even if the hearings officer believed this was a valid concern, the hearings officer finds the air quality benefits of locating a school away from a major arterial would be offset by the additional VMT needed to transport school children a further distance.

Goal 7- Natural Hazards

"To protect life and property from natural disasters and hazards."

Hearings Officer Analysis: Goal 7 (Areas Subject to Natural Hazards). Goal 7 requires local governments to evaluate risks to people "upon receiving notice" of new hazard information from DLCD, and based on evaluation of that risk to prohibit development in areas "where the risk to public safety cannot be mitigated." Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires.

No natural hazards have been mapped on the properties that comprise the proposed school site. (*See, e.g.,* Sherwood West Concept Plan, figures 6 and 7.) The applicant's proposed site appears to be devoid of any natural hazards: It is not in a flood plain or a coastal zone. It does not have steep slopes that would be vulnerable to landslides. It does not contain soils that are exceptionally vulnerable to being an earth quake hazard (at least any more so in comparison to the rest of the Portland Metro region generally). Therefore, this goal is inapplicable.

Goal 8- Recreational Needs

"To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Hearings Officer Analysis: As set forth in the Narrative, the District provides most of the athletic fields for the City of Sherwood. The City and the District have had a long history of partnering in the provision, use, and maintenance of these fields so that recreational opportunities are provided as efficiently as possible. The new high school campus will include a number of new fields and sports facilities on which the City and the District will continue to partner. The new fields and sports facilities will be in addition to the existing fields and sports facilities already in use as part of the existing school facilities. See page 32 of the Narrative for additional

detail. The new high school campus, then is supportive of this goal, as it will help satisfy the need for recreational facilities in the city and in the District.

Goal 9 - Economic Development

> ***"To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens."***

Hearings Officer Analysis: Goal 9 applies to areas within an urban growth boundary. OAR 660-09-0010(1). *Port of St. Helens v. Land Conservation & Development Committee*, 164 Or App 487, 495, 996 P 2d 1014 (2000). Goal 9 requires that jurisdictions provide adequate opportunities for a variety of economic activities. Goal 9 planning is limited to areas within UGBs, and local land use plans are required to comply with Goal 9 at periodic review and whenever a jurisdiction undergoes a post-acknowledgment plan amendment that changes the plan designation of more than two acres of land from industrial/employment use to a nonindustrial/non-employment use. OAR 660-009-0010(1), 0010(2), and 0010(4).)

Pursuant to OAR 660-024-0020, certain Goals, including Goal 9, are also applicable when the UGB is amended. The Major Amendment application expands the UGB to allow an existing high school to move several miles away from one site within the City of Sherwood to another site that will be annexed into the City of Sherwood for that purpose. This appears to be fairly neural from the standpoint of economic opportunities.

The opponent cites *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), and states that Goal 9 "requires a determination of the potential future land need for employment and is supposed to occur at the time the UGB is expanded, " and that "the school itself has to be analyzed as an 'other employment use' as defined under OAR 660-009-0005 because it will involve a governmental employment activity. " *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. That might be true for a UGB amendment that proposes to add employment land, but it not explain the relevance of Goal 9 to this particular UGB application, which is specific to a need for land for a new high school. In this case, the UGB amendment is targeting a specific need, *i.e.,* the relocation of an existing high school several miles away within the same city. Goal 9 is not applicable as the UGB expansion is for a specific need for a high school.

The cited passage from *Barkers Five* should be read in context. LCDC was referring to OAR 660-027-0050(2) and Metro's analysis for employment land needs occurring as part of its urban growth report. There is nothing in that passage that would make such an analysis a requirement for a major amendment application submitted under ORS 197.299(4). As stated in the findings for Goal 9, this goal is not applicable to a UGB amendment for a specific high school need. To the extent that the high school will have any Goal 9 impacts, the Hearings officer finds those impacts will be positive in terms of temporary construction jobs during development and provision of part-and-full time employment year-round.

Furthermore, if the opponent is implying that Metro must engage in a full-blown economic opportunities analysis in the context of a major amendment application for a high school, that conclusion does not follow from the opponent's stated premises or from Goal 9. The

opponent's argument is not developed well enough to allow the hearings officer to evaluate it on the merits: the opponent has not explained how this application actually impacts the requirements or scope of Goal 9.

Goal 10 - Housing

"To provide for the housing needs of citizens of the state."

Hearings Officer Analysis: The applicant states that Goal 10 is not applicable as the UGB expansion is for a specific need for a high school. The opponent states that "Goal 10 is implicated because housing opportunities will be lost as a result of this large land grab by the school district." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. While it is true that any use of land for non-residential purposes results in that land not being available for housing, that truism does not create a Goal 10 violation. As best as the hearings officer can determine, the opponent is arguing that the Preliminary Sherwood West Concept Plan shows a small school site surrounded by housing, and the applicant's current plan shows the entire site being used for a school and no housing. The opponent concludes that this change in plans 'will limit the planned housing in the Sherwood West Concept Plan Area," which, according to the opponent, "has Goal 10 implications." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2-3. It appears that the opponent is arguing that the Concept Plan locks in the density and mix of housing, and any change to the Concept Plan requires an analysis of Goal 10 compliance.

The hearings officer finds that the concept plan does not have the regulatory effect that the opponent assigns to it. The opponent cites to nothing in any local zoning code or Comprehensive Plan that gives this sort of regulatory effect to this (or any other) concept planning effort. Goal 10 would not have that type of regulatory effect until the property subject to the Concept Plan is brought into the UGB and assigned urban zoning designations. As currently situated, the land at issue is not within the UGB and so is not considered "buildable lands" under Goal 10 and Goal 14, and is not included in any buildable land inventory. Therefore, there is no buildable lands inventory to measure the Major Amendment application against and Goal 10 does not anticipate that there would be in this situation. By its terms, Goal 14 requires that jurisdictions "provide for the housing needs of citizens of the state" by inventorying "buildable lands for residential use. " Goal 10 defines buildable lands as lands in "urban and urbanizable areas that are suitable, available and necessary for residential use. " Under the definitions section of the Statewide Planning Goals, "urban land" is defined as "land inside an urban growth boundary, " and "urbanizable land" is defined as urban land, i.e., land inside a UGB, that is presently unavailable for any number of reasons. Therefore, the opponent' argument that, in the context of a Major Amendment, Goal 10 requires Metro to "demonstrate that its actions do not leave it with less than adequate residential land supplies" is wrong..

Moreover, as the applicant points out, the City's urban reserves include a 50-year land supply for the City. There is no evidence that siting a new high school in Sherwood West, in the location that the Concept plan contemplated a new school, will in any way negatively impact the ability of the City to provide for its housing needs, especially when Sherwood West is combined with Sherwood North and Sherwood South.

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The opponent also complains that the applicant is seeking to bring in 82 acres when it defined its current need as requiring only a 50-acre site. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. The hearings officer is at a loss to understand the relevance of this argument to a Goal 10 challenge. The opponent's argument is simply not developed sufficiently to allow the hearings officer to understand the nature of the complaint.

The opponent also argues that an 82-acre school site "contradicts the two school sites considered in the Preliminary Sherwood West Concept Plan. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. However, Concept Plans are not regulatory documents in the sense that they do not limit the size of planned facilities. The Concept Plan took the provision of additional school sites into account when it was developed. Although the concept plan includes two identified school sites, it is important to remember that the Concept Plan is a general plan that addresses how the area will develop generally. The Concept Plan does not specify the types of schools that the conceptual school sites reflect, e.g., elementary, middle or high school. Therefore, one should not view the blue squares denoting school sites in the Concept Plan in the literal sense of trying to determine how big the Concept Plan believed the sites will ultimately be. Such information comes from future refinement of the Concept Plan after areas are brought into the UGB.

Moreover, as the applicant points out, Goal 10 concerns itself with land already within a UGB, which the subject property is not. Therefore, Goal 10 has very limited applicability to a Major Amendment application for a new public school site. That said, the justification for the proposed expansion area of 82 acres is included in the Narrative. (Narrative at 31-32.) As set forth in the Narrative, approximately seven of the 82 acres will be needed for transportation improvements that will support the new high school. There is also a 40-foot wide gas pipeline easement that runs across the site, occupying approximately 2.2 acres but requiring protection of additional, adjacent property of approximately 20 feet on either side. This pipeline easement essentially gives the site an irregular shape, which reduces the efficiency with which it can be developed. The Narrative also discusses the shared sports fields arrangement between the City of Sherwood and the District that provides for additional ballfields. The District would also note that Figure 3 of the Narrative depicts a conceptual layout of the high school site and related transportation improvements over the entire 82-acre area. (Narrative at 7.) As one can see on that conceptual layout, the entire site will be fully utilized.

In the Appendix 6 Service Provider Interviews, the District warns that the current high school was at-capacity at the time of the interview (the appendix is dated June 15, 2015), and with the growth expected in Sherwood the high school could be expected to become over-capacity. (See Appendix 6, pages 3-4.) The District stated that expanding the existing high school and adding a new high school to the District would both be explored. The relevant information to be gleaned from the Concept Plan is that the majority of Sherwood West is intended to be developed with varying densities of housing and that the Concept Plan integrated the need for at least two additional school sites, with an understanding that the existing Sherwood High School would soon be over-capacity.

In its June 23, 2017 letter, the opponent argues that Metro "must demonstrate that its actions do not leave it with less than adequate residential land supplies in the types, locations,

and affordability ranges affected." *See* letter from Jennifer Bragar dated June 23, 2017, at p.2. As support for this requirement, the opponent relies on *Burk v. Umatilla County*, 20 Or LUBA 54 (1990). In *Burk*, the Port of Umatilla filed an application with the City of Umatilla to amend the city's comprehensive plan map for a 42-acre area within the city's urban growth boundary, but outside the city limits, from single-family residential to industrial. The city's buildable land inventory for housing included the 42 acres, because that acreage was within its UGB. Even with the 42 acres included in the buildable lands inventory, the city was deficient in land available for single-family housing. The city approved the map amendment even though it increased that deficiency, which earned the city a remand by LUBA.

The facts of *Burk* are different than those presented by this Major Amendment application. The land in question in *Burk* was inside a UGB and was already planned for zoned and residential uses. That is a key factual difference from the present case, because the land in this case is planned for agriculture and forestry. The land proposed to be added to the UGB is not "buildable land," and is not in any current inventory. For this reason, the Goal 10 analysis required in *Burk* is not applicable here.

Goal 11 - Public Facilities and Services

> ***"To Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."***

Hearings Officer Analysis: As set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services with respect to that urban reserve. The concept plan was prepared with analyses of existing sanitary sewer, water, and storm water conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services. The concept plan discusses the provision of public facilities and services to the area at pages 16-18 and 40-44, as well as in Appendix 3 (Existing Conditions Report) and Appendix 6 (Service Provider Interviews). According to the Concept Plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District used this work as a jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative, pages 24-31 and Application Appendix A (New High School Preliminary Site and Utility Exhibit) and Appendix B (Service Provider Letters). All of the foregoing information addresses the orderly and efficient arrangement of sanitary sewer, water, and storm drainage facilities to serve the new school property, as well as the larger Sherwood West area and all of the evidence consistently points to the chosen property as a property that can served in a timely, orderly, and efficient manner.

The opponents argue that Goal 11 is not met, because the local sewer and water agency (Clean Water Services) has a concern about the installation of a temporary pump station. *See* letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents offer no testimony, expert

opinion, or evidence that would call into question the conclusions reached by the applicant's engineers, KPFF. Goal 11 does not require that every technical engineering solution be worked out at the time of UGB amendment. The KPFF engineers seem to believe that an engineering solution is not only possible, but likely, which is all that is required at this stage. See KPFF memo dated June 13, 2017. This Hearings officer has evaluated the opinion of the KPFF engineers, and finds them more credible.

The opponents further argue that "fire flow tests have not been completed." *See* Letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents do not explain why fire flow tests are mandated by Goal 11 in the context of a UGB amendment, nor is it obvious why they would be. The KPFF engineers seem to be satisfied that the fire flow issue can be adequately handled, and this hearings officer finds them more credible.

Goal 12 - Transportation

"To provide and encourage a safe, convenient and economic transportation system."

Hearings Officer Analysis: Early LUBA cases suggested that a local government could not "pass the buck" by deferring compliance with Goal 12 and the TPR until the time of site plan review.[13] However, more recent case law clarifies that conditions of approval can be used to limit new development until such time as the TPR is addressed. For example, in *Citizens for Protection of Neighborhoods v. City of Salem*, 47 Or LUBA 111 (2004) (*Citizens*), the City of Salem approved a zone change to allow mixed residential and commercial use of a 275-acre property. That approval included a condition that prohibited development of the property until later adoption of a master plan for the property. The City of Salem's code criteria applicable during the master plan process included requirements that were substantially identical to the requirements of the TPR. Based on the condition requiring master plan approval, the city found that the zone change did not significantly affect the transportation facility because no development could occur until the subsequent master plan phase. *Id*. at 115, 116. LUBA held that the city could properly conclude that the rezoning of the property did not significantly affect any transportation facility because the condition essentially prohibited development on the property without first showing that any allowed development is consistent with the function, capacity and performance standards of affected transportation facilities. *Id*. at 120.

In *ODOT v. City of Klamath Falls (Southview Dev'l, LLC)*, 39 Or LUBA 641, 660, *aff'd* 177 Or App 1, 34 P2d 667 (2001), LUBA affirmed that portion of a county decision which approved a zone change with a condition that prevented additional development from impacting a transportation facility until such a time in the future when the TPR is addressed. LUBA found that this condition was sufficient to ensure compliance with the TPR in the interim.

Finally, in *Willamette Oaks, LLC v. City of Eugene,* 59 Or. LUBA 60 (2009), the city approved a zone change, and imposed a condition of approval prohibiting development of the property without approval of a planned unit development (PUD) application and a showing of

[13] *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994), *aff'd*, 130 Or App 406 882 P2d 1130 (1994); *Concerned Citizens of the Upper Rogue v. Jackson County*, 33 Or LUBA 70 (1997).

consistency with the TPR as part of the PUD application and review. LUBA approved this approach, stating as follows:

> In sum, with one caveat discussed below,[14] we think it is permissible for the city to defer consideration of compliance with the TPR to a subsequent review process at the time actual development is proposed, provided that the zone change or plan amendment is effectively conditioned to prohibit traffic or other impacts inconsistent with the TPR's requirements unless and until those requirements are fully addressed. Applicant offers no reason in the present case why deferring the application of the provisions of the TPR to a later PUD application process is insufficient to ensure that allowed uses of the subject property are consistent with

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[14] LUBA stated in a footnote that the PAPA procedural requirements would still need to be satisfied as part of the deferred process:

> The caveat mentioned above is that unless the local government takes steps to ensure otherwise, the subsequent review process may not require a comprehensive plan or land use regulation amendment and therefore will not trigger [**12] the notice obligations of a post-acknowledgement action under ORS 197.610 *et seq*. Under those statutes, a local government that amends its comprehensive plan or land use regulations, including zone changes, must provide to the Department of Land Conservation and Development (DLCD) timely notice of the hearing on the proposed amendments as well the decision adopting the amendments. DLCD, in turn, provides notice of the proposed amendments and any subsequent adoption to persons or agencies who request such notice. OAR 660-018-0025. The requirement to provide notice of post-acknowledgment plan amendments to DLCD and other parties is a critical component of a statutory and rule-based scheme that is designed to ensure that post-acknowledgment plan and land use amendments comply with the applicable statewide planning goals and rules, including the TPR. *See Oregon City Leasing, Inc. v. Columbia County, 121 Or App 173, 177, 854 P2d 495 (1993)* (failure to provide DLCD the notice required under ORS 197.610 *et seq*. is a substantive, not procedural error). The efficacy of that scheme is undermined if a local government defers consideration [**13] of compliance with the TPR to a subsequent review process that does not provide equivalent notice to that required by ORS 197.610 *et seq*. Without such notice, it is possible that DLCD and parties who may rely on DLCD's re-notice, potentially including ODOT, may not learn of the review proceeding or have an opportunity to participate in that proceeding.

> the function, capacity and performance standards of the affected transportation facilities. *ODOT v. City of Klamath Falls,* 39 Or LUBA at 660.

Under OAR 660-024-0020(1)(d), the Transportation Planning Rule ("TPR") need not be applied to a UGB amendment if the land will remain zoned as urbanizable. That will be the case with the properties subject to the proposed UGB amendment. The current AF-20 zoning will remain until the is annexed into the City of Sherwood. During the forthcoming Metro Title 11 concept planning process for the properties, the City will determine the appropriate zone and this will include a TPR analysis. The zoning will not actually be changed, however, until after annexation.

With respect to Goal 12 generally, as set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services, including transportation, with respect to that urban reserve. The concept plan analyzed the existing transportation system and how that system will need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future transportation service providers, including Washington County and ODOT. The concept plan discusses the transportation system within the plan area at 18-21, 40-44, as well as in Appendix 3 (Existing Conditions Report), Appendix 6 (Service Provider Interviews), and Appendix 8 (Transportation Options Alternative Analysis Report). The District used this work as the jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative at pages 10-11, and Appendix B (Service Provider Letters). The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address the provision of a safe, convenient, and economic transportation system for the new high school site. (The Transportation Study has been submitted to the record.) The Sherwood West Concept Plan takes a higher-level look at the transportation needs of the Sherwood West area in general, including the need for new streets and intersection improvements. The Narrative provides general information about how the school site will be served and the Transportation Study provides more detail than is commonly found at the UGB expansion stage, but finds that, with some mitigation improvements, a new high school on the proposed site can be served by the appropriate transportation system. The Transportation Study will become more relevant at the Title 11 concept planning and annexation stages of the high school site development. Because the new high school is very near to an existing, urban-level street system, and because Washington County and the City will be constructing a new intersection improvement adjacent to the new high school, the provision of transportation services to the new school will be more economical. According to the concept plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) In sum, all of the cited evidence supports a finding that it is possible to safely, conveniently, and economically provide for the transportation needs of the new high school.

For this reason, the applicant proposes a condition of approval to the UGB amendment that prohibits any new development on the subject property until a Comprehensive Plan Map and Zoning Map Amendment are completed, and that the TPR will be addressed at that time.

Several opponents expressed concerns about the adequacy of the surrounding transportation system to support the proposed high school. It is tempting to jump ahead to the specific traffic impacts of a proposed use even at this early stage of the land use process. It is important to keep in mind, however, that the Major Amendment application is just the first application in a series of land use proceedings that must occur prior to the high school actually being approved on the property. With respect to the Major Amendment application, Goal 12, OAR 660-024-0060(8), and MC 3. 07. l425(c)(2) are applicable and implicate transportation facilities. The District has submitted findings with supporting substantial evidence to address all of those provisions. The District also submitted additional evidence from its traffic engineer to address particular issues raised with respect to the March 15, 2017, Sherwood High School UGB Expansion Transportation Study. (See June 28, 2017, DKS memorandum.)

No one besides the District provided any evidence or testimony from a traffic engineer regarding any aspect of the Major Amendment application. Opponents correctly point out that there are existing transportation deficiencies in the area that surrounds the proposed high school site. Those opponents also correctly point out that if those deficiencies are not addressed then the new high school will exacerbate them. All of that is true, but it would be expected to be true regardless of where the new high school is sited, *i.e.,* nearly every area in and around Sherwood has existing transportation deficiencies and siting a new high school in any of those areas would impact the transportation system. Where the opponent's logic fails is in the apparent assumption that the transportation impacts of the new high school will not be addressed as part of the planning and permitting processes that are required prior to the new school opening its doors in 2020. That assumption is incorrect.

The laws and regulations that govern the permitting of the new high school simply do not allow the new school to be plopped down anywhere without transportation impacts being analyzed and mitigated in accordance with the law. The specifics of that analysis and mitigation for the chosen site are largely irrelevant at the UGB amendment stage. Instead, those specific transportation impacts will be addressed through subsequent Title ll planning for the UGB amendment area, and through annexation, zone change, and conditional use permit processes. Through these processes, the Transportation Planning Rule will be addressed, appropriate off-site mitigation within an appropriate timeframe will be required, and appropriate frontage improvements for all of the abutting streets will be conditioned. Public involvement is included in each of those steps as part of each of the planning and permitting processes. (See June 28, 2017, DKS & Associates memorandum.)

Goal 13 - Energy Conservation
"To conserve energy."

Hearings Officer Analysis: LUBA and the Courts have never given any regulatory affect to this Goal. The Hearings officer views this goal as being essentially meaningless. The general practice has been for applicants and staff to write some flowery prose that extorts the energy

saving virtues of the project. In this vein, the applicant states:

> As explained under the District's response to MC 3.07.1425(c)(3), which is the analog of Goal 14, Location Factor 3 (ESEE energy consequences), the proposed school site's adjacency to the existing UGB, served by major streets, facilitates multi-modal access for students, teachers, families, and administrative staff to and from the school campus. This will multi-modal facilitation will only increase as Sherwood West builds out into a predominantly residential area with nodes of neighborhood commercial.

Without some baseline standard to measure against, it is difficult to evaluate whether any given proposal will "conserve energy" or not. But at least it sounds good.

For its part, the opponent's arguments do not shed much light on the issue. They merely state that an "energy analysis" must be provided. *See* Letter from Jennifer Brager dated June 6, 2017, at p. 3. The opponents do not explain exactly what an "energy analysis" entails, nor it is particularly apparent on its face. Given that no focused argument concerning Goal 13 was raised by any party, the hearings officer finds that the applicant's proposed findings comply with Goal 13 – whatever it means.

Goal 14 - Urbanization

> ***"To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."***

Hearings Officer Analysis: Goal 14 is addressed throughout this submittal.

Goals 15 through 19

Hearings Officer Analysis: These goals are not applicable, as the proposed UGB expansion does not include Willamette River Greenway, Estuarine Resources, Coastal Shorelands, Beaches and Dunes or Ocean Resources.

OAR 660-024-0040 - 0050

OAR 660-024-0050 directs local governments to inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. The District's Major Amendment application does not directly implicate these rule provisions, because the need for the new high school site did not arise out of an OAR 660-024-0040 overall land needs analysis and subsequent OAR 660-024-0050 buildable lands analysis. A specific need for a new high school site arose out of long-term facilities planning engaged in by the District. However, once the need for the new high school was identified, the District analyzed land that was within both the District boundaries and the Sherwood, Wilsonville, and Tualatin UGBs for land that could accommodate the need for the

new high school based on its suitability criteria. (See Narrative at pages 8-21.) There was no suitable land within those areas. The analysis required by OAR 660-024-0050 tracks closely in some respects with the analysis required by MC 3.07.1425(a), which was addressed by the District in its application. The caveat, however, is that identified specific land need, such as land for a new school, is not the same as a generalized need for more residential land or employment land. Given the specific need for a new school site, MC 3.07.1440(a) allows a UGB expansion tailored to just that need under certain circumstances.

OAR 660-024-0060 - Metro Boundary Local Alternatives Analysis

OAR 660-024-0060 sets forth the provisions that apply when a need within the Metro UGB has been specified and there is no land within the UGB that can accommodate that need. The provisions in OAR 660-024-0060 track closely with the provisions contained in MC 3.07.1425(c), which have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

OAR 660-024-0060:

(1) When considering a Metro UGB amendment, Metro must determine which land to add by evaluating alternative urban growth boundary locations. For Metro, this determination must be consistent with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, Metro must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

Hearings Officer Analysis: The highest priority of land available is land designated urban reserve. (ORS 197.298(1)(a).) The District's application included an analysis of urban reserve land.

(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, Metro must apply the location factors of Goal 14 to choose which land in that priority to include in the Metro UGB.

Hearings Officer Analysis: As set forth in the District's Major Amendment application, there is suitable land within an existing urban reserve to satisfy the need deficiency, i.e., the new high school. Accordingly, the location factors of Goal 14 were applied to that land. Those location factors are the first four location factors found in MC 3.07.1425(c)(1)-(9) and have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, Metro must determine which land in the next priority is suitable to

accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(d) Notwithstanding subsection (a) to (c) of this section, Metro may consider land of lower priority as specified in ORS 197.298(3).

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(e) For purposes of this section, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(2) Notwithstanding OAR 660-024-0050(4) and subsection (1)(c) of this rule, except during a legislative review of the Metro UGB, Metro may approve an application under ORS 197.610 to 197.625 for a Metro UGB amendment proposing to add an amount of land less than necessary to satisfy the land need deficiency determined under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

Hearings Officer Analysis: This provision is not applicable.

(3) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all the factors were considered and balanced.

Hearings Officer Analysis: This provision is consistent with how Metro interprets its analogous boundary location factors in MC 3.07.1425(c), which were applied to the District's Major Amendment application.

(4) In determining alternative land for evaluation under ORS 197.298, "land adjacent to the UGB" is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.

Hearings Officer Analysis: The District's analysis took into account all of the land in the urban reserves that otherwise met the District's siting criteria. Some of the land analyzed did not abut the UGB, but was rejected for other reasons.

(5) If Metro has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, Metro may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(6) The adopted findings for a Metro UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.

Hearings Officer Analysis: The District mapped all of the alternative areas evaluated in the boundary location alternatives analysis and evaluated them separately.

(7) For purposes of Goal 14 Boundary Location Factor 2, "public facilities and services" means water, sanitary sewer, storm water management, and transportation facilities.

Hearings Officer Analysis: The District took into account the public facilities and services enumerated in this provision when it evaluated MC 3.07.1425(c)(2), which is the analog to Goal 14 Boundary Location Factor 2.

(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative Metro UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation (ODOT) with regard to impacts on the state transportation system. "Coordination" includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include:

(a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the Metro UGB;

(b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the Metro UGB; and

(c) The need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.

Hearings Officer Analysis: As set forth in the responses to Goals 11 and 12, Sherwood West has been concept planned pursuant to MC 3.07.1110, and so the provision of public

facilities and services within the Sherwood West concept plan area and as those services relate to the rest of the city have been studied extensively, as required by MC 3.07.1110. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, stormwater, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West without adversely impacting the existing city development. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, and Washington County.[15]

Additional Issues Raised by Opponents

1. **Metro Staff Provided Proper Notice to DLCD.**

Opponents allege that Metro failed to provide notice to DLCD of a proposed plan map amendment under ORS 197.610. *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 8. This is not correct. Metro submitted the requisite notice to DLCD on April 20, 2017, as evidenced on the weekly DLCD notice summary dated April 21, 2017, which is attached to the June 30, 2017 letter from Metro counsel Roger Alfred.

2. **The Fair Housing Act Is Inapplicable.**

The opponent argues that Metro must apply the Fair Housing Act ("FHA") to the Major Amendment application, because "Metro has a duty to affirmatively further fair housing." *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 3-5.

The opponent does not point to any approval criterion that requires Metro to apply the FHA directly to this application, and did not include any convincing argument as to why a UGB expansion to accommodate a new public high school would require the FHA to be addressed. As best as the hearings officer can ascertain, the opponent's core argument is that the FHA is a *de-facto* approval standard for every Comprehensive Plan Amendment and zone change decision. In this regard, Ms. Brager states that "Metro has a duty to affirmatively further fair housing" and that "Metro needs to address fair housing implications in this Major Amendment application through analysis under Goal 10 and under Metro's locational factors, Metro Code 3.07.1425(c)(5) regarding equitable and efficient distribution of housing." The argument is not well-developed; the opponent seems to be arguing that the FHA must be complied with, but that compliance with Goal 10 and the Metro Code establishes compliance with the FHA.

Beyond that, the opponent complains that Sherwood does not have enough subsidized housing, which "does not properly address the housing issues in Washington County for low-income households, especially protected classes." That statement is followed up with the conclusion that the "failure to analyze the school siting in context of the regional need for fair housing only exacerbates the inequitable distribution of affordable housing in the Metro region."

[15] This coordination effort included service provider interviews included as Appendix 6 of the Sherwood West Concept Plan. Appendix 8 provides more detail regarding the provision of transportation infrastructure to the Sherwood West Concept Plan area.

Letter from Jennifer Bragar dated June 23, 2017, at p. 5. Again, the hearings officer is at a loss to understand the opponent's argument, especially since the opponent does not tie their ultimate policy concern back to any specific language in the FHA or any other law for that matter. This argument is simply not developed sufficiently to allow for its review and evaluation. If the argument is that every school siting project has an inclusionary zoning requirement for additional low-income / subsidized housing, that argument is rejected.

SECTION IV: HEARINGS OFFICER'S SUMMARY, RECOMMENDATION, AND PROPOSED CONDITIONS OF APPROVAL.

The applicant seeks to amend the UGB to include approximately 82 acres for a high school with sports fields and the realignment of SW Elwert and SW Kruger Roads. The Applicant has provided sufficient evidence to demonstrate that the criteria are satisfied and the locational factors have been addressed. As detailed herein, the applicant has demonstrated that the high school is currently over capacity and by 2025 will be severely over capacity. Delaying the decision to await a legislative amendment of the UGB by the Metro Council which may or may not occur in the 2018 timeframe only exacerbates the capacity issues which impacts the District's ability to meet the goals of its strategic plan. The applicant provided adequate comparison of the proposed UGB expansion area with other possible expansion areas in seven different urban reserve areas and a determination that the need cannot be met on land currently within the urban growth boundary. In addition the applicant has shown the proposed use can be made compatible with adjacent uses through site design and the city's development design review process provides for public involvement. Additionally the adjacent land is within an urban reserve and is expected to urbanize over time, allowing for the development of a cohesive neighborhood and school/park facility.

Therefore, the hearings officer forwards a recommendation to the Metro Council for ***approval*** of this petition, with the following two conditions of approval:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application are required for this Major Amendment.

2. The applicant must comply with the Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

Respectfully submitted this 21st day of July, 2017.

ANDREW H. STAMP, P.C.

Andrew H. Stamp

Andrew H. Stamp

AHS:ahs

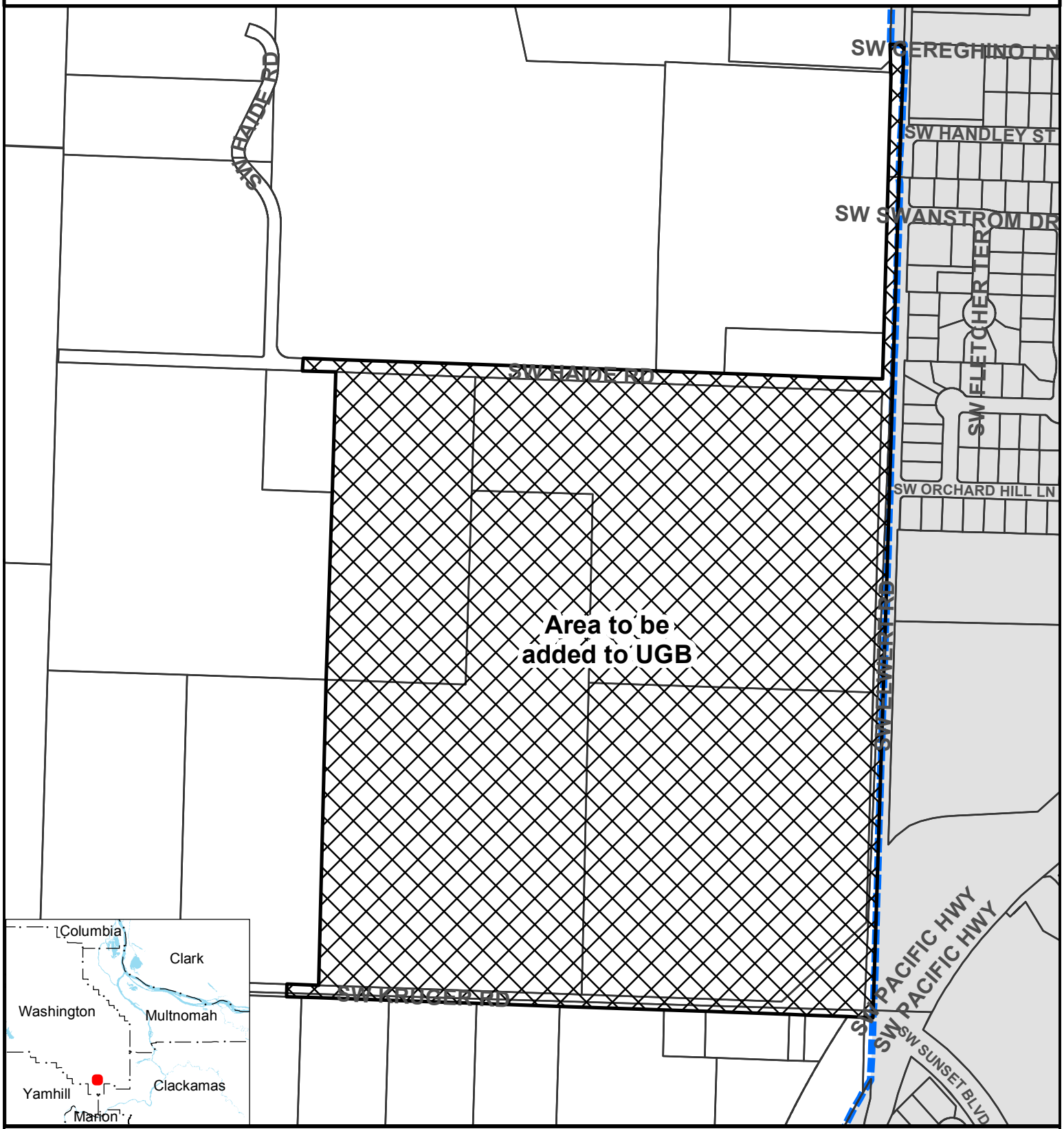
ATTACHMENTS

Attachment 1: Subject Property Map
Attachment 2: Current Enrollment and School Building Capacities, Table 1 of petition
Attachment 3: Projected Enrollment, Table 2 of petition
Attachment 4: Existing High School Campus, Figure 5of petition
Attachment 5: 2014 Sherwood Residential Buildable Lands Inventory Map, Figure 6 of petition
Attachment 6: Urban Reserve Areas within Sherwood School District Boundary, Figure 7 of petition
Attachment 7: Sherwood West Planning Area, Figure 8 of petition
Attachment 8: Sherwood West Alternative High School Sites, Figures 9-14 of petition

ATTACHMENT 1

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

Document Path: R:\boundary\annexations\Maps\ZacMaps2017\UGB_17_02\UGB_17_02.mxd
Date: 3/22/2017

Attachment 2

Current Enrollment and Main School Building Capacities

Existing Conditions	Enrollment March 1, 2017	January 2016 Main Building Capacity (without portables) (DOWA Architects)	% Capacity
Elementary School			
Archer Glen	548	500	110%
Edy Ridge	572	575	99%
Hopkins	529	625	85%
Middleton	599	575	104%
Subtotal	2248	*2275*	*99%*
Middle School			
Laurel Ridge	478	620	77%
Sherwood Middle	712	940	76%
Subtotal	1190	*1560*	*76%*
High School			
Sherwood High School	1689	1550	109%

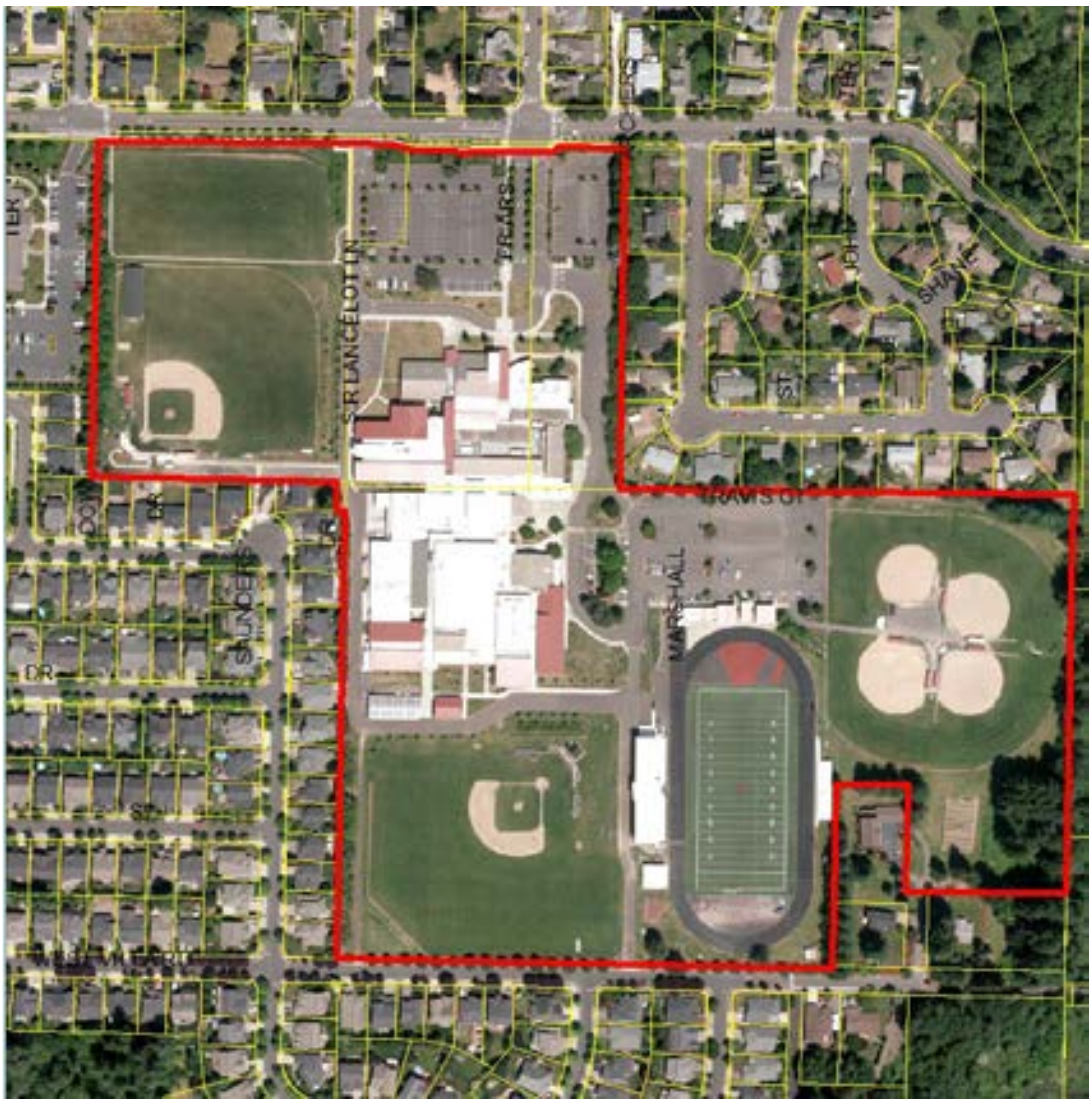
Attachment 3

Projected Enrollment (No Build)

Future Capacity (No-Build)	10-year Projection - Year 2025 (Davis Demographics)	January 2016 Main Building Capacity (without portables) (DOWA)	% Capacity
Elementary School			
Archer Glen	704.8	500	141%
Edy Ridge	505.8	575	88%
Hopkins	750.2	525	143%
Middleton	633.2	575	110%
Subtotal	2594.0	*2175*	*119%*
Middle School			
Laurel Ridge	554.1	620	89%
Sherwood Middle	1069.9	865	124%
Subtotal	*1624.0*	*1485*	*109%*
High School			
Sherwood High School	2181.9	1550	141%

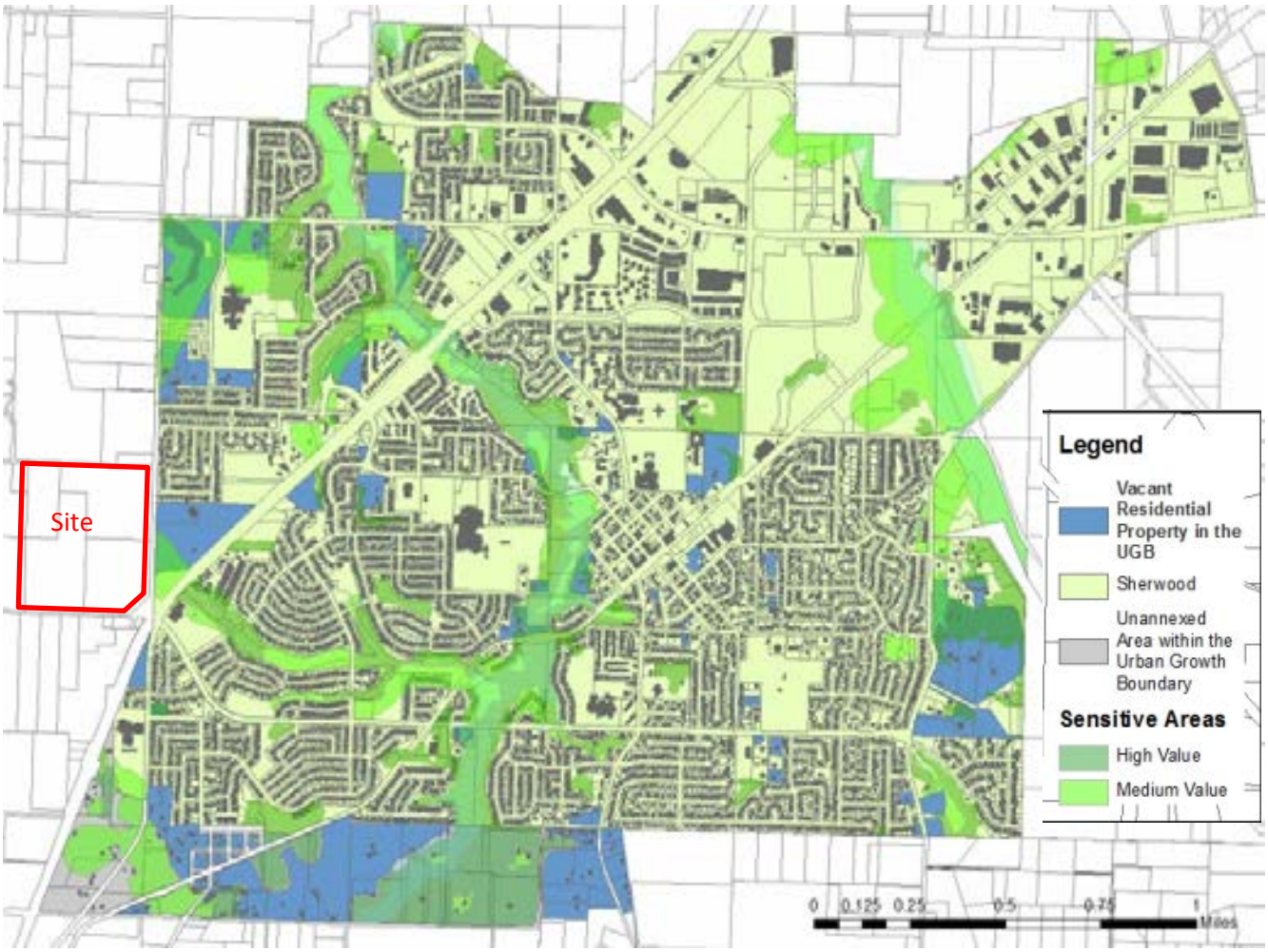
Attachment 4

Existing High School Campus



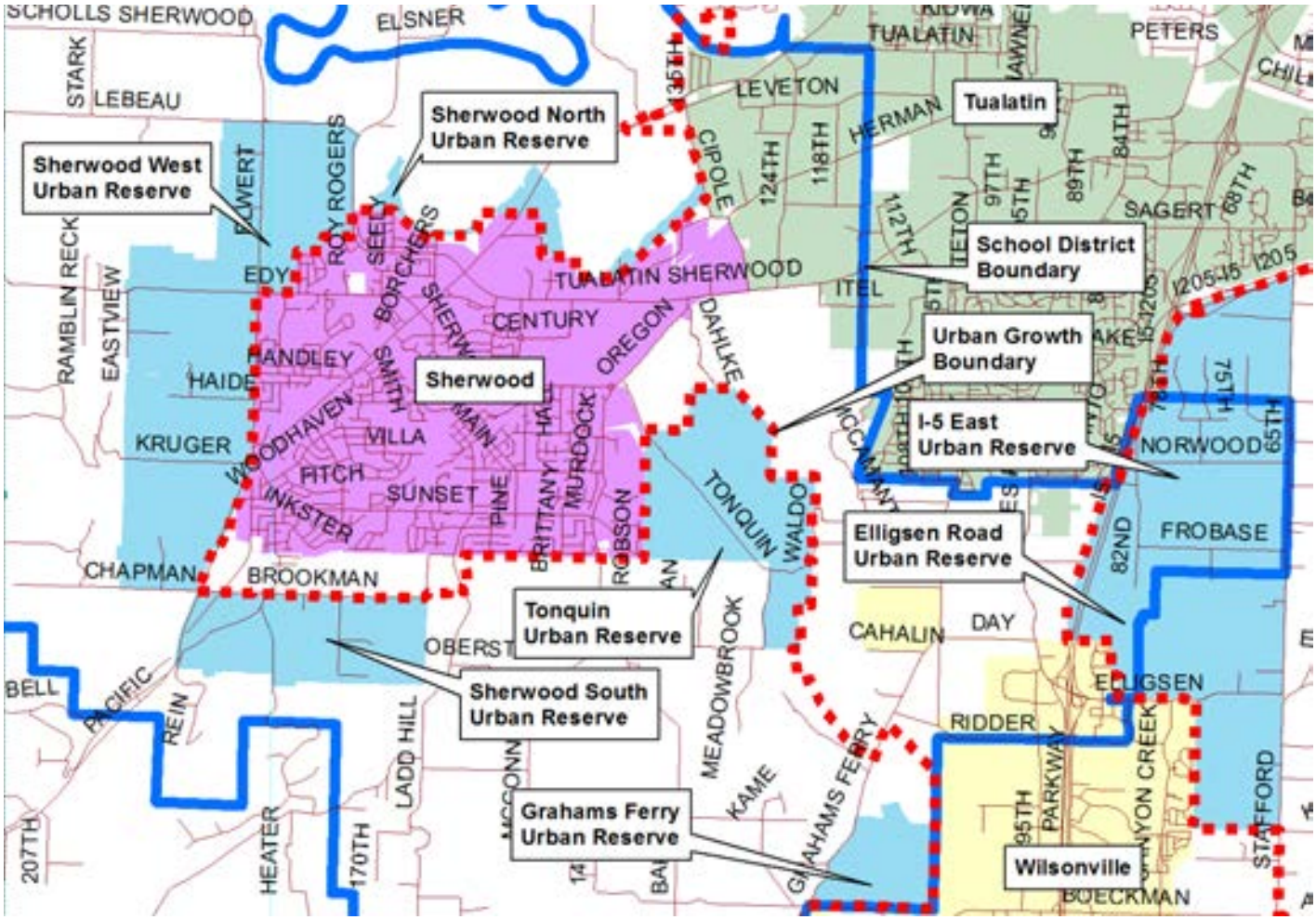
Attachment 5

2014 Sherwood Residential Buildable Lands Inventory Map



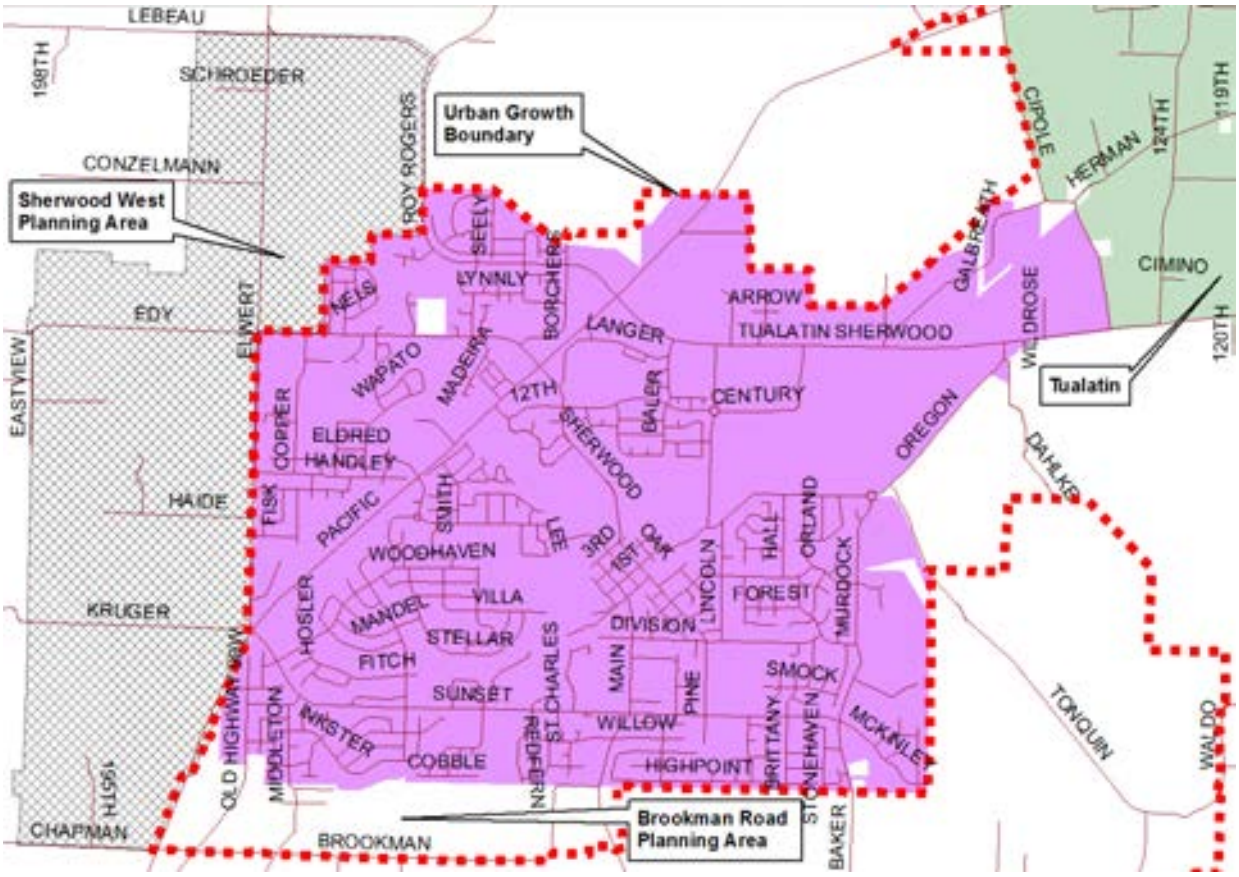
Attachment 6

Urban Reserve Areas within Sherwood School District Boundary



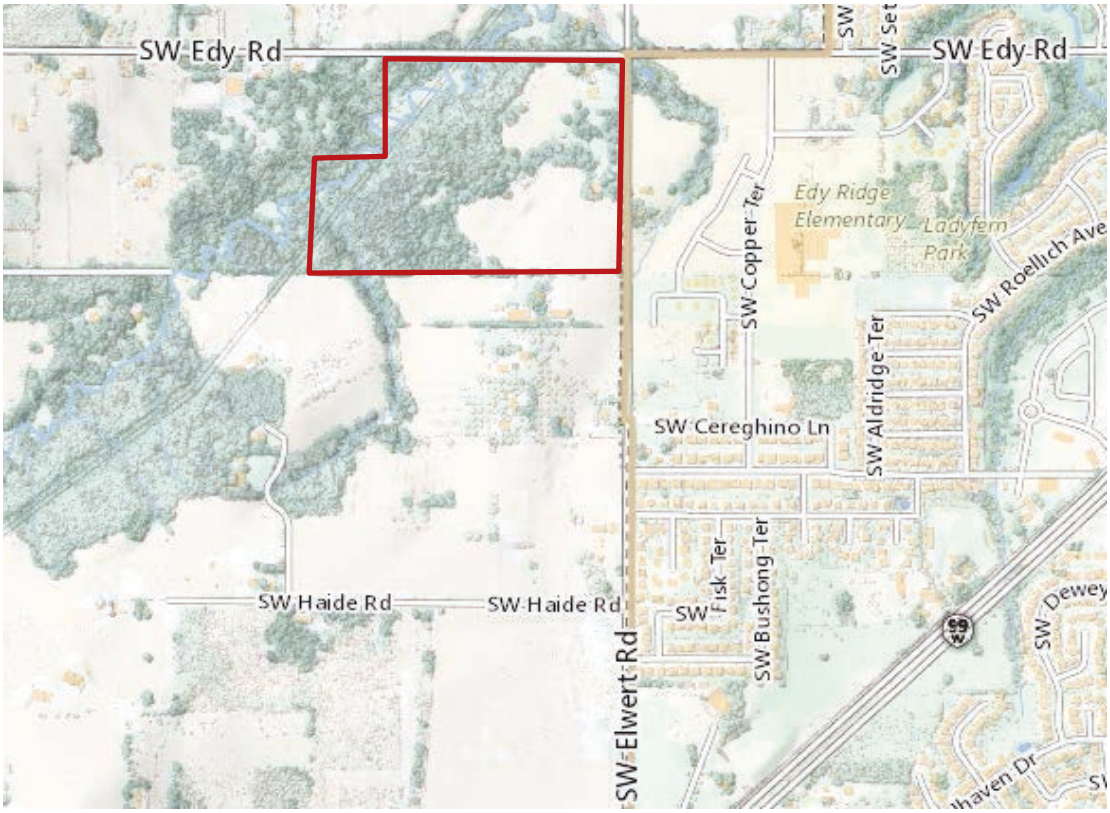
Attachment 7

Sherwood West Planning Area



Attachment 8

Alternative High School Site A
(SW Corner of Edy & Elwert Road)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
✗ Low-lying, relatively flat. Approximately 25 feet grade across site. Very low lying for sanitary sewer. Significant portion of site below elevation 200. Western portion mostly creek.	✗ Small wetland in center of site. Western portion of site mostly drainage area.	✗ No water available adjacent in Elwert. Would require water extensions along Elwert frontage and east on Edy.	✗ Low lying site - sanitary sewer not available in Elwert. Would require significant extension in Edy or pump station.

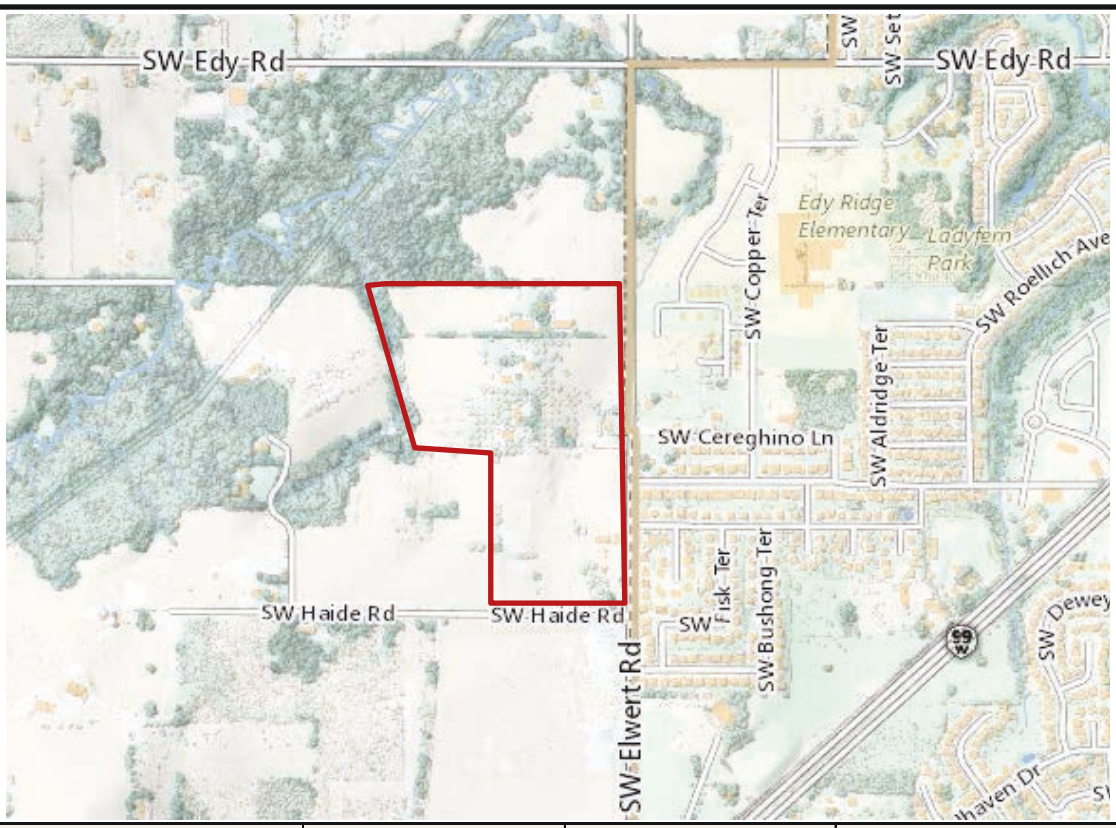
Storm Drainage	Public ROW Improvements
✓ Drainage discharge available onsite into Chicken Creek.	1. Water extension along Elwert frontage. 2. Sanitary upgrades in Edy and Elwert. 3. Storm drainage improvements along Elwert. 4. Street improvements on Elwert and Edy frontages.

LEGEND

✓ = Advantage ○ = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site B
(NW corner of Haide & Elwert)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Significant topographic ridge running N-S through middle of site. Site slopes both east and west. Approximately 50-60 feet grade change. Significant grading for fields.	✓ No wetlands shown.	✓ 12" City of Sherwood public water main available in Elwert.	✓ 15" sanitary sewer and manhole available in Elwert at Daybreak subdivision. (Confirmed with City of Sherwood). City would likely still require public sanitary improvement in Elwert.

Storm Drainage	Public ROW Improvements
✓ North-south ridge running through site. West portion could drain directly to Chicken Creek. East portion drains to public improvements and across road to Chicken Creek.	1. Although not needed for site development, sanitary and storm sewer improvements likely needed in Elwert frontage as part of public frontage improvements. 2. Street improvements on Elwert & Haide frontages.

LEGEND

✓ = Advantage O = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site C (Preferred Site)
(NW Corner Krugger & Elwert)

Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
✓ Entire site slopes down to the east toward Elwert. Relatively gentle topography. Approx. 40 feet grade change across entire site. Note: shallow valley and ridge complicates storm drainage.	✓ No wetlands shown.	✓ 12" City of Sherwood public water main in Elwert; also 18" public water main in Kruger.	✓ Feasible to extend 15" sanitary sewer main south on Elwert. Would require approximate 2,000 linear foot public extension. (Confirmed with City of Sherwood).

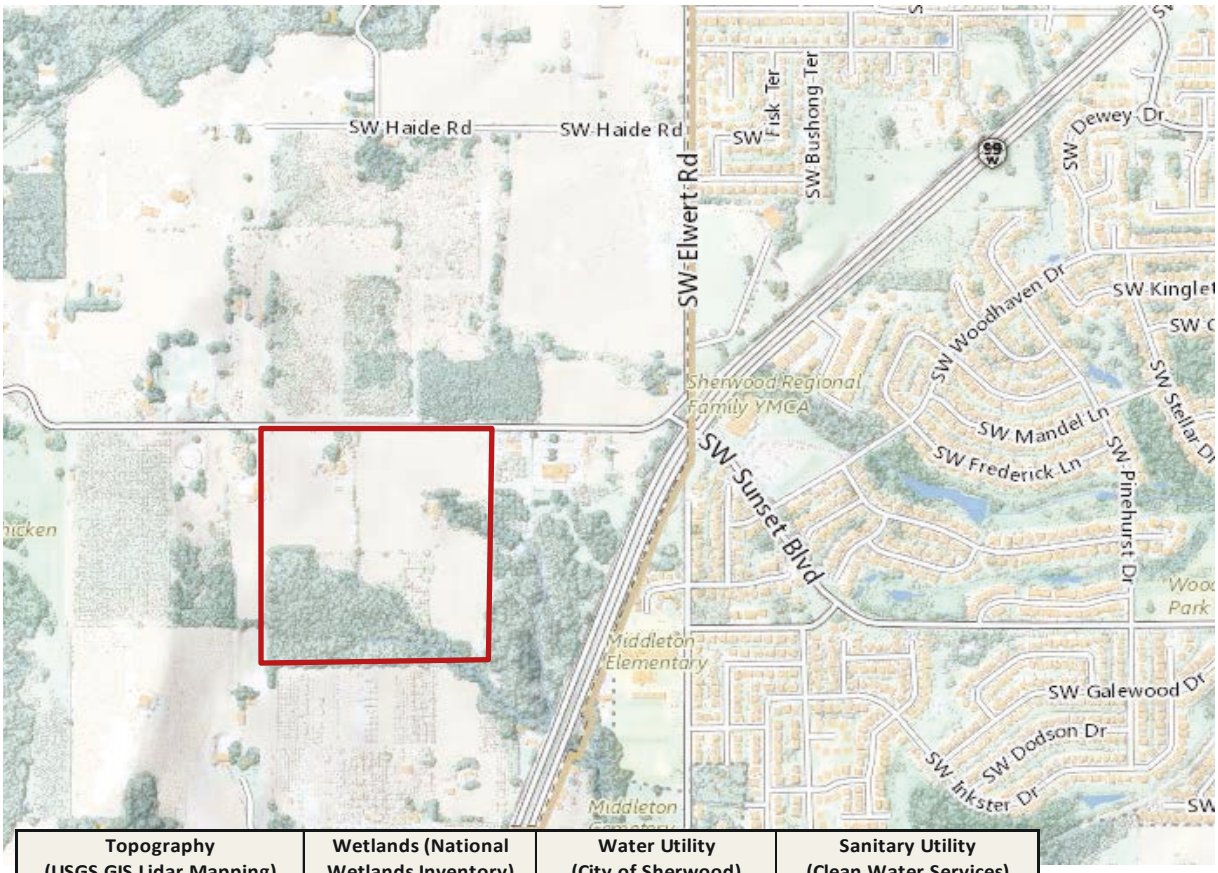
Storm Drainage	Public ROW Improvements
○ East-west ridge running through site. North portion could require long public storm extension to Chicken Creek. South portion would need to drain to new City intersection improvements at Elwert & Kruger intersection.	1. Sanitary extension in Elwert. 2. Storm drainage improvements along Elwert north to Chicken Creek. 3. Street improvements on Elwert frontage. 4. Need to consult with CWS to work out storm discharge.

LEGEND

✓ = Advantage ○ = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternative High School Site D
(South Side of Kruger Road)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Entire site slopes down to the east toward private property. Moderate topography. Approximately 50-60 feet grade change.	O No wetlands shown, but creek drainage runs through south portion of site.	✓ 18" public water main in Kruger.	✗ No sanitary sewer services available. Significant sewer extension and public system improvements necessary.

Storm Drainage	Public ROW Improvements
✗ No established public storm drainage systems in vicinity. Storm discharge would need to be worked out with the City and CWS along 99W. Storm extension likely required.	1. Sanitary sewer extension (exact route to be determined). 2. Storm drainage extension (exact route to be determined). 3. Street improvements on Kruger. 4. Offsite street improvements likely required.

Attachment 8 continued

Alternative High School Site E
(NW Corner Chapman & Pacific Highway)

Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Entire site slopes down to the east toward Pacific Highway. Slightly steeper topography. Approximately 75 feet grade change. Would need to evaluate for fields.	✓ No wetlands shown.	✗ No public water service in immediate vicinity of site. Need to extend water south from Kruger or under Pacific Highway.	✗ No sanitary sewer services available. Significant sewer extension and public system improvements necessary.

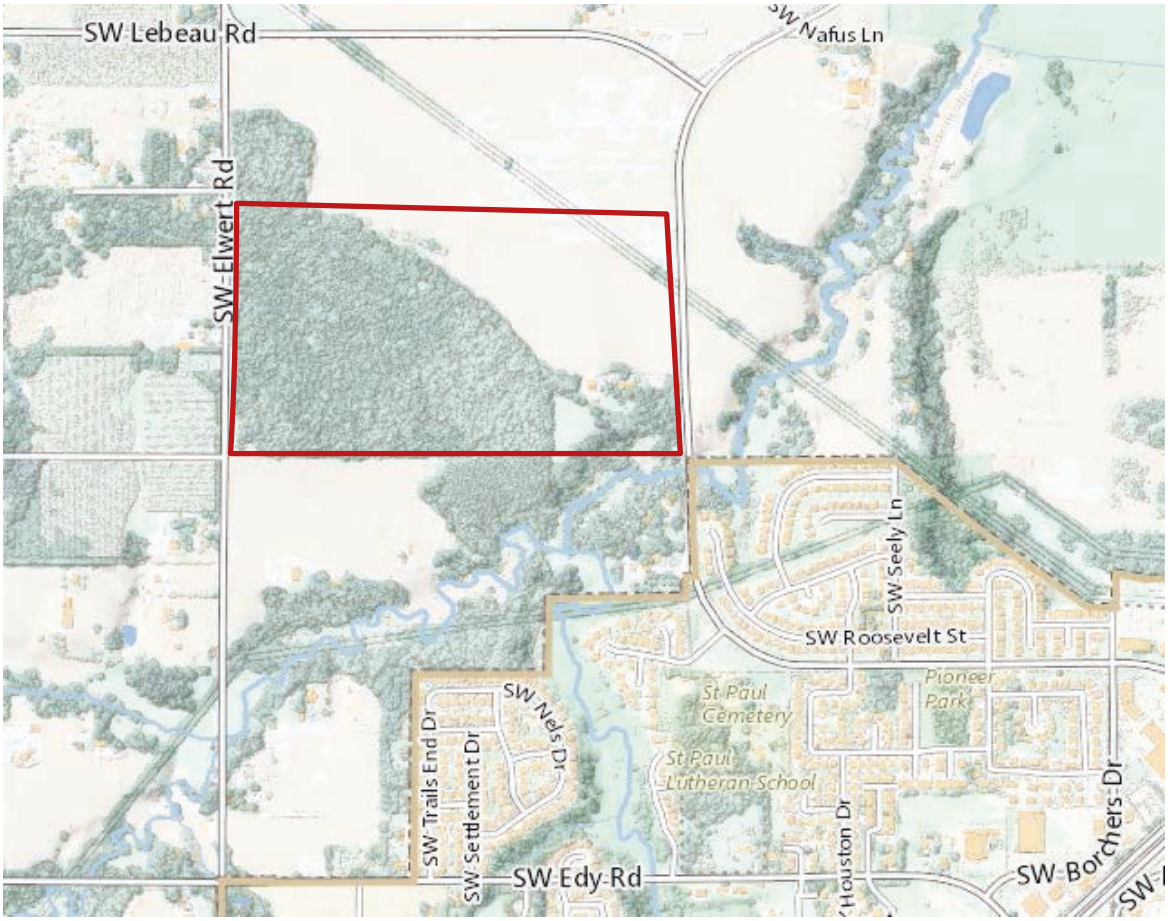
Storm Drainage	Public ROW Improvements
✗ No established public storm drainage systems in vicinity. Storm discharge would need to be worked out with the City and CWS along 99W. Storm extension likely required.	1. Sanitary sewer extension (exact route to be determined). 2. Storm drainage extension (exact route to be determined). 3. Street improvements on Chapman.

LEGEND

✓ = Advantage O = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site F
(North Elwert)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Very flat site, but complicated by power lines and drainages running through.	X Drainages and potential wetlands running through site.	X Significant improvements to public water system would be needed to get adequate fire water supply.	✓ Sanitary sewer available along Chicken Creek.

Storm Drainage	Public ROW Improvements
✓ Storm drainage available into Chicken Creek drainages.	1. Public water line extensions. 2. Street improvements along Elwert.

LEGEND		
✓ = Advantage	O = Still to be Determined	X = Disadvantage

EXHIBIT C to Ordinance No. 17-1406

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: August 15, 2017
To: Metro Council
From: Roger Alfred, Senior Assistant Attorney
Subject: Sherwood School District UGB Amendment; Metro Ordinance No. 17-1406
Responses to Issues Raised at Public Hearing

This memorandum provides responses to issues raised in the letter submitted by attorney Jennifer Bragar on behalf of Byers Properties LLC ("Byers") at the public hearing before the Metro Council on August 10, 2017. For the reasons set forth below, the Office of Metro Attorney concludes that the arguments are without merit, and the Metro Council may adopt the hearings officer's recommendation of approval.

Most of the issues raised in the Byers letter have been considered and addressed in the hearings officer's decision. Where that is the case, this memo refers to the appropriate pages of that decision.

1. This UGB amendment process is quasi-judicial, not legislative

Byers first contends that Metro is making a legislative decision, rather than a quasi-judicial decision. This issue is thoroughly analyzed at pages 13-16 of the hearings officer's decision, where he correctly reaches the fairly obvious conclusion that this is a quasi-judicial process. The hallmark of a quasi-judicial land use process is that it is initiated by an application, which the local government is then obligated to either approve or deny. Here, the "major amendment" process is initiated when an applicant files a request for a UGB amendment with Metro. Metro then appoints a hearings officer, who holds a public hearing that is governed by the quasi-judicial procedures set forth in Oregon statute (ORS 197.763). It is worth noting that, during the hearing before the hearings officer, Byers invoked the quasi-judicial procedures in that statute by requesting that the record be held open for additional evidence, a request that was granted by the hearings officer. Metro's final decision on the application is based on applying preexisting criteria to the facts of the application, and it impacts a discrete parcel of property, rather than a broad population. The process is clearly quasi-judicial under the relevant case law.

2. This UGB amendment does not involve or implicate housing

The reason Byers contends this process is legislative is in order to implicate ORS 197.296(2), which is the statute that directs Metro to ensure there is a 20-year supply of housing inside the UGB when it conducts the 6-year "regular cycle" urban growth management process (which is a legislative process, not quasi-judicial). As correctly concluded by the hearings officer, the arguments raised by Byers regarding the decision being legislative are a "red herring," because even if this UGB major amendment process was legislative, ORS 197.296(2) would still not apply because the express purpose of the major amendment process is to provide land for non-housing uses. There is no legal,

or rational, reason why Metro would undertake a regionwide housing need analysis as part of a decision to expand the UGB for a non-housing use. The fact that this UGB amendment process is governed by a different statutory section, and does not implicate housing need under ORS 197.296, is analyzed in detail by the hearings officer at pages 16-24 of his decision, and is also addressed in my memorandum to the hearings officer dated June 9, 2017.

Byers also argues, for the first time, that the ESEE analysis is inadequate because it fails to address social consequences arising out of "the loss of housing land" resulting from approving this UGB expansion. Byers is correct that this issue is not addressed in the hearings officer's analysis, but that is because Byers failed to raise this issue below. Under Metro Code, this proceeding before the Metro Council is "on the record" of what was before the hearings officer. Specifically, section 3.07.1430(u) of the Metro Code provides: "Argument must be based upon the record of those [hearings officer] proceedings." Accordingly, participants before the Metro Council may not introduce new evidence or issues beyond what was presented to the hearings officer. *See DLCD v. Tillamook County*, 34 Or LUBA 586, 591 (1998) (noting that where a hearing is held on the record, "petitioner could not have raised a new issue at that stage of the proceeding.") Allowing parties to raise new issues before the Metro Council could trigger a need to respond with new evidence, which is not permitted in an "on the record" process.

Adoption of this memorandum by the Metro Council in support of approving the application is an express interpretation by the Council of 3.07.1430(u) to mean that any issues not raised before the hearings officer are waived. This interpretation is consistent with the meaning of "on the record" expressed in the statutes governing LUBA's scope of review (ORS 197.835(2)(a) and (3)), which prohibit new issues from being raised on appeal.

Even if this issue had not been waived by Byers, the hearings officer expressly rejected Byers' argument below that approval of this UGB amendment results in a "loss of housing land." The land being added to the UGB is currently zoned for agricultural use, not housing. Accordingly there are no social impacts arising out of a loss of land for housing.

3. The application is based on a demonstrated need for a high school, not for parks

Byers contends that the application includes a request for a park use, and is deficient because it did not consider "alternatives to the park use separate from collocation with the high school." Like the ESEE argument addressed above, Byers did not raise this issue in the proceedings before the hearings officer, and has therefore waived the ability to raise it before the Metro Council.

In the event this issue was not waived, on the merits Byers mischaracterizes the nature of the UGB amendment application. The application is for a high school use, a use that necessarily and customarily includes active play space, including a number of ball fields, and other sports facilities, such as a track and tennis courts. This is depicted on the concept plan for the high school, which is included in the application, and explained in the application narrative and in the applicant's

testimony before the hearings officer. The UGB amendment application is not for park land, and the references to the future shared use of the new high school's active ball fields should not be construed to that effect. The nature and purpose of the application is not changed by the facts that (1) the city does not generally provide ball fields or other active sports facilities, and (2) the city and the school district have an IGA that generally allows the community to use the District's ball fields and other active sports facilities when those fields and facilities are not in use by the school district. As set forth in the record, the property proposed for the relocated high school will be fully utilized by the needs of the high school, and the larger campus of the new high school (when compared to the existing high school) will allow for the full range of facilities normally provided at a comprehensive high school. The availability of more sports fields that can be shared with the community is merely an additional benefit arising out of the agreement between the school district and the city.

On this point, one aspect of the hearings officer's findings should be clarified. At page 29 the hearings officer includes a finding that the applicant has shown there is a "demonstrated land need to accommodate both school and park services." This is a mis-statement by the hearings officer, as the school district's application is based on the need for a new school, and not on a need to provide park services.

4. The application is "consistent with" Metro's 20-year population range forecast

One criterion for a UGB expansion under the Metro Code is that the application must show a need to accommodate future urban population "consistent with a 20-year population range forecast." Byers argued below, and argues again to the Council, that this requires Metro to undertake a new regionwide 20-year population forecast, and the school district's 10-year school population forecast is therefore deficient. The hearings officer addressed this argument at page 26, concluding that the code requires the applicant to show a need that is "consistent with" a 20-year forecast, which "in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here."

In support of this argument Byers references materials attached to their August 10, 2017 letter to the Metro Council regarding a 2016 study of race and ethnicity impacts. This is a new document that was not part of the evidentiary record before the hearings officer and therefore cannot be considered by the Metro Council in this proceeding.

5. Public facilities and services are available to serve the proposed site, and the applicant must comply with the TPR upon rezoning

As part of the consideration of alternative urban reserves areas for potential expansion of the UGB, one location-related factor that must be considered is the "orderly and economic provision of public facilities and services." This issue is analyzed and addressed at pages 43-45 of the hearings officer's decision. The hearings officer also correctly notes, at page 35, that these are locational "factors" that

must be *considered* by Metro, and are not criteria that must be satisfied: "one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a balancing of all these factors, rather than a reliance on any one factor."

Nonetheless, Byers contends that this factor is a criterion that must be satisfied, arguing that the applicant must show whether the proposal will impact availability of public facilities. Byers then contends that the applicant's traffic impact analysis does not demonstrate that nearby intersections will meet applicable level of service standards.

The issue raised by Byers is not relevant to the applicable inquiry for purposes of a UGB expansion, which is a much more general question of whether public facilities are available to serve the site. Questions related to traffic impacts from a new school on existing and planned transportation facilities in the area will need to be addressed as part of the comprehensive plan and zoning map amendments that will be necessary to develop a school, which will trigger application of the state Transportation Planning Rule (TPR). The ordinance proposed for adoption by the Metro Council includes the hearings officer's recommended condition of approval requiring application of the TPR at the time zoning for the school is being adopted.

6. Metro has satisfied the coordination requirement

Byers contends that Metro failed to coordinate with affected local governments as required by ORS 195.025. This issue was not raised before the hearings officer and is therefore waived. In the event the issue is not waived, the hearings officer adopted the following findings regarding the coordination requirement at page 58 of his decision:

"This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred."

The record includes evidence that Metro fulfilled its coordination obligation by providing written notice to all cities and counties inside the UGB regarding the proposed UGB amendment, as well as to ODOT and relevant service providers. The City of Sherwood supports approval of the application and included the following comments in its service provider letter dated March 11, 2017:

"The Sherwood West preliminary concept plan was developed through community input and had community and Council support. The voters within the Sherwood School District approved a bond for the new high school. While there will be challenges to building a new school within the Sherwood West area, and coordination between the District, City, County and ODOT will be

required, the District is committed to ensuring that is serves as a great cornerstone to the future growth in the area."

In response to questions at the public hearing from members of the Metro Council regarding coordination with the City of Sherwood, the school district representatives verbally stated that the district is currently working with the city on Title 11 concept planning and that district representatives attended a city planning commission meeting earlier in the week where they were told that the planning effort is on the right track. These are evidentiary statements that were not included in the record before the hearings officer and therefore will not be considered or relied upon by the Metro Council in its final decision.

Finally, Byers suggests that the school district has not satisfied a coordination obligation, but cites no authority regarding why or how the school district is obligated to coordinate as part of its application. The coordination requirement applies to Metro through the major amendment process and ORS 195.025, and not to the school district. Byers also states that comments received from Washington County "suggest that coordination is incomplete as the management of transportation systems has not been finalized." It is not entirely clear what this means; however, there is no requirement, coordination-related or otherwise, that management of transportation systems must be "finalized" at the point of a UGB amendment. The Metro Ordinance includes a condition of approval requiring the city to finalize its concept plan for the area prior to development occurring on the site, which will include coordination with the county regarding transportation planning. Additional transportation planning will occur at the time of annexation by the city and rezoning of the property, at which point the TPR must be applied to ensure that transportation facilities serving the new school will be adequate.

All coordination obligations have been satisified.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 17-1406, FOR THE PURPOSE OF AMENDING THE URBAN GROWTH BOUNDARY IN THE VICINITY OF THE CITY OF SHERWOOD UPON APPLICATION BY THE SHERWOOD SCHOOL DISTRICT

Date: July 27, 2017

Prepared by: Tim O'Brien
Principal Regional Planner

PROPOSED ACTION

Adoption of Ordinance 17-1406, approving *UGB Case 17-02: Sherwood School District,* a major amendment to the urban growth boundary (UGB). The proposed amendment area is shown on Attachment 1. Staff recommends approval of the ordinance as described below, which would add approximately 82 acres to the UGB west of Sherwood for a high school campus and sports fields. In addition a portion of the land will be used for the construction of a roundabout at SW Elwert and SW Kruger Roads.

SUMMARY OF PROCESS

The proposed amendment is a "major amendment" to the UGB under the Metro Code, which is a special process reserved for requests to include land for public facilities and other non-housing needs that cannot wait until the next UGB cycle. An application for a major amendment is first considered at a public hearing before a hearings officer appointed by Metro. After receiving testimony from interested parties, the hearings officer prepares a proposed order, with findings of fact and conclusions of law recommending approval or denial of the application, and forwards the recommendation to the Metro Council along with the record of the hearing. The Metro Council must consider the hearings officer's report and recommendation at an "on the record" public hearing where individuals who participated in the proceeding before the hearings officer are allowed to submit oral and written argument. The argument must be based on the evidence that was provided to the hearings officer, and no new evidence may be submitted to the Metro Council. If the Council decides to approve the application and expand the UGB, the Council must adopt an ordinance within 15 days after holding a public hearing.

BACKGROUND AND ANALYSIS

Proposal Description:
The Sherwood School District filed an application for an 80-acre amendment to the UGB for a high school campus and sports fields. The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Road and SW Kruger Road, immediately west of the City of Sherwood. The site has frontage on all three roads, is zoned Agriculture and Forest (AF-20) and is located within Sherwood West Urban Reserve 5B. The adjacent properties to the north, south and west are also within Urban Reserve 5B and contain rural residences with limited agriculture and a church to the south, wooded lots and rural residences to the west and open fields and rural residences to the north. The subject properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the SW Elwert and SW Kruger Road roundabout improvement. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

The Sherwood School District is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990s and early 2000s leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Public Hearing before the Hearings Officer

The hearings officer, Andrew H. Stamp, conducted a public hearing at the Sherwood Police Department Community Room on May 24, 2017. Metro staff recommended approval of the application. Six people testified at the hearing, five in favor of the application and one against the application. The hearings officer continued the hearing to June 13, 2017 in response to a procedural question. Three people testified at the June 13th hearing, all in opposition to the application, including one who had also testified at the May 24th hearing. The hearings officer granted a request to keep the record open for ten days, followed by additional time for rebuttal by participants and final argument by the applicant; the record closed on July 7, 2017.

The primary opponent of the application is Byers Properties, LLC, which is the entity that owns one of the parcels of property to be included in the proposed expansion. Byers is currently involved in condemnation proceedings with the Sherwood School District regarding acquisition of the property for public use. Byers raised numerous legal issues in the proceedings before the hearings officer, all of which were ultimately rejected in the final order and recommendation to the Metro Council.

Hearings Officer Recommendation and Proposed Findings

On July 21, 2017 the hearings officer submitted a proposed order recommending approval of Case 17-02, based upon the findings and conclusions in his report. The hearings officer included two conditions of approval in his recommendation:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this Major Amendment.
2. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

A hearing on the recommendation before the Metro Council is set for August 10, 2017. All parties to the case were notified in writing of the Council hearing date and the notice was also posted on Metro's website. In addition, the hearings officer's proposed order was made available for review by all parties.

Record (*Click here to view record*)

Sherwood School District Application, dated March 14, 2017, with supplemental information dated March 23, 2017
Letter from attorney Jennifer Bragar of Tomasi Salyer Martin on behalf of Byers Properties LLC, dated May 22, 2017
Presentation by Sherwood School District dated May 24, 2017

Sherwood West Preliminary Concept Plan (12/08/15) submitted by applicant on May 24, 2017
Letter from hearings officer Andrew Stamp dated May 25, 2017
Email from Gayle Ostgard dated May 25, 2017
Sherwood West Preliminary Concept Plan Appendices, submitted by applicant on June 1, 2017
Sherwood High School UGB Expansion Transportation Study, submitted by applicant on June 1, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 6, 2017
Letter from attorney Kelly Hossaini of Miller Nash LLP on behalf of the Sherwood School District, dated June 8, 2017
Metro Staff memorandum, dated June 9, 2017
Letter from attorney Kelly Hossaini on behalf of the Sherwood School District dated June 13, 2017
Written testimony from Carolyn Mcbee and Karen Labahn dated June 13, 2017
Email from Carolyn Mcbee and Karen Labahn dated June 21, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 23, 2017
Metro Staff memorandum, dated June 23, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 30, 2017
2014 Metro Urban Growth Report, submitted June 30, 2017
Memo from Mark Wharry, KPFF Consulting Engineers, dated June 30, 2017
Letter from Metro attorney Roger Alfred to hearings officer Andrew Stamp dated June 30, 2017
Memo from DKS Associates dated June 28, 2017
Letter from attorney Kelly Hossaini on behalf of Sherwood School District, dated July 7, 2017

SUMMARY/OPTIONS

According to Metro Code 2.05.045(b), the Council may either:

- Adopt Ordinance 17-1406 to approve *Case 17-02: Sherwood School District* based on the findings of fact and conclusions of law in the hearings officer's order. Staff recommends this option.
- Vote in favor of adopting Ordinance 17-1406 to approve *Case 17-02: Sherwood School District* based on revised findings of fact and conclusions of law to be prepared by Metro staff.
- Remand the proceeding to the Hearings Officer for further consideration.
- Vote to adopt a Resolution entering an order to deny *Case 17-02: Sherwood School District* based on revised findings of fact and conclusions of law to be prepared by Metro staff.

In addition, pursuant to Code Section 3.07.1455, the Council may establish conditions of approval it deems necessary to ensure the addition of land complies with state planning laws and the Regional Framework Plan. Metro staff recommends the Council include the following three conditions of approval, the first two of which were recommended by the hearings officer:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this Major Amendment.
2. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.
3. The City of Sherwood shall complete the requirements of Urban Growth Management Functional Plan Title 11, section 3.07.1120: Planning for Areas Added to the UGB, prior to development occurring.

INFORMATION

Known Opposition: Attorney Jennifer Bragar, representing one of the subject property owners, testified verbally and in writing in opposition to the application before the hearings officer and by providing additional written information during the open record period. Two persons who live in the vicinity of the proposed UGB expansion area testified verbally and in writing in opposition to the application before the

hearings officer and by providing additional written information during the open record period. One person who lives in the vicinity of the proposed UGB expansion area testified in writing in opposition to the application during the continued public hearing timeframe.

Legal Antecedents: The Metro Regional Framework Plan and Urban Growth Management Functional Plan Title 14: Urban Growth Boundary authorizes amending the Urban Growth Boundary through the major amendment process.

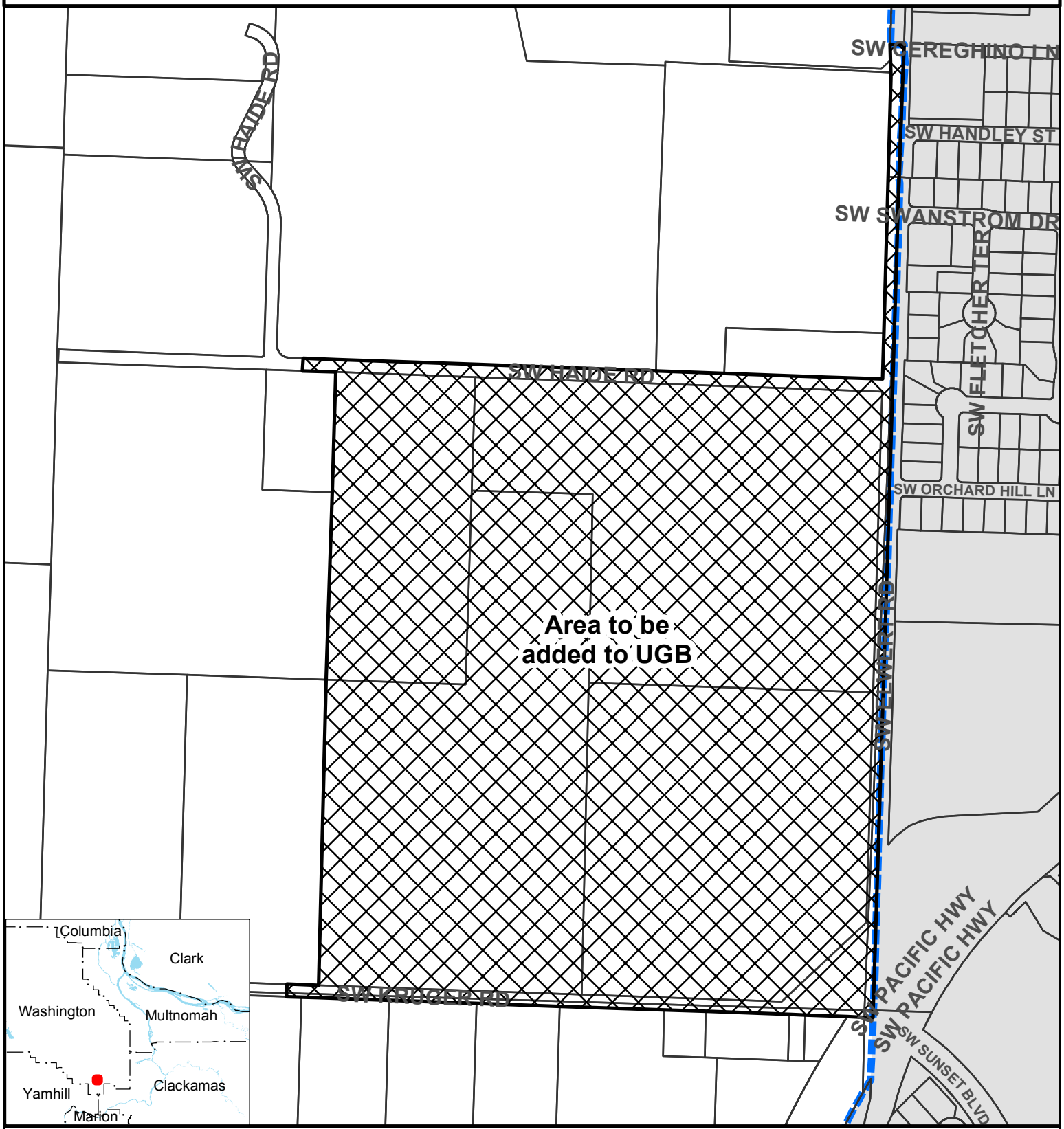
Anticipated Effects: The adoption of Ordinance 17-1406 will add 82.3 acres of land to the urban growth boundary in the vicinity of Sherwood for a high school campus with sports fields and road improvements.

Budget Impacts: There is no budget impact from adopting this ordinance.

ATTACHMENT 1

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

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Document Path: R:\boundary\annexations\Maps\ZacMaps2017\UGB_17_02\UGB_17_02.mxd
Date: 3/22/2017

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE URBAN GROWTH BOUNDARY IN THE VICINITY OF THE CITY OF SHERWOOD UPON APPLICATION BY THE SHERWOOD SCHOOL DISTRICT	)	Ordinance No. 17-1406
	)	
	)	Introduced by Chief Operating Officer
	)	Martha Bennett with the Concurrence of
	)	Council President Tom Hughes

WHEREAS, the Metro Urban Growth Management Functional Plan Title 14: Urban Growth Boundary provides a mechanism to amend the urban growth boundary (UGB) through a major amendment process for public facilities and other non-housing purposes; and

WHEREAS, the Sherwood School District filed an application for a major amendment pursuant to Metro Code Section 3.07.1430 to add approximately 82 acres to the UGB for the purpose of constructing a new high school to serve the Sherwood area; and

WHEREAS, the application was considered by a hearings officer appointed by Metro at public hearings in the City of Sherwood on May 24, 2017 and June 6, 2017; and

WHEREAS, on July 21, 2017 the hearings officer submitted to Metro a proposed order recommending approval of the application, together with findings of fact and conclusions of law in support of a decision by the Metro Council that the application satisfies the requirements of the Metro Code and applicable state law; and

WHEREAS, the Council considered the proposed order and testimony at a public hearing on August 10, 2017 under the procedural requirements of Metro Code Section 3.07.1430(u); now, therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The UGB is hereby amended, as indicated in Exhibit A, attached and incorporated into this ordinance, to add 82.3 acres to the UGB for development of a high school with sports fields and a roadway improvement, subject to the following three conditions of approval:

    a. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this UGB amendment.

    b. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

    c. The City of Sherwood shall complete the requirements of Urban Growth Management Functional Plan Title 11, section 3.07.1120: Planning for Areas Added to the UGB, prior to development occurring.

2. The Findings of Fact and Conclusions of Law contained in the hearings officer's recommendation attached as Exhibit B and hereby incorporated into this ordinance, explain how this amendment to the UGB complies with applicable provisions of the Regional Framework Plan, Metro Code, and applicable statewide planning laws.

3. The Metro Council adopts as supplemental findings in support of its decision the legal memorandum dated August 15, 2017 attached as Exhibit C and hereby incorporated into this ordinance, which includes responses to issues raised at the public hearing by opponents of the application.

ADOPTED by the Metro Council this 17 day of August 2017.

Tom Hughes, Council President

Attest:

Nellie Papsdorf, Recording Secretary

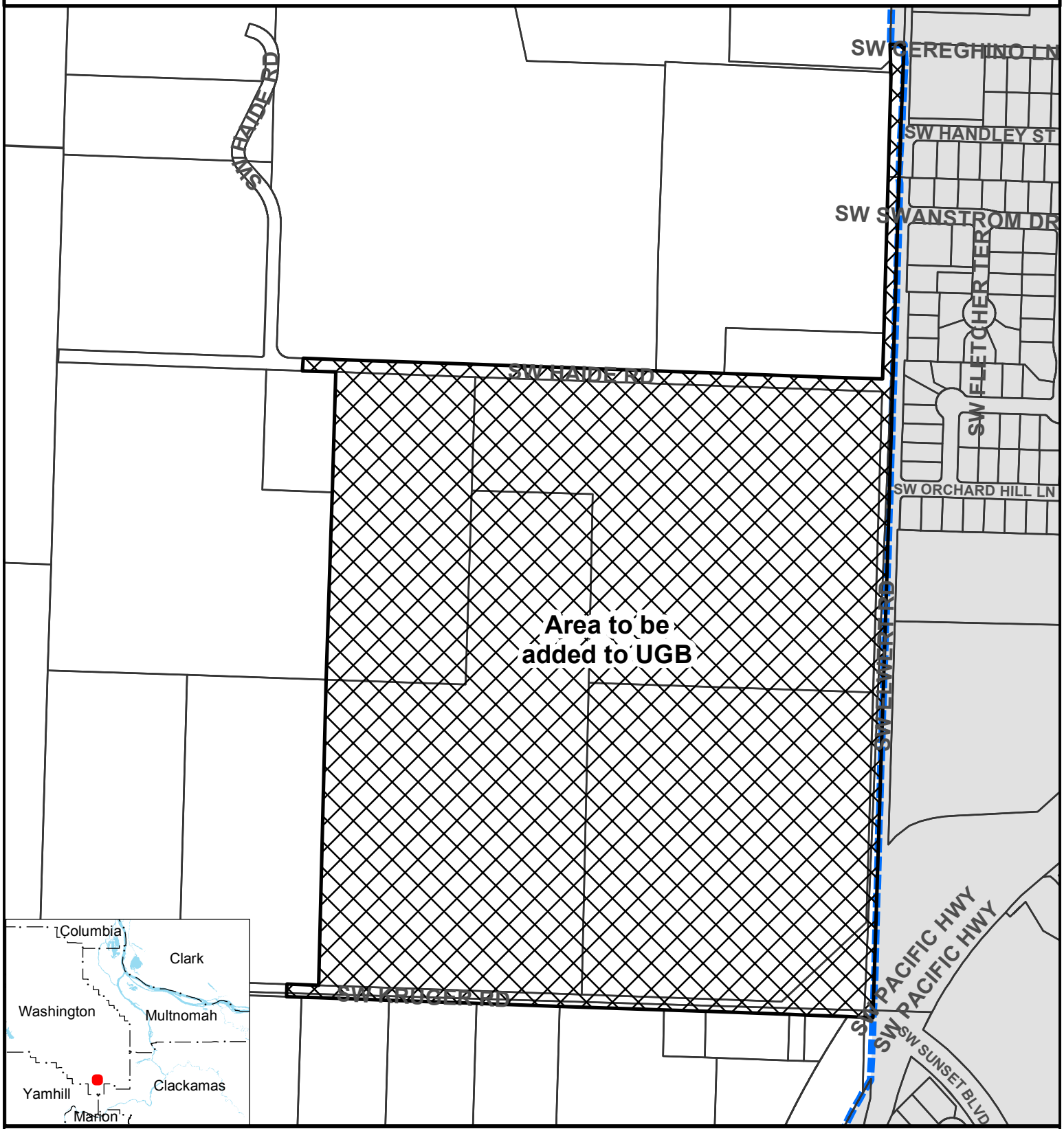
Approved as to form:

Alison R. Kean, Metro Attorney

EXHIBIT A

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

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Document Path: R:\boundary\annexations\Maps\ZacMaps2017\UGB_17_02\UGB_17_02.mxd
Date: 3/22/2017

Exhibit B

METRO HEARINGS OFFICER'S ANALYSIS, CONCLUSIONS, AND RECOMMENDATIONS TO THE METRO COUNCIL

Sherwood School District Urban Growth Boundary
Major Amendment, Case 17-02

JULY 21, 2017

ANDREW H. STAMP, P.C.
KRUSE-MERCANTILE PROFESSIONAL OFFICES, SUITE 16
4248 GALEWOOD STREET
PORTLAND, OR 97035

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SECTION I: APPLICATION SUMMARY

FILE NAME:	UGB Case 17-02: Sherwood School District Urban Growth Boundary Major Amendment
APPLICANT:	Sherwood School District 23295 SW Main Street Sherwood, OR 97140
PROPOSAL:	82-acre expansion of the urban growth boundary (UGB) for a high school campus with sports fields. Realign SW Elwert Road and SW Kruger Road in Sherwood.
LOCATION:	Tax Lots 2S236-200, -201, -206, and -207
SITE ADDRESSES:	18880 SW Haide Road, 22895 SW Elwert Road and 18985 SW Kruger Road, Sherwood, Oregon 97140
URBAN RESERVE AREA:	Area 5B.
CURRENT ZONING:	AF-20
METRO CODE:	Metro Code Sections 3.07.1425 (B, C, D, E & F) and 3.07.1440 (A & B). Code Section 3.07.1425(C)(1-9)

SECTION II: BACKGROUND INFORMATION

Proposal Description: The applicant requests an expansion of the City of Sherwood UGB to include approximately 82 acres for a high school campus with sports fields. This proposal also seeks to realign the intersection of SW Elwert Road and SW Kruger Road for improved and safer traffic flow.

Site Information: The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Rd and SW Kruger Rd as shown in Attachment 1. The property has frontage on SW Elwert, SW Haide and SW Kruger Roads. The entire property is zoned AF-20 (Agricultural and Forest District) by Washington County with a minimum lot size of 80 acres. The entirety of the property is located within the Sherwood West Preliminary Concept Plan area (Metro Urban Reserve Area 5B). The site slopes

gently down to the east towards SW Elwert Road with approximately 40 foot grade change across the site. There is a shallow valley and ridge within this slope.

The properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the road realignment. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

Case History: The Sherwood School District (District) is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Local Government Statement: This UGB major amendment is being considered at the request of the Sherwood School District. The City of Sherwood completed the Sherwood West Preliminary Concept Plan for urban reserve area 5B and submitted a service provider form supporting the school district's application. The school district participated in the concept planning process and the subject site is one of the school locations identified in the preliminary concept plan. Washington County submitted a written statement supporting the application with proposed conditions for Metro to consider. Tualatin Valley Fire and Rescue submitted a written statement supporting the application and Clean Water Services is neutral on the application.

SECTION III: APPLICABLE REVIEW CRITERIA

The criteria for a Major Amendment to the UGB are contained in Metro Code Section 3.07.1425(B, C, D, E, & F) and 3.07.1440 (A & B). The approval criteria appear ***bold 12-pt Aerial Narrow font)***, and the hearings officer's analysis follows.

> ***Metro Code Section 3.07.1440(A) The purpose of the major amendment process is to provide a mechanism to address needs for land that cannot wait until the next analysis of buildable land supply under ORS 197.299. Land may be added to the***

UGB under this section only for the following purposes: public facilities and services, public schools, natural areas, land trades and other non-housing needs;

This code section requires that the applicant show, by substantial evidence in the whole record, that it is an eligible entity allowed to use the interim ORS 197.299 Major Amendment UGB process rather than wait until the next regular Metro UGB amendment cycle (in December, 2018).

Hearings Officer's Analysis: Title 14 of the Metro Code (*i.e.* Metro's Urban Growth Management Functional Plan) includes the Major Amendment process to amend the UGB for a number of specific non-housing needs, including schools and public parks. This process, which is designed to implement ORS 197.299(4), is intended to provide an opportunity to meet these specific land needs outside of the legislative housing needs process the Metro Council conducts on a six-year cycle as required by ORS 197.299(1) and ORS 197.296.

As part of the six-year legislative housing needs process, Metro conducts an inventory of the current residential and employment capacity within the UGB, forecasts population and employment growth over a 20-year timeframe, determines the capacity of the current UGB to accommodate that growth and documents the results of these analyses in an urban growth report. ORS 197.296(6)(a), which is one of the state's needed housing statutes, envisions that local governments with populations over 25,000 will factor in land for schools at the same time as they determine the amount of land needed to be brought in to the UGB for housing. In this regard, the need for land for schools under ORS 197.296(6)(a) is a "derivative need" which is linked to, and dependent upon, a finding that there is a need for land to be brought into the UGB to accommodate an identified housing need. As noted in more detail below, this process has proven to be long, drawn out affair, which is not sensitive to short-term needs. Furthermore, because it is done on a large-scale regional basis, is not always sensitive to more localized school and park needs.

In fact, Metro's most recent urban growth report, adopted in 2015, did not address school and park land needs at the regional level at all. Some school districts anticipate growth, others see declining enrollment and none look out over the 20-year timeframe that the urban growth report considers. Depending on the particular physical, financial and expected growth characteristics of each school district, plans for accommodating projected increases in enrollment vary. Similarly, park districts acquire property and develop park facilities based on numerous operational and funding parameters that can't be considered at the regional level. In addition, it is quite common for school districts and cities to collaborate on opportunities to meet the city's recreation needs as well as the school district's team needs. For these reasons, the Major Amendment process is the appropriate means of addressing specific school district and park needs that can be accommodated through UGB expansions.

Metro has adopted specific criteria to implement ORS 197.299(4). There are two criteria contained in Metro Code section 3.07.1440(A) that are analyzed separately below:

1) The proposal must be for a non-housing need, and

2) The proposal must be intended to meet needs that cannot wait until the next analysis of land supply (December 2018).

There does not appear to any disagreement that the first criterion is met: the applicant proposes to add land to the boundary for a public school and a public facility need, both of which are non-housing needs. The Sherwood School District's Sherwood High School is a "public school" within the meaning of Metro Code Section 3.07.1440(A).

However, whether the applicant has met the second criterion has proven to be more controversial. The applicant addresses its need as follows:

> As of 2015, the Sherwood School District encompasses 4.31 square miles serving a population of approximately 18,884 residents and 5,000 students. The Sherwood School District includes:
> - The City of Sherwood city limits;
> - Portion of the western area of the City of Tualatin (mostly industrial land);
> - Rural Clackamas County (primarily between Sherwood and Wilsonville); and
> - Rural Washington County north and west of Sherwood, as well as a small area east of I-5 between Wilsonville and Tualatin.
>
> To facilitate future planning and to comply with State requirements for a fast-growing school district, the District adopted a long-term facilities plan in January of 2008, which assumed that additional school capacity would therefore likely be needed within ten years of the plan's adoption. As predicted school facilities have recently become overtaxed. In 2015, to assess current resources, the Sherwood School District completed a Facilities Planning and Assessment Report to determine both condition and available capacity. Enrollment based on the most current demographic data and capacity shows that school capacity is near or over capacity at all school levels as shown in Staff Report Attachment 2 (Table 1 in petition).
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the

high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

From the updated capacity assessment and demographic data, it became apparent that facilities must be expanded to keep pace with continued student enrollment growth. A Long Range Planning Committee, Bond Steering Committee, Bond Visioning Committee and Sherwood High School Programming Committee were formed to study facility needs. Led by the Bond Management Team, these committees met from 2014 to 2016, making recommendations to the Sherwood School District Board. The process included input from a number of participants from the community including City Council and staff representation, School District staff, architects, civil engineers, financial advisors, business leaders, citizens, parents and students. Throughout this process, the Sherwood City Council was provided with updates and community input was sought via various public outreach methods.

As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth. With the conclusion that the existing high school cannot be upsized to meet demand, the District's Bond Management Team began looking for a long-term solution and the School Board, with voter approval, ultimately decided to build a new high school. The new high school is planned to be sized to initially accommodate 2,000 students, but allow for easy expansion to 2,400 students. This size will allow for projected growth over the next 10 years and foreseeable future.

Once a new high school is online, the existing high school building can be repurposed as a consolidated middle school with both existing middle schools (Laurel Ridge and Sherwood Middle) being relocated to the existing high school campus. Once this occurs, the two existing middle schools can be converted to elementary school use to expand needed elementary school capacity. Finally, the proposal allows for Hopkins Elementary School, a building nearing its useful lifespan, to be taken out of

> school service and converted to administrative functions. The existing administrative offices consist of portable buildings in varying locations and with the conversion of Hopkins, office space can be centralized for increased efficiencies.

The primary opponent argues that the applicant has not justified the use of the Major Amendment process instead of waiting until the normally scheduled Metro 2018 UGB expansion. Their attorney states: "Metro's scheduled UGB expansion in 2018 is the appropriate time to analyze the expansion for the proposed high school because more data will be available and the full set of impacts can be analyzed. The delay will also resolve the issues with inadequate notice in the current application." *See* Letter from Jennifer Bragar dated June 6, 2017, at p. 8.

What the opponents appear to be arguing is that this application is premature, and the applicant should wait until 2018 when the 20-year buildable lands analysis will be available. Furthermore, the opponents do believe that the Major Amendment process authorized by ORS 197.299(4)(a)(A) requires the same type and level of analysis required when Metro conducts its periodic legislative housing need analysis required by ORS 197.299(1) and ORS 197.296. The opponent's unstated assumption is that school needs must be evaluated as a derivative need of housing using the ORS 197.296(6) process.

Metro staff weighed in on the debate via a Memorandum dated June 9, 2017, which states, in relevant part:

> Metro's legislative process for reviewing the UGB is guided partially by ORS 197.296. Subsection 197.296(2) directs Metro to demonstrate that there is sufficient buildable land within the UGB to accommodate estimated housing needs for 20 years. A housing need is the only need identified in the statute. ORS 197.296(6) says if the housing need is greater than the capacity of the UGB Metro shall take one or more actions that could include amending the UGB to include sufficient buildable lands to accommodate housing needs for 20 years. Subsection (6)(a) goes on to say that if the UGB was amended to accommodate housing needs for the next 20 years, then the amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities.
>
> The statutory directive to Metro is to include sufficient land for school facilities as part of any UGB expansion that is required to meet a 20-year need for housing. In Metro's most recent analysis of the 20-year housing supply (the 2015 UGR), Metro determined there was sufficient capacity inside the existing UGB to accommodate housing needs; therefore, no corresponding analysis for public school facilities was required.

> Even if the Metro Council had determined there was a need to expand the UGB in 2015 to accommodate a 20-year housing need, there is no certainty that the location where the land would be added to meet the housing need is also a location where a local school district needs additional land to meet its facility needs. Likewise there is no certainty that the specific land needs of a school district are coordinated with the local jurisdictions desire for additional housing. For instance, a UGB expansion adjacent to Hillsboro to meet a regional housing need would not support the Sherwood School District's need for a new high school.
>
> These difficulties arise, in part, from the size of the Metro region and the fact that it consists of 24 individual cities and 17 different school districts. It is important to recognize that the provisions of ORS 197.296(6)(a) regarding planning for accommodation of new school facilities is included in the statutory section that describes the analysis required for all cities in the State of Oregon. While it would not be as difficult for a smaller jurisdiction to coordinate future public school needs with future housing needs in making UGB expansions, that task is much more complicated in the Metro region.
>
> The disconnect in the Metro region between the location of UGB expansions to meet a 20-year housing need and the needs of existing school districts is addressed, in part, by ORS 197.299(4)(a), which is the statute that directs Metro to establish the process being utilized by the Sherwood School District in this proceeding. ORS 197.299(4)(a) requires Metro to allow "off-cycle" UGB expansions as necessary to accommodate a need for land for a public school that cannot reasonably wait.

Given that the opponents have a very different interpretation of the purpose and meaning of ORS 197.299(4) when compared to Metro staff and the applicant, a discussion of statutory interpretation is in order.

A statute is considered "ambiguous" if it is capable of at least two reasonable interpretations. *State v. Tarrence*, 161 Or App 583, 985 P2d 225 (1999); *Kenton Neighborhood Ass'n v. City of Portland and Oregon Waste Systems, Inc.,* 17 Or LUBA 784, 797 (1990) (when code is internally inconsistent, it is ambiguous).[1] If the legislation is unambiguous, local governments and courts are bound to apply the statute in that manner, regardless of how inartful the enactment seems. *Sanchez v. Clatsop County*, 146 Or App 159, 164 n 4, 932 P2d 557 (1997). Stated another way, an unambiguous statute should not be "interpreted." *City of Hillsboro v. Housing Dev'l Corp of Washington County*, 61 Or App 484, 488, 657 P2d 726 (1983). *See GTE*

[1] *See also Fisher v. City of Gresham,* 69 Or App 411, 416, 685 P2d 486 (1984); *McCoy v. Linn County,* 90 Or App 271, 276 nl, 752 P2d 323 (1988).

Northwest, Inc., v. Oregon Public Utility Comm'n, 179 Or App 46, 39 P3d 201 (2002). Rather, unambiguous words should be given their plain, natural, and ordinary meaning. *PGE v. BOLI*, 317 Or at 611.[2]

In this case, the hearings officer believes that the relationship between ORS 197.296 and ORS 197.299 creates sufficient ambiguity to warrant an exercise of statutory interpretation.

Text and Context.

When construing a statute, the court will often first look directly at the text of the statute itself. *See Whipple v. Howser*, 291 Or 475, 635 P2d 782 (1981) (citing *Greyhound Corp. v. Mount Hood Stages, Inc.*, 437 US 322, 330, 98 S Ct 2370, 2375 (1978)). Emphasizing the need to look first to the language of the statute, the *Whipple* court stated:

> "The cardinal rule for the construction of a statute is to ascertain from the language thereof the intent of the law makers as to what the purpose was to be served, or what the objective was designed to be attained."

Whipple, 291 Or at 479 (citing *Swift & Co. and Armour & Cove, Co. v. Peterson,* 192 Or 97, 233 P2d 216 (1951). *See also State of Oregon v. Buck,* 200 Or 87, 92, 262 P2d 495 (1953). The *Whipple* court also cited to *State ex rel. Cox v. Wilson*, 277 Or 747, 562 P2d 172 (1977), in which the court stated:

> "There is, of course, no more persuasive evidence of the purpose of a statute then the words by which the legislature undertook to give impression to its wishes."

Courts do not view the text in a vacuum; they consider the context of the language at issue as well. In fact, the context of the statute is as important to the interpretation as the text. *State v. Webb*, 324 Or 380, 927 P2d 79 (1996); *Friends of Neaback Hill v. City of Philomath*, 139 Or App 39, 48, 911 P2d 350 (1996). *See e.g*., *Shadrin v. Clackamas County*, 34 Or LUBA 154 (1998). In some cases, the court may consider the context before examining the text, in situations where the context "provided perspective on the text." *See Plotkin v. Washington County*, 165 Or App 246, 250, 997 P2d 226 (2000). In this case, consider the two statutes in tandem.

ORS 197.299 provides as follows:

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[2] *See also OSHU v. Hass*, 325 Or 492, 501, 942 P2d 261 (1997); *Zidell Marine Corp. v. West Painting, Inc.*, 322 Or 347, 906 P2d 809 (1995); *State v. Langley*, 314 Or 247, 256, 839 P2d 692 (1992); *Curly's Dairy, Inc. v. State Dept of Agriculture*, 244 Or 15, 415 P2d 740 (1966) (If statute is clear and unambiguous, the court may not resort to rules of statutory construction in ascertaining and declaring the legislative intent.); *Sullivan v. City of Ashland*, 130 Or App 480, 882 P2d 633, *rev den*, 320 Or 453, 887 P2d 792 (1994) (An unambiguous code provision cannot be interpreted, even if that provision is contrary to the express purposes of the provision.); *City of Portland v. White*, 61 Or App 120, 655 P2d 629 (1982).

197.299 Metropolitan service district analysis of buildable land supply; schedule for accommodating needed housing; need for land for school; extension of schedule.

(1) A metropolitan service district organized under ORS chapter 268 shall complete the inventory, determination and analysis required under ORS 197.296(3) not later than six years after completion of the previous inventory, determination and analysis.

(2)(a) The metropolitan service district shall take such action as necessary under ORS 197.296(6)(a) to accommodate one-half of a 20-year buildable land supply determined under ORS 197.296 (3) within one year of completing the analysis.

(b) The metropolitan service district shall take all final action under ORS 197.296(6)(a) necessary to accommodate a 20-year buildable land supply determined under ORS 197.296 (3) within two years of completing the analysis.

(c) The metropolitan service district shall take action under ORS 197.296(6)(b), within one year after the analysis required under ORS 197.296(3)(b) is completed, to provide sufficient buildable land within the urban growth boundary to accommodate the estimated housing needs for 20 years from the time the actions are completed. The metropolitan service district shall consider and adopt new measures that the governing body deems appropriate under ORS 197.296 (6)(b).

(3) The Land Conservation and Development Commission may grant an extension to the time limits of subsection (2) of this section if the Director of the Department of Land Conservation and Development determines that the metropolitan service district has provided good cause for failing to meet the time limits.

(4)(a) The metropolitan service district shall establish a process to expand the urban growth boundary to accommodate a need for land for a public school that cannot reasonably be accommodated within the existing urban growth boundary. The metropolitan service district shall design the process to:

(A) Accommodate a need that must be accommodated between periodic analyses of urban growth boundary capacity required by subsection (1) of this section; and

(B) Provide for a final decision on a proposal to expand the urban growth boundary within four months after submission of a complete application by a large school district as defined in ORS 195.110.

(b) At the request of a large school district, the metropolitan service district shall assist the large school district to identify school sites required by the school facility planning process described in ORS 195.110. A need for a public school is a specific type of identified land need under ORS 197.298 (3). [1997 c.763 §2; 2001 c.908 §2; 2005 c.590 §1; 2007 c.579 §2; 2014 c.92 §5]

As quoted above, ORS 197.299(1) cross-references ORS 197.296(3), which, in term, cross-references to ORS 197.296(2). These two statutes together set forth a process for evaluating and accommodating housing needs:

> ***(2) At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use, a local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years. The 20-year period shall commence on the date initially scheduled for completion of the periodic or legislative review.***
>
> ***(3) In performing the duties under subsection (2) of this section, a local government shall:***
>
> ***(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and***
>
> ***(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.*** (Underlined emphasis added).

As the underlined language indicates, ORS 197.296 is a statute narrowly-tailored towards the process used to establish and fulfill an identified *housing* need. It is an expansion of the basic concepts set forth in Statewide Planning Goal 10, but it goes beyond Goal 10 in scope.

As part of that process, the effect of ORS 197.296(6) should also be considered as context:

> ***(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need:***
>
> ***(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school***

districts and the local government that has the authority to approve the urban growth boundary;

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall monitor and record the level of development activity and development density by housing type following the date of the adoption of the new measures; or

(c) Adopt a combination of the actions described in paragraphs (a) and (b) of this subsection.

A few key points can be quickly gleaned from ORS 197.296. First, by its terms, ORS 197.296(2) only applies to periodic review or another "*legislative* review of the [.. .] regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use. " This Major Amendment application is not periodic review and is also not a legislative review of Metro's regional framework plan, *i.e.*, the every six-year UGB amendment cycle. The Major Amendment application is subject to a quasi-judicial process and will result in a quasi-judicial decision by the Metro Council.

Strawberry Hill 4 Wheelers v. Board of Comm'rs sets out a list of factors to be weighed to determine whether a land use decision is legislative or quasi-judicial. 287 Or 591, 602-603, 601 P2d 769 (1979). Under *Strawberry Hills,* the Major Amendment is quasi-judicial because (a) the application process is bound to result in a decision, (b) the decision must apply pre-existing criteria to concrete facts, and (c) the action is directed at a closely circumscribed factual situation.

With regard to the first question, the *Strawberry Hills 4-Wheelers* Court asks practitioners to consider the following question: "Does the statute require the [local government] to reach a decision after the hearing, as in an adjudication, or may it indefinitely postpone or abandon the issue, like a legislative proposal?" 287 Or at 605. At first glance, one might assume that any land use decision that originates from an application being submitted (as opposed to be initiated by the local government itself) would be "bound to result in a decision." Indeed, that seems to have been the original intent of the *Strawberry Hill* Court. However, over the years LUBA and the Court of Appeals have increasingly read this factor more and more narrowly and will only find that that a decision is "bound to result in a decision" if the code either expressly requires a decision to be made, or if that requirement can be fairly read into the language of the code based on the context. *Estate of Gold v. City of Portland*, 87 Or App 45, 48, 740 P2d 812 (1987) ("the statute simply says that the governing body *may* approve the proposal, not that it *must* do anything."); *Johnson v. City of La Grande*, 37 Or LUBA at 388; *Valerio v. Union County*, 33 Or LUBA 604 (1997); *Miner v. Clatsop County*, 46 Or LUBA 467 (2004). In some cases, LUBA has not been as exacting in its analysis, holding that although the code did not:

> "expressly state that once a person requests an interpretation of a provision of the city's zoning ordinance that the person is entitled to a decision. We believe, however, that any reasonable person reading this ordinance would conclude that if a person requested an interpretation from the planning director, received that interpretation and then appealed the interpretation to the planning commission and to the city council, the person filing the appeal would be entitled to a decision from the city council."

Hoffman Ind. Inc. v. City of Beaverton, 2 Or LUBA 411 (1981); *Dean v. City of Oakland*, 33 Or LUBA 806, 809 (1997)("While the cited policy does not require a decision within a specified time, the most natural reading of its terms requires a decision.") The fact that any given ordinance in question states that the decision-maker "may" make a decision should not be a fact which is determined to be indicative of a legislative decision, but unfortunately, in practice it is just that. In this regard, the statute at issue in *Strawberry Hill* did not expressly require that a decision be made. However, the Supreme Court found no difficulty in concluding that "although affirmative action is optional, the statute appears to contemplate that the County Court will *eventually* reach and pronounce some decision whether to act or not. *Id*. at 606. (Emphasis added).

In this case, the MC 3.07.1440(g) requires the Metro Council to make a final decision on the petition. Therefore, this factor suggests that the decision is quasi-judicial.

The second of the *Strawberry Hill* questions has, in practice, become somewhat of a non-factor. Both LUBA and the Court of Appeals have recognized that all land use decisions in Oregon are subject to "preexisting criteria" and apply to concrete facts. LUBA has addressed this issue as follows:

> Turning to the "apply existing criteria to concrete facts" factor, that factor is present to some extent in all land use decisions. *Valerio*, 33 Or LUBA at 607. This factor is therefore less important than the other two factors, particularly where, as is the case here, the decisions are adopting new land use laws rather than applying existing land use laws to grant land use approval for a single property or a small number of properties. *Churchill v. Tillamook County*, 29 Or LUBA 68, 71 (1995); *McInnis v. City of Portland*, 27 Or LUBA 1, 5-7 (1994).

Carver v. Deschutes County, 58 Or LUBA 323 (2009). *See also Casey Jones Well Drilling, Inc. v. City of Lowell*, 34 Or LUBA 263, 271 (1998); *Johnson v. Jefferson Country*, 56 Or LUBA 72 (2008). In this case, the MC 3.07.1440 sets forth criteria for a Major Amendment to a UGB. Therefore, this factor suggests that the decision at issue is quasi-judicial.

Under the third factor, LUBA and the Courts are supposed to assess whether the decision either (1) affects either a small number of owners and properties or (2) the "action directed at a closely circumscribed factual situation," or whether the decision has more broad

applicability. According to early decisions by the Court of Appeals, "the number of people affected and the size of the area covered are less important considerations," and the focus should instead be on "the importance of assuring that the decision is factually correct and that the decision-maker gives fair attention to affected individuals." *1000 Friends of Oregon v. Wasco Co. Court*, 80 Or App 532, 536, 723 P2d 1034 (1986), *rev'd on other grounds*, 304 Or 76, 742 P2d 39 (1987). In practice, this third bean-counting "factor" has become the most critical issue to LUBA, and, despite suggestions to the contrary, in most cases it is more-or-less the dispositive factor. In fact, LUBA has found decisions to be legislative even when the other two factors favored a determination that a decision was quasi-judicial. *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992).

In this case, the proposal involves 82 acres consisting of four tax lots in unknown ownerships. This is well within the size and ownership limits that would allow the conclusion that the decision is quasi-judicial.

The primary opponent argues that this Major Amendment is a "legislative decision," The primary opponent states that "[t]he decision amends the Metro Boundary map that is incorporated into the Metro Urban Growth Functional Plan, and as such the change is legislative." *See* Letter from Jennifer Brager dated June 23, 2017 at p. 1. However, map amendments are not necessarily or inherently legislative or quasi-judicial in nature. *Compare Thomas v. City of Veneta*, 44 Or LUBA 5 (2003) (TSP and zoning map amendment affecting two tax lots comprising 6.4 acres); *Dan Giles & Assoc., Inc. v. McIver*, 113 Or App 1, 3, 831 P2d 1024 (1992)(zone change for single 29-acre parcel in unified ownership is quasi-judicial); *Neuberger v. City of Portland*, 288 Or 155, 603 P2d 771 (1979) (re-zoning involving 601 acres of land owned by three landowners is quasi-judicial).[3] *Contrast Valerio v. Union County*, 33 Or LUBA 604 (1997) (comprehensive plan amendment and zone change pertaining to 185 acres in a "number of different ownerships" is legislative); *Friends of Cedar Mill v. Washington County*, 28 Or LUBA 477 (1995) (PAPA relocating arterial and changing it from 5 lanes to 3 lanes is legislative, where it affects 40 properties and will carry 17,000 – 18,000 trips per day.); *McInnis v. City of Portland*, 27 Or LUBA 1 (1994) (Proposal which rezones 5000 acres in 110 different ownerships is legislative.); *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992) (Transportation plan map amendment that directly involves nine property owners, but has "indirect effects" on a broader population is legislative). Nor is a UGB amendment inherently legislative in nature. *BenjFran Development, Inc. v. Metro*, 17 Or LUBA 30 (1988) (denial of request for UGB amendment comprising almost 500 acres in three ownerships is quasi-judical).

Cases such as *Davenport* and *Friends of Cedar Mill* suggest that large transportation projects will be considered legislative due to the broad secondary effects that transportation facilities can have on commuters. The hearings officer does not believe that this line of cases can be extended to a school, however, based simply on the fact that many kids will attend the school. If that were the case, then any land use decision involving a Wal-Mart or Home Depot store would be legislative, because those uses have higher usage / trip generation rates than a typical school.

[3] *See Neuberger v. City of Portland*, 37 Or App 13 (1978), *rev'd in part, aff'd in part*, 288 Or 155, 603 P2d 771 (1979).

Opponent's counsel cites *Colwell v. Washington County*, 79 Or App 82, 87-8 (1986) for the proposition that this Major Amendment is a legislative (and not a quasi-judicial) decision (*see* Bragar letter dated 23 June 2017, pp 1-2). *Colwell* does not support that conclusion, and is easily distinguished. In *Colwell,* the Washington County Planning Commission made a land use decision which opponents wished to appeal to the Board of Commissioners, but their appeal was dismissed for failure to timely pay for the quasi-judicial Planning Commission hearing transcript. *Colwell*, 79 Or App at 85. Opponents appealed to the LUBA, which dismissed the appeal for failure to exhaust remedies at the local (County) level. The Oregon Court of Appeals reversed and remanded, finding that the Washington County governing body (*i.e.* the elected Board of County Commissioners) - and not the unelected County Planning Commission - must make Comprehensive Plan amendments, pursuant to ORS 215.050(1) and ORS 215.060.

Opponent's argument might have some merit if this unelected hearings officer was the one to make the final decision on this Major Amendment land use application. Only the elected Metro Council has that authority, however. This hearings officer's findings and determination are merely a recommendation to the Metro Council, and the Council is free to accept or reject this Hearings officer's decision, as the Council sees fit. Since the Metro Council will be the governmental body to make the final land use decision in this case, the Court of Appeals' holding in *Colwell* shall be followed for this application.

Despite the lengthy analysis set forth above, the hearings officer does not really believe that the quasi-judicial vs. legislative debate is dispositive, in any event. Rather, it is a red herring. Stated another way, the hearings officer does not believe that ORS 196.296 would apply to this UGB Amendment even it was a legislative decision. By its terms, ORS 197.296 only applies to UGB amendments that "require the application of a statewide planning goal relating to buildable lands for residential use." As discussed elsewhere in this recommendation, an amendment to a UGB which adds AF-20 zoned land for use as a school does not implicate Goal 10 in any meaningful way .

Second, ORS 197.296 sets forth a mandatory periodic process that is focused on only one type of land need: a need for housing. We can credit the Home Builder Association for being active in the legislature over the past 30+ years and influencing the adoption of specific statutory language, such as ORS 197.296, which relates specifically to their industry. But we should also not lose sight of the fact that there are other types of land need under Goal 14 that don't implicate ORS 197.296.

Taking a step back, recall that Goal 14 states that a UGB amendment must be based on consideration of six factors set forth in the Goal. The first two factors are commonly referred to as the "need" factors. The need factors require either a demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, <u>or</u> a demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories. While the need for housing is governed by ORS 197.296, other land needs are governed by Statewide Planning Goal 14, and in some cases, by OAR Ch. 660, Div 24. Note, as an example, that OAR Ch. 660, Div. 24 does not address now a livability need is established; Goal 14 seems to be the sole administrative pronouncement of its use. What is important to understand for purposes of this case is that ORS 197.296 is not the sole way to

establish land need, and a school need is not limited to being established as a derivative need of housing under ORS 197.296(6).

Among the more common types of land need mentioned in Goal 14 include a need for employment land, a need for public facilities, a need for schools, a need for parks, and the amorphous catch-all known as a "livability need."[4] With one exception related to public schools, ORS 197.296 does not govern substantively how these other types of land needs are established. Nor does it establish a *process* by which those other needs are established. Rather, ORS 197.296(2) & (3) are narrowly focused on accommodating a housing need, and as shown below, accommodating land for public schools as a derivative need stemming from housing need.

Consider ORS 197.296(6) as context: this statute applies when a local government is undertaking periodic review or a legislative review of a UGB that implicates Goal 10. If during such a process, the local government determines that a need exists for additional residential land and that accommodating that land need must necessarily involves a UGB amendment, then ORS 197.296(6)(a) requires that local government to "include sufficient land reasonably necessary to accommodate the siting of new public school facilities." Thus, under that process, a public school facility is considered a derivative need that arises by operation of a demonstrated need for housing. However, there is nothing in ORS 197.296(6) that makes ORS 197.296 the exclusive process by which a need for schools can be established. As demonstrated by the applicant a need for new school facilities can exist independent of housing needs. And while the primary opponent chalks up the applicant's current need to poor planning on the District's part (a sentiment that may have some basis in fact), ORS 197.299(4) appears to written as a safety value that can be used by school districts regardless of the causes that led to the need.

ORS 197.299(4)(a)(A) provides additional key textual clues which helps understand the nature of the process currently being undertaken. This provision authorizes Metro to "establish" and "design" a "process" that will fulfill a need that must be accommodated "*between*" periodic analyses of urban growth boundary capacity required by subsection (1) of this section." By giving Metro the authority to "establish" and "design" a unique UGB amendment process for schools, the statute makes clear that the school need specific "4(a)" process is not the *same* process as the legislative six-year process required by ORS 197.299(1) and 197.296(3). The ORS 197.296 process is already "established" and "designed" by statute, and really only puts a regional government much as Metro in an implementation role. On the other hand, ORS 197.299 delegates to Metro a role that is greater than mere implementation of a pre-existing process. Furthermore, ORS 197.299(4)(a)(4) further emphasizes that the school-specific process is only supposed to be used "between" the 6-year legislatively-mandated processes for accommodating housing needs, and it can only be invoked if the identified school need cannot wait until the next scheduled six-year legislative process.

[4] LUBA cases confirm that a need to improve livability can provide a basis for adding land to a UGB. Such an analysis requires, in addition to identifying a significant livability problem, an evaluation of probable and negative impacts on livability that may occur if the UGB is amended, and an explanation of why the livability benefits outweigh negative impacts on livability. *1000 Friend of Oregon v. City of North Plains,* 27 Or LUBA 372, 383, *aff'd.,* 130 Or App 406 (1994); *1000 Friends of Oregon v. Metro Service Dist*., 18 Or LUBA 311, 320 (1989).

The gravamen of opponents' complaints with respect to ORS 197.299(4) stem from a misunderstanding of the relationship between the ORS 197.299(1) six-year UGB amendment process with the ORS 197.299(4) public school amendment process. Much of opponent counsel's testimony at the June 13, 2017, hearing and again in her June 23, 2017 letter, was directed generally at a dissatisfaction with how Metro plans for regional housing and employment needs and opponents' opinion that allowing out-of-cycle UGB expansions for public schools exacerbates Metro's alleged poor planning. In its June 23, 2017 letter, opponents argued that this Major Amendment application does not meet the requirements of ORS 197.296(2).

At its core, the opponent's argument hinges on the assumption that the school-specific process must be substantively the same as the periodic six-year legislative process. Stated another way, the opponents argue that the substantive standards and criteria that govern the school specific process are the same as the housing-specific legislative process under which school need can be established as a derivative need. However, if that were truly the case, however, there would be no need for Metro to "establish" and "design" a new process. Rather, if the legislative intent was to mandate the same rigorous process that is used to establish housing need and to otherwise limit school need as a derivative need, the legislature would have simply stated that a school-related need can form the basis for accelerating the time frame under which the legislative housing need process is conducted. And that in itself does not make any sense because nothing in ORS 197.299(1) or ORS 197.296 prohibits Metro from conducting the legislative housing-needs process sooner than on a 6-year increment. In fact, ORS 197.299(1) merely states that Metro must undertake the ORS 197.296 process "*not later than six years after completion of the previous inventory, determination and analysis."* In theory, Metro could voluntarily conduct that inventory and analysis on a bi-annual or other timeline. In light of this observation, ORS 197.299(4) would be a redundancy if interpreted in the manner that the primary opponent advocates.

Courts strive to give effect to all parts of a statute, in order to produce a harmonious whole. ORS 174.010.[5] As a corollary, courts will avoid interpretations that render a portion of the statute redundant or meaningless surplusage.[6] *See State v. Stamper,* 197 Or.App. 413, 418, 106 P.3d 172, *rev. den.,* 339 Or. 230, 119 P.3d 790 (2005) ("we assume that the legislature did not intend any portion of its enactments to be meaningless surplusage"). If the school-specific process were not a separate process governed by different substantive criteria than ORS 197.296, it would not accomplish anything that Metro did not already have the right to do.

Rather than being drafted as an authorization to conduct the existing six-year legislative housing needs process at any time increment earlier than six years if a need exists that cannot wait six years, ORS 197.299(4)(a)(A) contemplates a *new* process *designed* by Metro to cater to

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[5] *Lane County v. LCDC*, 325 Or 569, 578, 942 P2d 278 (1997); *Bolt v. Influence, Inc.,* 333 Or. 572, 581, 43 P.3d 425 (2002) ("we are to construe multiple provisions, if possible, in a manner that will give effect to all"). *See also Davis v. Wasco IED*, 286 Or 261, 267, 593 P2d 1152 (1979); *Tatum v. Clackamas County*, 19 Or App 770, 775, 529 P2d 393 (1974); *Plotkin v. Washington County*, 36 Or LUBA 378 (1996); *Walz v. Polk County*, 31 Or LUBA 363 (1996); *Fechtig v. City of Albany*, 31 Or LUBA 410 (1996) (Ordinance).

[6] *Certain Underwriters at Lloyd's London and Excess Ins. Co., Ltd. v. Massachusetts Bonding and Ins. Co*., 235 Or.App. 99, 230 P.3d 103 (2010); *State v. Stamper,* 197 Or.App. 413, 417, 106 P.3d 172, *rev. den.,* 339 Or. 230, 119 P.3d 790 (2005); *EQC v. City of Coos Bay,* 171 Or.App. 106, 110, 14 P.3d 649 (2000).

school needs as a primary independent need, not as a secondary derivative need resulting from a housing need. Because it is a different process that is intended to evaluate a needs other than a housing needs, the process and requirements (*i.e.* inventory, determination, and analysis) of ORS 197.296 do not apply to this separate process. And discussed below, the legislative history confirms this analysis.

Legislative History

Prior to 2001, the case of *Portland Gen. Elec. Co. v. Bureau of Labor & Indus.,* 317 Or 606, 611–612, 859 P2d 1143 (1993) (hereinafter *PGE*) made clear that legislative history could not be used to determine legislative intent if the text and context of the law made the meaning of that law unambiguous. The case of *State v. Gaines,* 346 Or 160, 171–172, 206 P3d 1042 (2009) essentially acknowledges that the *PGE v. BOLI* approach was legislatively modified in 2001 via amendments to ORS 174.020, and that the statute now permits the consideration of legislative history even when the text and context seem to make the meaning unambiguous. For this reason, a careful treatment of *Gaines* is warranted here.

The OSB publication entitled "Interpreting Oregon Statutes" Steve Johansen, Hon. Jack Landau, and Anne Villella ed. OSB CLE (2009) contains a lengthy but highly relevant discussion of *Gaines,* as follows:

> In *Gaines,* the defendant was convicted of obstructing governmental administration when she refused to cooperate in being photographed after her arrest. On appeal, she argued that her behavior did not constitute a "'means of . . . physical . . . interference or obstacle' "within the meaning of the relevant statute. *Gaines,* 346 Or at 162 (quoting ORS 162.235(1)). She argued further that the 2001 amendments to ORS 174.020 required the court to consider the legislative history of ORS 162.235(1) along with the text and context of the statute, even if the court found that its analysis of the text and context did not render the legislative intent ambiguous. *Gaines,* 346 Or at 165. Interestingly, in assessing the meaning of the 2001 amendments to ORS 174.020, the court found that a text-and-context analysis suggested that the amendments did not significantly change the *PGE* standard. *Gaines,* 346 Or at 166. However, the court did not stop its analysis at the text-and-context level. As the plaintiff argued that ORS 174.020 required, the court went on to examine the legislative history. The legislative history revealed a clear legislative intent to eliminate the requirement that a court only look to legislative history "if but only if" the text and context left the meaning ambiguous. *Gaines,* 346 Or at 169.
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> * * * * *.

> The court will now consider proffered legislative history even when the text and context of a statute appear to render it unambiguous. In effect, *Gaines* brings legislative history into the step-one analysis along with the text and context of a statute. That said, legislative history remains a second step of statutory analysis—the court will consider it only after analyzing the text and context of a statute. The weight the court gives that legislative history also remains within the discretion of the court. A party attempting to overcome seemingly plain and unambiguous text through reference to legislative history has "a difficult task before it." *Gaines,* 346 Or at 172.

Although *Gaines* modifies the *PGE* methodology, the full extent of that modification remains to be seen. However, a recent appellate court decision suggests the extent may be relatively slight. *State v. Kelly,* 229 Or App 461, 211 P3d 932 (2009). *Kelly* raised the issue of the meaning of ORS 811.335(1)(b), which requires drivers to signal a turn "during not less than the last 100 feet traveled by the vehicle before turning." The defendant, who signaled a turn after he had stopped at an intersection, argued that the legislative history showed that the intent of the statute was to require a signal for at least as long as it took to travel the last 100 feet, but not to signal for the specified distance. The court agreed that under *Gaines* it needed to consider the legislative history. The court also made several points as to what weight it would give that legislative history.

The court first made clear that legislative history alone cannot overcome statutory text that is truly capable of only one interpretation. *Kelly,* 229 Or App at 466. Beyond that caution, the court explained the traditional limits of legislative history: legislative history is most helpful when it uncovers the general legislative intent of a statute (*Kelly,* 299 Or App at 466); statements of single legislators or non-legislators are generally, though not always, less helpful (*Kelly,* 299 Or App at 466–467), and the existence of a particular problem that precipitated a bill does not necessarily mean the statute was intended to address only that problem (*Kelly,* 299 Or App at 468). What *Kelly* does not suggest is that *Gaines* changes in any significant way *how* courts use legislative history. Rather, it only changes *when* the court will consider legislative history. Thus, even under *Gaines,* legislative history will be most helpful when an analysis of the text and context does not resolve an ambiguity of the statute. Legislative history may also be useful to reinforce an apparently unambiguous interpretation of a statute. (Emphasis added).

Courts are not likely to be persuaded by legislative history when that history does not give any indication that the precise legal question at issue was considered during the legislative enactment.[7]

The subsection in question, subsection 4, was added to ORS 197.299 in 2005 as part of Senate Bill 1032. Testimony at legislative committee hearings from bill authors and proponents indicates SB 1032 was intended to grant Metro new expedited authority to expand the UGB for the purpose of allowing construction of new schools, and such a process would be separate from the "normal" UGB expansion process typically required by state statutes.

Testimony of several speakers during the May 17, 2005 public hearing provide insight regarding the policy goals behind SB 1032. The main speaker, Gary Conkling, represented the Beaverton School District and was one of the authors of the bill. Mr. Conkling began his testimony in favor of the bill by outlining the pressing problems that face the city of Beaverton. He stated that "in the last decade or so the Beaverton School District has added more than ten thousand students" and that those students alone would make up the fifteenth largest school district in the state.[8]

Mr. Conkling explained that overabundance problems are common in the metropolitan areas of Portland, and most suitable plots of land for schools have been used for other projects intended to spur economic development. Mr. Conkling "anticipate[d] [Beaverton] will have to look outside the UGB for one or more additional school sites" to meet the growing demand. He ended his testimony by stating two main objectives of SB 1032. First, the bill is designed to gain "guidance from Metro, cities, and urban service providers as to where we should look outside the UGB" for suitable plots of land for schools. Second, the bill has language that "will encourage Metro to provide an accelerated process to add those lands once . . . the need has been established . . . so that lands can be added on an accelerated basis to the UGB."[9]

Metro Legislative Affairs Director Randy Tucker, a second advocate of SB 1032, added some additional points regarding the purpose and scope of the bill. Mr. Tucker explained that developing lands for schools requires additional planning considerations than developing lands for other purposes because schools must be located in particular locations. These additional considerations include that ideally, schools should be located near city centers, and schools must fall within existing school district boundaries. This makes it even more difficult to find suitable land for new school construction without expanding the UGB.

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[7] For example, the court often dispense with legislative history in one sentence by stating simply that the legislative history is silent on the particular issue facing the court. *Ritcherson v. State,* 131 Or App 183, 186, 884 P2d 554 (1994) (seeking to determine if ORS 138.510(2) included retroactive application of its two-year statute of limitations period); *see also Windsor Ins. Co. v. Judd,* 321 Or 379, 387, 898 P2d 761 (1995) ("[W]hat little [discussion of the amendment] there was reveals nothing that sheds light directly on the question posed in this case."); *State v. Holloway,* 138 Or App 260, 267, 908 P2d 324 (1995) ("Unfortunately, our examination of the legislative history sheds no light on the matter."); *In Def. of Animals v. Or. Health Scis. Univ.,* 199 Or App 160, 173 n 9, 112 P3d 336 (2005) ("We note that the legislative history . . . provides no assistance in determining the provision's meaning.").

[8] Hearing on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Gary Conkling, Representative of Beaverton School District).

[9] *Id.*

Finally, Mr. Tucker added that Metro intended to implement SB 1032 by amending its own code to make it easier to expand the UGB for schools "when [new schools] cannot be reasonably accommodated in the UGB, and when they must be accommodated before we would normally do an UGB expansion." Here, Mr. Tucker indicated that Metro should be authorized to quickly initiate UGB expansion for schools outside of the "typical" or "normal" legislative process of reevaluating the buildable land supply inside the UGB every [six] years.

Later, in a May 31, 2005 work session on SB 1032, Messrs. Conkling and Tucker again provided testimony in support of the bill and explained its purpose and scope. Mr. Conkling stated the bill's main purpose is to provide Metro "[with a] process that can work in between its periodic review, and provide for an accelerated process to bring these school sites inside the UGB."

After the testimony of Mr. Tucker, Senator Charlie Ringo, Chair of the Committee, asked if the bill will "facilitate Metro addressing the problem with high growth districts not finding land for schools."[10] Mr. Tucker stated his answer was yes, and that the bill would provide the basis for immediate negotiation as to what land should be included in the UGB as part of an amendment. Mr. Tucker explained that the bill would be beneficial to districts like Beaverton because "it facilitates the process for expanding the UGB for a school district that has need." Mr. Tucker stated that ideally, after revising the Metro code to implement the statute, the process to expand the UGB to include land for a school would take only four months.

The legislative history of HB 1032 indicates that one main purpose of the bill was to streamline the process for amending the UGB for the purpose of building new schools. The testimony of both Conkling and Tucker describe a pressing need for land in metropolitan areas for new school construction that cannot always be met within the typical five-year UGB cycle. Proponents of the bill clearly express intent to grant Metro authority to amend the UGB through a process that would be separate from the regular review cycle and corresponding 20-year need analysis.

Proponents of the bill used words such as "streamline" and "accelerated" in the context of a new expansion process that could occur outside and separate from the "normal" time intensive 20-year need analysis, and described a process that would be based exclusively on a demonstrated need for additional school facilities. Testimony regarding the purpose of SB 1032 indicates that the purpose of the legislation was to allow a separate and expedited process exclusively for school siting, which would not be tied to the 20-year buildable land supply analysis that is required under ORS 197.296.

As described above, it is clear from legislative history that the 2005 Oregon legislature was acutely aware of the problem of holding school districts to a six year Metro planning cycle during the enactment of SB 1032. Metro's Randy Tucker specifically stated that SB1032

[10] Work Session on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Sen. Charlie Ringo, Chair, S. Comm. on Environment & Land Use).

"facilitated" school districts obtaining a UGB amendment for school facilities.[11] According to the Merriam-Webster dictionary, the word "facilitate" means "to make (an action or process) easy or easier." It makes little sense to believe that the legislature would desire to make obtaining a Metro UGB amendment *just as, or even more difficult* for schools while simultaneously creating an "accelerated" process specifically for schools. Indeed, Metro's own Legislative Affairs Director – no stranger to tightly-crafted statutory language - was quite clear in stating that the purpose of SB 1032 was to "facilitate" (that is, make easier) the process for Metro-area schools.

In addition, the hearings officer finds that the ORS 197.299's school-specific UGB amendment process is no less thorough or exacting than an application that could have been filed in due course of the next six-year Metro planning cycle. It is true, as opponents claim, that the next Metro 20-year buildable lands analysis is not yet available, and thus cannot be taken into account during this application. The law does not require that, however, and requiring school applicants to wait until the next six-year Metro planning cycle would render the passage of ORS 197.299 pointless. The entire point of ORS 197.299 was to provide schools with an interim, accelerated, easier ("facilitated") application process, rather than waiting for the next 6 year Metro planning cycle. Statutes should not be construed such that they make other statutes completely meaningless.

As noted above, the Metro Council is required to complete a 20-year forecast and analysis of land need to maintain a 20-year supply of residential and employment land inside the UGB on a six-year cycle. However the Metro Council has directed staff to complete an urban growth report in 2018, three years after the urban growth report was adopted in 2015, with a possible growth management decision occurring in December 2018 that may or may not result in an expansion of the UGB. Delaying the proposed amendment for these specific school and park needs until that time, when these types of specific needs are not addressed in the regional analysis, is not an appropriate or an efficient way to provide these needed services and would result in the District experiencing ever-increasing overcrowding of their facilities.

Thus, in summary, review of the text and context of ORS 197.299 and ORS 197.296 in combination with the legislative history of the 2005 Amendments which created ORS 197.299(4) bring the legislative intent into clear focus. ORS 197.299(4) explicitly provides a "safety valve" of sorts for public school needs. The statute de-couples the need for schools from the derivative secondary needs analysis set forth in ORS 197.296(6). The legislature apparently understood the critical nature of schools to serve the community and felt strongly enough about that to provide a mechanism to ensure that needed schools can be built. Opponents' attempt to saddle Major Amendments with all of the trappings of a six-year legislative review of the region's UGB is contrary to both the plain text of ORS 197.299(4) and its legislative history.

Having resolved the statutory interpretation question, we turn back to the evidence of need. The District originally adopted a long-term facilities plan in January 2008 that assumed additional school capacity would be needed in ten years. This proved true, as of 2017 the high

[11] Testimony before the Senate Environment and land Use Committee, May 31, 2005, beginning at minute 1.13, available at http://records.sos.state.or.us/webdrawer/webdrawer.dll/webdrawer/rec/4193397/ Mr. Tucker's statement is found at minute 1.18, in response to a question from Senator Ginnie Burdick.

school is at 109% of capacity and the four elementary schools are at 99% capacity. A ten-year demographic study by Davis Demographics & Planning Inc., completed in May 2016, forecasted a deficit in capacity at all levels with the high school operating at 141% of capacity. In order to meet the growing need, the District determined, with the assistance of numerous committees, that a new high school would be needed. Voters approved a bond measure in 2016 to construct a new high school and make other facility improvements. The applicant adequately addressed the urgent need for the new high school by substantial evidence in the whole record in its application submittal and its subsequent submittals. (*See* application narrative ("Narrative") at 14-15, 33, Appendices G, H, and I; June 8, 2017, District letter at 1-3, Attachment i; June 13, 2017, District letter at 5.)

The applicant has met its burden of showing compliance of the two criteria found in Metro Code section 3.07.1440(A) by substantial evidence in the whole record.

Metro Code Section 3.07.1440(B)

> **3.07.1440 Major Amendments - Criteria**
> **(b) The applicant shall demonstrate that the proposed amendment to the UGB will provide for an orderly and efficient transition from rural to urban land use and complies with the criteria and factors in subsections (b), (c), (d), (e), and (f) of section 3.07.1425. The applicant shall also demonstrate that: (1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land; (2) If the amendment would add land for public school facilities, the coordination required by subsection (c)(5) of section 3.07.1120 of this chapter has been completed; and (3) If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot reasonably be created by land assembly or reclamation of a brownfield site.**

[Note: This Provision Incorporates by Reference: 3.07.1425(B), (C), (D), (E), & (F), which are Discussed Below].

MC 3.07.1425(B)(1): Demonstrated need to accommodate future urban population, consistent with a 20-year population range forecast coordinated with affected local governments;

Hearing Officer's Analysis: MC 3.07.1425(b)(1) requires that the Major Amendment application show a [d]emonstrated need to accommodate future urban population, consistent with a 20-year population forecast coordinated with affected local governments. " This criterion is taken word for word from the first need factor set forth in Statewide Planning Goal 14. In the context of periodic review, Factor 1 pertains to a determination of overall land need in order to accommodate population growth. In this case, the need is for additional school capacity to alleviate an overcrowding situation at the Sherwood high School. For this reason, the first need factor set forth at MCC 3.07.1425(B)(1) is to be considered, but it is not determinative by itself.

In *Residents of Rosemont v. Metro,* 173 Or App 321, 328, 21 P3d 1108 (2001), the Court of Appeals explained that "[w]e held in *Baker [v. Marion County,* 120 Or App 50, 852 P2d 254, *rev den*, 317 Or 485, 858 P2d 875 (1993),] that factors 1 and 2 of Goal 14 are interdependent and

that, if one of the factors is not fully satisfied, or is less determinative, that factor must still be considered and discussed in deciding if a need for expansion of a UGB has been shown under factors 1 and 2 of Goal 14."

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable need for the new Sherwood High School based on a forecast that is consistent with the adopted 20-year population range forecast which has been coordinated with affected local governments.

The District and Metro staff address this provision at: Application Narrative at pp. 15, 34, App'x H; May 4, 2017, staff report ("Staff Report") at 5; June 9, 2017, Metro memo; June 13, 2017, District letter at 1-2. In particular, the applicant attempts to meet its burden of proof with the following analysis:

> *As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.*
>
> *The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.*

Metro's 20-year population range forecast is part of the 2015 urban growth report ("UGR"). Therein, the Metro Council determined that the region could meet the expected 20-year residential and employment forecast need within the UGB and no expansion of the UGB was needed to meet housing or employment needs. The UGR did not address specific school and park land needs. As a result, the District prepared a ten-year demographic study that supports a need for additional land for a new high school in order to accommodate future urban population. The District completed this demographic study using population and demographic projections for the cities of Sherwood and Tualatin.

The parties do not focus much, if any, of their debate on whether the population and demographic projections in the District's 10-year study are "consistent" with the assumptions in the 2015 UGR. Such as comparison is complicated by the fact that the UGR takes a high-level regional look at residential and employment needs, whereas the District's 10-year demographic study is much more narrowly focused on Sherwood's population. Nonetheless, the hearings officer reviewed both the 10-year study and the UGR and finds that there is no glaring inconsistency between them. The 2105 UGR anticipates continued high levels of growth in our region. The UGR further recognizes that there is still a considerable amount of vacant and redevelopable land located in and near the City of Sherwood. This would indicate that the District needs to be prepared to accommodate a large amount of additional school children. Given that the regional 20-year forecast did not address school and park land needs, the District's ten-year demographic study, which supplements the long-term facility plan completed in 2008, demonstrates a need to accommodate future urban population by substantial evidence in the whole record. The applicant has provided information regarding a ten-year demographic study showing a need for providing specific school facilities to meet present and future populations based on established methodologies for the proposed use. The applicant also provided written and verbal testimony from experts such as architect Karina Ruiz of Dull Olson Weekes IBI Group Architects, Inc, planner Keith Jones AICP of Harper Houf Peterson Righellis Inc, and traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates. Having reviewed these materials and observed their testimony, the hearings officer finds them more credible and assigns great weight to their views.

Staff is also correct when it states that even if Metro had expanded the UGB in 2015 for a 20-year housing need, there is no guarantee that the location of the added land would have accommodated the specific need for a new high school in Sherwood. ORS 197.299(4) provides a safety valve for such a situation.

The primary opponent argues that the District could only demonstrate consistency with the 2015 UGR by submitting a new 20-year demographic study. *See* letter from Jennifer Bragar dated June 23, 2017, at p. 20. The opponent points to no specific law which expressly states such a requirement, and the hearings officer does not believe that such a requirement exists. As far as the hearings officer can determine, "consistency" in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here. *See* the updated 10-year demographic study conducted by Davis Demographics & Planning Inc. dated May, 2016. This is consistent with Goal 2, which requires the factual inventories and assumptions included in the comprehensive planning documents to form the "basis for all decisions and actions related to land use." *Rivergate Residents Ass'n v. LCDC*, 38 Or App 149,

5990 P2d 1233, *rev den*. 286 Or 521 (1979); *Hildenbrand v. City of Adair Village*, 217 Or App 623, 177 P3d 401 (2008) ("Plan policies or inventories can serve to justify subsequent and related plan amendments because comprehensive plans must be internally consistent under Goal 2.)" *See also 1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 26 P3d 151 (2001). *Compare GMK Developments v. City of Madras,* 225 Or App 1, 199 P3d 882 (2008) (Nothing in Goal 2 itself requires the sort of continuous data correction that the opponents urge us to impose in this case).

MC 3.07.1425(B)(1) requires the District to demonstrate a need to accommodate future urban population; consistent with the demographic study contained in the 2015 UGR. The District has done that, and that is all that is required. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425(B)(2): Demonstrated need for land suitable to accommodate housing, employment opportunities, livability or uses such as public facilities and services, schools, parks, open space, or any combination of the foregoing in this paragraph;

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable "need for land suitable to accommodate * * * uses such as * * * schools * * *." The applicant presents its case as follows:

> As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment

3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

The City of Sherwood and the Sherwood School District have an intergovernmental agreement to share ballfields. The City of Sherwood owns an extensive system of parks and trails. However, the City's ballfield resources are very limited with only one soccer field located at the City's Snyder Park. In the early 1990s, prior to rapid growth in the preceding 20 years, the City took measures to protect natural resources. This included the protection of floodplains and wetland areas surrounding the Cedar Creek stream corridor that flows south to north through the center of the City limits to the Tualatin National Wildlife Refuge. The City acquired much of this land and maintains these areas as natural open space, wetlands and walking paths. Since most of the areas are sensitive and passive recreation areas, they are off limits to ballfield construction. Because Sherwood has a very active sports community, the City and School District decided to share sports fields with most of these facilities being on school grounds.

In the case of the new High School site, the City owns the approximately 20-acre parcel in the southeast corner of the property. Some of this land, approximately 4 acres, will be used for the Elwert and Kruger Road realignment and roundabout, but the remaining balance will become part of the new high school campus and allow for construction of additional ballfields to be shared with both school and City sports functions.

As documented in Section III of the petition, viable high school sites are not available within the current UGB. The only viable sites, including the proposed site, have been identified within the Sherwood West Concept Planning Area (Urban Reserve Area 5B).

The subject site ("Site C") is the best alternative site considering that it has:

- No mapped sensitive areas (habitats, wetlands or waterways),
- Gently sloping topography to allow for construction of ballfields,
- Close proximity to SW Elwert Road and Highway 99W for ease of access,
- Availability of public utilities (water and sewer),

- Available downstream discharge point for stormwater, and
- Sufficient area to provide high school campus for 2,400 students and needed City/School District shared ballfields.

As shown above, the applicant has shown a compelling need for providing specific school facilities to meet present and future populations.

The City of Sherwood and the District have an intergovernmental agreement to share sports fields with most of the facilities on school grounds. The City has an extensive system of parks and trails but sport field resources are very limited with one soccer field located in a city park. Thus, the applicant has shown there is a demonstrated land need to accommodate both school and park services by substantial evidence in the whole record. That evidence may be found in the following: Applicant's Narrative at p. 12-32, 34, Appendices C, G, H, and I; June 8, 2017, District letter pp 1-3. Additionally, the applicant demonstrated that district bond financing rules require moving ahead with the application now, rather than wait until the end of 2018. *See* letter from applicant's counsel Kelly Hossaini dated June 8, 2017, page 3 (discussing the district's finances).

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (B)(3): A demonstration that any need shown under paragraphs (1) and (2) of this subsection cannot be accommodated on land already inside the UGB.

MC 3.07.1425(B)(3) requires an alternatives sites analysis showing that the needed new school cannot be accommodated within the existing UGB. This requirement stems from state law. Among other laws, Statewide Planning Goal 14 requires the applicant to consider, as part of the needs analysis, all suitable lands inside the UGB as positive alternatives, and even requires the City to consider whether zone changes could make land suitable for the project. *See Brandt v. Marion County*, 22 Or LUBA 473, 481 (1991); *Turner v. Washington County*, 8 Or LUBA 234, 258 (1982), *aff'd*, 70 Or App 575,689 P2d 1318 (1984).

The applicant's narrative discusses MC 3.07.1425(B)(3) at p. 19-21, 34-35. For example, on pages 16-17 of the narrative, the applicant states as follows:

> As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth.
>
> **Expansion of Existing High School**
>
> The existing Sherwood High School is located on approximately 37.8 acres of land at 16956 SW Meinecke Road. The existing high

school has capacity for 1,550 students and, as of the writing of this report, is well over capacity with an enrollment of 1,689. This growth is expected to continue with a needed student capacity of approximately 2,200 by the year 2025 and peaking at approximately 2,400 students. Therefore, the School District will need a long-term high school capacity for 2,400 students.

Expanding the existing high school campus to meet this need is problematic on many fronts due to existing size limitation and irregular configuration of the site boundaries. Further, the campus cannot expand beyond its current boundaries as the campus is completely surrounded by existing residential development to the north, south and west and Stella Olsen Park and the sensitive wetland areas along Cedar Creek to the east as shown in Staff Report Attachment 4(Figure 5 in petition).

With respect to the buildings themselves, the School District has made additions over the years to accommodate growth, but the buildings are now completely overtaxed. Based on capacity analysis performed by the School District's contract architect, DOWA, the existing high school campus could be renovated to accommodate only another 450 students. This would increase capacity from 1,550 to approximately 2,000 students. However, at 2,000 students, the school would only have capacity for 7 years requiring the School District to add capacity again down the road. In review of the School District's bonding capacity, the School District will not be in a financial position to make any changes in 7 years and would be saddled with overcapacity schools for the foreseeable future. Therefore expanding the existing campus would provide for a short-term fix but would not provide the long-term solution the District is looking for.

New High School Siting Criteria

With the determination that a new high school is needed, the Bond Management Team identified the following criteria for aid in locating sites for further consideration:

1. Minimum Size: 50 acres
2. Zoning: Site must be zoned or planned for residential or institutional use that allow schools
3. Location: Site must be in Sherwood or contiguous to Sherwood (The City of Sherwood and mostly western Sherwood is where 90% of the student population resides)
4. Topography: Flat to mostly flat to accommodate ballfields

5. Wetlands and Waterways: No wetlands or minimal wetlands/waterways
6. Water and Sanitary Sewer: Adequate public utilities must be available or can feasibly be extended to serve the site
7. Stormwater Drainage: Downstream drainage capacity must exist to accommodate new impervious areas
8. Transportation: Site must be located near major streets to allow ease of access for students and limited routing of school traffic and buses through existing or planned residential areas

Inside the Current UGB

Using Metro's Regional Land Information System, City's Residential Buildable Lands Map and concept planning documents, potential sites were searched within the Sherwood School District Boundary that is inside the Existing Sherwood Urban Growth Boundary and within the Wilsonville or Tualatin existing Urban Grown Boundary.

Northeast Sherwood (Commercial and Industrial Land)

Sherwood City Limits

The northwest area of the City of Sherwood is zoned commercial and industrial, zoning that does not allow for school uses. In addition, much of the commercial and industrial land is built-out or contains wetlands and sensitive areas that cannot be developed. The largest vacant developable site in this area is located at the southeast corner of SW Langer Farms Parkway and SW Century Drive and is only 22 acres, too small for a high school.

Tonquin Employment Area

In 2004, 300 acres of industrial land was added to the Sherwood urban growth boundary in east Sherwood, known as the Tonquin Employment Area. A concept planning document was completed for this area in October of 2010. None of the area has of yet been annexed into the City of Sherwood to allow for urban development. There is an 88 acre parcel that fronts SW Tualatin-Sherwood Road that has potential to accommodate a new high school (12900 SW Tualatin Sherwood Road – 2S128D000100). However, this parcel was added to the UGB for the purpose of providing industrial uses and not for school uses. In addition, this site is located at the far east end of the existing Sherwood city limits and is not close to the student population that predominately resides on the west side of Sherwood. Therefore, locating the

school here would result in an inconvenient and isolated high school campus in the midst of industrial uses. Thus, the site was rejected from further consideration.

South and West Sherwood (Residential Land)

The southern and western areas of Sherwood are mostly residential. Residential zoning allows for school uses. This is also where most of the School District's student population resides (more than 90% of the student population lives in southern and western Sherwood). South of the existing city limits and within the urban growth boundary is the 250-acre Brookman Road Addition Concept Planning Area (Brookman Planning Area). The primarily-residential Brookman Planning Area has a completed concept plan from May of 2009. However, the area has not yet been annexed into the City of Sherwood and therefore has not been developed for urban uses.

The City of Sherwood recently completed a draft Housing Needs Analysis dated June 2015 for the existing urban growth boundary. The housing needs analysis contained a 2014 residential buildable lands inventory map that identified vacant buildable residential land within the City's UGB including the Brookman Planning Area. The residential buildable lands inventory map identified some available residential land. However, the available land is fragmented and/or constrained with no large developable sites that would accommodate a high school campus of 50 acres. Further there is no opportunity to consolidate this fragmented land in a way that would meet the District's criteria for a high school site. The Sherwood Buildable lands map is shown in Staff Report Attachment 5(Figure 6 in petition).

Within the Wilsonville or Tualatin Urban Growth Boundary

There are some limited areas of the Sherwood School District that are within Wilsonville and Tualatin's urban growth boundary, including the following:

Southwest Tualatin Concept Planning Area

Adjacent and east of the Sherwood Tonquin Employment Area is the Southwest Tualatin Concept Planning Area. Similar to Tonquin, this 614-acre area was added to the urban growth boundary in 2004. The area is planned for industrial use, and is even further away from west Sherwood students than Tonquin Road. Therefore, the area was rejected from further consideration.

Basalt Creek and Coffee Creek Planning Areas

Both of these planning areas are too far from the west Sherwood student population to be seriously considered. In addition, discussions with the City of Tualatin, who is leading the planning for Basalt Creek, indicates that there are no sites large enough with the correct zoning within Basalt Creek that would accommodate a new high school. The Coffee Creek planning area is designated by Metro as Regionally Significant Industrial land. This designation does not allow for school uses under any circumstances.

In summary as noted in Section III of the petition there are no suitable sites for a new high school within the current UGB to serve the Districts target population.

As noted in the findings set forth above, the District first examined the ability to expand the current high school to meet future capacity needs. However expanding the existing high school building is problematic due to existing size limitation and the configuration of the existing school campus. The current high school building includes a series of additions designed and constructed in an attempt to incrementally accommodate growth in the student population, resulting in a crowded non-operational and functional facility. Thus additional expansions to meet long term needs are not possible. In addition, the current high school campus is surrounded by residential development on three sides with the fourth side bordering a city park and natural resource area, thereby not allowing expansion of the campus itself.

The District identified eight site location criteria to help guide their search for appropriate site locations within the Sherwood city limits as well as limited areas within Tualatin and Wilsonville that are within the District boundary. The analysis of land within the city limits offered no usable sites. The city's industrial and commercial zones don't allow school uses and the vacant and developable land within the residentially zoned portions of the city is fragmented and constrained with no large enough sites available. The industrial designated land within the UGB but not in the city (Tonquin Employment Area) does contain one site large enough to meet the need; however it was included in the UGB for industrial purposes, is adjacent to existing industrial uses including an active quarry site and is located away from the main student population base. The limited land area within Tualatin and Wilsonville also include either industrially zoned land or very limited parcel sizes that does not provide an opportunity to site a high school. In addition, these areas are even a longer distance from the main student population base in the central and western portions of the city.

No opponents take issue with the applicant's analysis.

The hearings officer believes that it is relatively obvious that there are no sites within the City limits that could meet the need, even considering rezoning as an option. While there is vacant land in the existing UGB, the applicant has shown there are no suitable sites within the

UGB to meet the identified land need. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (C)(1): If the Council determines that there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering the following factors:

(1) efficient accommodation of identified land needs;

Hearing Officer's Analysis: Once a local government establishes a "demonstrated need" to expand the urban growth boundary, it then must apply the Goal 14's four "locational factors." When Goal 14 was amended in 2005, the locational factors were amended to make clear that the analysis is to be comparative in nature, as opposed to establishing minimum thresholds. The rule now states:

> The location of the urban growth boundary and changes to the boundary shall be determined *by evaluating alternative boundary locations* consistent with ORS 197.298 and with consideration of the following factors:
>
> (1) efficient accommodation of identified land needs
> (2) orderly and economic provision of public facilities and services;
> (3) *comparative* environmental energy, economic and social consequences; and
> (4) compatibility of the proposed urban uses with nearly agricultural and forest activities accruing on farm and forest land outside the UGB. (Underline emphasis added).

Metro has taken the four state-mandated locational factors set forth in Goal 14 and expended them to nine factors. Regardless of this, the goal of the locational analysis remains the same as state law, which is to determine the "best" land to include within the UGB to meet the land need**,** based on appropriate *consideration and balancing* of each factor. *1000 Friends of Oregon v. Metro (Ryland Homes)*, 38 Or LUBA 565, 584 (2000), *rev'd in part on other grounds* 174 Or App 406, 26 P3d 151 (2001). In *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), the court stated that consideration of factors means that the local government must:

> "(a) apply and evaluate each factor, (b) weigh and balance the factors which are not independent approval criteria-as a whole, and (c) meaningfully explain why a designation as urban or rural reserves is appropriate. "

Barkers Five, 261 Or App at 300.

OAR 660-024-0060(3) also provides guidance for how one "considers" the location factors and states:

> The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all of the factors were considered and balanced.

In conducting this analysis, one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a *balancing* of all these factors, rather than reliance on any one factor. OAR 660-024-0060(3). *See also Branscomb v. LCDC*, 64 Or App 738, 745, 669 P2d 1192 (1983)(Court held that land could not be excluded from consideration *solely* because it was agricultural land and, as such, fared badly under factor 6). *D.S. Parklane*, 165 Or App at 25; *1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 409-10 (2001).

A related issue is that local governments often incorrectly treat the locational factors as threshold criteria. In fact, this misunderstanding was so pervasive that at one point LUBA even wrongly suggested that each of the locational factors had a "minimum objective threshold" that had to be identified and met by each site included in a UAR/UGB. *See D.S. Parklane Development, Inc., v. Metro*, 35 Or LUBA 516, 572-3 (1999), *aff'd as modified*, 165 Or App 1, 24, 994 P2d 1205 (2000). However, on appeal, the Court of Appeals clarified that the locational factors were not intended to be applied as threshold ("go - no go") criteria. *Id.* In other words, the intent is *not* to confirm that the preferred site was "good enough" to urbanize based on minimum threshold standards. Rather, the locational factors were intended to be "applied equally" to include lands into a UGB only "where all of the factors justify that inclusion." *Id.* In other words, the intent in establishing these factors was to assist in evaluating and ranking which site(s) amongst *all* potential candidate sites were, relative to one another, the *best* sites to urbanize in order to meet the demonstrated land need.

With that introduction in mind, we turn to a discussion of the first factor. The applicant discusses the first locational factor as follows:

> Urban reserves are lands outside the existing urban growth boundary that are considered suitable for accommodating urban development and expanding the growth boundary when additional urban land is determined to be needed over a 50-year period. The following urban reserve areas are within the Sherwood School District Boundary and are identified in Staff Report Attachment 6 (Figure 7 in petition):
>
> Sherwood North – North of Sherwood UGB
> Sherwood South – South of Sherwood UGB
> Sherwood West – West of Sherwood UGB
> Tonquin – South and West of Sherwood UGB
> Grahams Ferry – Northwest of Wilsonville

I-5 East – East of I-5 and north of Wilsonville
Elligsen Road - East of I-5 and north of Wilsonville

I-5 East, Elligsen Road and Grahams Ferry Urban Reserve Areas
These urban reserve areas were immediately rejected from further consideration due to the distance from west and south Sherwood where the majority of the student enrollment resides. These areas are 2 to 5 miles away in a straight line and even further when traveling on the road network.

Tonquin Urban Reserve Area
This area is directly south of the Sherwood Tonquin Employment UGB area and west of the Southwest Tualatin UGB area. The Tonquin Urban Reserve area encompasses approximately 571 acres. The area has parcels large enough to accommodate the high school site. However, much of the property is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II and III (Metro Title 3). This urban reserve area and it is likely to be designated industrial and/or employment due to its close proximity to other industrial areas. This urban reserve area is on the east side of the City and not centrally located for use by the majority of the School District students. The area is further isolated by a rock bluff that forms the eastern boundary of the current urban growth boundary and Sherwood City limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates this area from the existing residential neighborhoods of Sherwood. Finally, the area does not have adopted concept plan or plan for how utilities will be extended to serve the area.

Sherwood North Urban Reserve Area
This area represents slivers of land along the existing urban growth boundary at the north end of the City of Sherwood. The area was designated urban reserve because it is not within the floodplain of the Tualatin River. However, this land is not large enough to accommodate a high school site and therefore was rejected from further consideration.

Sherwood South Urban Reserve Area
This area is directly south of the Brookman Road UGB area. This area consists of rolling hills with much of the area identified by Metromap online mapping system having slopes greater than 10%. There is also two stream corridors that travel through the area with many areas mapped by Metromap as being riparian or upland habitat. One potential site is located between Oberst Road and Labrousse Road that is not mapped as having upland habitat or

riparian areas. However, this land is mapped by Metro as having slopes of greater than 10% making development of a high school campus and ballfields difficult. The biggest challenge of developing in this area is that the Brookman Road UGB area would need to be annexed and developed first before this area can be made available for development. Therefore, development in this urban reserve area is likely years away and the only promising site is at the south end of and not next to the existing Brookman Road UGB area. This area also does not have a concept plan. For these reasons, this area was rejected from further consideration.

Sherwood West Urban Reserve Area

In February 2016, Sherwood completed a Preliminary Concept Plan for the Sherwood West Planning area (aka Metro Urban Reserve Area 5B). Sherwood West encompasses 1,291 acres along the west border of Sherwood's existing urban growth boundary. The Sherwood West Planning Area is shown in Staff Report Attachment 7 (Figure 8 in petition).

Six alternative high school sites (A-F) were identified within the Sherwood West Urban Reserve Area that are large enough to accommodate a new high school. The six alternative sites (A-F) within the Sherwood West Concept Plan Area were evaluated based on site selection criteria. The site locations and evaluation criteria are indicated in Staff Report Attachment 8 (Figures 9 to 14 in petition). The School District's site alternative analysis is summarized in the table below.

(Table 1 – Alternative Sites Summary in petition)

Alternative Selection Criteria	***Alternative Sites****					
	A	***B***	***C***	***D***	***E***	***F***
Flat Topography	*N*	***U***	***Y***	*U*	*U*	*U*
Wetlands	*N*	***Y***	***Y***	*U*	*Y*	*N*
Water Service	*N*	***Y***	***Y***	*Y*	*N*	*N*
Sanitary Sewer Service	*N*	***Y***	***Y***	*N*	*N*	*Y*
Storm Drainage	*Y*	***Y***	***U***	*N*	*N*	*Y*
** Y-Meets Criteria - N-Does Not Meet Criteria – U-Undetermined*						

From the site alternatives analysis, it became clear that Sites B and C were the most promising with other sites lacking utilities, having significant wetlands, drainage issues and/or significant topography that would make construction challenging. Alternative Sites B and C are located near each other both west of SW Elwert Road at SW Haide Road, just north of Highway 99W. Site C was selected due

to having more of a gentle slope and less grade changes. Most of Site C has a consistent slope change of approximately 40 feet over the length of the site with only a small valley and ridge. Site B has a more drastic slope change of 50 to 60 feet with a more defined ridge running through the middle of the site. Site B would be far more challenging to grade and develop for a high school than Site C. The Sherwood West Concept Plan contained a phasing and funding strategy. The phasing plan identified six phases (A-F). The subject site (Site C) is located within Phase A of the concept plan.

The subject site represents an efficient location because:

- The location is next to existing western Sherwood and close to the vast majority of the District's student population (90%).
- City utilities are available to serve this site or can be extend as the site is adjacent to the city limits.
- Direct and efficient access will be available via major streets that are intended to accommodate significant motor vehicle, pedestrian and bicycle needs.
- The site will be developed on the north, south and west along existing right-of-ways and will be developed to the existing City limits and UGB. This location is a logical location to develop first within the Sherwood West Concept Plan, as it is really the first site north of 99W. Other sites in Sherwood West would result in undesirable leapfrog development.
- Utilizing the approximate 76-acre site to ultimately accommodate the large 2,400-student high school and the School District/City shared ballfields will provide greater efficiency than developing play fields independently. The district and City have a long history of partnering to maximize use of shared ball field resources.

As set forth in the District's narrative and response to MC 3.07.1440(a), there is an identified need for a major amendment of the UGB to provide for a new high school site and this need cannot wait until the next analysis of the building land supply under ORS 197.299. As allowed by MC 3.07.1425(b), the District specified characteristics necessary for land to be suitable for the identified need, *i.e.*, the new high school. *See* Applicant's Narrative at 18-19, 33-35. These characteristics included a minimum site size of 50 acres; zoning that would allow for an institutional use; within or contiguous to Sherwood, where 90% of the children served by the District reside; flat to mostly flat topography; no or minimal constraints such as streams, wetlands, intact upland habitat; adequate/feasible access to public utilities, including water, sanitary sewer, and storm sewer; and near to major (collector or arterial) streets to accommodate high school-level transportation impacts. As also required by MC 3.07.1425(b), the District has demonstrated that the need for the new high school cannot be accommodated on land already inside the UGB.

As shown above, the District undertook an analysis of seven urban reserve areas that are within the district boundary, three of which are not adjacent to the city of Sherwood. The Metro Code does not allow for the creation of an island of urban land so the analysis must be limited to those properties that are directly adjacent to the current UGB. MC 3.07.1425(f).

The Seven Urban Reserve Areas

Within the District's boundary, there are seven areas that contain urban reserves (*see* Application Narrative p. 22 of 39, showing map of all seven areas). They are:

- Sherwood North
- Sherwood South
- I-5 East
- Elligsen Road
- Tonquin
- Graham's Ferry
- Sherwood West

Each will be discussed in turn.

The Sherwood North Urban Reserve Area

The Sherwood North urban reserve area is comprised of slivers of land without flood plain constraints north of the existing city limits and south of Tualatin River. This area does not contain one or more contiguous parcels that would be large enough to meet any of the District's siting criteria for a high school site. Therefore, the hearings officer finds that the Sherwood North urban reserve area cannot accommodate the need for a new high school.

The Sherwood South Urban Reserve Area

The Sherwood South urban reserve area is adjacent to the Brookman Road UGB area. Some of the Brookman Road UGB area was recently annexed to the city, but much of it still has not been annexed. The Sherwood South area consists of rolling hills with much of the area identified by Metro Map as having slopes greater than ten percent, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 3.) There are also two stream corridors that traverse the area with many areas mapped by Metro as being riparian or upland habitat. (See Attachment 4.) There is a potential site located between Oberst Road and Labrousse Road that is not mapped as being constrained by upland habitat or riparian areas, but is mapped as having slopes greater than ten percent, which would not meet the District's siting criterion for a flat to relatively flat site. A challenge in the overall development of this area is that the Brookman Road area within the UGB must be annexed and developed first before the Sherwood South area will have the public services it needs to be able to develop. Further, Sherwood South is not even concept planned yet. As far as the hearings officer is aware, no such planning has been scheduled. As noted earlier, MC 3.07.1110 requires that urban reserve areas be concept planned before they be considered for inclusion in the UGB. As set forth in response

to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Sherwood South urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application. Therefore, the hearings officer concludes Sherwood South cannot accommodate the need for a new high school.

The I-5 East Urban Reserve Area

The I-5 East urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Elligsen Road Urban Reserve Area

Similarly, the Elligsen Road urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin, and immediately south of the I-5 East urban reserve area. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to western Sherwood would be at least five miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Tonquin Urban Reserve Area

The fifth urban reserve is the Tonquin urban reserve area. This area lies on the east side of Sherwood and is contiguous to Sherwood's city boundary. As set forth in the Narrative, this urban reserve area is directly south of the Sherwood Tonquin Employment UGB area and, according to Julia Hajduk, the City's Community Development Director, will be used to accommodate the City's future industrial and employment needs given its proximity to other industrial uses and Sherwood's employment/industrial core. Therefore it is not likely to allow for zoning for an institutional use. As noted in the staff report, another issue with building a new high school in this area is that the majority of adjacent land within the UGB is not yet developed to urban standards. Any out-of-sequence development in this area, then, would require a costly and inefficient extension of public services. Further, much of the property in this urban area is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II, and III (Metro Title 13). (See Attachment 1.) This area is further isolated by a rock bluff that forms the eastern boundary of the current UGB and city limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates the area from the existing residential neighborhoods of Sherwood, thereby making it less efficient to serve the student population

given that the bulk of that population is in the southern and western areas of the city. Significant areas of the urban reserve also have substantial slopes of ten percent and greater, along with floodplain constraints, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 2.) Further, this urban reserve area does not have a concept plan in place or a plan for how utilities might be extended to serve the area. Concept planning has not been completed for this area. MC 3.07.1110 requires that urban reserve areas be concept planned before these areas can be considered for inclusion in the UGB. As set forth in response to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Tonquin urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application.[12] Therefore, the hearings officer concludes the Tonquin urban reserve area cannot accommodate the need for a new high school.

The Grahams Ferry Urban Reserve Area

The Grahams Ferry urban reserve area is at the District's extreme southeast boundary next to Wilsonville. This urban reserve areas meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to from Graham's Ferry to western Sherwood would be at least seven miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, this urban reserve area is constrained by natural resources and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that these urban reserves cannot accommodate the new high school.

The Sherwood West Urban Reserve Area

The seventh and final urban reserve area studied was Sherwood West. The hearings officer finds this is the only urban reserve area that can efficiently accommodate a new high school consistent with the citing criteria, for these reasons: Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre Sherwood West urban reserve for places within it that could accommodate a new high school site. The applicant District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major (collector or arterial) street network. Findings addressing MC 3.07.1425(c) can be found in the Narrative and in the staff report. The applicant District included an analysis of the six areas within Sherwood West. Therefore, the hearings officer finds that, given the framework of MC 3.07.1425(b) and (c), no urban reserve except for

[12] Urban Reserve Areas are intended to provide a 50-year supply of land. Given that the City has no plans to complete a concept plan for the area, and because contiguous areas within the UGB would need to develop first to extend the needed infrastructure, it is safe to conclude that development of this area is at least several years away.

Sherwood West should advance to MC 3.07.1425(c) to determine which urban reserve can best meet the identified need, because no other urban reserve can meet that need.

The Six Sites Studied within the Sherwood West Urban Reserve Area

The District identified six sites (designates Sites A through F) within the Sherwood West urban reserve area that were large enough to accommodate a new high school campus. Each of the six is discussed in turn:

Site A – The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, public infrastructure issues or a combination of these factors. There is a small wetland in the center of this site. The western portion is mostly occupied by Chicken Creek. There is no water service available from SW Elwert Road, and water extensions would be required along Elwert frontage and east from SW Edy Road. The site is low-lying and sanitary sewer connection is not available from SW Edy Road, so a major pumping station would have to be built.

Site B - The hearings officer finds this site *could* possibly accommodate the new high school. However, it has a significant ridge running through the middle of the site, which would require extensive grading, with slopes running both east and west with a 50-60 foot grade change. Both public water and a 15" sanitary sewer pipe are available off SW Elwert Road.

Site C - This site is quite flat, with no more than a 40 foot grade change required. It has water and sewer connections off SW Elwert Road. There are no wetlands. The hearings officer finds that Sites B and C are the two areas that can most efficiently accommodate a new high school, but Site C is clearly superior because Site B has a significant topographic ridge running north-south through the middle of the site with an approximately 50-60 foot grade change. Site C has less topography to manage, which is important when one considers that ballfields, tracks, and other sports facilities needed as part of the new high school cannot be developed on slopes. Therefore, the hearings officer concludes and finds Site C can most efficiently meet the identified need of a new high school.

Site D - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards private property, with a grade change in excess of 50 feet. There is no sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity. Street improvements on Kruger Road and offsite improvements would likely be required. Sites D also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Site E - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards Highway 99, with a grade change around 75 feet. There is no

sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity.

Site F - The hearings officer finds this site cannot efficiently accommodate the new high school due to wetlands, drainage, powerlines, and lack of public water supplu. While quite flat, this site has wetlands, drainage, and a BPA power line easement running through it. While there is a nearby sewer line, there is no water line, and costly improvements would have be made to supply the school with drinking and irrigation water as well as meeting firefighting needs. Site F is further constrained by a BPA easement that cuts diagonally through what would otherwise be the flattest, least constrained part of that area and this flat area is segregated from the existing UGB by Chicken Creek and protects a riparian corridor. Site F also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Conclusion of the Alternative Sites Analysis for the Six Sites in Sherwood West

The District evaluated the alternative sites related to five selection criteria noted above and determined that four of the six sites (A, D, E & F) lacked utilities, had significant wetlands, drainage issues or topography that restricted the ability to efficiently accommodate the identified land need. In addition, site D is not adjacent to the current UGB and therefore would create an island of urban land which is not allowed under Metro Code. Areas B & C better met the selection criteria with site C being the best site due to less grading and site work to accommodate the identified land need. Based on the urban reserve areas analyzed site C in the Sherwood West urban reserve best meets the need considering efficient accommodation of the identified land need. For these reasons, the hearings officer concludes and finds that proposed Site C (on the northwest corner of SW Elwert and Kruger Roads) can most efficiently meet the identified need of a new high school.

MC 3.07.1425(c)(2): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(2) the orderly and economic provision of public facilities and services.

Hearings Officer's Analysis: This suitability factor focuses on the orderly and economic provision of public facilities and services. Because Sherwood West has been concept planned pursuant to MC 3.07.1110, the provision of public facilities and services within the Sherwood West Concept Plan area has been studied to a larger degree than other URAs. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, storm water, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. (See Sherwood West Concept Plan, pages 15-21, 40-44, Appendix 3 (Existing Conditions Report), and Appendix 8 (Transportation Options Alternative Analysis Report and Cost Estimates). The concept plan was prepared in coordination with all of the future service providers, including those services that

will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, Tualatin Valley Fire & Rescue, and Washington County. (*See* Sherwood West Concept, acknowledgements page and Appendix 6 (Service Provider Interviews). The District was also part of the Technical Advisory Committee that informed the concept planning effort. Because all of this extensive analysis and coordination work had already been done for Sherwood West, the District used that work as the jumping off point for its analysis of the area for orderly and efficient accommodation of public services.

As demonstrated in the Narrative, pages 24-31, four of the six sites (A, D, E, and F) have significant barriers to provision of public infrastructure. Sites B and C have the fewest barriers and are most feasible for public infrastructure service. This is consistent with the findings of the Sherwood West Concept Plan, which anticipates phasing public infrastructure to serve the area encompassed by Sites B and C first, i.e., Area A. (*See* Sherwood West Concept Plan, pages 40-44.) Service provider interviews conducted as part of the concept planning effort also identified Area A as the "first stage development area." (*See* Sherwood West Concept Plan, Appendix 6, page 5.) It is also worth noting that, according to the concept plan, Area A of the concept plan has most infrastructure in place, "presents the best near-term opportunity for development in Sherwood West," and the cost to serve is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address effects of a new high school on Site C on the surrounding transportation system. The Transportation Study found that, with appropriate mitigation, Site C can accommodate the new high school while maintaining an adequate transportation system. See also District's findings in response to Goals 11 and 12 with respect to the provision of public facilities and services to Site C.

As part of this UGB amendment application effort, the District obtained service provider comments from the City of Sherwood, Washington County, Tualatin Valley Fire and Rescue, and Clean Water Services, all of whom supported the siting of the new school on Site C from an infrastructure provision standpoint, consistent with the Sherwood West Concept Plan.

In sum, Sites B and C best meet the need for a new high school considering the orderly and economic provision of public services per the Sherwood West Concept Plan and the District's own analysis.

The primary opponent makes only a desultory effort to challenge the applicant's proposed findings. *See* letter from Jennifer Brager dated June 23, 2017, at p. 7. Ms. Bragar concludes, without much in the way of analysis, that "Site C is unworkable." The only evidence that the opponent cites as support for this theory is the DKS Traffic Study dated March 15, 2017, which shows that currently there are several failing intersections in the vicinity. However, failing intersections is not in any way determinative when considering the locational factors.

The proposed site has positive attributes from the transportation and traffic perspective. The site is close to the area's major north-south highway (Highway 99) and east-west arterial (the Tualatin-Sherwood Road). It has a relatively flat topography, reducing hazards in wet or snowy conditions. With the planning modifications, the site will have adequate access and

capacity for peak school commuting times (7.15 to 8 am and 2.50 to 3:45 pm). Road widths and sightlines will be sufficient for safety purposes, an important consideration for less-experienced drivers, such as high school juniors and seniors.

The traffic issue has been addressed by unrebutted evidence from the applicant's civil and traffic engineers - the *only* expert testimony in the record - and is belied by the fact that all of the public service providers for the Sherwood West area, including Washington County, the City of Sherwood, and Clean Water Services, submitted service provider letters that support the new high school on Site C, and state that such services can be provided. (*see* Appendix to the Application Narrative for copies of these letters).

At the public hearing, local residents Carolyn McBee and Karen Labahn raised issues of traffic safety at the proposed site, specifically on Kruger and Elwert Roads. They testified, convincingly, that the roads abutting the preferred alternative site are rural in nature and not capable of handling the traffic generated by the school. As the hearings officer emphasized at the hearing, the analysis is comparative in nature. A site does not have to be good; it just has to be better than the alternatives. This is true even if all of the alternatives are objectively bad. In fact, it will undoubtedly be the case that the roads in all seven of the candidate urban reserve areas are rural in nature and incapable of handling urban levels of traffic. At this stage, the analysis is high level and really only focused on identifying issues that made any one site particularly good or horrendously bad in relation to the others.

In this case, the applicant's traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates wrote the following in a June 28, 2017 memorandum:

> DKS prepared the March 15, 2017, Sherwood High School UGB Expansion Transportation Study ("March Transportation Study"). The March Transportation Study assesses the proposed UGB amendment impacts and identifies a roster of system improvements for the short-term and long-term. This study acknowledges that several local intersections are heavily congested during peak hours, and that the rural street infrastructure nearby the proposed UGB amendment site does not meet either the City's or the County's facility design standards today. What this study also tells us, however, is that with proper mitigation the proposed school site can be adequately served with transportation infrastructure. The next step in the planning process is the post-UGB amendment Title 11 planning, as required by Metro, and it is during that process that the next transportation planning steps will be taken. These planning steps include designating urban zoning and land use types within the newly added UGB area. During this stage, we will engage in additional technical studies, including a second transportation impact study, to (1) refine the specific project needs, (2) ensure that the Transportation Planning Rule is met, (3) ensure that performance standards can be maintained over time, and (4) ensure that a safe transportation network is provided for the new

> high school. Based on our transportation analyses so far, we are confident that the Sherwood School District can provide adequate state and local transportation facilities to support the proposed Site C high school.

While the residents' traffic safety concerns are well meant, and taken seriously by the hearings officer, the engineers are undoubtedly correct that the applicant's preferred alternative site can be improved with reasonable cost expenditure. The improvements discussed at the hearing were typical of what one would expect when land urbanizes, and do not involve any highly extravagant technical solutions such as bridges over wetlands / streams, or expensive highway overpasses. The hearings officer had the opportunity to evaluate these engineering experts and considers their representations highly credible. No evidence was presented pertaining to other sites that would suggest that any other site would be significantly better from a transportation standpoint, and several of the sites required more expensive improvements.

The opponents argue that the applicant gamed the system by counting traffic in the middle of winter. *See* letter from Jennifer Brager dated June 23, 2017, at p. 8. Again, this argument seems to lose focus of the intended exercise. That argument might have merit if the applicant's traffic engineers had performed their traffic counts at some locations in winter, but at other locations in summer (when traffic is lighter because school is out of session and many workers are not commuting, due to vacations). That did not happen. The applicant's traffic study clearly states:

> To perform the intersection analysis, traffic counts were collected during the AM peak (7:00 – 9:00 am) on Feb 1, 2017 and the PM peak (4:00-6:00 pm) on Jan 31, 2017. Study intersections on ODOT facilities (i.e. OR 99W) were analyzed using estimated 30th highest hour traffic volume (30 HV) conditions. The 30 HV development process for existing conditions *includes the determination of seasonal adjustments*. (DKS "Sherwood High School UGB Expansion Transportation Study" dated March 15, 2017, p. 9, italic emphasis added).

Site C is located in close proximity to existing urban arterials, which in and of itself makes it a better site as compared to alternatives such as Sites D and F, which are more isolated and remote. Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography.

The hearings officer wishes to emphasize that the public will have many additional opportunities to comment on and influence the types of transportation improvements that will be built.

MC 3.07.1425(c)(3): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(3) ***comparative environmental, energy, economic, and social consequences.***

A comparison of the six sites with respect to environmental, energy, economic, and social consequences of development is set forth below:

Environmental Consequences: There are areas within Sherwood West that have significant natural resources within them. The maps at Figure 6 of the Sherwood West Concept Plan and Appendix B of Appendix 3 of the Sherwood West Concept plan are instructive in this regard. From those maps one can see that Sites A, D, and F have significant areas of floodplains, wetlands, protected stream corridors, and inventoried wildlife habitat. In contrast, Sites B and C have little to no environmental resources on them. Further, Sites B and C are closest to the city's existing urban core, which give them the most direct transportation connections, thus limiting air quality degradation. Therefore, development of these sites with a high school would have the least negative environmental consequences of all of the alternative sites.

Energy Consequences: From an energy standpoint, all of the sites are reasonably close to the bulk of the student population to be served, but Sites E and F are more remote. This will be exacerbated as Sherwood West develops with mostly residential uses. Sites A, B, C, and D are most centrally located, which will allow more students to walk and bike to school and reduces the number of students being bused and driven to school, and allows for the least vehicle miles traveled for those who use cars and buses. Site D would require an out-of-sequence extension of public infrastructure to the more interior of the urban reserve, however, which ticks its adverse energy consequences somewhat higher than Sites A, B and C.

Economic Consequences: Public bond dollars are finite and must not be wasted. Taxpayers expect that school districts will be good stewards of the public money and building new school facilities is no exception. Being more remote from the existing urban area and public infrastructure, Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography. The effect of topography on the cost of building a high school site with its need for ball fields and other sports facilities should not be under estimated. Even small amounts of slope will have significant, expensive consequences on a school site due to the cost of grading.

Site C has another factor that weighs in its favor over Site B, which is that Site B contains a number of single-family residences that would have to be purchased and demolished to build the new high school. Purchasing houses to tear them down is not a good use of bond dollars if it can be avoided. Therefore, Site C clearly comes out ahead in this consideration.

Social Consequences: Siting the new high school in the most centrally located area possible is important to fostering a sense of civic and school pride. Although high schools can have fairly significant impacts on an area, they should be sited where the bulk of the population resides and be a use that brings people together in a place that the citizens identify as an integral part of their community. One of the alternatives that the District considered in its facilities planning to alleviate the capacity issue at the existing Sherwood High School was building a second high school. The community, however, was very much opposed to that idea. A small, cohesive community like Sherwood wants to remain bound together not divided by different allegiances to different high schools. All of the sites analyzed in Sherwood West would be superior to any sites in any other urban reserve for these reasons alone; however, within Sherwood West Sites B and C are most centrally located - both now and in the future as the city continues to grow to the south and west. Even so, development of Site B has a more immediate social consequence that Site C does not have. There are a number of residences in Site B that would have to be purchased and demolished in order to develop the new high school. Displacing residents from their homes needlessly is a very adverse social consequence and should not occur if it can be avoided, which in this case it can. Therefore, Site C comes out ahead here, too.

Conclusion: Sites B and C are the two sites that come out the most favorably when one factors in the environmental, energy, economic, and social consequences. However, Site C edges ahead of Site B due to Site B's increased adverse economic and social consequences.

MC 3.07.1425(c)(4): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(4) compatibility of proposed urban uses with nearby agricultural and forest activities occurring on land outside the UGB designated for agriculture or forestry pursuant to a statewide planning goal.

Hearings Officer's Analysis: The District identified a number of site characteristics that a new site would need to meet in order to accommodate a new high school. As discussed above, is one urban reserve area that can efficiently accommodate a new high school - Sherwood West. Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre urban reserve for areas within it that could accommodate a new high school site. The District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major street network. This analysis yielded six sites, which were then ranked according to the site criteria.

With respect to how the six sites meet the need for a new high school considering the compatibility of proposed urban uses with nearby agricultural and forest activities, it is important to note that the entire Sherwood West area is slated for eventual urban development, regardless of the current uses and zoning of land within it. It was designated as an urban reserve instead of a rural reserve partly due to its small-scale, intermittent farming and forestry activity, parcelization, and rural residential development. That said, urbanizing land that is adjacent to existing urban development is more consistent with this boundary location factor than urbanizing land further into the undeveloped portions of an area, which will likely remain in rural use much longer whether the new high school is built in the area or not. Sites A, B, and C are closest to existing urban development. Sites D, E, and F are more remote from existing urban development. Therefore, in this respect, A, B, and C will have fewer impacts on any nearby agricultural and forest activities. Site A does not appear to have any adjacent agricultural or forest activities occurring adjacent to it. The other sites have very minor to small amounts of agricultural activities occurring on adjacent land. Therefore, none of the sites would appear to have much impact on agricultural or forest activities. Given the sites' rough equivalency in this regard, Sites B and C are the least costly to serve and most readily developable according to the Sherwood West Concept Plan, so developing in those areas "now" will have fewer impacts on nearby agricultural and forest activities than jumping ahead to an area that might have otherwise remained rural for the next 20 years. This gives Sites B and C the edge in considering this factor.

MC 3.07.1425(c)(5): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(5) equitable and efficient distribution of housing and employment opportunities throughout the region.

Hearings Officer's Analysis: This factor is not directly relevant to the siting of a new high school and therefore is not determinative in any way.

MC 3.07.1425(c)(6): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(6) contribution to the purposes of Centers and Corridors.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro. According to Metro's 2040 Growth Concept Map, the proposed site is not in a Regional or Town center, nor is it directly on a Corridor. Site A is closest to a Corridor, but as staff pointed out in the staff report, it is mostly undeveloped or in single-family residential use. None of the other sites are close enough to any Centers or Corridors to contribute to them at this point in time. Therefore, none of the alternatives support the purposes of Centers and Corridors in any significant way.

MC 3.07.1425(c)(7): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(7) protection of farmland that is most important for the continuation of commercial agriculture in the region.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

As noted by staff in the staff report, Metro and Washington County completed an urban and rural reserve process that designated the most important land for commercial agriculture in the county as rural reserve and the land most suitable for urban development as urban reserve. This means that development within any urban reserve will, at least presumptively, protect farmland that is most important for the continuation of commercial agriculture in the region.

However, this factor seems to reach beyond that concern and require further differentiation of urban reserve areas, at least to the extent that any of these urban reserves are still in commercial agricultural production. Of the six sites studied in Sherwood West urban reserve area, none appear to have any significant commercial agriculture. As such, it seems their agricultural output does not form a significant component of the Sherwood area's economy.

The applicant points out that development of sites within an urban reserve that are closest to the existing UGB and to areas within the UGB that actually contain urban-level development, helps to keep agricultural and forest land further from the UGB and urban areas in unaffected operation until such time as urban development grows further in that direction.

MC 3.07.1425(c)(8): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(8) avoidance of conflict with regionally significant fish and wildlife habitat.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The Sherwood West urban reserve has some significant fish and wildlife habitat within in it, much of which is associated with Chicken Creek. According to the Sherwood West Concept Plan, Steelhead *(Oncorhynchus mykill),* a federally listed species, are known to exist within Chicken Creek. Sites located closer to Chicken Creek would therefore tend to be less suitable for this project.

All of the sites *except* for Sites B and C are constrained by a significant or moderate level of natural resources:

Site A has a wetland right in the middle, and the entire western portion of this site is mostly creek, and its drainage discharge is right into Chicken Creek (see Narrative, p. 25).

Site D has creek drainage running through the southern portion of the site. Since there is no established public storm drainage anywhere in the vicinity, so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site E is steeply sloped down to the east towards Highway 99, with a grade change around 75 feet. There are no established public storm drains in the vicinity. so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site F has creek drainage and potential wetlands running through the entire site (see Narrative, p. 30), so extensive mitigation measures could be required to avoid negatively effecting significant fish and wildlife habitat.

As shown on Figure 6 of the Sherwood West Concept Plan, the western edge of Site B abuts a tributary of Chicken Creek and includes some associated wildlife habitat. Site C has no such identified resources, and, therefore, the hearings officer concludes and finds that Site C best avoids conflicts with regionally significant fish and wildlife habitat.

MC 3.07.1425(c)(9): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(9) ***a clear transition between urban and rural lands, using natural and built features to mark the transition.***

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The boundaries of Sherwood West do not appear to have been designated according to providing a clear transition between urban and rural reserves using natural or built features. It is bisected in large part at its northern end by Chicken Creek. But Chicken Creek will not form a natural barrier between urban and rural uses, as the Sherwood West Concept Plan contemplates development on either side of the creek. So, Chicken Creek will end up being a natural area within an urban area - not a boundary between urban and rural uses. Because the boundaries of Sherwood West were not created according to natural or built features, and because all of the six sites studied within Sherwood West for a new high school are internal to Sherwood West and will eventually be in the midst of other urban area, this factor is not particularly relevant to this application. Even so, as staff notes in the staff report, there are no built or natural features that would mark even an internal transition from urban to rural lands for Sites C and E. Site B is flanked by Chicken Creek, which could form such a barrier, but, again, there will be urban development on the other side of that "barrier" one day. Site A is also flanked by Chicken Creek, but the creek and natural resources associated with that site also limit the development

potential of that site for a new high school. Further, there will be urban development on the other side of those natural barriers one day, so they will not really mark the transition that this factor contemplates. Site D has some natural resources on it that could provide a barrier of sorts, but which also reduce the buildable area, and, again, the concept plan does not contemplate these natural areas being any sort of permanent barrier between urban and rural uses. Site F has a large amount of wildlife habitat, but that habitat, too, cuts into the buildable area and will provide no such barrier as contemplated by this factor.

Hearings Officer's Analysis and Summary of the Nine MC 3.07.1425(c) Locational Factors

In summary, little weighing and balancing is needed in this case, because the applicant's preferred alternative, Site C, nearly always came out as the site that best met the intent of each individual factor. With respect to two factors, Sites B and C equally met the intent of the factor, and with respect to another factor Site B came in a fairly close second to Site C. All in all, however, Site C best met all of the factors. In sum, all of the factors were applied and evaluated, and on-balance, Site C came out ahead. Thus, whatever weighing and balancing of all of the nine locational factors with respect to the six sites that could potentially accommodate a new high school is required, the Hearings officer finds that the applicant's analysis clearly demonstrates that the proposed site, Site C, better meets the applicable locational factors than the other sites.

No discussion presented by any opponent to the contrary is convincing. In disputing the District's location factor analysis, the primary opponent pointed to individual aspects of different sites and argued why it believed those aspects made one site better than another with respect to a given, discrete aspect. The opponent's sniping is ineffective, however, because unlike the applicant, the opponent did not evaluate the sites *holistically* based on the nine enumerated factors. Stated it another, it may be the case, that some of the alternative sites fair better than the applicant's preferred alternative in some particular or another. No site is perfect, after all, and each site has its positives and its negatives. However, when viewed as a whole, on balance, the applicant's preferred alternative fairs the best over the broadest consideration of the nine factors. Therefore, the opponent failed to demonstrate that the MC 3. 07.1425(C) factors findings are deficient.

The opponent also argues that Sherwood South cannot be ruled out as a possible area for the Major Amendment even though it has not been concept planned under MC 3.07.1110, because MC 3.07.1110(6) provides that such an area can be added even if it has not yet been concept planned. *See* Brager letter dated June 23, 2017 at p.7. MC 3.07.1110(6) states:

> ***"If the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan by the date set under subsection (a), then the Metro Council may nonetheless add the area to the UGB if necessary to fulfill its responsibility under ORS 197.299 to ensure the UGB has sufficient capacity to forecasted growth."***

First, the MC 3.07.1110(6) exception is restricted to situations where "the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan." There is no evidence that any local governments responsible for a concept plan for Sherwood South are unable to reach agreement on that concept plan. In fact, there seems to be no question that the City of Sherwood will be planning for Sherwood South-it just hasn't done it yet, and has no current plans to do so. Second, the fact that no pre-UGB expansion concept planning has been done for Sherwood South is just one of many reasons the District gave for why Sherwood South ceased to be considered as a viable area for the new high school. The opponent has not pointed to an area within Sherwood South that would meet the District's siting criteria. In fact, in the opponent's June 23, 2017, letter, the opponent points to "a large block of property" south of the recent Brookman Road annexation area, but then appears to agree that it is too sloped to work as a high school site. See Letter from Jennifer Brager dated June 23, 2017, at p.6.

Metro Code section 3.07.1425(D) The Council may consider land not designated urban or rural reserve for possible addition to the UGB only if it determines that:

1. ***Land designated urban reserve cannot reasonably accommodate the need established pursuant to subsection B of this section; or***
2. ***The land is subject to a concept plan approved pursuant to section 3.07.1110 of this chapter, involves no more than 50 acres not designated urban or rural reserve and will help the concept plan area urbanize more efficiently and effectively.***

Hearing Officer's Analysis: The proposed expansion is within an urban reserve. This criterion is not relevant because the site and surrounding properties to the north, east and south are within an Urban Reserve area (no property within or next to the subject site is outside of urban reserve areas).

This criterion is not applicable.

Metro Code section 3.07.1425(E): The Council may not add land designated rural reserve to the UGB.

Hearing Officer's Analysis: The proposed expansion is not within a rural reserve. This criterion is not relevant because the subject site and surrounding properties to the north, east and south are within an Urban Reserve area.

This criterion is either not applicable or has been met.

Metro Code section 3.07.1425(F): The Council may not amend the UGB in such a way that would create an island of urban land outside the UGB or an island of rural land inside the UGB.

Hearing Officer's Analysis: The subject site and the remaining portion of the Sherwood West urban reserve are adjacent to the City of Sherwood. The transformation of this area from rural to urban represents a logical and methodical way to enlarge an urban area, which will not create an island of urban development outside of the UGB.

The proposed expansion will not create an island of urban land outside the UGB or an island of rural land inside the UGB. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.07.1440 (B)(1) The applicant shall also demonstrate that:

(1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land.

Hearing Officer's Analysis: The applicant addresses this criterion as follows:

> The proposed major amendment site is surrounded by land that is either within the City of Sherwood or the Sherwood Urban Reserve Area 5B (aka Sherwood West Preliminary Concept Plan Area) (see Attachment 6). The land in the City located north and east of SW Elwert Road is fully urbanized with single-family subdivisions and constructed houses. City land located south and east of SW Elwert Road is the location of the Sherwood Elks Lodge. The Elks Lodge site contains a large area of vacant land around the existing building and parking lot. The Elks Lodge and undeveloped surrounding land is zoned Low Density Residential (LDR).
>
> Land to the north, south and west is currently rural and within the urban reserve area (Sherwood West Concept Plan). This County land is zoned Agricultural Forest (AF) and is a patchwork of sites zoned AF-5, AF-10 and AF-20 with the subject site zoned AF-20. AF-5 has a minimum lot size of 5 acres, AF-10 of 10 acres and AF-20 has a minimum lot size of generally 80 acres. The surrounding property has been highly parcelized and consists of a patchwork of small forests/farms and rural residential properties with none more than 80 acres and many under five acres in size.
>
> The site is compatible with surrounding residential properties as the property has separation provided by existing streets on the north (Haide Road), south (Kruger Road) and west (Elwert Road) boundaries. The eastern boundary consists of mostly forestland with only one house near the site boundary near the northwest corner of the site. All school traffic will be able to access the site

from Elwert Road and will not be routed through existing or proposed residential areas or streets.

While the development of a school site will be the first urban development in the Sherwood West Concept Plan Area, the regional and local plans anticipate redevelopment of this entire area for primarily residential land. Schools typically locate within residential areas and are considered to be compatible with residential land uses when the impacts of the school on residential uses are considered within the design.

The first urban development projects to occur within rural areas typically can cause some tension between existing residents who welcome the change, and those who are content with its current rural character. So well-designed solutions to deal with compatibility issues may still feel like "encroachment" to rural residents. The development of the site will include public involvement during the design development and permit approval process, allowing ample opportunity for the neighbors to help address specific compatibility issues. In the long term, establishing the school will provide the opportunity for subsequent urban developments to be oriented and designed to optimize their physical relationship with the school. This will allow the development of future Sherwood West properties to "grow up together" compared to infilling a large public facility into an established residential neighborhood.

The subject site borders the UGB on the east along SW Elwert Road. Adjacent land uses include single family homes and the Sherwood Robin Hood Elk Lodge that also includes some vacant land that is zoned for residential use, which is expected to develop over time. Directly to the southeast across Highway 99W is the Sherwood Regional Family YMCA. To the north across SW Haide Road is mostly open land with some out-buildings and one dwelling that appears to be vacant. To the west are forested parcels with one dwelling adjacent to the NW corner of the subject parcel. To the south across SW Kruger Road is the Countryside Community Church, limited agricultural activities and four dwellings. The typical weekend use of the church complements the weekday uses of a school. The land to the south also borders Highway 99W.

The District has developed a preliminary site plan that shows the school buildings located in the center of the property with sports fields generally to the south and west and parking located to the north. The southeast corner of the site will contain the realignment of SW Elwert and SW Kruger Roads. The three adjacent roads provide some buffering for the very few adjacent homes and the NW Natural Gas Easement also buffers the southwest corner of the site. The district currently has a High School Design Committee charged with working with the design team to provide advice on a number of design elements and a couple of community input meetings will be scheduled in 2017. In addition there will be public input opportunities during the City's development review and permit approval process.

Finally the subject site is within a very large urban reserve area that has the potential to urbanize over time. As noted previously this portion of the Sherwood West urban reserve was identified as phase A in the preliminary concept plan the City completed. This allows the adjacent land to be designed and developed in a manner that enhances and embraces this important community facility. Therefore the proposed use of the site can be made compatible, through measures, with the uses of the adjacent land.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440 (B)(2) The applicant shall also demonstrate that:

If the amendment would add land for public school facilities, the coordination required by subsection C(5) of section 3.07.1120 of this chapter has been completed.

Hearing Officer's Analysis: MC 3.07.1120(C)(5) states:

> ***"Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110."***

The applicant addresses this requirement as follows:

> This requirement is satisfied as described in Section III of the application. In summary, the Sherwood School District adopted a long-term facilities plan in January of 2008. The long-term plan assumed that additional school capacity would likely be needed within 10 years of the plan's adoption. (The 2008 Long Term Facilities Plan is provided in Appendix C).
>
> In 2014 to 2016, the School District did significant planning prior to placing a bond on the November 2016 ballot that was ultimately approved by voters. This included inventorying existing school facilities, completing updated demographic information, as well as significant planning and public outreach to identify a plan for school facilities that includes the proposed new high school.

As the District points out, it experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. The District completed a long term facilities plan in 2008. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school

year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District and the city of Sherwood have an intergovernmental agreement to share sport fields with most of the facilities occurring on school grounds. Thus the coordination required by subsection C(5) of Metro Code Section 3.07.1120 has been completed.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440(B)(3) The applicant shall also demonstrate that:

If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot be reasonably be created by land assembly or reclamation of a brownfield site.

Hearing Officer's Analysis: The proposed expansion is not for industrial use. This criterion is not applicable.

Findings Addressing OAR 660- Division 24 and the Applicable Statewide Planning Goals.

OAR 660-024-0020 requires that all UGB amendments apply the Statewide Planning Goals to the amendment process. This directive applies to the whole gamut of UGB amendments, from the every-six-year Metro legislative review of its UGB to a quasi-judicial major amendment under the Metro code to provide land for a specific public need, such as a school or other public facilities. However, this does not mean that the Goals will apply equally and in the same way in each situation. It may even be that one or more of the Goals may not apply at all to a given situation.

The primary opponent asserts that the applicant failed to adequately address the Statewide Planning Goals. *See* Letter from Jennifer Bragar dated June 6, 2017. While that was correct at the time Ms. Brager wrote her letter, the applicant followed up two days later with proposed findings. The Hearings officer finds that the applicant did adequately demonstrate compliance with the applicable Statewide Planning Goals by substantial evidence in the whole record, and adopts the applicant's suggested findings, with slight modification, as set forth below. The opponent's specific objections are also addressed below.

OAR 660-024 -0020

OAR 660-024-0020 sets out which of the Statewide Planning Goals are applicable to UGB amendments. The Goals will have a somewhat limited applicability to a UGB amendment for a specific need, but the relevant Goals are addressed below.

Goal 1 - Citizen Involvement

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

Hearings Officer Analysis: This Major Amendment application does not alter Metro's citizen involvement program. Consequently, compliance with Goal 1 is established through compliance with the public involvement requirements of Metro's code. Those requirements have been followed.

Goal 2 - Land Use Planning
"To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Hearings Officer Analysis: OAR 660-024-0020(1)(a) states that the exceptions process in Goal 2 and OAR 660, Division 4 are not applicable unless a goal exception is part of the application. A goal exception is not part of the Major Amendment application and so those provisions will not be addressed. Other than goal exceptions, Goal 2 requires the establishment of a comprehensive plan, a need for coordination of government entities in planning, and the need for public hearings and an opportunity for comment and review.

1) Coordination: This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred.

2) Public Hearings/Opportunities for Comment and Review: Metro staff sent the required notice for the hearing before the hearings officer, and there has been opportunity for comment and review of the application materials. The hearing was continued, which provides additional opportunity for comment and review, and the hearings officer has stated he is likely to leave the record open after the second hearing concludes. There will also be at least one hearing before Metro Council. Further, the proposed high school will have additional approvals to obtain after the Major Amendment application has been approved, such as annexation, a zone change and a conditional use permit, all of which include a public involvement component. Therefore, there has been and will continue to be public hearings and an opportunity for comment and review.

Goal 3- Agricultural Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 4 - Forest Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 5 - Natural Resources, Scenic and Historic Areas, and Open Spaces

"To protect natural resources and conserve scenic and historic areas and open spaces."

Hearings Officer Analysis: OAR 660-024-0020(1)(c) requires states that Goal 5 and its related rules apply only in areas added to the UGB. The area to be added to the UGB is the site identified in this application. There are no Goal 5 resources on the site identified by Metro, Washington County or the City of Sherwood in the Sherwood West Concept Plan. Therefore, this goal is not applicable.

Goal 6 - Air, Water and Land Resources Quality
"To maintain and improve the quality of the air, water and land resources of the state."

Hearings Officer Analysis: As LUBA recently stated:

> "[t]he relevant Goal 6 inquiry for a decision that amends comprehensive plan and zoning map designations, without approving any particular new development, is whether there is a reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed in the future. *See Friends of the Applegate Watershed v. Josephine County*, 44 Or LUBA 786, 802 (2003), (at the post-acknowledgment plan amendment stage, a local government need only show it is reasonable to expect that applicable state and federal environmental quality standards can be met); *see also Salem Golf Club v. City of Salem*, 28 Or LUBA 561, 583 (1995) (same).

See Nicita v. City of Oregon City, ___ Or LUBA ___ (LUBA No. 2016-045, Jan 25, 2017, slip op. at 27.

The hearings officer does not see how there could not be any "reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed [as a school]." The proposed school campus poses no significant adverse air, land or water quality impacts. There are no expected significant "waste or process discharges" from the new high school campus. The high school does not "process" anything and so there are no process discharges associated with the high school. Any waste that will be produced by high school activities will be handled through the normal course of business. For example, any solid waste generated by the school will be subject to recycling and solid waste collection by the franchised garbage hauler for the area. Any waste associated with sanitary sewers or storm events will be handled as part of the public sanitary and storm water facilities. As the property develops, the District will be required to coordinate with the state Department of Environmental Quality and with Clean Water Services to ensure that air, land and water resources are not degraded. As noted in response to Goal 5, no significant Goal 5 resources have been mapped on this property by Metro, Washington County or the City. Further, the proposed new high school site is adjacent to the existing UGB and will allow for efficient multi-modal transportation of the

bulk of the student population - especially as Sherwood West builds out with primarily residential uses in the decades to come.

The primary opponents make a half-hearted attempt to challenge the applicant's Goal 6 compliance, but its argument is too vague and too unfocused to provide a basis for denial. First, the opponent state that "air quality issues should be examined for a new school to be built near Highway 99." *See* letter from opponent's counsel Jennifer Brager, at p. 2, 6. This argument appears to assume that highway 99 causes sufficient level of pollution that a school should not be located in close proximity thereof. The opponents suggest that a "buffer" and "distancing is needed. The opponent never suggests what a proper buffer would be. The Hearings officer finds this concern to be speculative, unsupported by substantial evidence in the record, and beyond the scope of Goal 6's reach. Even if the hearings officer believed this was a valid concern, the hearings officer finds the air quality benefits of locating a school away from a major arterial would be offset by the additional VMT needed to transport school children a further distance.

Goal 7- Natural Hazards

"To protect life and property from natural disasters and hazards."

Hearings Officer Analysis: Goal 7 (Areas Subject to Natural Hazards). Goal 7 requires local governments to evaluate risks to people "upon receiving notice" of new hazard information from DLCD, and based on evaluation of that risk to prohibit development in areas "where the risk to public safety cannot be mitigated." Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires.

No natural hazards have been mapped on the properties that comprise the proposed school site. (*See, e.g.,* Sherwood West Concept Plan, figures 6 and 7.) The applicant's proposed site appears to be devoid of any natural hazards: It is not in a flood plain or a coastal zone. It does not have steep slopes that would be vulnerable to landslides. It does not contain soils that are exceptionally vulnerable to being an earth quake hazard (at least any more so in comparison to the rest of the Portland Metro region generally). Therefore, this goal is inapplicable.

Goal 8- Recreational Needs

"To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Hearings Officer Analysis: As set forth in the Narrative, the District provides most of the athletic fields for the City of Sherwood. The City and the District have had a long history of partnering in the provision, use, and maintenance of these fields so that recreational opportunities are provided as efficiently as possible. The new high school campus will include a number of new fields and sports facilities on which the City and the District will continue to partner. The new fields and sports facilities will be in addition to the existing fields and sports facilities already in use as part of the existing school facilities. See page 32 of the Narrative for additional

detail. The new high school campus, then is supportive of this goal, as it will help satisfy the need for recreational facilities in the city and in the District.

Goal 9 - Economic Development

> ***"To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens."***

Hearings Officer Analysis: Goal 9 applies to areas within an urban growth boundary. OAR 660-09-0010(1). *Port of St. Helens v. Land Conservation & Development Committee*, 164 Or App 487, 495, 996 P 2d 1014 (2000). Goal 9 requires that jurisdictions provide adequate opportunities for a variety of economic activities. Goal 9 planning is limited to areas within UGBs, and local land use plans are required to comply with Goal 9 at periodic review and whenever a jurisdiction undergoes a post-acknowledgment plan amendment that changes the plan designation of more than two acres of land from industrial/employment use to a nonindustrial/non-employment use. OAR 660-009-0010(1), 0010(2), and 0010(4).)

Pursuant to OAR 660-024-0020, certain Goals, including Goal 9, are also applicable when the UGB is amended. The Major Amendment application expands the UGB to allow an existing high school to move several miles away from one site within the City of Sherwood to another site that will be annexed into the City of Sherwood for that purpose. This appears to be fairly neural from the standpoint of economic opportunities.

The opponent cites *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), and states that Goal 9 "requires a determination of the potential future land need for employment and is supposed to occur at the time the UGB is expanded, " and that "the school itself has to be analyzed as an 'other employment use' as defined under OAR 660-009-0005 because it will involve a governmental employment activity. " *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. That might be true for a UGB amendment that proposes to add employment land, but it not explain the relevance of Goal 9 to this particular UGB application, which is specific to a need for land for a new high school. In this case, the UGB amendment is targeting a specific need, *i.e.,* the relocation of an existing high school several miles away within the same city. Goal 9 is not applicable as the UGB expansion is for a specific need for a high school.

The cited passage from *Barkers Five* should be read in context. LCDC was referring to OAR 660-027-0050(2) and Metro's analysis for employment land needs occurring as part of its urban growth report. There is nothing in that passage that would make such an analysis a requirement for a major amendment application submitted under ORS 197.299(4). As stated in the findings for Goal 9, this goal is not applicable to a UGB amendment for a specific high school need. To the extent that the high school will have any Goal 9 impacts, the Hearings officer finds those impacts will be positive in terms of temporary construction jobs during development and provision of part-and-full time employment year-round.

Furthermore, if the opponent is implying that Metro must engage in a full-blown economic opportunities analysis in the context of a major amendment application for a high school, that conclusion does not follow from the opponent's stated premises or from Goal 9. The

opponent's argument is not developed well enough to allow the hearings officer to evaluate it on the merits: the opponent has not explained how this application actually impacts the requirements or scope of Goal 9.

Goal 10 - Housing

"To provide for the housing needs of citizens of the state."

Hearings Officer Analysis: The applicant states that Goal 10 is not applicable as the UGB expansion is for a specific need for a high school. The opponent states that "Goal 10 is implicated because housing opportunities will be lost as a result of this large land grab by the school district." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. While it is true that any use of land for non-residential purposes results in that land not being available for housing, that truism does not create a Goal 10 violation. As best as the hearings officer can determine, the opponent is arguing that the Preliminary Sherwood West Concept Plan shows a small school site surrounded by housing, and the applicant's current plan shows the entire site being used for a school and no housing. The opponent concludes that this change in plans 'will limit the planned housing in the Sherwood West Concept Plan Area," which, according to the opponent, "has Goal 10 implications." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2-3. It appears that the opponent is arguing that the Concept Plan locks in the density and mix of housing, and any change to the Concept Plan requires an analysis of Goal 10 compliance.

The hearings officer finds that the concept plan does not have the regulatory effect that the opponent assigns to it. The opponent cites to nothing in any local zoning code or Comprehensive Plan that gives this sort of regulatory effect to this (or any other) concept planning effort. Goal 10 would not have that type of regulatory effect until the property subject to the Concept Plan is brought into the UGB and assigned urban zoning designations. As currently situated, the land at issue is not within the UGB and so is not considered "buildable lands" under Goal 10 and Goal 14, and is not included in any buildable land inventory. Therefore, there is no buildable lands inventory to measure the Major Amendment application against and Goal 10 does not anticipate that there would be in this situation. By its terms, Goal 14 requires that jurisdictions "provide for the housing needs of citizens of the state" by inventorying "buildable lands for residential use. " Goal 10 defines buildable lands as lands in "urban and urbanizable areas that are suitable, available and necessary for residential use. " Under the definitions section of the Statewide Planning Goals, "urban land" is defined as "land inside an urban growth boundary, " and "urbanizable land" is defined as urban land, i.e., land inside a UGB, that is presently unavailable for any number of reasons. Therefore, the opponent' argument that, in the context of a Major Amendment, Goal 10 requires Metro to "demonstrate that its actions do not leave it with less than adequate residential land supplies" is wrong..

Moreover, as the applicant points out, the City's urban reserves include a 50-year land supply for the City. There is no evidence that siting a new high school in Sherwood West, in the location that the Concept plan contemplated a new school, will in any way negatively impact the ability of the City to provide for its housing needs, especially when Sherwood West is combined with Sherwood North and Sherwood South.

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The opponent also complains that the applicant is seeking to bring in 82 acres when it defined its current need as requiring only a 50-acre site. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. The hearings officer is at a loss to understand the relevance of this argument to a Goal 10 challenge. The opponent's argument is simply not developed sufficiently to allow the hearings officer to understand the nature of the complaint.

The opponent also argues that an 82-acre school site "contradicts the two school sites considered in the Preliminary Sherwood West Concept Plan. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. However, Concept Plans are not regulatory documents in the sense that they do not limit the size of planned facilities. The Concept Plan took the provision of additional school sites into account when it was developed. Although the concept plan includes two identified school sites, it is important to remember that the Concept Plan is a general plan that addresses how the area will develop generally. The Concept Plan does not specify the types of schools that the conceptual school sites reflect, e.g., elementary, middle or high school. Therefore, one should not view the blue squares denoting school sites in the Concept Plan in the literal sense of trying to determine how big the Concept Plan believed the sites will ultimately be. Such information comes from future refinement of the Concept Plan after areas are brought into the UGB.

Moreover, as the applicant points out, Goal 10 concerns itself with land already within a UGB, which the subject property is not. Therefore, Goal 10 has very limited applicability to a Major Amendment application for a new public school site. That said, the justification for the proposed expansion area of 82 acres is included in the Narrative. (Narrative at 31-32.) As set forth in the Narrative, approximately seven of the 82 acres will be needed for transportation improvements that will support the new high school. There is also a 40-foot wide gas pipeline easement that runs across the site, occupying approximately 2.2 acres but requiring protection of additional, adjacent property of approximately 20 feet on either side. This pipeline easement essentially gives the site an irregular shape, which reduces the efficiency with which it can be developed. The Narrative also discusses the shared sports fields arrangement between the City of Sherwood and the District that provides for additional ballfields. The District would also note that Figure 3 of the Narrative depicts a conceptual layout of the high school site and related transportation improvements over the entire 82-acre area. (Narrative at 7.) As one can see on that conceptual layout, the entire site will be fully utilized.

In the Appendix 6 Service Provider Interviews, the District warns that the current high school was at-capacity at the time of the interview (the appendix is dated June 15, 2015), and with the growth expected in Sherwood the high school could be expected to become over-capacity. (See Appendix 6, pages 3-4.) The District stated that expanding the existing high school and adding a new high school to the District would both be explored. The relevant information to be gleaned from the Concept Plan is that the majority of Sherwood West is intended to be developed with varying densities of housing and that the Concept Plan integrated the need for at least two additional school sites, with an understanding that the existing Sherwood High School would soon be over-capacity.

In its June 23, 2017 letter, the opponent argues that Metro "must demonstrate that its actions do not leave it with less than adequate residential land supplies in the types, locations,

and affordability ranges affected." *See* letter from Jennifer Bragar dated June 23, 2017, at p.2. As support for this requirement, the opponent relies on *Burk v. Umatilla County*, 20 Or LUBA 54 (1990). In *Burk*, the Port of Umatilla filed an application with the City of Umatilla to amend the city's comprehensive plan map for a 42-acre area within the city's urban growth boundary, but outside the city limits, from single-family residential to industrial. The city's buildable land inventory for housing included the 42 acres, because that acreage was within its UGB. Even with the 42 acres included in the buildable lands inventory, the city was deficient in land available for single-family housing. The city approved the map amendment even though it increased that deficiency, which earned the city a remand by LUBA.

The facts of *Burk* are different than those presented by this Major Amendment application. The land in question in *Burk* was inside a UGB and was already planned for zoned and residential uses. That is a key factual difference from the present case, because the land in this case is planned for agriculture and forestry. The land proposed to be added to the UGB is not "buildable land," and is not in any current inventory. For this reason, the Goal 10 analysis required in *Burk* is not applicable here.

Goal 11 - Public Facilities and Services

> ***"To Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."***

Hearings Officer Analysis: As set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services with respect to that urban reserve. The concept plan was prepared with analyses of existing sanitary sewer, water, and storm water conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services. The concept plan discusses the provision of public facilities and services to the area at pages 16-18 and 40-44, as well as in Appendix 3 (Existing Conditions Report) and Appendix 6 (Service Provider Interviews). According to the Concept Plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District used this work as a jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative, pages 24-31 and Application Appendix A (New High School Preliminary Site and Utility Exhibit) and Appendix B (Service Provider Letters). All of the foregoing information addresses the orderly and efficient arrangement of sanitary sewer, water, and storm drainage facilities to serve the new school property, as well as the larger Sherwood West area and all of the evidence consistently points to the chosen property as a property that can served in a timely, orderly, and efficient manner.

The opponents argue that Goal 11 is not met, because the local sewer and water agency (Clean Water Services) has a concern about the installation of a temporary pump station. *See* letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents offer no testimony, expert

opinion, or evidence that would call into question the conclusions reached by the applicant's engineers, KPFF. Goal 11 does not require that every technical engineering solution be worked out at the time of UGB amendment. The KPFF engineers seem to believe that an engineering solution is not only possible, but likely, which is all that is required at this stage. See KPFF memo dated June 13, 2017. This Hearings officer has evaluated the opinion of the KPFF engineers, and finds them more credible.

The opponents further argue that "fire flow tests have not been completed." *See* Letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents do not explain why fire flow tests are mandated by Goal 11 in the context of a UGB amendment, nor is it obvious why they would be. The KPFF engineers seem to be satisfied that the fire flow issue can be adequately handled, and this hearings officer finds them more credible.

Goal 12 - Transportation

"To provide and encourage a safe, convenient and economic transportation system."

Hearings Officer Analysis: Early LUBA cases suggested that a local government could not "pass the buck" by deferring compliance with Goal 12 and the TPR until the time of site plan review.[13] However, more recent case law clarifies that conditions of approval can be used to limit new development until such time as the TPR is addressed. For example, in *Citizens for Protection of Neighborhoods v. City of Salem*, 47 Or LUBA 111 (2004) (*Citizens*), the City of Salem approved a zone change to allow mixed residential and commercial use of a 275-acre property. That approval included a condition that prohibited development of the property until later adoption of a master plan for the property. The City of Salem's code criteria applicable during the master plan process included requirements that were substantially identical to the requirements of the TPR. Based on the condition requiring master plan approval, the city found that the zone change did not significantly affect the transportation facility because no development could occur until the subsequent master plan phase. *Id*. at 115, 116. LUBA held that the city could properly conclude that the rezoning of the property did not significantly affect any transportation facility because the condition essentially prohibited development on the property without first showing that any allowed development is consistent with the function, capacity and performance standards of affected transportation facilities. *Id*. at 120.

In *ODOT v. City of Klamath Falls (Southview Dev'l, LLC)*, 39 Or LUBA 641, 660, *aff'd* 177 Or App 1, 34 P2d 667 (2001), LUBA affirmed that portion of a county decision which approved a zone change with a condition that prevented additional development from impacting a transportation facility until such a time in the future when the TPR is addressed. LUBA found that this condition was sufficient to ensure compliance with the TPR in the interim.

Finally, in *Willamette Oaks, LLC v. City of Eugene,* 59 Or. LUBA 60 (2009), the city approved a zone change, and imposed a condition of approval prohibiting development of the property without approval of a planned unit development (PUD) application and a showing of

[13] *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994), *aff'd*, 130 Or App 406 882 P2d 1130 (1994); *Concerned Citizens of the Upper Rogue v. Jackson County*, 33 Or LUBA 70 (1997).

consistency with the TPR as part of the PUD application and review. LUBA approved this approach, stating as follows:

> In sum, with one caveat discussed below,[14] we think it is permissible for the city to defer consideration of compliance with the TPR to a subsequent review process at the time actual development is proposed, provided that the zone change or plan amendment is effectively conditioned to prohibit traffic or other impacts inconsistent with the TPR's requirements unless and until those requirements are fully addressed. Applicant offers no reason in the present case why deferring the application of the provisions of the TPR to a later PUD application process is insufficient to ensure that allowed uses of the subject property are consistent with

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[14] LUBA stated in a footnote that the PAPA procedural requirements would still need to be satisfied as part of the deferred process:

> The caveat mentioned above is that unless the local government takes steps to ensure otherwise, the subsequent review process may not require a comprehensive plan or land use regulation amendment and therefore will not trigger [**12] the notice obligations of a post-acknowledgement action under ORS 197.610 *et seq*. Under those statutes, a local government that amends its comprehensive plan or land use regulations, including zone changes, must provide to the Department of Land Conservation and Development (DLCD) timely notice of the hearing on the proposed amendments as well the decision adopting the amendments. DLCD, in turn, provides notice of the proposed amendments and any subsequent adoption to persons or agencies who request such notice. OAR 660-018-0025. The requirement to provide notice of post-acknowledgment plan amendments to DLCD and other parties is a critical component of a statutory and rule-based scheme that is designed to ensure that post-acknowledgment plan and land use amendments comply with the applicable statewide planning goals and rules, including the TPR. *See Oregon City Leasing, Inc. v. Columbia County, 121 Or App 173, 177, 854 P2d 495 (1993)* (failure to provide DLCD the notice required under ORS 197.610 *et seq*. is a substantive, not procedural error). The efficacy of that scheme is undermined if a local government defers consideration [**13] of compliance with the TPR to a subsequent review process that does not provide equivalent notice to that required by ORS 197.610 *et seq*. Without such notice, it is possible that DLCD and parties who may rely on DLCD's re-notice, potentially including ODOT, may not learn of the review proceeding or have an opportunity to participate in that proceeding.

> the function, capacity and performance standards of the affected transportation facilities. *ODOT v. City of Klamath Falls,* 39 Or LUBA at 660.

Under OAR 660-024-0020(1)(d), the Transportation Planning Rule ("TPR") need not be applied to a UGB amendment if the land will remain zoned as urbanizable. That will be the case with the properties subject to the proposed UGB amendment. The current AF-20 zoning will remain until the is annexed into the City of Sherwood. During the forthcoming Metro Title 11 concept planning process for the properties, the City will determine the appropriate zone and this will include a TPR analysis. The zoning will not actually be changed, however, until after annexation.

With respect to Goal 12 generally, as set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services, including transportation, with respect to that urban reserve. The concept plan analyzed the existing transportation system and how that system will need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future transportation service providers, including Washington County and ODOT. The concept plan discusses the transportation system within the plan area at 18-21, 40-44, as well as in Appendix 3 (Existing Conditions Report), Appendix 6 (Service Provider Interviews), and Appendix 8 (Transportation Options Alternative Analysis Report). The District used this work as the jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative at pages 10-11, and Appendix B (Service Provider Letters). The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address the provision of a safe, convenient, and economic transportation system for the new high school site. (The Transportation Study has been submitted to the record.) The Sherwood West Concept Plan takes a higher-level look at the transportation needs of the Sherwood West area in general, including the need for new streets and intersection improvements. The Narrative provides general information about how the school site will be served and the Transportation Study provides more detail than is commonly found at the UGB expansion stage, but finds that, with some mitigation improvements, a new high school on the proposed site can be served by the appropriate transportation system. The Transportation Study will become more relevant at the Title 11 concept planning and annexation stages of the high school site development. Because the new high school is very near to an existing, urban-level street system, and because Washington County and the City will be constructing a new intersection improvement adjacent to the new high school, the provision of transportation services to the new school will be more economical. According to the concept plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) In sum, all of the cited evidence supports a finding that it is possible to safely, conveniently, and economically provide for the transportation needs of the new high school.

For this reason, the applicant proposes a condition of approval to the UGB amendment that prohibits any new development on the subject property until a Comprehensive Plan Map and Zoning Map Amendment are completed, and that the TPR will be addressed at that time.

Several opponents expressed concerns about the adequacy of the surrounding transportation system to support the proposed high school. It is tempting to jump ahead to the specific traffic impacts of a proposed use even at this early stage of the land use process. It is important to keep in mind, however, that the Major Amendment application is just the first application in a series of land use proceedings that must occur prior to the high school actually being approved on the property. With respect to the Major Amendment application, Goal 12, OAR 660-024-0060(8), and MC 3. 07. l425(c)(2) are applicable and implicate transportation facilities. The District has submitted findings with supporting substantial evidence to address all of those provisions. The District also submitted additional evidence from its traffic engineer to address particular issues raised with respect to the March 15, 2017, Sherwood High School UGB Expansion Transportation Study. (See June 28, 2017, DKS memorandum.)

No one besides the District provided any evidence or testimony from a traffic engineer regarding any aspect of the Major Amendment application. Opponents correctly point out that there are existing transportation deficiencies in the area that surrounds the proposed high school site. Those opponents also correctly point out that if those deficiencies are not addressed then the new high school will exacerbate them. All of that is true, but it would be expected to be true regardless of where the new high school is sited, *i.e.,* nearly every area in and around Sherwood has existing transportation deficiencies and siting a new high school in any of those areas would impact the transportation system. Where the opponent's logic fails is in the apparent assumption that the transportation impacts of the new high school will not be addressed as part of the planning and permitting processes that are required prior to the new school opening its doors in 2020. That assumption is incorrect.

The laws and regulations that govern the permitting of the new high school simply do not allow the new school to be plopped down anywhere without transportation impacts being analyzed and mitigated in accordance with the law. The specifics of that analysis and mitigation for the chosen site are largely irrelevant at the UGB amendment stage. Instead, those specific transportation impacts will be addressed through subsequent Title ll planning for the UGB amendment area, and through annexation, zone change, and conditional use permit processes. Through these processes, the Transportation Planning Rule will be addressed, appropriate off-site mitigation within an appropriate timeframe will be required, and appropriate frontage improvements for all of the abutting streets will be conditioned. Public involvement is included in each of those steps as part of each of the planning and permitting processes. (See June 28, 2017, DKS & Associates memorandum.)

Goal 13 - Energy Conservation
"To conserve energy."

Hearings Officer Analysis: LUBA and the Courts have never given any regulatory affect to this Goal. The Hearings officer views this goal as being essentially meaningless. The general practice has been for applicants and staff to write some flowery prose that extorts the energy

saving virtues of the project. In this vein, the applicant states:

> As explained under the District's response to MC 3.07.1425(c)(3), which is the analog of Goal 14, Location Factor 3 (ESEE energy consequences), the proposed school site's adjacency to the existing UGB, served by major streets, facilitates multi-modal access for students, teachers, families, and administrative staff to and from the school campus. This will multi-modal facilitation will only increase as Sherwood West builds out into a predominantly residential area with nodes of neighborhood commercial.

Without some baseline standard to measure against, it is difficult to evaluate whether any given proposal will "conserve energy" or not. But at least it sounds good.

For its part, the opponent's arguments do not shed much light on the issue. They merely state that an "energy analysis" must be provided. *See* Letter from Jennifer Brager dated June 6, 2017, at p. 3. The opponents do not explain exactly what an "energy analysis" entails, nor it is particularly apparent on its face. Given that no focused argument concerning Goal 13 was raised by any party, the hearings officer finds that the applicant's proposed findings comply with Goal 13 – whatever it means.

Goal 14 - Urbanization

> ***"To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."***

Hearings Officer Analysis: Goal 14 is addressed throughout this submittal.

Goals 15 through 19

Hearings Officer Analysis: These goals are not applicable, as the proposed UGB expansion does not include Willamette River Greenway, Estuarine Resources, Coastal Shorelands, Beaches and Dunes or Ocean Resources.

OAR 660-024-0040 - 0050

OAR 660-024-0050 directs local governments to inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. The District's Major Amendment application does not directly implicate these rule provisions, because the need for the new high school site did not arise out of an OAR 660-024-0040 overall land needs analysis and subsequent OAR 660-024-0050 buildable lands analysis. A specific need for a new high school site arose out of long-term facilities planning engaged in by the District. However, once the need for the new high school was identified, the District analyzed land that was within both the District boundaries and the Sherwood, Wilsonville, and Tualatin UGBs for land that could accommodate the need for the

new high school based on its suitability criteria. (See Narrative at pages 8-21.) There was no suitable land within those areas. The analysis required by OAR 660-024-0050 tracks closely in some respects with the analysis required by MC 3.07.1425(a), which was addressed by the District in its application. The caveat, however, is that identified specific land need, such as land for a new school, is not the same as a generalized need for more residential land or employment land. Given the specific need for a new school site, MC 3.07.1440(a) allows a UGB expansion tailored to just that need under certain circumstances.

OAR 660-024-0060 - Metro Boundary Local Alternatives Analysis

OAR 660-024-0060 sets forth the provisions that apply when a need within the Metro UGB has been specified and there is no land within the UGB that can accommodate that need. The provisions in OAR 660-024-0060 track closely with the provisions contained in MC 3.07.1425(c), which have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

OAR 660-024-0060:

(1) When considering a Metro UGB amendment, Metro must determine which land to add by evaluating alternative urban growth boundary locations. For Metro, this determination must be consistent with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, Metro must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

Hearings Officer Analysis: The highest priority of land available is land designated urban reserve. (ORS 197.298(1)(a).) The District's application included an analysis of urban reserve land.

(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, Metro must apply the location factors of Goal 14 to choose which land in that priority to include in the Metro UGB.

Hearings Officer Analysis: As set forth in the District's Major Amendment application, there is suitable land within an existing urban reserve to satisfy the need deficiency, i.e., the new high school. Accordingly, the location factors of Goal 14 were applied to that land. Those location factors are the first four location factors found in MC 3.07.1425(c)(1)-(9) and have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, Metro must determine which land in the next priority is suitable to

accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(d) Notwithstanding subsection (a) to (c) of this section, Metro may consider land of lower priority as specified in ORS 197.298(3).

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(e) For purposes of this section, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(2) Notwithstanding OAR 660-024-0050(4) and subsection (1)(c) of this rule, except during a legislative review of the Metro UGB, Metro may approve an application under ORS 197.610 to 197.625 for a Metro UGB amendment proposing to add an amount of land less than necessary to satisfy the land need deficiency determined under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

Hearings Officer Analysis: This provision is not applicable.

(3) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all the factors were considered and balanced.

Hearings Officer Analysis: This provision is consistent with how Metro interprets its analogous boundary location factors in MC 3.07.1425(c), which were applied to the District's Major Amendment application.

(4) In determining alternative land for evaluation under ORS 197.298, "land adjacent to the UGB" is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.

Hearings Officer Analysis: The District's analysis took into account all of the land in the urban reserves that otherwise met the District's siting criteria. Some of the land analyzed did not abut the UGB, but was rejected for other reasons.

(5) If Metro has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, Metro may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(6) The adopted findings for a Metro UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.

Hearings Officer Analysis: The District mapped all of the alternative areas evaluated in the boundary location alternatives analysis and evaluated them separately.

(7) For purposes of Goal 14 Boundary Location Factor 2, "public facilities and services" means water, sanitary sewer, storm water management, and transportation facilities.

Hearings Officer Analysis: The District took into account the public facilities and services enumerated in this provision when it evaluated MC 3.07.1425(c)(2), which is the analog to Goal 14 Boundary Location Factor 2.

(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative Metro UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation (ODOT) with regard to impacts on the state transportation system. "Coordination" includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include:

(a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the Metro UGB;

(b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the Metro UGB; and

(c) The need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.

Hearings Officer Analysis: As set forth in the responses to Goals 11 and 12, Sherwood West has been concept planned pursuant to MC 3.07.1110, and so the provision of public

facilities and services within the Sherwood West concept plan area and as those services relate to the rest of the city have been studied extensively, as required by MC 3.07.1110. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, stormwater, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West without adversely impacting the existing city development. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, and Washington County.[15]

Additional Issues Raised by Opponents

1. **Metro Staff Provided Proper Notice to DLCD.**

Opponents allege that Metro failed to provide notice to DLCD of a proposed plan map amendment under ORS 197.610. *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 8. This is not correct. Metro submitted the requisite notice to DLCD on April 20, 2017, as evidenced on the weekly DLCD notice summary dated April 21, 2017, which is attached to the June 30, 2017 letter from Metro counsel Roger Alfred.

2. **The Fair Housing Act Is Inapplicable.**

The opponent argues that Metro must apply the Fair Housing Act ("FHA") to the Major Amendment application, because "Metro has a duty to affirmatively further fair housing." *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 3-5.

The opponent does not point to any approval criterion that requires Metro to apply the FHA directly to this application, and did not include any convincing argument as to why a UGB expansion to accommodate a new public high school would require the FHA to be addressed. As best as the hearings officer can ascertain, the opponent's core argument is that the FHA is a *de-facto* approval standard for every Comprehensive Plan Amendment and zone change decision. In this regard, Ms. Brager states that "Metro has a duty to affirmatively further fair housing" and that "Metro needs to address fair housing implications in this Major Amendment application through analysis under Goal 10 and under Metro's locational factors, Metro Code 3.07.1425(c)(5) regarding equitable and efficient distribution of housing." The argument is not well-developed; the opponent seems to be arguing that the FHA must be complied with, but that compliance with Goal 10 and the Metro Code establishes compliance with the FHA.

Beyond that, the opponent complains that Sherwood does not have enough subsidized housing, which "does not properly address the housing issues in Washington County for low-income households, especially protected classes." That statement is followed up with the conclusion that the "failure to analyze the school siting in context of the regional need for fair housing only exacerbates the inequitable distribution of affordable housing in the Metro region."

[15] This coordination effort included service provider interviews included as Appendix 6 of the Sherwood West Concept Plan. Appendix 8 provides more detail regarding the provision of transportation infrastructure to the Sherwood West Concept Plan area.

Letter from Jennifer Bragar dated June 23, 2017, at p. 5. Again, the hearings officer is at a loss to understand the opponent's argument, especially since the opponent does not tie their ultimate policy concern back to any specific language in the FHA or any other law for that matter. This argument is simply not developed sufficiently to allow for its review and evaluation. If the argument is that every school siting project has an inclusionary zoning requirement for additional low-income / subsidized housing, that argument is rejected.

SECTION IV: HEARINGS OFFICER'S SUMMARY, RECOMMENDATION, AND PROPOSED CONDITIONS OF APPROVAL.

The applicant seeks to amend the UGB to include approximately 82 acres for a high school with sports fields and the realignment of SW Elwert and SW Kruger Roads. The Applicant has provided sufficient evidence to demonstrate that the criteria are satisfied and the locational factors have been addressed. As detailed herein, the applicant has demonstrated that the high school is currently over capacity and by 2025 will be severely over capacity. Delaying the decision to await a legislative amendment of the UGB by the Metro Council which may or may not occur in the 2018 timeframe only exacerbates the capacity issues which impacts the District's ability to meet the goals of its strategic plan. The applicant provided adequate comparison of the proposed UGB expansion area with other possible expansion areas in seven different urban reserve areas and a determination that the need cannot be met on land currently within the urban growth boundary. In addition the applicant has shown the proposed use can be made compatible with adjacent uses through site design and the city's development design review process provides for public involvement. Additionally the adjacent land is within an urban reserve and is expected to urbanize over time, allowing for the development of a cohesive neighborhood and school/park facility.

Therefore, the hearings officer forwards a recommendation to the Metro Council for ***approval*** of this petition, with the following two conditions of approval:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application are required for this Major Amendment.

2. The applicant must comply with the Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

Respectfully submitted this 21st day of July, 2017.

ANDREW H. STAMP, P.C.

Andrew H. Stamp

Andrew H. Stamp

AHS:ahs

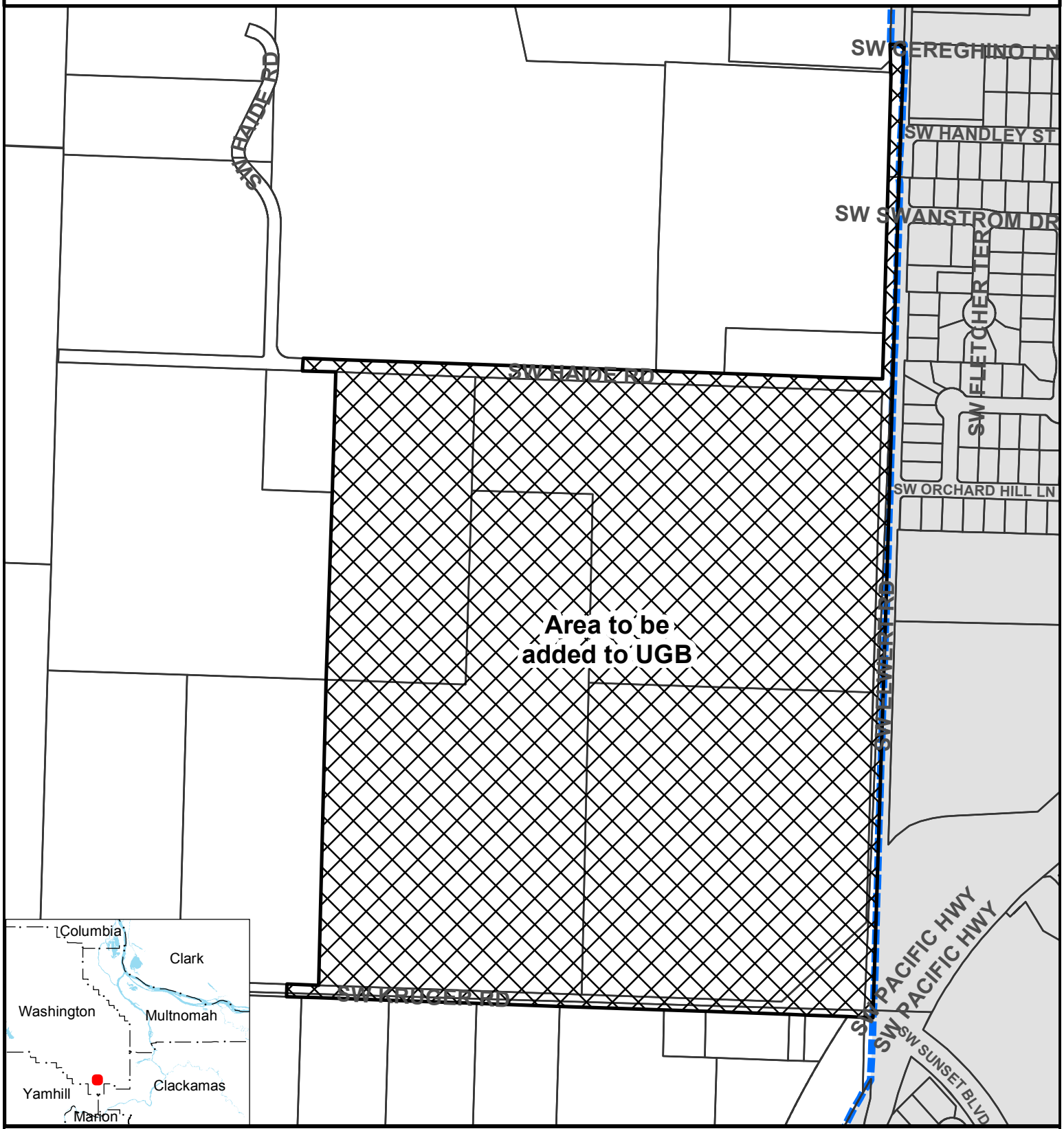
ATTACHMENTS

Attachment 1: Subject Property Map
Attachment 2: Current Enrollment and School Building Capacities, Table 1 of petition
Attachment 3: Projected Enrollment, Table 2 of petition
Attachment 4: Existing High School Campus, Figure 5of petition
Attachment 5: 2014 Sherwood Residential Buildable Lands Inventory Map, Figure 6 of petition
Attachment 6: Urban Reserve Areas within Sherwood School District Boundary, Figure 7 of petition
Attachment 7: Sherwood West Planning Area, Figure 8 of petition
Attachment 8: Sherwood West Alternative High School Sites, Figures 9-14 of petition

ATTACHMENT 1

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

Document Path: R:\boundary\annexations\Maps\ZacMaps2017\UGB_17_02\UGB_17_02.mxd
Date: 3/22/2017

Attachment 2

Current Enrollment and Main School Building Capacities

Existing Conditions	Enrollment March 1, 2017	January 2016 Main Building Capacity (without portables) (DOWA Architects)	% Capacity
Elementary School			
Archer Glen	548	500	110%
Edy Ridge	572	575	99%
Hopkins	529	625	85%
Middleton	599	575	104%
Subtotal	2248	*2275*	*99%*
Middle School			
Laurel Ridge	478	620	77%
Sherwood Middle	712	940	76%
Subtotal	1190	*1560*	*76%*
High School			
Sherwood High School	1689	1550	109%

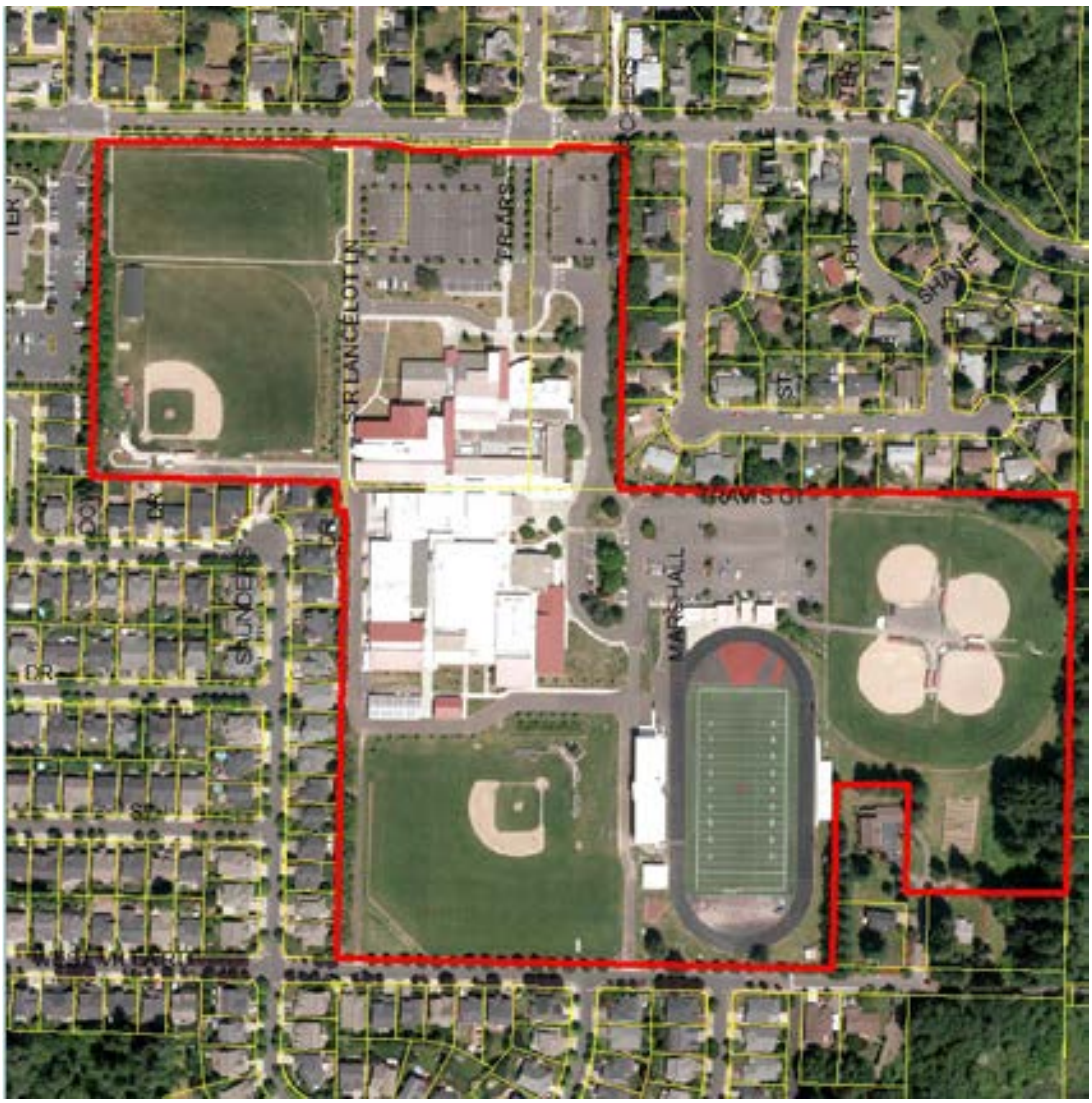
Attachment 3

Projected Enrollment (No Build)

Future Capacity (No-Build)	10-year Projection - Year 2025 (Davis Demographics)	January 2016 Main Building Capacity (without portables) (DOWA)	% Capacity
Elementary School			
Archer Glen	704.8	500	141%
Edy Ridge	505.8	575	88%
Hopkins	750.2	525	143%
Middleton	633.2	575	110%
Subtotal	2594.0	*2175*	*119%*
Middle School			
Laurel Ridge	554.1	620	89%
Sherwood Middle	1069.9	865	124%
Subtotal	*1624.0*	*1485*	*109%*
High School			
Sherwood High School	2181.9	1550	141%

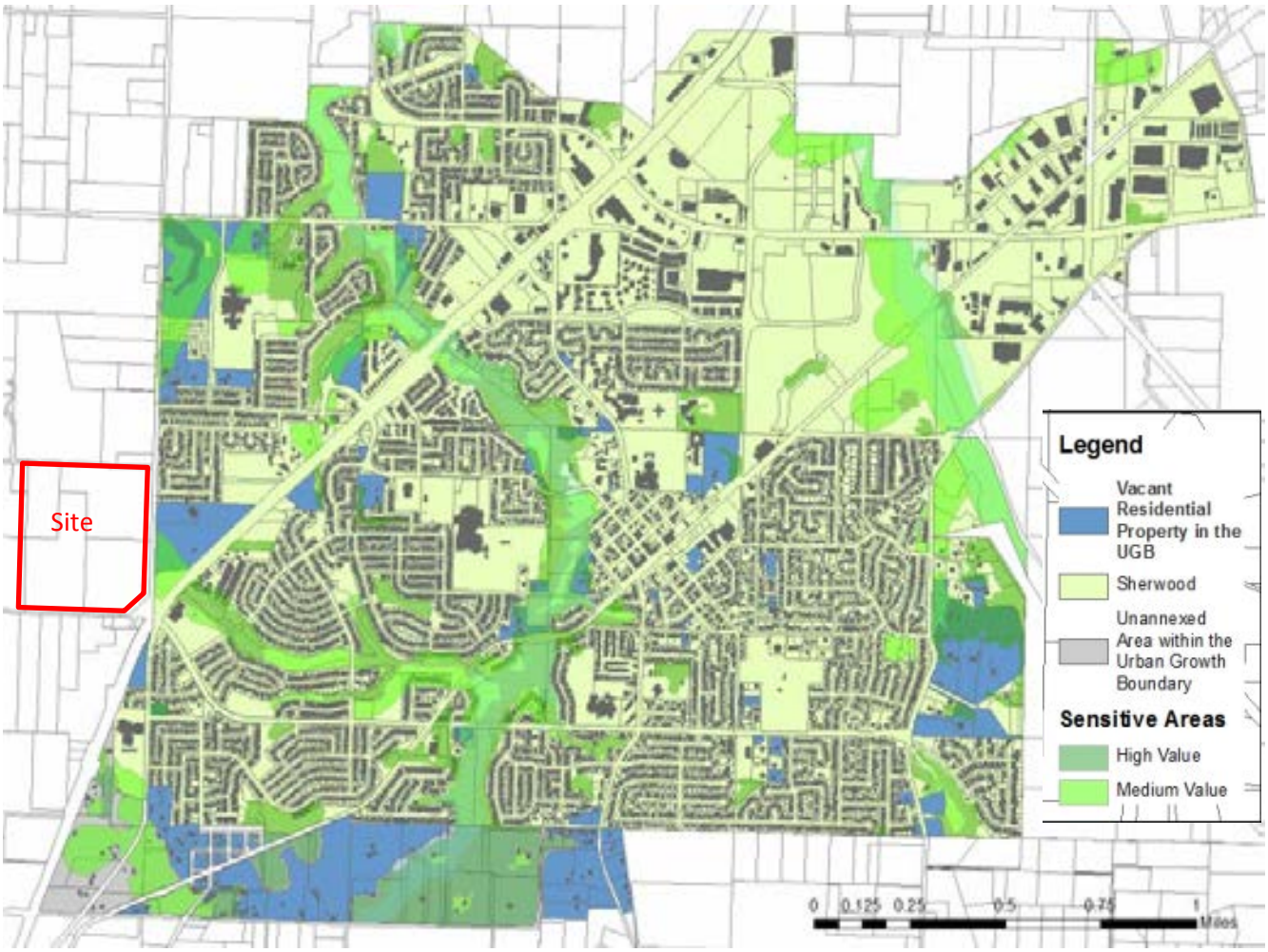
Attachment 4

Existing High School Campus



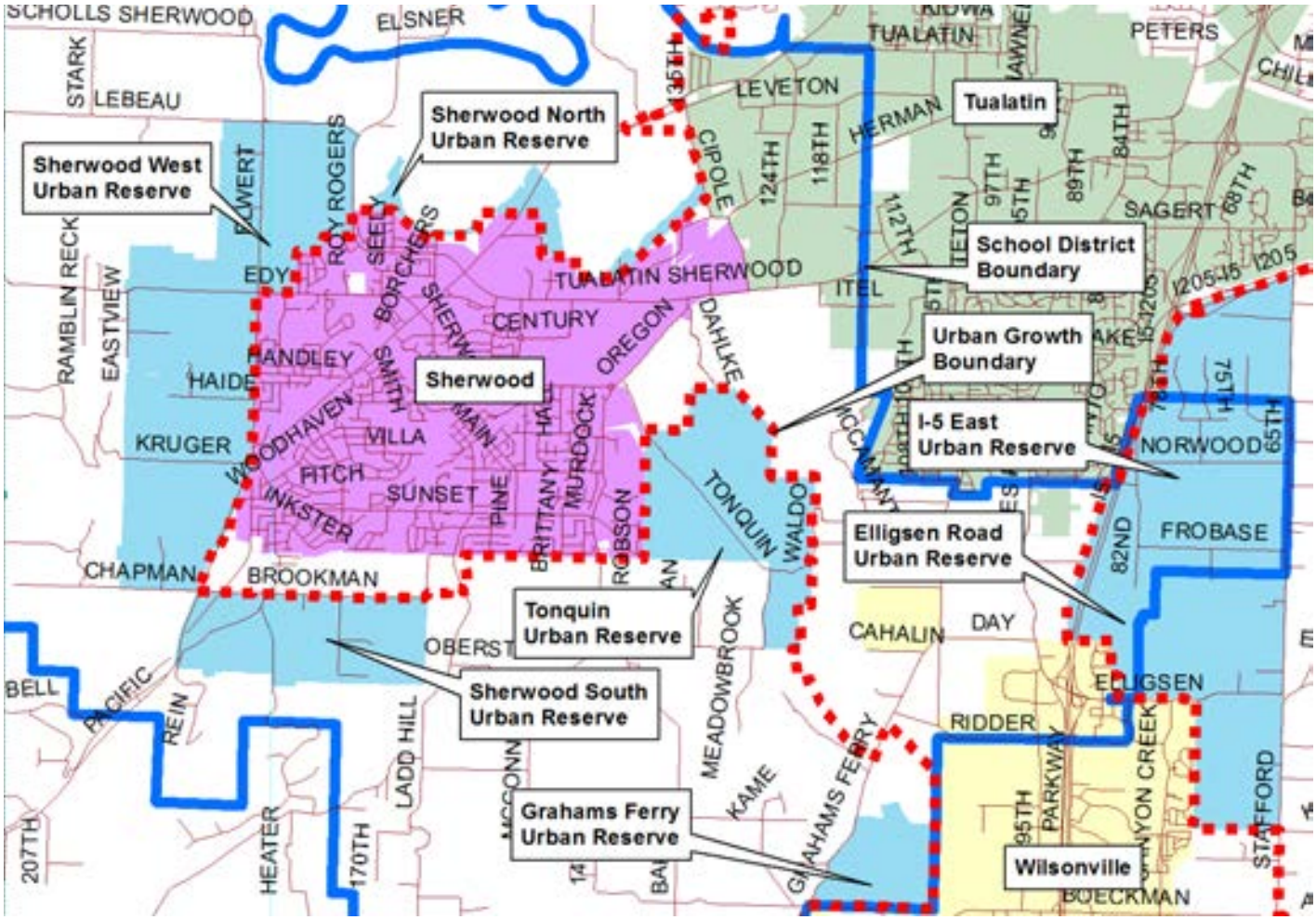
Attachment 5

2014 Sherwood Residential Buildable Lands Inventory Map



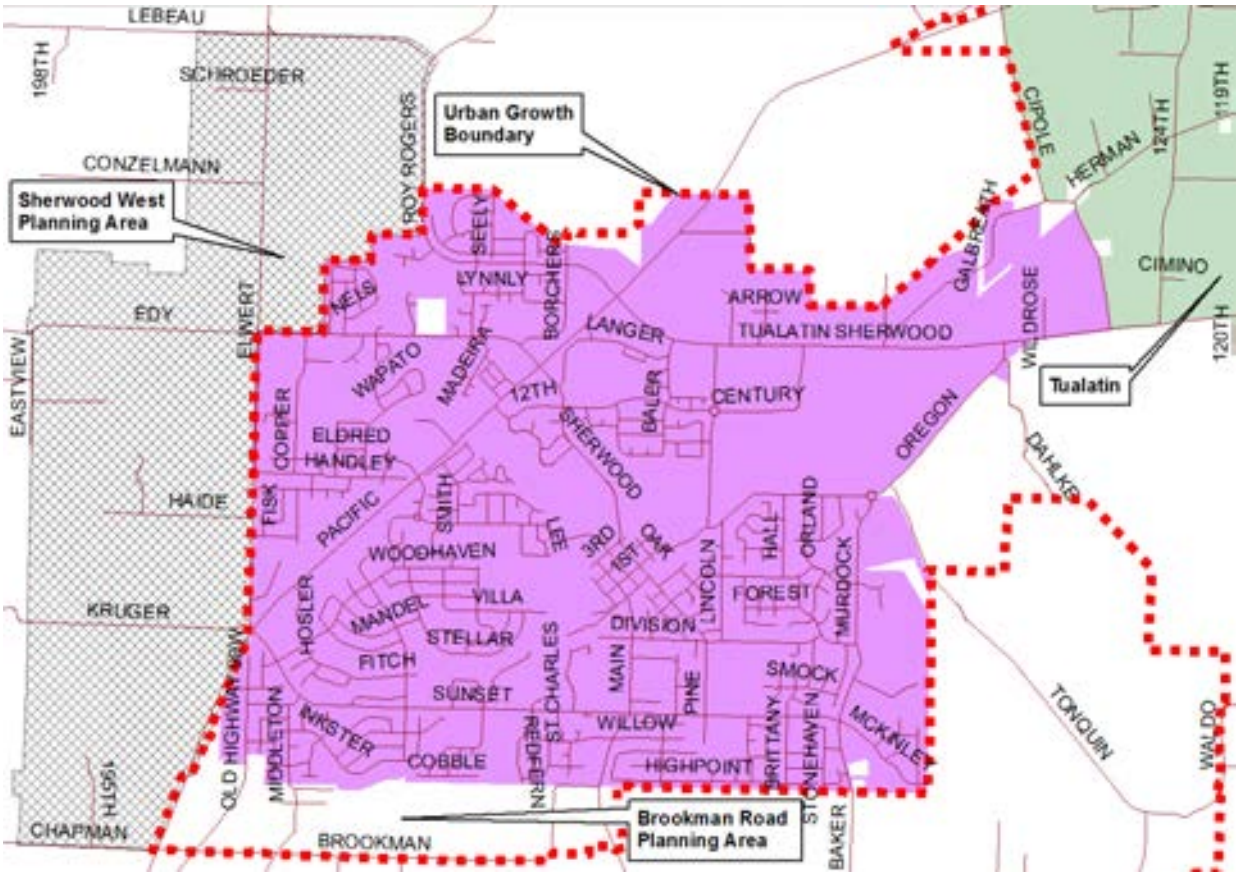
Attachment 6

Urban Reserve Areas within Sherwood School District Boundary



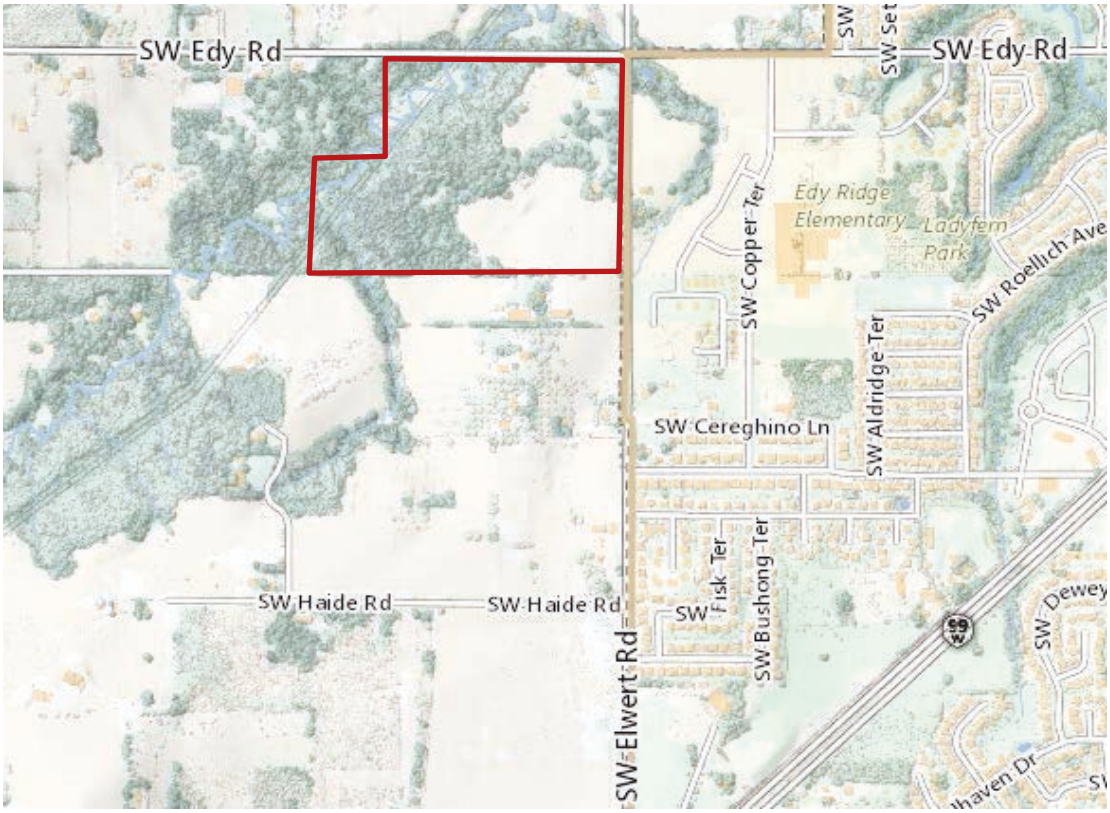
Attachment 7

Sherwood West Planning Area



Attachment 8

Alternative High School Site A
(SW Corner of Edy & Elwert Road)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
✗ Low-lying, relatively flat. Approximately 25 feet grade across site. Very low lying for sanitary sewer. Significant portion of site below elevation 200. Western portion mostly creek.	✗ Small wetland in center of site. Western portion of site mostly drainage area.	✗ No water available adjacent in Elwert. Would require water extensions along Elwert frontage and east on Edy.	✗ Low lying site - sanitary sewer not available in Elwert. Would require significant extension in Edy or pump station.

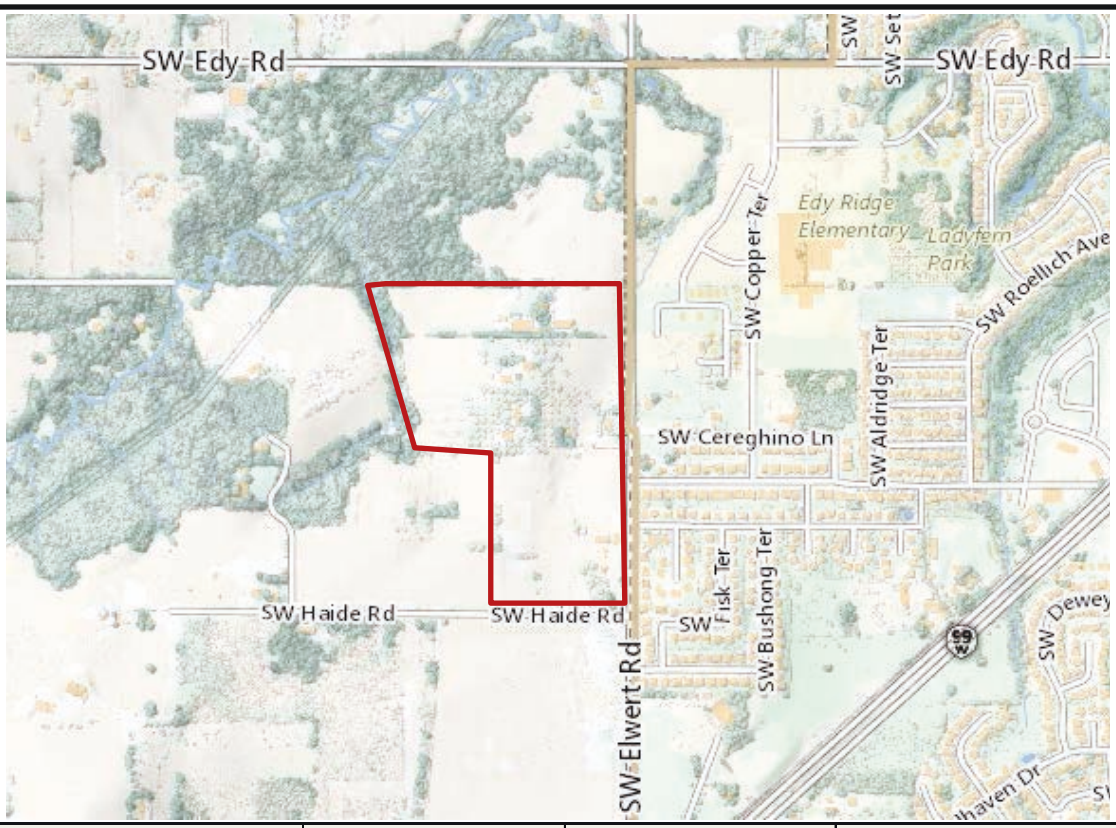
Storm Drainage	Public ROW Improvements
✓ Drainage discharge available onsite into Chicken Creek.	1. Water extension along Elwert frontage. 2. Sanitary upgrades in Edy and Elwert. 3. Storm drainage improvements along Elwert. 4. Street improvements on Elwert and Edy frontages.

LEGEND

✓ = Advantage ○ = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site B
(NW corner of Haide & Elwert)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Significant topographic ridge running N-S through middle of site. Site slopes both east and west. Approximately 50-60 feet grade change. Significant grading for fields.	✓ No wetlands shown.	✓ 12" City of Sherwood public water main available in Elwert.	✓ 15" sanitary sewer and manhole available in Elwert at Daybreak subdivision. (Confirmed with City of Sherwood). City would likely still require public sanitary improvement in Elwert.

Storm Drainage	Public ROW Improvements
✓ North-south ridge running through site. West portion could drain directly to Chicken Creek. East portion drains to public improvements and across road to Chicken Creek.	1. Although not needed for site development, sanitary and storm sewer improvements likely needed in Elwert frontage as part of public frontage improvements. 2. Street improvements on Elwert & Haide frontages.

LEGEND

✓ = Advantage O = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site C (Preferred Site)
(NW Corner Krugger & Elwert)

Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
✓ Entire site slopes down to the east toward Elwert. Relatively gentle topography. Approx. 40 feet grade change across entire site. Note: shallow valley and ridge complicates storm drainage.	✓ No wetlands shown.	✓ 12" City of Sherwood public water main in Elwert; also 18" public water main in Kruger.	✓ Feasible to extend 15" sanitary sewer main south on Elwert. Would require approximate 2,000 linear foot public extension. (Confirmed with City of Sherwood).

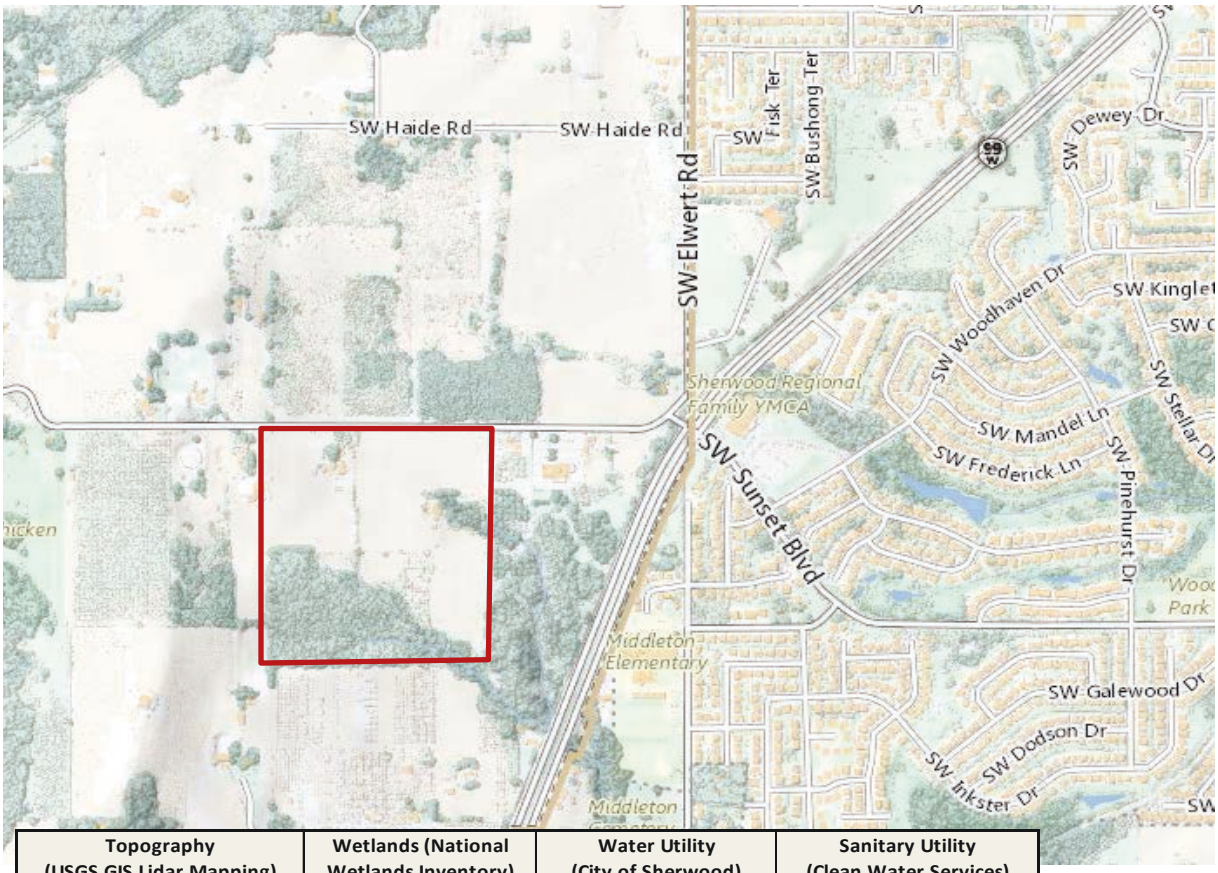
Storm Drainage	Public ROW Improvements
○ East-west ridge running through site. North portion could require long public storm extension to Chicken Creek. South portion would need to drain to new City intersection improvements at Elwert & Kruger intersection.	1. Sanitary extension in Elwert. 2. Storm drainage improvements along Elwert north to Chicken Creek. 3. Street improvements on Elwert frontage. 4. Need to consult with CWS to work out storm discharge.

LEGEND

✓ = Advantage ○ = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternative High School Site D
(South Side of Kruger Road)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Entire site slopes down to the east toward private property. Moderate topography. Approximately 50-60 feet grade change.	O No wetlands shown, but creek drainage runs through south portion of site.	✓ 18" public water main in Kruger.	✗ No sanitary sewer services available. Significant sewer extension and public system improvements necessary.

Storm Drainage	Public ROW Improvements
✗ No established public storm drainage systems in vicinity. Storm discharge would need to be worked out with the City and CWS along 99W. Storm extension likely required.	1. Sanitary sewer extension (exact route to be determined). 2. Storm drainage extension (exact route to be determined). 3. Street improvements on Kruger. 4. Offsite street improvements likely required.

Attachment 8 continued

Alternative High School Site E
(NW Corner Chapman & Pacific Highway)

Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Entire site slopes down to the east toward Pacific Highway. Slightly steeper topography. Approximately 75 feet grade change. Would need to evaluate for fields.	✓ No wetlands shown.	✗ No public water service in immediate vicinity of site. Need to extend water south from Kruger or under Pacific Highway.	✗ No sanitary sewer services available. Significant sewer extension and public system improvements necessary.

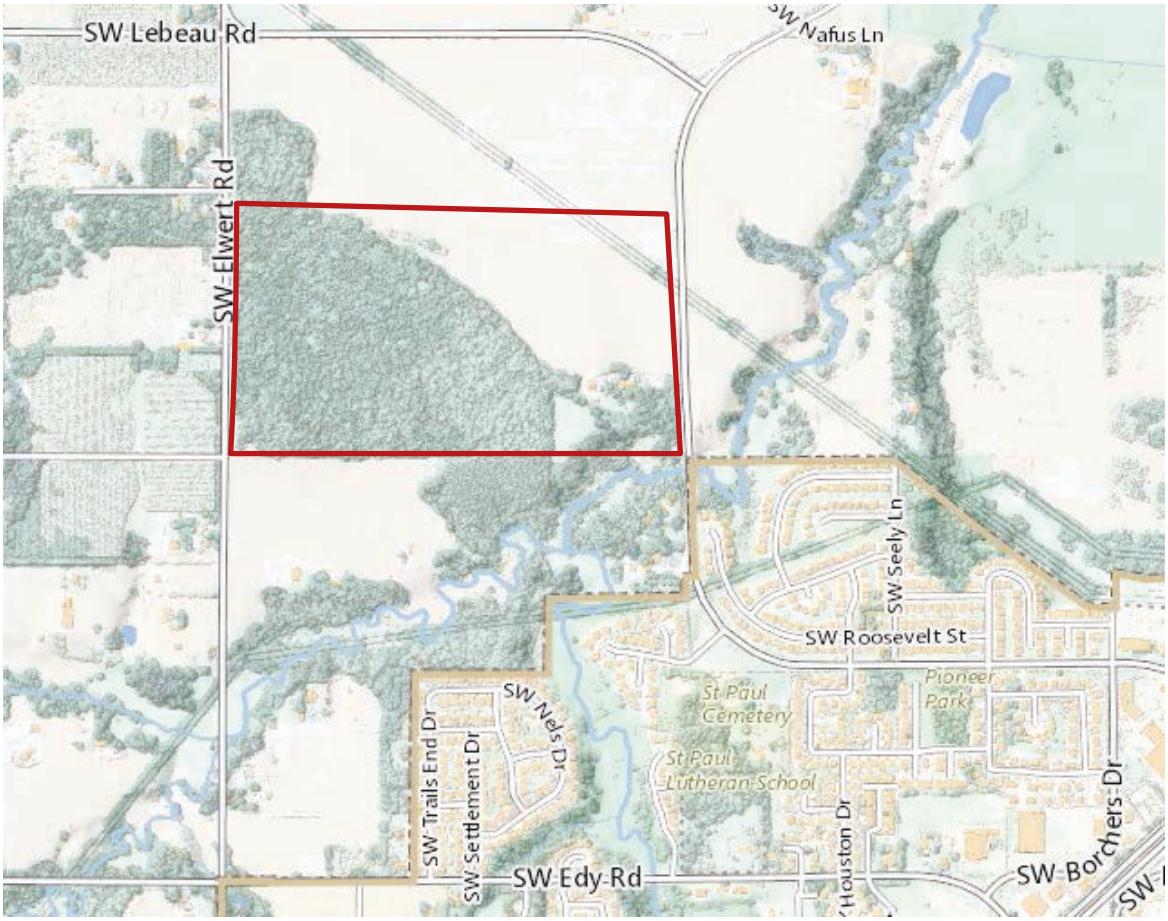
Storm Drainage	Public ROW Improvements
✗ No established public storm drainage systems in vicinity. Storm discharge would need to be worked out with the City and CWS along 99W. Storm extension likely required.	1. Sanitary sewer extension (exact route to be determined). 2. Storm drainage extension (exact route to be determined). 3. Street improvements on Chapman.

LEGEND

✓ = Advantage O = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site F
(North Elwert)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Very flat site, but complicated by power lines and drainages running through.	X Drainages and potential wetlands running through site.	X Significant improvements to public water system would be needed to get adequate fire water supply.	✓ Sanitary sewer available along Chicken Creek.

Storm Drainage	Public ROW Improvements
✓ Storm drainage available into Chicken Creek drainages.	1. Public water line extensions. 2. Street improvements along Elwert.

LEGEND		
✓ = Advantage	O = Still to be Determined	X = Disadvantage

EXHIBIT C to Ordinance No. 17-1406

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: August 15, 2017
To: Metro Council
From: Roger Alfred, Senior Assistant Attorney
Subject: Sherwood School District UGB Amendment; Metro Ordinance No. 17-1406
Responses to Issues Raised at Public Hearing

This memorandum provides responses to issues raised in the letter submitted by attorney Jennifer Bragar on behalf of Byers Properties LLC ("Byers") at the public hearing before the Metro Council on August 10, 2017. For the reasons set forth below, the Office of Metro Attorney concludes that the arguments are without merit, and the Metro Council may adopt the hearings officer's recommendation of approval.

Most of the issues raised in the Byers letter have been considered and addressed in the hearings officer's decision. Where that is the case, this memo refers to the appropriate pages of that decision.

1. This UGB amendment process is quasi-judicial, not legislative

Byers first contends that Metro is making a legislative decision, rather than a quasi-judicial decision. This issue is thoroughly analyzed at pages 13-16 of the hearings officer's decision, where he correctly reaches the fairly obvious conclusion that this is a quasi-judicial process. The hallmark of a quasi-judicial land use process is that it is initiated by an application, which the local government is then obligated to either approve or deny. Here, the "major amendment" process is initiated when an applicant files a request for a UGB amendment with Metro. Metro then appoints a hearings officer, who holds a public hearing that is governed by the quasi-judicial procedures set forth in Oregon statute (ORS 197.763). It is worth noting that, during the hearing before the hearings officer, Byers invoked the quasi-judicial procedures in that statute by requesting that the record be held open for additional evidence, a request that was granted by the hearings officer. Metro's final decision on the application is based on applying preexisting criteria to the facts of the application, and it impacts a discrete parcel of property, rather than a broad population. The process is clearly quasi-judicial under the relevant case law.

2. This UGB amendment does not involve or implicate housing

The reason Byers contends this process is legislative is in order to implicate ORS 197.296(2), which is the statute that directs Metro to ensure there is a 20-year supply of housing inside the UGB when it conducts the 6-year "regular cycle" urban growth management process (which is a legislative process, not quasi-judicial). As correctly concluded by the hearings officer, the arguments raised by Byers regarding the decision being legislative are a "red herring," because even if this UGB major amendment process was legislative, ORS 197.296(2) would still not apply because the express purpose of the major amendment process is to provide land for non-housing uses. There is no legal,

or rational, reason why Metro would undertake a regionwide housing need analysis as part of a decision to expand the UGB for a non-housing use. The fact that this UGB amendment process is governed by a different statutory section, and does not implicate housing need under ORS 197.296, is analyzed in detail by the hearings officer at pages 16-24 of his decision, and is also addressed in my memorandum to the hearings officer dated June 9, 2017.

Byers also argues, for the first time, that the ESEE analysis is inadequate because it fails to address social consequences arising out of "the loss of housing land" resulting from approving this UGB expansion. Byers is correct that this issue is not addressed in the hearings officer's analysis, but that is because Byers failed to raise this issue below. Under Metro Code, this proceeding before the Metro Council is "on the record" of what was before the hearings officer. Specifically, section 3.07.1430(u) of the Metro Code provides: "Argument must be based upon the record of those [hearings officer] proceedings." Accordingly, participants before the Metro Council may not introduce new evidence or issues beyond what was presented to the hearings officer. *See DLCD v. Tillamook County*, 34 Or LUBA 586, 591 (1998) (noting that where a hearing is held on the record, "petitioner could not have raised a new issue at that stage of the proceeding.") Allowing parties to raise new issues before the Metro Council could trigger a need to respond with new evidence, which is not permitted in an "on the record" process.

Adoption of this memorandum by the Metro Council in support of approving the application is an express interpretation by the Council of 3.07.1430(u) to mean that any issues not raised before the hearings officer are waived. This interpretation is consistent with the meaning of "on the record" expressed in the statutes governing LUBA's scope of review (ORS 197.835(2)(a) and (3)), which prohibit new issues from being raised on appeal.

Even if this issue had not been waived by Byers, the hearings officer expressly rejected Byers' argument below that approval of this UGB amendment results in a "loss of housing land." The land being added to the UGB is currently zoned for agricultural use, not housing. Accordingly there are no social impacts arising out of a loss of land for housing.

3. The application is based on a demonstrated need for a high school, not for parks

Byers contends that the application includes a request for a park use, and is deficient because it did not consider "alternatives to the park use separate from collocation with the high school." Like the ESEE argument addressed above, Byers did not raise this issue in the proceedings before the hearings officer, and has therefore waived the ability to raise it before the Metro Council.

In the event this issue was not waived, on the merits Byers mischaracterizes the nature of the UGB amendment application. The application is for a high school use, a use that necessarily and customarily includes active play space, including a number of ball fields, and other sports facilities, such as a track and tennis courts. This is depicted on the concept plan for the high school, which is included in the application, and explained in the application narrative and in the applicant's

testimony before the hearings officer. The UGB amendment application is not for park land, and the references to the future shared use of the new high school's active ball fields should not be construed to that effect. The nature and purpose of the application is not changed by the facts that (1) the city does not generally provide ball fields or other active sports facilities, and (2) the city and the school district have an IGA that generally allows the community to use the District's ball fields and other active sports facilities when those fields and facilities are not in use by the school district. As set forth in the record, the property proposed for the relocated high school will be fully utilized by the needs of the high school, and the larger campus of the new high school (when compared to the existing high school) will allow for the full range of facilities normally provided at a comprehensive high school. The availability of more sports fields that can be shared with the community is merely an additional benefit arising out of the agreement between the school district and the city.

On this point, one aspect of the hearings officer's findings should be clarified. At page 29 the hearings officer includes a finding that the applicant has shown there is a "demonstrated land need to accommodate both school and park services." This is a mis-statement by the hearings officer, as the school district's application is based on the need for a new school, and not on a need to provide park services.

4. The application is "consistent with" Metro's 20-year population range forecast

One criterion for a UGB expansion under the Metro Code is that the application must show a need to accommodate future urban population "consistent with a 20-year population range forecast." Byers argued below, and argues again to the Council, that this requires Metro to undertake a new regionwide 20-year population forecast, and the school district's 10-year school population forecast is therefore deficient. The hearings officer addressed this argument at page 26, concluding that the code requires the applicant to show a need that is "consistent with" a 20-year forecast, which "in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here."

In support of this argument Byers references materials attached to their August 10, 2017 letter to the Metro Council regarding a 2016 study of race and ethnicity impacts. This is a new document that was not part of the evidentiary record before the hearings officer and therefore cannot be considered by the Metro Council in this proceeding.

5. Public facilities and services are available to serve the proposed site, and the applicant must comply with the TPR upon rezoning

As part of the consideration of alternative urban reserves areas for potential expansion of the UGB, one location-related factor that must be considered is the "orderly and economic provision of public facilities and services." This issue is analyzed and addressed at pages 43-45 of the hearings officer's decision. The hearings officer also correctly notes, at page 35, that these are locational "factors" that

must be *considered* by Metro, and are not criteria that must be satisfied: "one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a balancing of all these factors, rather than a reliance on any one factor."

Nonetheless, Byers contends that this factor is a criterion that must be satisfied, arguing that the applicant must show whether the proposal will impact availability of public facilities. Byers then contends that the applicant's traffic impact analysis does not demonstrate that nearby intersections will meet applicable level of service standards.

The issue raised by Byers is not relevant to the applicable inquiry for purposes of a UGB expansion, which is a much more general question of whether public facilities are available to serve the site. Questions related to traffic impacts from a new school on existing and planned transportation facilities in the area will need to be addressed as part of the comprehensive plan and zoning map amendments that will be necessary to develop a school, which will trigger application of the state Transportation Planning Rule (TPR). The ordinance proposed for adoption by the Metro Council includes the hearings officer's recommended condition of approval requiring application of the TPR at the time zoning for the school is being adopted.

6. Metro has satisfied the coordination requirement

Byers contends that Metro failed to coordinate with affected local governments as required by ORS 195.025. This issue was not raised before the hearings officer and is therefore waived. In the event the issue is not waived, the hearings officer adopted the following findings regarding the coordination requirement at page 58 of his decision:

"This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred."

The record includes evidence that Metro fulfilled its coordination obligation by providing written notice to all cities and counties inside the UGB regarding the proposed UGB amendment, as well as to ODOT and relevant service providers. The City of Sherwood supports approval of the application and included the following comments in its service provider letter dated March 11, 2017:

"The Sherwood West preliminary concept plan was developed through community input and had community and Council support. The voters within the Sherwood School District approved a bond for the new high school. While there will be challenges to building a new school within the Sherwood West area, and coordination between the District, City, County and ODOT will be

required, the District is committed to ensuring that is serves as a great cornerstone to the future growth in the area."

In response to questions at the public hearing from members of the Metro Council regarding coordination with the City of Sherwood, the school district representatives verbally stated that the district is currently working with the city on Title 11 concept planning and that district representatives attended a city planning commission meeting earlier in the week where they were told that the planning effort is on the right track. These are evidentiary statements that were not included in the record before the hearings officer and therefore will not be considered or relied upon by the Metro Council in its final decision.

Finally, Byers suggests that the school district has not satisfied a coordination obligation, but cites no authority regarding why or how the school district is obligated to coordinate as part of its application. The coordination requirement applies to Metro through the major amendment process and ORS 195.025, and not to the school district. Byers also states that comments received from Washington County "suggest that coordination is incomplete as the management of transportation systems has not been finalized." It is not entirely clear what this means; however, there is no requirement, coordination-related or otherwise, that management of transportation systems must be "finalized" at the point of a UGB amendment. The Metro Ordinance includes a condition of approval requiring the city to finalize its concept plan for the area prior to development occurring on the site, which will include coordination with the county regarding transportation planning. Additional transportation planning will occur at the time of annexation by the city and rezoning of the property, at which point the TPR must be applied to ensure that transportation facilities serving the new school will be adequate.

All coordination obligations have been satisified.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 17-1406, FOR THE PURPOSE OF AMENDING THE URBAN GROWTH BOUNDARY IN THE VICINITY OF THE CITY OF SHERWOOD UPON APPLICATION BY THE SHERWOOD SCHOOL DISTRICT

Date: July 27, 2017

Prepared by: Tim O'Brien
Principal Regional Planner

PROPOSED ACTION

Adoption of Ordinance 17-1406, approving *UGB Case 17-02: Sherwood School District,* a major amendment to the urban growth boundary (UGB). The proposed amendment area is shown on Attachment 1. Staff recommends approval of the ordinance as described below, which would add approximately 82 acres to the UGB west of Sherwood for a high school campus and sports fields. In addition a portion of the land will be used for the construction of a roundabout at SW Elwert and SW Kruger Roads.

SUMMARY OF PROCESS

The proposed amendment is a "major amendment" to the UGB under the Metro Code, which is a special process reserved for requests to include land for public facilities and other non-housing needs that cannot wait until the next UGB cycle. An application for a major amendment is first considered at a public hearing before a hearings officer appointed by Metro. After receiving testimony from interested parties, the hearings officer prepares a proposed order, with findings of fact and conclusions of law recommending approval or denial of the application, and forwards the recommendation to the Metro Council along with the record of the hearing. The Metro Council must consider the hearings officer's report and recommendation at an "on the record" public hearing where individuals who participated in the proceeding before the hearings officer are allowed to submit oral and written argument. The argument must be based on the evidence that was provided to the hearings officer, and no new evidence may be submitted to the Metro Council. If the Council decides to approve the application and expand the UGB, the Council must adopt an ordinance within 15 days after holding a public hearing.

BACKGROUND AND ANALYSIS

Proposal Description:
The Sherwood School District filed an application for an 80-acre amendment to the UGB for a high school campus and sports fields. The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Road and SW Kruger Road, immediately west of the City of Sherwood. The site has frontage on all three roads, is zoned Agriculture and Forest (AF-20) and is located within Sherwood West Urban Reserve 5B. The adjacent properties to the north, south and west are also within Urban Reserve 5B and contain rural residences with limited agriculture and a church to the south, wooded lots and rural residences to the west and open fields and rural residences to the north. The subject properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the SW Elwert and SW Kruger Road roundabout improvement. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

The Sherwood School District is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990s and early 2000s leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Public Hearing before the Hearings Officer

The hearings officer, Andrew H. Stamp, conducted a public hearing at the Sherwood Police Department Community Room on May 24, 2017. Metro staff recommended approval of the application. Six people testified at the hearing, five in favor of the application and one against the application. The hearings officer continued the hearing to June 13, 2017 in response to a procedural question. Three people testified at the June 13th hearing, all in opposition to the application, including one who had also testified at the May 24th hearing. The hearings officer granted a request to keep the record open for ten days, followed by additional time for rebuttal by participants and final argument by the applicant; the record closed on July 7, 2017.

The primary opponent of the application is Byers Properties, LLC, which is the entity that owns one of the parcels of property to be included in the proposed expansion. Byers is currently involved in condemnation proceedings with the Sherwood School District regarding acquisition of the property for public use. Byers raised numerous legal issues in the proceedings before the hearings officer, all of which were ultimately rejected in the final order and recommendation to the Metro Council.

Hearings Officer Recommendation and Proposed Findings

On July 21, 2017 the hearings officer submitted a proposed order recommending approval of Case 17-02, based upon the findings and conclusions in his report. The hearings officer included two conditions of approval in his recommendation:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this Major Amendment.
2. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

A hearing on the recommendation before the Metro Council is set for August 10, 2017. All parties to the case were notified in writing of the Council hearing date and the notice was also posted on Metro's website. In addition, the hearings officer's proposed order was made available for review by all parties.

Record (*Click here to view record*)

Sherwood School District Application, dated March 14, 2017, with supplemental information dated March 23, 2017
Letter from attorney Jennifer Bragar of Tomasi Salyer Martin on behalf of Byers Properties LLC, dated May 22, 2017
Presentation by Sherwood School District dated May 24, 2017

Sherwood West Preliminary Concept Plan (12/08/15) submitted by applicant on May 24, 2017
Letter from hearings officer Andrew Stamp dated May 25, 2017
Email from Gayle Ostgard dated May 25, 2017
Sherwood West Preliminary Concept Plan Appendices, submitted by applicant on June 1, 2017
Sherwood High School UGB Expansion Transportation Study, submitted by applicant on June 1, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 6, 2017
Letter from attorney Kelly Hossaini of Miller Nash LLP on behalf of the Sherwood School District, dated June 8, 2017
Metro Staff memorandum, dated June 9, 2017
Letter from attorney Kelly Hossaini on behalf of the Sherwood School District dated June 13, 2017
Written testimony from Carolyn Mcbee and Karen Labahn dated June 13, 2017
Email from Carolyn Mcbee and Karen Labahn dated June 21, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 23, 2017
Metro Staff memorandum, dated June 23, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 30, 2017
2014 Metro Urban Growth Report, submitted June 30, 2017
Memo from Mark Wharry, KPFF Consulting Engineers, dated June 30, 2017
Letter from Metro attorney Roger Alfred to hearings officer Andrew Stamp dated June 30, 2017
Memo from DKS Associates dated June 28, 2017
Letter from attorney Kelly Hossaini on behalf of Sherwood School District, dated July 7, 2017

SUMMARY/OPTIONS

According to Metro Code 2.05.045(b), the Council may either:

- Adopt Ordinance 17-1406 to approve *Case 17-02: Sherwood School District* based on the findings of fact and conclusions of law in the hearings officer's order. Staff recommends this option.
- Vote in favor of adopting Ordinance 17-1406 to approve *Case 17-02: Sherwood School District* based on revised findings of fact and conclusions of law to be prepared by Metro staff.
- Remand the proceeding to the Hearings Officer for further consideration.
- Vote to adopt a Resolution entering an order to deny *Case 17-02: Sherwood School District* based on revised findings of fact and conclusions of law to be prepared by Metro staff.

In addition, pursuant to Code Section 3.07.1455, the Council may establish conditions of approval it deems necessary to ensure the addition of land complies with state planning laws and the Regional Framework Plan. Metro staff recommends the Council include the following three conditions of approval, the first two of which were recommended by the hearings officer:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this Major Amendment.
2. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.
3. The City of Sherwood shall complete the requirements of Urban Growth Management Functional Plan Title 11, section 3.07.1120: Planning for Areas Added to the UGB, prior to development occurring.

INFORMATION

Known Opposition: Attorney Jennifer Bragar, representing one of the subject property owners, testified verbally and in writing in opposition to the application before the hearings officer and by providing additional written information during the open record period. Two persons who live in the vicinity of the proposed UGB expansion area testified verbally and in writing in opposition to the application before the

hearings officer and by providing additional written information during the open record period. One person who lives in the vicinity of the proposed UGB expansion area testified in writing in opposition to the application during the continued public hearing timeframe.

Legal Antecedents: The Metro Regional Framework Plan and Urban Growth Management Functional Plan Title 14: Urban Growth Boundary authorizes amending the Urban Growth Boundary through the major amendment process.

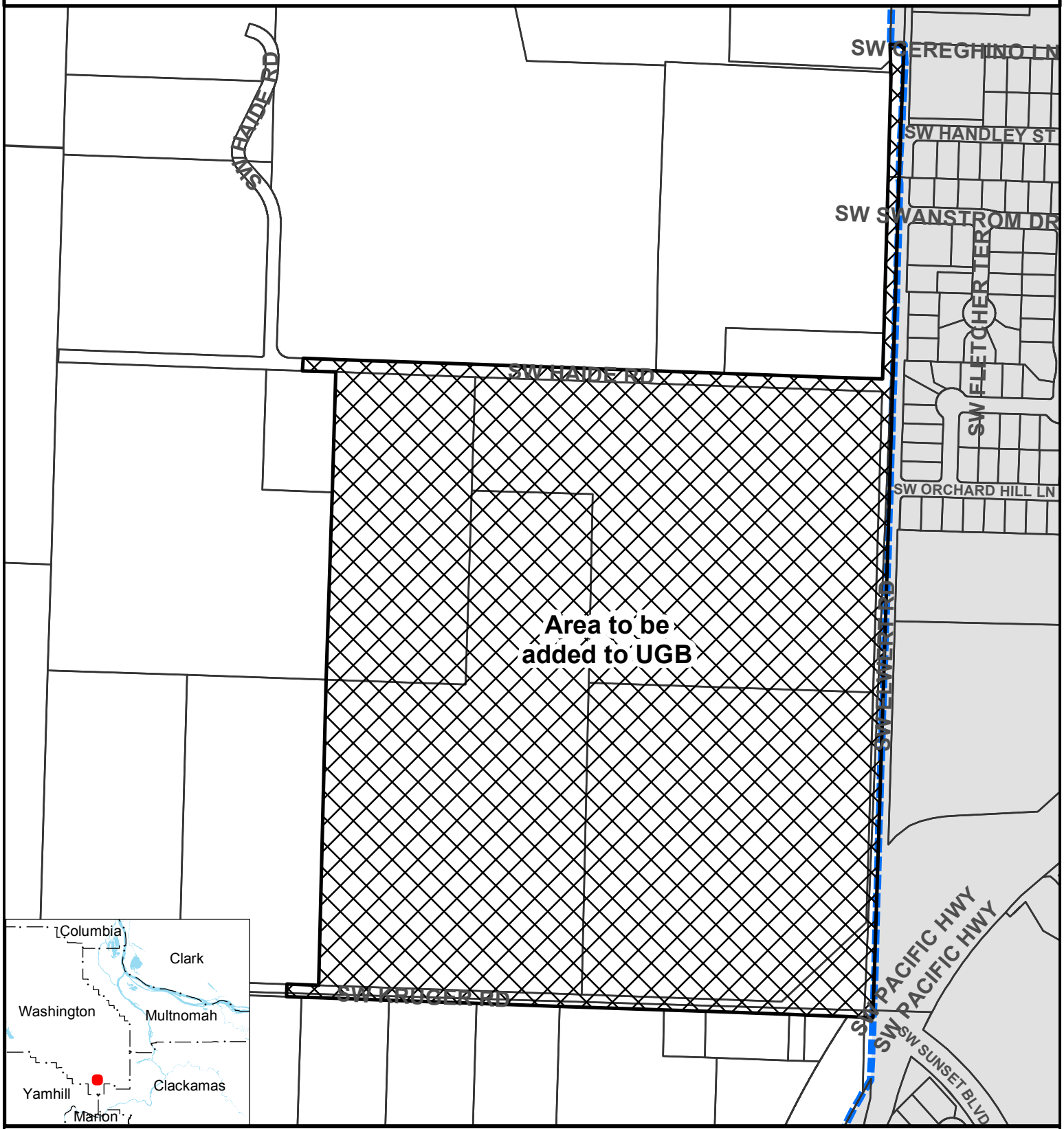
Anticipated Effects: The adoption of Ordinance 17-1406 will add 82.3 acres of land to the urban growth boundary in the vicinity of Sherwood for a high school campus with sports fields and road improvements.

Budget Impacts: There is no budget impact from adopting this ordinance.

ATTACHMENT 1

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

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Date: 3/22/2017

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE URBAN GROWTH BOUNDARY IN THE VICINITY OF THE CITY OF SHERWOOD UPON APPLICATION BY THE SHERWOOD SCHOOL DISTRICT	)	Ordinance No. 17-1406
	)	
	)	Introduced by Chief Operating Officer
	)	Martha Bennett with the Concurrence of
	)	Council President Tom Hughes

WHEREAS, the Metro Urban Growth Management Functional Plan Title 14: Urban Growth Boundary provides a mechanism to amend the urban growth boundary (UGB) through a major amendment process for public facilities and other non-housing purposes; and

WHEREAS, the Sherwood School District filed an application for a major amendment pursuant to Metro Code Section 3.07.1430 to add approximately 82 acres to the UGB for the purpose of constructing a new high school to serve the Sherwood area; and

WHEREAS, the application was considered by a hearings officer appointed by Metro at public hearings in the City of Sherwood on May 24, 2017 and June 6, 2017; and

WHEREAS, on July 21, 2017 the hearings officer submitted to Metro a proposed order recommending approval of the application, together with findings of fact and conclusions of law in support of a decision by the Metro Council that the application satisfies the requirements of the Metro Code and applicable state law; and

WHEREAS, the Council considered the proposed order and testimony at a public hearing on August 10, 2017 under the procedural requirements of Metro Code Section 3.07.1430(u); now, therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The UGB is hereby amended, as indicated in Exhibit A, attached and incorporated into this ordinance, to add 82.3 acres to the UGB for development of a high school with sports fields and a roadway improvement, subject to the following three conditions of approval:

    a. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this UGB amendment.

    b. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

    c. The City of Sherwood shall complete the requirements of Urban Growth Management Functional Plan Title 11, section 3.07.1120: Planning for Areas Added to the UGB, prior to development occurring.

2. The Findings of Fact and Conclusions of Law contained in the hearings officer's recommendation attached as Exhibit B and hereby incorporated into this ordinance, explain how this amendment to the UGB complies with applicable provisions of the Regional Framework Plan, Metro Code, and applicable statewide planning laws.

3. The Metro Council adopts as supplemental findings in support of its decision the legal memorandum dated August 15, 2017 attached as Exhibit C and hereby incorporated into this ordinance, which includes responses to issues raised at the public hearing by opponents of the application.

ADOPTED by the Metro Council this 17 day of August 2017.

Tom Hughes, Council President

Attest:

Nellie Papsdorf, Recording Secretary

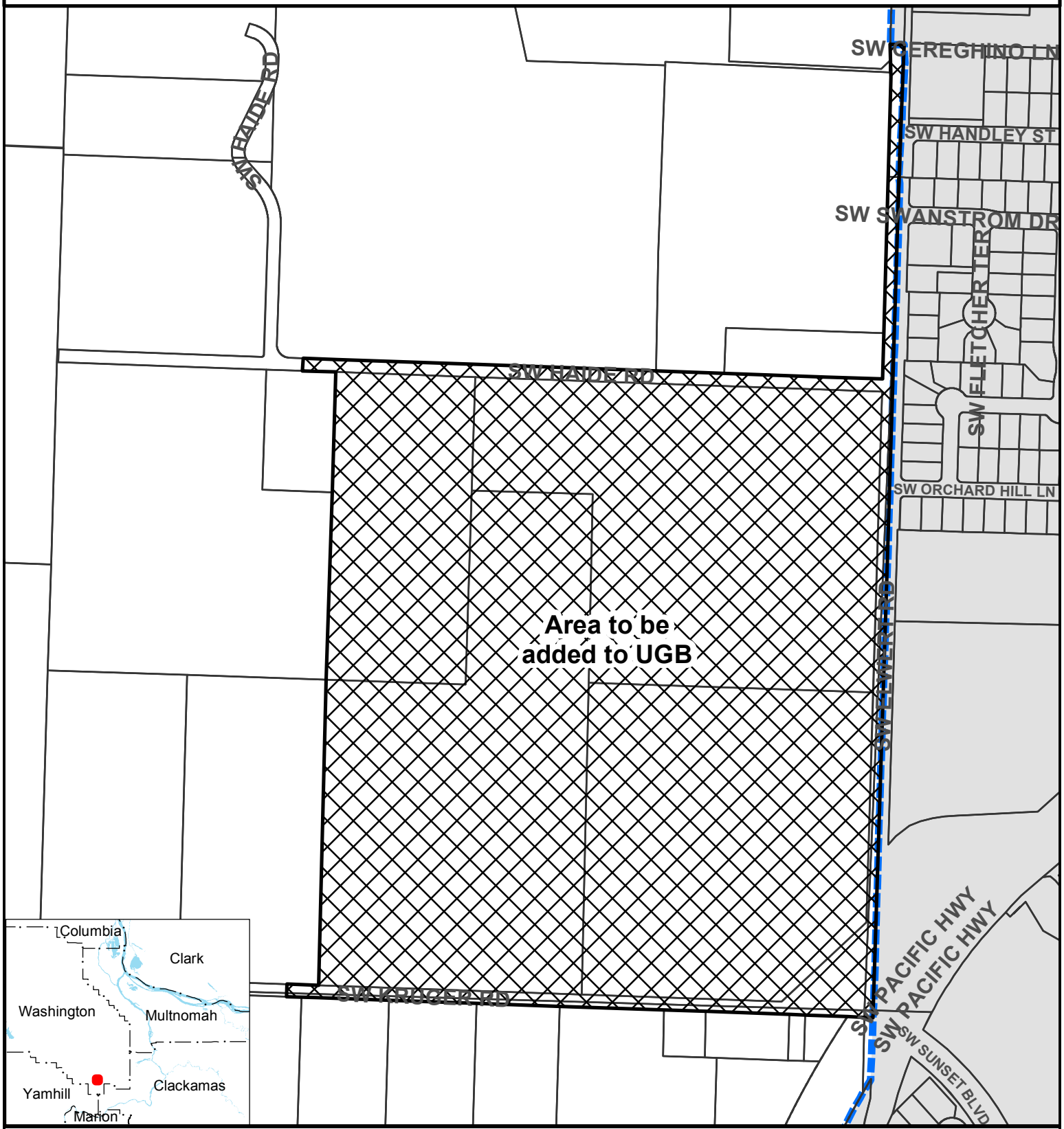
Approved as to form:

Alison R. Kean, Metro Attorney

EXHIBIT A

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

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Date: 3/22/2017

Exhibit B

METRO HEARINGS OFFICER'S ANALYSIS, CONCLUSIONS, AND RECOMMENDATIONS TO THE METRO COUNCIL

Sherwood School District Urban Growth Boundary
Major Amendment, Case 17-02

JULY 21, 2017

ANDREW H. STAMP, P.C.
KRUSE-MERCANTILE PROFESSIONAL OFFICES, SUITE 16
4248 GALEWOOD STREET
PORTLAND, OR 97035

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SECTION I: APPLICATION SUMMARY

FILE NAME:	UGB Case 17-02: Sherwood School District Urban Growth Boundary Major Amendment
APPLICANT:	Sherwood School District 23295 SW Main Street Sherwood, OR 97140
PROPOSAL:	82-acre expansion of the urban growth boundary (UGB) for a high school campus with sports fields. Realign SW Elwert Road and SW Kruger Road in Sherwood.
LOCATION:	Tax Lots 2S236-200, -201, -206, and -207
SITE ADDRESSES:	18880 SW Haide Road, 22895 SW Elwert Road and 18985 SW Kruger Road, Sherwood, Oregon 97140
URBAN RESERVE AREA:	Area 5B.
CURRENT ZONING:	AF-20
METRO CODE:	Metro Code Sections 3.07.1425 (B, C, D, E & F) and 3.07.1440 (A & B). Code Section 3.07.1425(C)(1-9)

SECTION II: BACKGROUND INFORMATION

Proposal Description: The applicant requests an expansion of the City of Sherwood UGB to include approximately 82 acres for a high school campus with sports fields. This proposal also seeks to realign the intersection of SW Elwert Road and SW Kruger Road for improved and safer traffic flow.

Site Information: The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Rd and SW Kruger Rd as shown in Attachment 1. The property has frontage on SW Elwert, SW Haide and SW Kruger Roads. The entire property is zoned AF-20 (Agricultural and Forest District) by Washington County with a minimum lot size of 80 acres. The entirety of the property is located within the Sherwood West Preliminary Concept Plan area (Metro Urban Reserve Area 5B). The site slopes

gently down to the east towards SW Elwert Road with approximately 40 foot grade change across the site. There is a shallow valley and ridge within this slope.

The properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the road realignment. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

Case History: The Sherwood School District (District) is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Local Government Statement: This UGB major amendment is being considered at the request of the Sherwood School District. The City of Sherwood completed the Sherwood West Preliminary Concept Plan for urban reserve area 5B and submitted a service provider form supporting the school district's application. The school district participated in the concept planning process and the subject site is one of the school locations identified in the preliminary concept plan. Washington County submitted a written statement supporting the application with proposed conditions for Metro to consider. Tualatin Valley Fire and Rescue submitted a written statement supporting the application and Clean Water Services is neutral on the application.

SECTION III: APPLICABLE REVIEW CRITERIA

The criteria for a Major Amendment to the UGB are contained in Metro Code Section 3.07.1425(B, C, D, E, & F) and 3.07.1440 (A & B). The approval criteria appear ***bold 12-pt Aerial Narrow font)***, and the hearings officer's analysis follows.

> ***Metro Code Section 3.07.1440(A) The purpose of the major amendment process is to provide a mechanism to address needs for land that cannot wait until the next analysis of buildable land supply under ORS 197.299. Land may be added to the***

UGB under this section only for the following purposes: public facilities and services, public schools, natural areas, land trades and other non-housing needs;

This code section requires that the applicant show, by substantial evidence in the whole record, that it is an eligible entity allowed to use the interim ORS 197.299 Major Amendment UGB process rather than wait until the next regular Metro UGB amendment cycle (in December, 2018).

Hearings Officer's Analysis: Title 14 of the Metro Code (*i.e.* Metro's Urban Growth Management Functional Plan) includes the Major Amendment process to amend the UGB for a number of specific non-housing needs, including schools and public parks. This process, which is designed to implement ORS 197.299(4), is intended to provide an opportunity to meet these specific land needs outside of the legislative housing needs process the Metro Council conducts on a six-year cycle as required by ORS 197.299(1) and ORS 197.296.

As part of the six-year legislative housing needs process, Metro conducts an inventory of the current residential and employment capacity within the UGB, forecasts population and employment growth over a 20-year timeframe, determines the capacity of the current UGB to accommodate that growth and documents the results of these analyses in an urban growth report. ORS 197.296(6)(a), which is one of the state's needed housing statutes, envisions that local governments with populations over 25,000 will factor in land for schools at the same time as they determine the amount of land needed to be brought in to the UGB for housing. In this regard, the need for land for schools under ORS 197.296(6)(a) is a "derivative need" which is linked to, and dependent upon, a finding that there is a need for land to be brought into the UGB to accommodate an identified housing need. As noted in more detail below, this process has proven to be long, drawn out affair, which is not sensitive to short-term needs. Furthermore, because it is done on a large-scale regional basis, is not always sensitive to more localized school and park needs.

In fact, Metro's most recent urban growth report, adopted in 2015, did not address school and park land needs at the regional level at all. Some school districts anticipate growth, others see declining enrollment and none look out over the 20-year timeframe that the urban growth report considers. Depending on the particular physical, financial and expected growth characteristics of each school district, plans for accommodating projected increases in enrollment vary. Similarly, park districts acquire property and develop park facilities based on numerous operational and funding parameters that can't be considered at the regional level. In addition, it is quite common for school districts and cities to collaborate on opportunities to meet the city's recreation needs as well as the school district's team needs. For these reasons, the Major Amendment process is the appropriate means of addressing specific school district and park needs that can be accommodated through UGB expansions.

Metro has adopted specific criteria to implement ORS 197.299(4). There are two criteria contained in Metro Code section 3.07.1440(A) that are analyzed separately below:

1) The proposal must be for a non-housing need, and

2) The proposal must be intended to meet needs that cannot wait until the next analysis of land supply (December 2018).

There does not appear to any disagreement that the first criterion is met: the applicant proposes to add land to the boundary for a public school and a public facility need, both of which are non-housing needs. The Sherwood School District's Sherwood High School is a "public school" within the meaning of Metro Code Section 3.07.1440(A).

However, whether the applicant has met the second criterion has proven to be more controversial. The applicant addresses its need as follows:

> As of 2015, the Sherwood School District encompasses 4.31 square miles serving a population of approximately 18,884 residents and 5,000 students. The Sherwood School District includes:
> - The City of Sherwood city limits;
> - Portion of the western area of the City of Tualatin (mostly industrial land);
> - Rural Clackamas County (primarily between Sherwood and Wilsonville); and
> - Rural Washington County north and west of Sherwood, as well as a small area east of I-5 between Wilsonville and Tualatin.
>
> To facilitate future planning and to comply with State requirements for a fast-growing school district, the District adopted a long-term facilities plan in January of 2008, which assumed that additional school capacity would therefore likely be needed within ten years of the plan's adoption. As predicted school facilities have recently become overtaxed. In 2015, to assess current resources, the Sherwood School District completed a Facilities Planning and Assessment Report to determine both condition and available capacity. Enrollment based on the most current demographic data and capacity shows that school capacity is near or over capacity at all school levels as shown in Staff Report Attachment 2 (Table 1 in petition).
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the

high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

From the updated capacity assessment and demographic data, it became apparent that facilities must be expanded to keep pace with continued student enrollment growth. A Long Range Planning Committee, Bond Steering Committee, Bond Visioning Committee and Sherwood High School Programming Committee were formed to study facility needs. Led by the Bond Management Team, these committees met from 2014 to 2016, making recommendations to the Sherwood School District Board. The process included input from a number of participants from the community including City Council and staff representation, School District staff, architects, civil engineers, financial advisors, business leaders, citizens, parents and students. Throughout this process, the Sherwood City Council was provided with updates and community input was sought via various public outreach methods.

As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth. With the conclusion that the existing high school cannot be upsized to meet demand, the District's Bond Management Team began looking for a long-term solution and the School Board, with voter approval, ultimately decided to build a new high school. The new high school is planned to be sized to initially accommodate 2,000 students, but allow for easy expansion to 2,400 students. This size will allow for projected growth over the next 10 years and foreseeable future.

Once a new high school is online, the existing high school building can be repurposed as a consolidated middle school with both existing middle schools (Laurel Ridge and Sherwood Middle) being relocated to the existing high school campus. Once this occurs, the two existing middle schools can be converted to elementary school use to expand needed elementary school capacity. Finally, the proposal allows for Hopkins Elementary School, a building nearing its useful lifespan, to be taken out of

> school service and converted to administrative functions. The existing administrative offices consist of portable buildings in varying locations and with the conversion of Hopkins, office space can be centralized for increased efficiencies.

The primary opponent argues that the applicant has not justified the use of the Major Amendment process instead of waiting until the normally scheduled Metro 2018 UGB expansion. Their attorney states: "Metro's scheduled UGB expansion in 2018 is the appropriate time to analyze the expansion for the proposed high school because more data will be available and the full set of impacts can be analyzed. The delay will also resolve the issues with inadequate notice in the current application." *See* Letter from Jennifer Bragar dated June 6, 2017, at p. 8.

What the opponents appear to be arguing is that this application is premature, and the applicant should wait until 2018 when the 20-year buildable lands analysis will be available. Furthermore, the opponents do believe that the Major Amendment process authorized by ORS 197.299(4)(a)(A) requires the same type and level of analysis required when Metro conducts its periodic legislative housing need analysis required by ORS 197.299(1) and ORS 197.296. The opponent's unstated assumption is that school needs must be evaluated as a derivative need of housing using the ORS 197.296(6) process.

Metro staff weighed in on the debate via a Memorandum dated June 9, 2017, which states, in relevant part:

> Metro's legislative process for reviewing the UGB is guided partially by ORS 197.296. Subsection 197.296(2) directs Metro to demonstrate that there is sufficient buildable land within the UGB to accommodate estimated housing needs for 20 years. A housing need is the only need identified in the statute. ORS 197.296(6) says if the housing need is greater than the capacity of the UGB Metro shall take one or more actions that could include amending the UGB to include sufficient buildable lands to accommodate housing needs for 20 years. Subsection (6)(a) goes on to say that if the UGB was amended to accommodate housing needs for the next 20 years, then the amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities.
>
> The statutory directive to Metro is to include sufficient land for school facilities as part of any UGB expansion that is required to meet a 20-year need for housing. In Metro's most recent analysis of the 20-year housing supply (the 2015 UGR), Metro determined there was sufficient capacity inside the existing UGB to accommodate housing needs; therefore, no corresponding analysis for public school facilities was required.

> Even if the Metro Council had determined there was a need to expand the UGB in 2015 to accommodate a 20-year housing need, there is no certainty that the location where the land would be added to meet the housing need is also a location where a local school district needs additional land to meet its facility needs. Likewise there is no certainty that the specific land needs of a school district are coordinated with the local jurisdictions desire for additional housing. For instance, a UGB expansion adjacent to Hillsboro to meet a regional housing need would not support the Sherwood School District's need for a new high school.
>
> These difficulties arise, in part, from the size of the Metro region and the fact that it consists of 24 individual cities and 17 different school districts. It is important to recognize that the provisions of ORS 197.296(6)(a) regarding planning for accommodation of new school facilities is included in the statutory section that describes the analysis required for all cities in the State of Oregon. While it would not be as difficult for a smaller jurisdiction to coordinate future public school needs with future housing needs in making UGB expansions, that task is much more complicated in the Metro region.
>
> The disconnect in the Metro region between the location of UGB expansions to meet a 20-year housing need and the needs of existing school districts is addressed, in part, by ORS 197.299(4)(a), which is the statute that directs Metro to establish the process being utilized by the Sherwood School District in this proceeding. ORS 197.299(4)(a) requires Metro to allow "off-cycle" UGB expansions as necessary to accommodate a need for land for a public school that cannot reasonably wait.

Given that the opponents have a very different interpretation of the purpose and meaning of ORS 197.299(4) when compared to Metro staff and the applicant, a discussion of statutory interpretation is in order.

A statute is considered "ambiguous" if it is capable of at least two reasonable interpretations. *State v. Tarrence*, 161 Or App 583, 985 P2d 225 (1999); *Kenton Neighborhood Ass'n v. City of Portland and Oregon Waste Systems, Inc.,* 17 Or LUBA 784, 797 (1990) (when code is internally inconsistent, it is ambiguous).[1] If the legislation is unambiguous, local governments and courts are bound to apply the statute in that manner, regardless of how inartful the enactment seems. *Sanchez v. Clatsop County*, 146 Or App 159, 164 n 4, 932 P2d 557 (1997). Stated another way, an unambiguous statute should not be "interpreted." *City of Hillsboro v. Housing Dev'l Corp of Washington County*, 61 Or App 484, 488, 657 P2d 726 (1983). *See GTE*

[1] *See also Fisher v. City of Gresham,* 69 Or App 411, 416, 685 P2d 486 (1984); *McCoy v. Linn County,* 90 Or App 271, 276 nl, 752 P2d 323 (1988).

Northwest, Inc., v. Oregon Public Utility Comm'n, 179 Or App 46, 39 P3d 201 (2002). Rather, unambiguous words should be given their plain, natural, and ordinary meaning. *PGE v. BOLI*, 317 Or at 611.[2]

In this case, the hearings officer believes that the relationship between ORS 197.296 and ORS 197.299 creates sufficient ambiguity to warrant an exercise of statutory interpretation.

Text and Context.

When construing a statute, the court will often first look directly at the text of the statute itself. *See Whipple v. Howser*, 291 Or 475, 635 P2d 782 (1981) (citing *Greyhound Corp. v. Mount Hood Stages, Inc.*, 437 US 322, 330, 98 S Ct 2370, 2375 (1978)). Emphasizing the need to look first to the language of the statute, the *Whipple* court stated:

> "The cardinal rule for the construction of a statute is to ascertain from the language thereof the intent of the law makers as to what the purpose was to be served, or what the objective was designed to be attained."

Whipple, 291 Or at 479 (citing *Swift & Co. and Armour & Cove, Co. v. Peterson,* 192 Or 97, 233 P2d 216 (1951). *See also State of Oregon v. Buck,* 200 Or 87, 92, 262 P2d 495 (1953). The *Whipple* court also cited to *State ex rel. Cox v. Wilson*, 277 Or 747, 562 P2d 172 (1977), in which the court stated:

> "There is, of course, no more persuasive evidence of the purpose of a statute then the words by which the legislature undertook to give impression to its wishes."

Courts do not view the text in a vacuum; they consider the context of the language at issue as well. In fact, the context of the statute is as important to the interpretation as the text. *State v. Webb*, 324 Or 380, 927 P2d 79 (1996); *Friends of Neaback Hill v. City of Philomath*, 139 Or App 39, 48, 911 P2d 350 (1996). *See e.g*., *Shadrin v. Clackamas County*, 34 Or LUBA 154 (1998). In some cases, the court may consider the context before examining the text, in situations where the context "provided perspective on the text." *See Plotkin v. Washington County*, 165 Or App 246, 250, 997 P2d 226 (2000). In this case, consider the two statutes in tandem.

ORS 197.299 provides as follows:

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[2] *See also OSHU v. Hass*, 325 Or 492, 501, 942 P2d 261 (1997); *Zidell Marine Corp. v. West Painting, Inc.*, 322 Or 347, 906 P2d 809 (1995); *State v. Langley*, 314 Or 247, 256, 839 P2d 692 (1992); *Curly's Dairy, Inc. v. State Dept of Agriculture*, 244 Or 15, 415 P2d 740 (1966) (If statute is clear and unambiguous, the court may not resort to rules of statutory construction in ascertaining and declaring the legislative intent.); *Sullivan v. City of Ashland*, 130 Or App 480, 882 P2d 633, *rev den*, 320 Or 453, 887 P2d 792 (1994) (An unambiguous code provision cannot be interpreted, even if that provision is contrary to the express purposes of the provision.); *City of Portland v. White*, 61 Or App 120, 655 P2d 629 (1982).

197.299 Metropolitan service district analysis of buildable land supply; schedule for accommodating needed housing; need for land for school; extension of schedule.

(1) A metropolitan service district organized under ORS chapter 268 shall complete the inventory, determination and analysis required under ORS 197.296(3) not later than six years after completion of the previous inventory, determination and analysis.

(2)(a) The metropolitan service district shall take such action as necessary under ORS 197.296(6)(a) to accommodate one-half of a 20-year buildable land supply determined under ORS 197.296 (3) within one year of completing the analysis.

(b) The metropolitan service district shall take all final action under ORS 197.296(6)(a) necessary to accommodate a 20-year buildable land supply determined under ORS 197.296 (3) within two years of completing the analysis.

(c) The metropolitan service district shall take action under ORS 197.296(6)(b), within one year after the analysis required under ORS 197.296(3)(b) is completed, to provide sufficient buildable land within the urban growth boundary to accommodate the estimated housing needs for 20 years from the time the actions are completed. The metropolitan service district shall consider and adopt new measures that the governing body deems appropriate under ORS 197.296 (6)(b).

(3) The Land Conservation and Development Commission may grant an extension to the time limits of subsection (2) of this section if the Director of the Department of Land Conservation and Development determines that the metropolitan service district has provided good cause for failing to meet the time limits.

(4)(a) The metropolitan service district shall establish a process to expand the urban growth boundary to accommodate a need for land for a public school that cannot reasonably be accommodated within the existing urban growth boundary. The metropolitan service district shall design the process to:

(A) Accommodate a need that must be accommodated between periodic analyses of urban growth boundary capacity required by subsection (1) of this section; and

(B) Provide for a final decision on a proposal to expand the urban growth boundary within four months after submission of a complete application by a large school district as defined in ORS 195.110.

(b) At the request of a large school district, the metropolitan service district shall assist the large school district to identify school sites required by the school facility planning process described in ORS 195.110. A need for a public school is a specific type of identified land need under ORS 197.298 (3). [1997 c.763 §2; 2001 c.908 §2; 2005 c.590 §1; 2007 c.579 §2; 2014 c.92 §5]

As quoted above, ORS 197.299(1) cross-references ORS 197.296(3), which, in term, cross-references to ORS 197.296(2). These two statutes together set forth a process for evaluating and accommodating housing needs:

> ***(2) At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use, a local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years. The 20-year period shall commence on the date initially scheduled for completion of the periodic or legislative review.***
>
> ***(3) In performing the duties under subsection (2) of this section, a local government shall:***
>
> ***(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and***
>
> ***(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.*** (Underlined emphasis added).

As the underlined language indicates, ORS 197.296 is a statute narrowly-tailored towards the process used to establish and fulfill an identified *housing* need. It is an expansion of the basic concepts set forth in Statewide Planning Goal 10, but it goes beyond Goal 10 in scope.

As part of that process, the effect of ORS 197.296(6) should also be considered as context:

> ***(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need:***
>
> ***(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school***

districts and the local government that has the authority to approve the urban growth boundary;

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall monitor and record the level of development activity and development density by housing type following the date of the adoption of the new measures; or

(c) Adopt a combination of the actions described in paragraphs (a) and (b) of this subsection.

A few key points can be quickly gleaned from ORS 197.296. First, by its terms, ORS 197.296(2) only applies to periodic review or another "*legislative* review of the [.. .] regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use. " This Major Amendment application is not periodic review and is also not a legislative review of Metro's regional framework plan, *i.e.*, the every six-year UGB amendment cycle. The Major Amendment application is subject to a quasi-judicial process and will result in a quasi-judicial decision by the Metro Council.

Strawberry Hill 4 Wheelers v. Board of Comm'rs sets out a list of factors to be weighed to determine whether a land use decision is legislative or quasi-judicial. 287 Or 591, 602-603, 601 P2d 769 (1979). Under *Strawberry Hills,* the Major Amendment is quasi-judicial because (a) the application process is bound to result in a decision, (b) the decision must apply pre-existing criteria to concrete facts, and (c) the action is directed at a closely circumscribed factual situation.

With regard to the first question, the *Strawberry Hills 4-Wheelers* Court asks practitioners to consider the following question: "Does the statute require the [local government] to reach a decision after the hearing, as in an adjudication, or may it indefinitely postpone or abandon the issue, like a legislative proposal?" 287 Or at 605. At first glance, one might assume that any land use decision that originates from an application being submitted (as opposed to be initiated by the local government itself) would be "bound to result in a decision." Indeed, that seems to have been the original intent of the *Strawberry Hill* Court. However, over the years LUBA and the Court of Appeals have increasingly read this factor more and more narrowly and will only find that that a decision is "bound to result in a decision" if the code either expressly requires a decision to be made, or if that requirement can be fairly read into the language of the code based on the context. *Estate of Gold v. City of Portland*, 87 Or App 45, 48, 740 P2d 812 (1987) ("the statute simply says that the governing body *may* approve the proposal, not that it *must* do anything."); *Johnson v. City of La Grande*, 37 Or LUBA at 388; *Valerio v. Union County*, 33 Or LUBA 604 (1997); *Miner v. Clatsop County*, 46 Or LUBA 467 (2004). In some cases, LUBA has not been as exacting in its analysis, holding that although the code did not:

> "expressly state that once a person requests an interpretation of a provision of the city's zoning ordinance that the person is entitled to a decision. We believe, however, that any reasonable person reading this ordinance would conclude that if a person requested an interpretation from the planning director, received that interpretation and then appealed the interpretation to the planning commission and to the city council, the person filing the appeal would be entitled to a decision from the city council."

Hoffman Ind. Inc. v. City of Beaverton, 2 Or LUBA 411 (1981); *Dean v. City of Oakland*, 33 Or LUBA 806, 809 (1997)("While the cited policy does not require a decision within a specified time, the most natural reading of its terms requires a decision.") The fact that any given ordinance in question states that the decision-maker "may" make a decision should not be a fact which is determined to be indicative of a legislative decision, but unfortunately, in practice it is just that. In this regard, the statute at issue in *Strawberry Hill* did not expressly require that a decision be made. However, the Supreme Court found no difficulty in concluding that "although affirmative action is optional, the statute appears to contemplate that the County Court will *eventually* reach and pronounce some decision whether to act or not. *Id*. at 606. (Emphasis added).

In this case, the MC 3.07.1440(g) requires the Metro Council to make a final decision on the petition. Therefore, this factor suggests that the decision is quasi-judicial.

The second of the *Strawberry Hill* questions has, in practice, become somewhat of a non-factor. Both LUBA and the Court of Appeals have recognized that all land use decisions in Oregon are subject to "preexisting criteria" and apply to concrete facts. LUBA has addressed this issue as follows:

> Turning to the "apply existing criteria to concrete facts" factor, that factor is present to some extent in all land use decisions. *Valerio*, 33 Or LUBA at 607. This factor is therefore less important than the other two factors, particularly where, as is the case here, the decisions are adopting new land use laws rather than applying existing land use laws to grant land use approval for a single property or a small number of properties. *Churchill v. Tillamook County*, 29 Or LUBA 68, 71 (1995); *McInnis v. City of Portland*, 27 Or LUBA 1, 5-7 (1994).

Carver v. Deschutes County, 58 Or LUBA 323 (2009). *See also Casey Jones Well Drilling, Inc. v. City of Lowell*, 34 Or LUBA 263, 271 (1998); *Johnson v. Jefferson Country*, 56 Or LUBA 72 (2008). In this case, the MC 3.07.1440 sets forth criteria for a Major Amendment to a UGB. Therefore, this factor suggests that the decision at issue is quasi-judicial.

Under the third factor, LUBA and the Courts are supposed to assess whether the decision either (1) affects either a small number of owners and properties or (2) the "action directed at a closely circumscribed factual situation," or whether the decision has more broad

applicability. According to early decisions by the Court of Appeals, "the number of people affected and the size of the area covered are less important considerations," and the focus should instead be on "the importance of assuring that the decision is factually correct and that the decision-maker gives fair attention to affected individuals." *1000 Friends of Oregon v. Wasco Co. Court*, 80 Or App 532, 536, 723 P2d 1034 (1986), *rev'd on other grounds*, 304 Or 76, 742 P2d 39 (1987). In practice, this third bean-counting "factor" has become the most critical issue to LUBA, and, despite suggestions to the contrary, in most cases it is more-or-less the dispositive factor. In fact, LUBA has found decisions to be legislative even when the other two factors favored a determination that a decision was quasi-judicial. *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992).

In this case, the proposal involves 82 acres consisting of four tax lots in unknown ownerships. This is well within the size and ownership limits that would allow the conclusion that the decision is quasi-judicial.

The primary opponent argues that this Major Amendment is a "legislative decision," The primary opponent states that "[t]he decision amends the Metro Boundary map that is incorporated into the Metro Urban Growth Functional Plan, and as such the change is legislative." *See* Letter from Jennifer Brager dated June 23, 2017 at p. 1. However, map amendments are not necessarily or inherently legislative or quasi-judicial in nature. *Compare Thomas v. City of Veneta*, 44 Or LUBA 5 (2003) (TSP and zoning map amendment affecting two tax lots comprising 6.4 acres); *Dan Giles & Assoc., Inc. v. McIver*, 113 Or App 1, 3, 831 P2d 1024 (1992)(zone change for single 29-acre parcel in unified ownership is quasi-judicial); *Neuberger v. City of Portland*, 288 Or 155, 603 P2d 771 (1979) (re-zoning involving 601 acres of land owned by three landowners is quasi-judicial).[3] *Contrast Valerio v. Union County*, 33 Or LUBA 604 (1997) (comprehensive plan amendment and zone change pertaining to 185 acres in a "number of different ownerships" is legislative); *Friends of Cedar Mill v. Washington County*, 28 Or LUBA 477 (1995) (PAPA relocating arterial and changing it from 5 lanes to 3 lanes is legislative, where it affects 40 properties and will carry 17,000 – 18,000 trips per day.); *McInnis v. City of Portland*, 27 Or LUBA 1 (1994) (Proposal which rezones 5000 acres in 110 different ownerships is legislative.); *Davenport v. City of Tigard*, 22 Or LUBA 577 (1992) (Transportation plan map amendment that directly involves nine property owners, but has "indirect effects" on a broader population is legislative). Nor is a UGB amendment inherently legislative in nature. *BenjFran Development, Inc. v. Metro*, 17 Or LUBA 30 (1988) (denial of request for UGB amendment comprising almost 500 acres in three ownerships is quasi-judical).

Cases such as *Davenport* and *Friends of Cedar Mill* suggest that large transportation projects will be considered legislative due to the broad secondary effects that transportation facilities can have on commuters. The hearings officer does not believe that this line of cases can be extended to a school, however, based simply on the fact that many kids will attend the school. If that were the case, then any land use decision involving a Wal-Mart or Home Depot store would be legislative, because those uses have higher usage / trip generation rates than a typical school.

[3] *See Neuberger v. City of Portland*, 37 Or App 13 (1978), *rev'd in part, aff'd in part*, 288 Or 155, 603 P2d 771 (1979).

Opponent's counsel cites *Colwell v. Washington County*, 79 Or App 82, 87-8 (1986) for the proposition that this Major Amendment is a legislative (and not a quasi-judicial) decision (*see* Bragar letter dated 23 June 2017, pp 1-2). *Colwell* does not support that conclusion, and is easily distinguished. In *Colwell,* the Washington County Planning Commission made a land use decision which opponents wished to appeal to the Board of Commissioners, but their appeal was dismissed for failure to timely pay for the quasi-judicial Planning Commission hearing transcript. *Colwell*, 79 Or App at 85. Opponents appealed to the LUBA, which dismissed the appeal for failure to exhaust remedies at the local (County) level. The Oregon Court of Appeals reversed and remanded, finding that the Washington County governing body (*i.e.* the elected Board of County Commissioners) - and not the unelected County Planning Commission - must make Comprehensive Plan amendments, pursuant to ORS 215.050(1) and ORS 215.060.

Opponent's argument might have some merit if this unelected hearings officer was the one to make the final decision on this Major Amendment land use application. Only the elected Metro Council has that authority, however. This hearings officer's findings and determination are merely a recommendation to the Metro Council, and the Council is free to accept or reject this Hearings officer's decision, as the Council sees fit. Since the Metro Council will be the governmental body to make the final land use decision in this case, the Court of Appeals' holding in *Colwell* shall be followed for this application.

Despite the lengthy analysis set forth above, the hearings officer does not really believe that the quasi-judicial vs. legislative debate is dispositive, in any event. Rather, it is a red herring. Stated another way, the hearings officer does not believe that ORS 196.296 would apply to this UGB Amendment even it was a legislative decision. By its terms, ORS 197.296 only applies to UGB amendments that "require the application of a statewide planning goal relating to buildable lands for residential use." As discussed elsewhere in this recommendation, an amendment to a UGB which adds AF-20 zoned land for use as a school does not implicate Goal 10 in any meaningful way .

Second, ORS 197.296 sets forth a mandatory periodic process that is focused on only one type of land need: a need for housing. We can credit the Home Builder Association for being active in the legislature over the past 30+ years and influencing the adoption of specific statutory language, such as ORS 197.296, which relates specifically to their industry. But we should also not lose sight of the fact that there are other types of land need under Goal 14 that don't implicate ORS 197.296.

Taking a step back, recall that Goal 14 states that a UGB amendment must be based on consideration of six factors set forth in the Goal. The first two factors are commonly referred to as the "need" factors. The need factors require either a demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, <u>or</u> a demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories. While the need for housing is governed by ORS 197.296, other land needs are governed by Statewide Planning Goal 14, and in some cases, by OAR Ch. 660, Div 24. Note, as an example, that OAR Ch. 660, Div. 24 does not address now a livability need is established; Goal 14 seems to be the sole administrative pronouncement of its use. What is important to understand for purposes of this case is that ORS 197.296 is not the sole way to

establish land need, and a school need is not limited to being established as a derivative need of housing under ORS 197.296(6).

Among the more common types of land need mentioned in Goal 14 include a need for employment land, a need for public facilities, a need for schools, a need for parks, and the amorphous catch-all known as a "livability need."[4] With one exception related to public schools, ORS 197.296 does not govern substantively how these other types of land needs are established. Nor does it establish a *process* by which those other needs are established. Rather, ORS 197.296(2) & (3) are narrowly focused on accommodating a housing need, and as shown below, accommodating land for public schools as a derivative need stemming from housing need.

Consider ORS 197.296(6) as context: this statute applies when a local government is undertaking periodic review or a legislative review of a UGB that implicates Goal 10. If during such a process, the local government determines that a need exists for additional residential land and that accommodating that land need must necessarily involves a UGB amendment, then ORS 197.296(6)(a) requires that local government to "include sufficient land reasonably necessary to accommodate the siting of new public school facilities." Thus, under that process, a public school facility is considered a derivative need that arises by operation of a demonstrated need for housing. However, there is nothing in ORS 197.296(6) that makes ORS 197.296 the exclusive process by which a need for schools can be established. As demonstrated by the applicant a need for new school facilities can exist independent of housing needs. And while the primary opponent chalks up the applicant's current need to poor planning on the District's part (a sentiment that may have some basis in fact), ORS 197.299(4) appears to written as a safety value that can be used by school districts regardless of the causes that led to the need.

ORS 197.299(4)(a)(A) provides additional key textual clues which helps understand the nature of the process currently being undertaken. This provision authorizes Metro to "establish" and "design" a "process" that will fulfill a need that must be accommodated "*between*" periodic analyses of urban growth boundary capacity required by subsection (1) of this section." By giving Metro the authority to "establish" and "design" a unique UGB amendment process for schools, the statute makes clear that the school need specific "4(a)" process is not the *same* process as the legislative six-year process required by ORS 197.299(1) and 197.296(3). The ORS 197.296 process is already "established" and "designed" by statute, and really only puts a regional government much as Metro in an implementation role. On the other hand, ORS 197.299 delegates to Metro a role that is greater than mere implementation of a pre-existing process. Furthermore, ORS 197.299(4)(a)(4) further emphasizes that the school-specific process is only supposed to be used "between" the 6-year legislatively-mandated processes for accommodating housing needs, and it can only be invoked if the identified school need cannot wait until the next scheduled six-year legislative process.

[4] LUBA cases confirm that a need to improve livability can provide a basis for adding land to a UGB. Such an analysis requires, in addition to identifying a significant livability problem, an evaluation of probable and negative impacts on livability that may occur if the UGB is amended, and an explanation of why the livability benefits outweigh negative impacts on livability. *1000 Friend of Oregon v. City of North Plains,* 27 Or LUBA 372, 383, *aff'd.,* 130 Or App 406 (1994); *1000 Friends of Oregon v. Metro Service Dist*., 18 Or LUBA 311, 320 (1989).

The gravamen of opponents' complaints with respect to ORS 197.299(4) stem from a misunderstanding of the relationship between the ORS 197.299(1) six-year UGB amendment process with the ORS 197.299(4) public school amendment process. Much of opponent counsel's testimony at the June 13, 2017, hearing and again in her June 23, 2017 letter, was directed generally at a dissatisfaction with how Metro plans for regional housing and employment needs and opponents' opinion that allowing out-of-cycle UGB expansions for public schools exacerbates Metro's alleged poor planning. In its June 23, 2017 letter, opponents argued that this Major Amendment application does not meet the requirements of ORS 197.296(2).

At its core, the opponent's argument hinges on the assumption that the school-specific process must be substantively the same as the periodic six-year legislative process. Stated another way, the opponents argue that the substantive standards and criteria that govern the school specific process are the same as the housing-specific legislative process under which school need can be established as a derivative need. However, if that were truly the case, however, there would be no need for Metro to "establish" and "design" a new process. Rather, if the legislative intent was to mandate the same rigorous process that is used to establish housing need and to otherwise limit school need as a derivative need, the legislature would have simply stated that a school-related need can form the basis for accelerating the time frame under which the legislative housing need process is conducted. And that in itself does not make any sense because nothing in ORS 197.299(1) or ORS 197.296 prohibits Metro from conducting the legislative housing-needs process sooner than on a 6-year increment. In fact, ORS 197.299(1) merely states that Metro must undertake the ORS 197.296 process "*not later than six years after completion of the previous inventory, determination and analysis."* In theory, Metro could voluntarily conduct that inventory and analysis on a bi-annual or other timeline. In light of this observation, ORS 197.299(4) would be a redundancy if interpreted in the manner that the primary opponent advocates.

Courts strive to give effect to all parts of a statute, in order to produce a harmonious whole. ORS 174.010.[5] As a corollary, courts will avoid interpretations that render a portion of the statute redundant or meaningless surplusage.[6] *See State v. Stamper,* 197 Or.App. 413, 418, 106 P.3d 172, *rev. den.,* 339 Or. 230, 119 P.3d 790 (2005) ("we assume that the legislature did not intend any portion of its enactments to be meaningless surplusage"). If the school-specific process were not a separate process governed by different substantive criteria than ORS 197.296, it would not accomplish anything that Metro did not already have the right to do.

Rather than being drafted as an authorization to conduct the existing six-year legislative housing needs process at any time increment earlier than six years if a need exists that cannot wait six years, ORS 197.299(4)(a)(A) contemplates a *new* process *designed* by Metro to cater to

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[5] *Lane County v. LCDC*, 325 Or 569, 578, 942 P2d 278 (1997); *Bolt v. Influence, Inc.,* 333 Or. 572, 581, 43 P.3d 425 (2002) ("we are to construe multiple provisions, if possible, in a manner that will give effect to all"). *See also Davis v. Wasco IED*, 286 Or 261, 267, 593 P2d 1152 (1979); *Tatum v. Clackamas County*, 19 Or App 770, 775, 529 P2d 393 (1974); *Plotkin v. Washington County*, 36 Or LUBA 378 (1996); *Walz v. Polk County*, 31 Or LUBA 363 (1996); *Fechtig v. City of Albany*, 31 Or LUBA 410 (1996) (Ordinance).

[6] *Certain Underwriters at Lloyd's London and Excess Ins. Co., Ltd. v. Massachusetts Bonding and Ins. Co*., 235 Or.App. 99, 230 P.3d 103 (2010); *State v. Stamper,* 197 Or.App. 413, 417, 106 P.3d 172, *rev. den.,* 339 Or. 230, 119 P.3d 790 (2005); *EQC v. City of Coos Bay,* 171 Or.App. 106, 110, 14 P.3d 649 (2000).

school needs as a primary independent need, not as a secondary derivative need resulting from a housing need. Because it is a different process that is intended to evaluate a needs other than a housing needs, the process and requirements (*i.e.* inventory, determination, and analysis) of ORS 197.296 do not apply to this separate process. And discussed below, the legislative history confirms this analysis.

Legislative History

Prior to 2001, the case of *Portland Gen. Elec. Co. v. Bureau of Labor & Indus.,* 317 Or 606, 611–612, 859 P2d 1143 (1993) (hereinafter *PGE*) made clear that legislative history could not be used to determine legislative intent if the text and context of the law made the meaning of that law unambiguous. The case of *State v. Gaines,* 346 Or 160, 171–172, 206 P3d 1042 (2009) essentially acknowledges that the *PGE v. BOLI* approach was legislatively modified in 2001 via amendments to ORS 174.020, and that the statute now permits the consideration of legislative history even when the text and context seem to make the meaning unambiguous. For this reason, a careful treatment of *Gaines* is warranted here.

The OSB publication entitled "Interpreting Oregon Statutes" Steve Johansen, Hon. Jack Landau, and Anne Villella ed. OSB CLE (2009) contains a lengthy but highly relevant discussion of *Gaines,* as follows:

> In *Gaines,* the defendant was convicted of obstructing governmental administration when she refused to cooperate in being photographed after her arrest. On appeal, she argued that her behavior did not constitute a "'means of . . . physical . . . interference or obstacle' "within the meaning of the relevant statute. *Gaines,* 346 Or at 162 (quoting ORS 162.235(1)). She argued further that the 2001 amendments to ORS 174.020 required the court to consider the legislative history of ORS 162.235(1) along with the text and context of the statute, even if the court found that its analysis of the text and context did not render the legislative intent ambiguous. *Gaines,* 346 Or at 165. Interestingly, in assessing the meaning of the 2001 amendments to ORS 174.020, the court found that a text-and-context analysis suggested that the amendments did not significantly change the *PGE* standard. *Gaines,* 346 Or at 166. However, the court did not stop its analysis at the text-and-context level. As the plaintiff argued that ORS 174.020 required, the court went on to examine the legislative history. The legislative history revealed a clear legislative intent to eliminate the requirement that a court only look to legislative history "if but only if" the text and context left the meaning ambiguous. *Gaines,* 346 Or at 169.
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> * * * * *.

> The court will now consider proffered legislative history even when the text and context of a statute appear to render it unambiguous. In effect, *Gaines* brings legislative history into the step-one analysis along with the text and context of a statute. That said, legislative history remains a second step of statutory analysis—the court will consider it only after analyzing the text and context of a statute. The weight the court gives that legislative history also remains within the discretion of the court. A party attempting to overcome seemingly plain and unambiguous text through reference to legislative history has "a difficult task before it." *Gaines,* 346 Or at 172.

Although *Gaines* modifies the *PGE* methodology, the full extent of that modification remains to be seen. However, a recent appellate court decision suggests the extent may be relatively slight. *State v. Kelly,* 229 Or App 461, 211 P3d 932 (2009). *Kelly* raised the issue of the meaning of ORS 811.335(1)(b), which requires drivers to signal a turn "during not less than the last 100 feet traveled by the vehicle before turning." The defendant, who signaled a turn after he had stopped at an intersection, argued that the legislative history showed that the intent of the statute was to require a signal for at least as long as it took to travel the last 100 feet, but not to signal for the specified distance. The court agreed that under *Gaines* it needed to consider the legislative history. The court also made several points as to what weight it would give that legislative history.

The court first made clear that legislative history alone cannot overcome statutory text that is truly capable of only one interpretation. *Kelly,* 229 Or App at 466. Beyond that caution, the court explained the traditional limits of legislative history: legislative history is most helpful when it uncovers the general legislative intent of a statute (*Kelly,* 299 Or App at 466); statements of single legislators or non-legislators are generally, though not always, less helpful (*Kelly,* 299 Or App at 466–467), and the existence of a particular problem that precipitated a bill does not necessarily mean the statute was intended to address only that problem (*Kelly,* 299 Or App at 468). What *Kelly* does not suggest is that *Gaines* changes in any significant way *how* courts use legislative history. Rather, it only changes *when* the court will consider legislative history. Thus, even under *Gaines,* legislative history will be most helpful when an analysis of the text and context does not resolve an ambiguity of the statute. Legislative history may also be useful to reinforce an apparently unambiguous interpretation of a statute. (Emphasis added).

Courts are not likely to be persuaded by legislative history when that history does not give any indication that the precise legal question at issue was considered during the legislative enactment.[7]

The subsection in question, subsection 4, was added to ORS 197.299 in 2005 as part of Senate Bill 1032. Testimony at legislative committee hearings from bill authors and proponents indicates SB 1032 was intended to grant Metro new expedited authority to expand the UGB for the purpose of allowing construction of new schools, and such a process would be separate from the "normal" UGB expansion process typically required by state statutes.

Testimony of several speakers during the May 17, 2005 public hearing provide insight regarding the policy goals behind SB 1032. The main speaker, Gary Conkling, represented the Beaverton School District and was one of the authors of the bill. Mr. Conkling began his testimony in favor of the bill by outlining the pressing problems that face the city of Beaverton. He stated that "in the last decade or so the Beaverton School District has added more than ten thousand students" and that those students alone would make up the fifteenth largest school district in the state.[8]

Mr. Conkling explained that overabundance problems are common in the metropolitan areas of Portland, and most suitable plots of land for schools have been used for other projects intended to spur economic development. Mr. Conkling "anticipate[d] [Beaverton] will have to look outside the UGB for one or more additional school sites" to meet the growing demand. He ended his testimony by stating two main objectives of SB 1032. First, the bill is designed to gain "guidance from Metro, cities, and urban service providers as to where we should look outside the UGB" for suitable plots of land for schools. Second, the bill has language that "will encourage Metro to provide an accelerated process to add those lands once . . . the need has been established . . . so that lands can be added on an accelerated basis to the UGB."[9]

Metro Legislative Affairs Director Randy Tucker, a second advocate of SB 1032, added some additional points regarding the purpose and scope of the bill. Mr. Tucker explained that developing lands for schools requires additional planning considerations than developing lands for other purposes because schools must be located in particular locations. These additional considerations include that ideally, schools should be located near city centers, and schools must fall within existing school district boundaries. This makes it even more difficult to find suitable land for new school construction without expanding the UGB.

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[7] For example, the court often dispense with legislative history in one sentence by stating simply that the legislative history is silent on the particular issue facing the court. *Ritcherson v. State,* 131 Or App 183, 186, 884 P2d 554 (1994) (seeking to determine if ORS 138.510(2) included retroactive application of its two-year statute of limitations period); *see also Windsor Ins. Co. v. Judd,* 321 Or 379, 387, 898 P2d 761 (1995) ("[W]hat little [discussion of the amendment] there was reveals nothing that sheds light directly on the question posed in this case."); *State v. Holloway,* 138 Or App 260, 267, 908 P2d 324 (1995) ("Unfortunately, our examination of the legislative history sheds no light on the matter."); *In Def. of Animals v. Or. Health Scis. Univ.,* 199 Or App 160, 173 n 9, 112 P3d 336 (2005) ("We note that the legislative history . . . provides no assistance in determining the provision's meaning.").

[8] Hearing on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Gary Conkling, Representative of Beaverton School District).

[9] *Id.*

Finally, Mr. Tucker added that Metro intended to implement SB 1032 by amending its own code to make it easier to expand the UGB for schools "when [new schools] cannot be reasonably accommodated in the UGB, and when they must be accommodated before we would normally do an UGB expansion." Here, Mr. Tucker indicated that Metro should be authorized to quickly initiate UGB expansion for schools outside of the "typical" or "normal" legislative process of reevaluating the buildable land supply inside the UGB every [six] years.

Later, in a May 31, 2005 work session on SB 1032, Messrs. Conkling and Tucker again provided testimony in support of the bill and explained its purpose and scope. Mr. Conkling stated the bill's main purpose is to provide Metro "[with a] process that can work in between its periodic review, and provide for an accelerated process to bring these school sites inside the UGB."

After the testimony of Mr. Tucker, Senator Charlie Ringo, Chair of the Committee, asked if the bill will "facilitate Metro addressing the problem with high growth districts not finding land for schools."[10] Mr. Tucker stated his answer was yes, and that the bill would provide the basis for immediate negotiation as to what land should be included in the UGB as part of an amendment. Mr. Tucker explained that the bill would be beneficial to districts like Beaverton because "it facilitates the process for expanding the UGB for a school district that has need." Mr. Tucker stated that ideally, after revising the Metro code to implement the statute, the process to expand the UGB to include land for a school would take only four months.

The legislative history of HB 1032 indicates that one main purpose of the bill was to streamline the process for amending the UGB for the purpose of building new schools. The testimony of both Conkling and Tucker describe a pressing need for land in metropolitan areas for new school construction that cannot always be met within the typical five-year UGB cycle. Proponents of the bill clearly express intent to grant Metro authority to amend the UGB through a process that would be separate from the regular review cycle and corresponding 20-year need analysis.

Proponents of the bill used words such as "streamline" and "accelerated" in the context of a new expansion process that could occur outside and separate from the "normal" time intensive 20-year need analysis, and described a process that would be based exclusively on a demonstrated need for additional school facilities. Testimony regarding the purpose of SB 1032 indicates that the purpose of the legislation was to allow a separate and expedited process exclusively for school siting, which would not be tied to the 20-year buildable land supply analysis that is required under ORS 197.296.

As described above, it is clear from legislative history that the 2005 Oregon legislature was acutely aware of the problem of holding school districts to a six year Metro planning cycle during the enactment of SB 1032. Metro's Randy Tucker specifically stated that SB1032

[10] Work Session on S.B. 1032 Before the S. Comm. on Environment & Land Use, 2005 Leg., 73rd Assemb., Reg. Sess. (Or. 2005) (statement of Sen. Charlie Ringo, Chair, S. Comm. on Environment & Land Use).

"facilitated" school districts obtaining a UGB amendment for school facilities.[11] According to the Merriam-Webster dictionary, the word "facilitate" means "to make (an action or process) easy or easier." It makes little sense to believe that the legislature would desire to make obtaining a Metro UGB amendment *just as, or even more difficult* for schools while simultaneously creating an "accelerated" process specifically for schools. Indeed, Metro's own Legislative Affairs Director – no stranger to tightly-crafted statutory language - was quite clear in stating that the purpose of SB 1032 was to "facilitate" (that is, make easier) the process for Metro-area schools.

In addition, the hearings officer finds that the ORS 197.299's school-specific UGB amendment process is no less thorough or exacting than an application that could have been filed in due course of the next six-year Metro planning cycle. It is true, as opponents claim, that the next Metro 20-year buildable lands analysis is not yet available, and thus cannot be taken into account during this application. The law does not require that, however, and requiring school applicants to wait until the next six-year Metro planning cycle would render the passage of ORS 197.299 pointless. The entire point of ORS 197.299 was to provide schools with an interim, accelerated, easier ("facilitated") application process, rather than waiting for the next 6 year Metro planning cycle. Statutes should not be construed such that they make other statutes completely meaningless.

As noted above, the Metro Council is required to complete a 20-year forecast and analysis of land need to maintain a 20-year supply of residential and employment land inside the UGB on a six-year cycle. However the Metro Council has directed staff to complete an urban growth report in 2018, three years after the urban growth report was adopted in 2015, with a possible growth management decision occurring in December 2018 that may or may not result in an expansion of the UGB. Delaying the proposed amendment for these specific school and park needs until that time, when these types of specific needs are not addressed in the regional analysis, is not an appropriate or an efficient way to provide these needed services and would result in the District experiencing ever-increasing overcrowding of their facilities.

Thus, in summary, review of the text and context of ORS 197.299 and ORS 197.296 in combination with the legislative history of the 2005 Amendments which created ORS 197.299(4) bring the legislative intent into clear focus. ORS 197.299(4) explicitly provides a "safety valve" of sorts for public school needs. The statute de-couples the need for schools from the derivative secondary needs analysis set forth in ORS 197.296(6). The legislature apparently understood the critical nature of schools to serve the community and felt strongly enough about that to provide a mechanism to ensure that needed schools can be built. Opponents' attempt to saddle Major Amendments with all of the trappings of a six-year legislative review of the region's UGB is contrary to both the plain text of ORS 197.299(4) and its legislative history.

Having resolved the statutory interpretation question, we turn back to the evidence of need. The District originally adopted a long-term facilities plan in January 2008 that assumed additional school capacity would be needed in ten years. This proved true, as of 2017 the high

[11] Testimony before the Senate Environment and land Use Committee, May 31, 2005, beginning at minute 1.13, available at http://records.sos.state.or.us/webdrawer/webdrawer.dll/webdrawer/rec/4193397/ Mr. Tucker's statement is found at minute 1.18, in response to a question from Senator Ginnie Burdick.

school is at 109% of capacity and the four elementary schools are at 99% capacity. A ten-year demographic study by Davis Demographics & Planning Inc., completed in May 2016, forecasted a deficit in capacity at all levels with the high school operating at 141% of capacity. In order to meet the growing need, the District determined, with the assistance of numerous committees, that a new high school would be needed. Voters approved a bond measure in 2016 to construct a new high school and make other facility improvements. The applicant adequately addressed the urgent need for the new high school by substantial evidence in the whole record in its application submittal and its subsequent submittals. (*See* application narrative ("Narrative") at 14-15, 33, Appendices G, H, and I; June 8, 2017, District letter at 1-3, Attachment i; June 13, 2017, District letter at 5.)

The applicant has met its burden of showing compliance of the two criteria found in Metro Code section 3.07.1440(A) by substantial evidence in the whole record.

Metro Code Section 3.07.1440(B)

> **3.07.1440 Major Amendments - Criteria**
> **(b) The applicant shall demonstrate that the proposed amendment to the UGB will provide for an orderly and efficient transition from rural to urban land use and complies with the criteria and factors in subsections (b), (c), (d), (e), and (f) of section 3.07.1425. The applicant shall also demonstrate that: (1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land; (2) If the amendment would add land for public school facilities, the coordination required by subsection (c)(5) of section 3.07.1120 of this chapter has been completed; and (3) If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot reasonably be created by land assembly or reclamation of a brownfield site.**

[Note: This Provision Incorporates by Reference: 3.07.1425(B), (C), (D), (E), & (F), which are Discussed Below].

MC 3.07.1425(B)(1): Demonstrated need to accommodate future urban population, consistent with a 20-year population range forecast coordinated with affected local governments;

Hearing Officer's Analysis: MC 3.07.1425(b)(1) requires that the Major Amendment application show a [d]emonstrated need to accommodate future urban population, consistent with a 20-year population forecast coordinated with affected local governments. " This criterion is taken word for word from the first need factor set forth in Statewide Planning Goal 14. In the context of periodic review, Factor 1 pertains to a determination of overall land need in order to accommodate population growth. In this case, the need is for additional school capacity to alleviate an overcrowding situation at the Sherwood high School. For this reason, the first need factor set forth at MCC 3.07.1425(B)(1) is to be considered, but it is not determinative by itself.

In *Residents of Rosemont v. Metro,* 173 Or App 321, 328, 21 P3d 1108 (2001), the Court of Appeals explained that "[w]e held in *Baker [v. Marion County,* 120 Or App 50, 852 P2d 254, *rev den*, 317 Or 485, 858 P2d 875 (1993),] that factors 1 and 2 of Goal 14 are interdependent and

that, if one of the factors is not fully satisfied, or is less determinative, that factor must still be considered and discussed in deciding if a need for expansion of a UGB has been shown under factors 1 and 2 of Goal 14."

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable need for the new Sherwood High School based on a forecast that is consistent with the adopted 20-year population range forecast which has been coordinated with affected local governments.

The District and Metro staff address this provision at: Application Narrative at pp. 15, 34, App'x H; May 4, 2017, staff report ("Staff Report") at 5; June 9, 2017, Metro memo; June 13, 2017, District letter at 1-2. In particular, the applicant attempts to meet its burden of proof with the following analysis:

> *As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.*
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> *The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment 3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.*

Metro's 20-year population range forecast is part of the 2015 urban growth report ("UGR"). Therein, the Metro Council determined that the region could meet the expected 20-year residential and employment forecast need within the UGB and no expansion of the UGB was needed to meet housing or employment needs. The UGR did not address specific school and park land needs. As a result, the District prepared a ten-year demographic study that supports a need for additional land for a new high school in order to accommodate future urban population. The District completed this demographic study using population and demographic projections for the cities of Sherwood and Tualatin.

The parties do not focus much, if any, of their debate on whether the population and demographic projections in the District's 10-year study are "consistent" with the assumptions in the 2015 UGR. Such as comparison is complicated by the fact that the UGR takes a high-level regional look at residential and employment needs, whereas the District's 10-year demographic study is much more narrowly focused on Sherwood's population. Nonetheless, the hearings officer reviewed both the 10-year study and the UGR and finds that there is no glaring inconsistency between them. The 2105 UGR anticipates continued high levels of growth in our region. The UGR further recognizes that there is still a considerable amount of vacant and redevelopable land located in and near the City of Sherwood. This would indicate that the District needs to be prepared to accommodate a large amount of additional school children. Given that the regional 20-year forecast did not address school and park land needs, the District's ten-year demographic study, which supplements the long-term facility plan completed in 2008, demonstrates a need to accommodate future urban population by substantial evidence in the whole record. The applicant has provided information regarding a ten-year demographic study showing a need for providing specific school facilities to meet present and future populations based on established methodologies for the proposed use. The applicant also provided written and verbal testimony from experts such as architect Karina Ruiz of Dull Olson Weekes IBI Group Architects, Inc, planner Keith Jones AICP of Harper Houf Peterson Righellis Inc, and traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates. Having reviewed these materials and observed their testimony, the hearings officer finds them more credible and assigns great weight to their views.

Staff is also correct when it states that even if Metro had expanded the UGB in 2015 for a 20-year housing need, there is no guarantee that the location of the added land would have accommodated the specific need for a new high school in Sherwood. ORS 197.299(4) provides a safety valve for such a situation.

The primary opponent argues that the District could only demonstrate consistency with the 2015 UGR by submitting a new 20-year demographic study. *See* letter from Jennifer Bragar dated June 23, 2017, at p. 20. The opponent points to no specific law which expressly states such a requirement, and the hearings officer does not believe that such a requirement exists. As far as the hearings officer can determine, "consistency" in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here. *See* the updated 10-year demographic study conducted by Davis Demographics & Planning Inc. dated May, 2016. This is consistent with Goal 2, which requires the factual inventories and assumptions included in the comprehensive planning documents to form the "basis for all decisions and actions related to land use." *Rivergate Residents Ass'n v. LCDC*, 38 Or App 149,

5990 P2d 1233, *rev den*. 286 Or 521 (1979); *Hildenbrand v. City of Adair Village*, 217 Or App 623, 177 P3d 401 (2008) ("Plan policies or inventories can serve to justify subsequent and related plan amendments because comprehensive plans must be internally consistent under Goal 2.)" *See also 1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 26 P3d 151 (2001). *Compare GMK Developments v. City of Madras,* 225 Or App 1, 199 P3d 882 (2008) (Nothing in Goal 2 itself requires the sort of continuous data correction that the opponents urge us to impose in this case).

MC 3.07.1425(B)(1) requires the District to demonstrate a need to accommodate future urban population; consistent with the demographic study contained in the 2015 UGR. The District has done that, and that is all that is required. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425(B)(2): Demonstrated need for land suitable to accommodate housing, employment opportunities, livability or uses such as public facilities and services, schools, parks, open space, or any combination of the foregoing in this paragraph;

This factor requires the applicant to show, by substantial evidence in the whole record, that there is a demonstrable "need for land suitable to accommodate * * * uses such as * * * schools * * *." The applicant presents its case as follows:

> As described herein, the need for additional school capacity including the need for a new high school is well documented as described in Section III of the petition. The existing high school is operating overcapacity and the constraints of the existing high school site and building do not allow for feasible expansion to 2,400 students to serve long-term needs. Building a new high school will also allow the existing high school building to be converted to middle school use by consolidating the two existing middle schools to one location. This will further allow for the conversion of the two existing middle schools to elementary school use. The capacity analysis and 10-year demographic projections indicate that there will be capacity issues at all school levels if nothing is done. The proposed project will provide the long-term capacity needed.
>
> The School District commissioned Davis Demographics & Planning Inc. to complete an updated 10-year demographic study in May of 2016. The study reviewed the following factors that determine student enrollment: (1) the current and planned residential development over the next ten years; (2) student yield factors that apply to new residential development; (3) birth factors for the District area; and (4) mobility factors, which examine the in/out migration of students within existing housing units. The forecast projects a deficiency in capacity in all levels, with the high school level having the largest deficiency. Staff Report Attachment

3 (Table 2 in petition) shows 10-year enrollment projections compared with existing school building capacity. The table demonstrates that if no capacity is added (no-build) the school facilities will be far over capacity in 10 years with the Sherwood High School having the largest capacity issue operating at 141% of capacity.

The City of Sherwood and the Sherwood School District have an intergovernmental agreement to share ballfields. The City of Sherwood owns an extensive system of parks and trails. However, the City's ballfield resources are very limited with only one soccer field located at the City's Snyder Park. In the early 1990s, prior to rapid growth in the preceding 20 years, the City took measures to protect natural resources. This included the protection of floodplains and wetland areas surrounding the Cedar Creek stream corridor that flows south to north through the center of the City limits to the Tualatin National Wildlife Refuge. The City acquired much of this land and maintains these areas as natural open space, wetlands and walking paths. Since most of the areas are sensitive and passive recreation areas, they are off limits to ballfield construction. Because Sherwood has a very active sports community, the City and School District decided to share sports fields with most of these facilities being on school grounds.

In the case of the new High School site, the City owns the approximately 20-acre parcel in the southeast corner of the property. Some of this land, approximately 4 acres, will be used for the Elwert and Kruger Road realignment and roundabout, but the remaining balance will become part of the new high school campus and allow for construction of additional ballfields to be shared with both school and City sports functions.

As documented in Section III of the petition, viable high school sites are not available within the current UGB. The only viable sites, including the proposed site, have been identified within the Sherwood West Concept Planning Area (Urban Reserve Area 5B).

The subject site ("Site C") is the best alternative site considering that it has:

- No mapped sensitive areas (habitats, wetlands or waterways),
- Gently sloping topography to allow for construction of ballfields,
- Close proximity to SW Elwert Road and Highway 99W for ease of access,
- Availability of public utilities (water and sewer),

- Available downstream discharge point for stormwater, and
- Sufficient area to provide high school campus for 2,400 students and needed City/School District shared ballfields.

As shown above, the applicant has shown a compelling need for providing specific school facilities to meet present and future populations.

The City of Sherwood and the District have an intergovernmental agreement to share sports fields with most of the facilities on school grounds. The City has an extensive system of parks and trails but sport field resources are very limited with one soccer field located in a city park. Thus, the applicant has shown there is a demonstrated land need to accommodate both school and park services by substantial evidence in the whole record. That evidence may be found in the following: Applicant's Narrative at p. 12-32, 34, Appendices C, G, H, and I; June 8, 2017, District letter pp 1-3. Additionally, the applicant demonstrated that district bond financing rules require moving ahead with the application now, rather than wait until the end of 2018. *See* letter from applicant's counsel Kelly Hossaini dated June 8, 2017, page 3 (discussing the district's finances).

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (B)(3): A demonstration that any need shown under paragraphs (1) and (2) of this subsection cannot be accommodated on land already inside the UGB.

MC 3.07.1425(B)(3) requires an alternatives sites analysis showing that the needed new school cannot be accommodated within the existing UGB. This requirement stems from state law. Among other laws, Statewide Planning Goal 14 requires the applicant to consider, as part of the needs analysis, all suitable lands inside the UGB as positive alternatives, and even requires the City to consider whether zone changes could make land suitable for the project. *See Brandt v. Marion County*, 22 Or LUBA 473, 481 (1991); *Turner v. Washington County*, 8 Or LUBA 234, 258 (1982), *aff'd*, 70 Or App 575,689 P2d 1318 (1984).

The applicant's narrative discusses MC 3.07.1425(B)(3) at p. 19-21, 34-35. For example, on pages 16-17 of the narrative, the applicant states as follows:

> As evidenced by capacity study and demographic growth data, the high school level is where there is the biggest need for additional capacity both now and to a greater extent within 7 to 10 years. Therefore, the Bond Management Team first looked to the existing high school campus for opportunities for expansion to accommodate this growth.
>
> **Expansion of Existing High School**
>
> The existing Sherwood High School is located on approximately 37.8 acres of land at 16956 SW Meinecke Road. The existing high

school has capacity for 1,550 students and, as of the writing of this report, is well over capacity with an enrollment of 1,689. This growth is expected to continue with a needed student capacity of approximately 2,200 by the year 2025 and peaking at approximately 2,400 students. Therefore, the School District will need a long-term high school capacity for 2,400 students.

Expanding the existing high school campus to meet this need is problematic on many fronts due to existing size limitation and irregular configuration of the site boundaries. Further, the campus cannot expand beyond its current boundaries as the campus is completely surrounded by existing residential development to the north, south and west and Stella Olsen Park and the sensitive wetland areas along Cedar Creek to the east as shown in Staff Report Attachment 4(Figure 5 in petition).

With respect to the buildings themselves, the School District has made additions over the years to accommodate growth, but the buildings are now completely overtaxed. Based on capacity analysis performed by the School District's contract architect, DOWA, the existing high school campus could be renovated to accommodate only another 450 students. This would increase capacity from 1,550 to approximately 2,000 students. However, at 2,000 students, the school would only have capacity for 7 years requiring the School District to add capacity again down the road. In review of the School District's bonding capacity, the School District will not be in a financial position to make any changes in 7 years and would be saddled with overcapacity schools for the foreseeable future. Therefore expanding the existing campus would provide for a short-term fix but would not provide the long-term solution the District is looking for.

New High School Siting Criteria

With the determination that a new high school is needed, the Bond Management Team identified the following criteria for aid in locating sites for further consideration:

1. Minimum Size: 50 acres
2. Zoning: Site must be zoned or planned for residential or institutional use that allow schools
3. Location: Site must be in Sherwood or contiguous to Sherwood (The City of Sherwood and mostly western Sherwood is where 90% of the student population resides)
4. Topography: Flat to mostly flat to accommodate ballfields

5. Wetlands and Waterways: No wetlands or minimal wetlands/waterways
6. Water and Sanitary Sewer: Adequate public utilities must be available or can feasibly be extended to serve the site
7. Stormwater Drainage: Downstream drainage capacity must exist to accommodate new impervious areas
8. Transportation: Site must be located near major streets to allow ease of access for students and limited routing of school traffic and buses through existing or planned residential areas

Inside the Current UGB

Using Metro's Regional Land Information System, City's Residential Buildable Lands Map and concept planning documents, potential sites were searched within the Sherwood School District Boundary that is inside the Existing Sherwood Urban Growth Boundary and within the Wilsonville or Tualatin existing Urban Grown Boundary.

Northeast Sherwood (Commercial and Industrial Land)

Sherwood City Limits

The northwest area of the City of Sherwood is zoned commercial and industrial, zoning that does not allow for school uses. In addition, much of the commercial and industrial land is built-out or contains wetlands and sensitive areas that cannot be developed. The largest vacant developable site in this area is located at the southeast corner of SW Langer Farms Parkway and SW Century Drive and is only 22 acres, too small for a high school.

Tonquin Employment Area

In 2004, 300 acres of industrial land was added to the Sherwood urban growth boundary in east Sherwood, known as the Tonquin Employment Area. A concept planning document was completed for this area in October of 2010. None of the area has of yet been annexed into the City of Sherwood to allow for urban development. There is an 88 acre parcel that fronts SW Tualatin-Sherwood Road that has potential to accommodate a new high school (12900 SW Tualatin Sherwood Road – 2S128D000100). However, this parcel was added to the UGB for the purpose of providing industrial uses and not for school uses. In addition, this site is located at the far east end of the existing Sherwood city limits and is not close to the student population that predominately resides on the west side of Sherwood. Therefore, locating the

school here would result in an inconvenient and isolated high school campus in the midst of industrial uses. Thus, the site was rejected from further consideration.

South and West Sherwood (Residential Land)

The southern and western areas of Sherwood are mostly residential. Residential zoning allows for school uses. This is also where most of the School District's student population resides (more than 90% of the student population lives in southern and western Sherwood). South of the existing city limits and within the urban growth boundary is the 250-acre Brookman Road Addition Concept Planning Area (Brookman Planning Area). The primarily-residential Brookman Planning Area has a completed concept plan from May of 2009. However, the area has not yet been annexed into the City of Sherwood and therefore has not been developed for urban uses.

The City of Sherwood recently completed a draft Housing Needs Analysis dated June 2015 for the existing urban growth boundary. The housing needs analysis contained a 2014 residential buildable lands inventory map that identified vacant buildable residential land within the City's UGB including the Brookman Planning Area. The residential buildable lands inventory map identified some available residential land. However, the available land is fragmented and/or constrained with no large developable sites that would accommodate a high school campus of 50 acres. Further there is no opportunity to consolidate this fragmented land in a way that would meet the District's criteria for a high school site. The Sherwood Buildable lands map is shown in Staff Report Attachment 5(Figure 6 in petition).

Within the Wilsonville or Tualatin Urban Growth Boundary

There are some limited areas of the Sherwood School District that are within Wilsonville and Tualatin's urban growth boundary, including the following:

Southwest Tualatin Concept Planning Area

Adjacent and east of the Sherwood Tonquin Employment Area is the Southwest Tualatin Concept Planning Area. Similar to Tonquin, this 614-acre area was added to the urban growth boundary in 2004. The area is planned for industrial use, and is even further away from west Sherwood students than Tonquin Road. Therefore, the area was rejected from further consideration.

Basalt Creek and Coffee Creek Planning Areas

Both of these planning areas are too far from the west Sherwood student population to be seriously considered. In addition, discussions with the City of Tualatin, who is leading the planning for Basalt Creek, indicates that there are no sites large enough with the correct zoning within Basalt Creek that would accommodate a new high school. The Coffee Creek planning area is designated by Metro as Regionally Significant Industrial land. This designation does not allow for school uses under any circumstances.

In summary as noted in Section III of the petition there are no suitable sites for a new high school within the current UGB to serve the Districts target population.

As noted in the findings set forth above, the District first examined the ability to expand the current high school to meet future capacity needs. However expanding the existing high school building is problematic due to existing size limitation and the configuration of the existing school campus. The current high school building includes a series of additions designed and constructed in an attempt to incrementally accommodate growth in the student population, resulting in a crowded non-operational and functional facility. Thus additional expansions to meet long term needs are not possible. In addition, the current high school campus is surrounded by residential development on three sides with the fourth side bordering a city park and natural resource area, thereby not allowing expansion of the campus itself.

The District identified eight site location criteria to help guide their search for appropriate site locations within the Sherwood city limits as well as limited areas within Tualatin and Wilsonville that are within the District boundary. The analysis of land within the city limits offered no usable sites. The city's industrial and commercial zones don't allow school uses and the vacant and developable land within the residentially zoned portions of the city is fragmented and constrained with no large enough sites available. The industrial designated land within the UGB but not in the city (Tonquin Employment Area) does contain one site large enough to meet the need; however it was included in the UGB for industrial purposes, is adjacent to existing industrial uses including an active quarry site and is located away from the main student population base. The limited land area within Tualatin and Wilsonville also include either industrially zoned land or very limited parcel sizes that does not provide an opportunity to site a high school. In addition, these areas are even a longer distance from the main student population base in the central and western portions of the city.

No opponents take issue with the applicant's analysis.

The hearings officer believes that it is relatively obvious that there are no sites within the City limits that could meet the need, even considering rezoning as an option. While there is vacant land in the existing UGB, the applicant has shown there are no suitable sites within the

UGB to meet the identified land need. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

MC 3.07.1425 (C)(1): If the Council determines that there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering the following factors:

(1) efficient accommodation of identified land needs;

Hearing Officer's Analysis: Once a local government establishes a "demonstrated need" to expand the urban growth boundary, it then must apply the Goal 14's four "locational factors." When Goal 14 was amended in 2005, the locational factors were amended to make clear that the analysis is to be comparative in nature, as opposed to establishing minimum thresholds. The rule now states:

> The location of the urban growth boundary and changes to the boundary shall be determined *by evaluating alternative boundary locations* consistent with ORS 197.298 and with consideration of the following factors:
>
> (1) efficient accommodation of identified land needs
> (2) orderly and economic provision of public facilities and services;
> (3) *comparative* environmental energy, economic and social consequences; and
> (4) compatibility of the proposed urban uses with nearly agricultural and forest activities accruing on farm and forest land outside the UGB. (Underline emphasis added).

Metro has taken the four state-mandated locational factors set forth in Goal 14 and expended them to nine factors. Regardless of this, the goal of the locational analysis remains the same as state law, which is to determine the "best" land to include within the UGB to meet the land need**,** based on appropriate *consideration and balancing* of each factor. *1000 Friends of Oregon v. Metro (Ryland Homes)*, 38 Or LUBA 565, 584 (2000), *rev'd in part on other grounds* 174 Or App 406, 26 P3d 151 (2001). In *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), the court stated that consideration of factors means that the local government must:

> "(a) apply and evaluate each factor, (b) weigh and balance the factors which are not independent approval criteria-as a whole, and (c) meaningfully explain why a designation as urban or rural reserves is appropriate. "

Barkers Five, 261 Or App at 300.

OAR 660-024-0060(3) also provides guidance for how one "considers" the location factors and states:

> The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all of the factors were considered and balanced.

In conducting this analysis, one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a *balancing* of all these factors, rather than reliance on any one factor. OAR 660-024-0060(3). *See also Branscomb v. LCDC*, 64 Or App 738, 745, 669 P2d 1192 (1983)(Court held that land could not be excluded from consideration *solely* because it was agricultural land and, as such, fared badly under factor 6). *D.S. Parklane*, 165 Or App at 25; *1000 Friends of Oregon v. Metro (Ryland Homes)*, 174 Or App 406, 409-10 (2001).

A related issue is that local governments often incorrectly treat the locational factors as threshold criteria. In fact, this misunderstanding was so pervasive that at one point LUBA even wrongly suggested that each of the locational factors had a "minimum objective threshold" that had to be identified and met by each site included in a UAR/UGB. *See D.S. Parklane Development, Inc., v. Metro*, 35 Or LUBA 516, 572-3 (1999), *aff'd as modified*, 165 Or App 1, 24, 994 P2d 1205 (2000). However, on appeal, the Court of Appeals clarified that the locational factors were not intended to be applied as threshold ("go - no go") criteria. *Id.* In other words, the intent is *not* to confirm that the preferred site was "good enough" to urbanize based on minimum threshold standards. Rather, the locational factors were intended to be "applied equally" to include lands into a UGB only "where all of the factors justify that inclusion." *Id.* In other words, the intent in establishing these factors was to assist in evaluating and ranking which site(s) amongst *all* potential candidate sites were, relative to one another, the *best* sites to urbanize in order to meet the demonstrated land need.

With that introduction in mind, we turn to a discussion of the first factor. The applicant discusses the first locational factor as follows:

> Urban reserves are lands outside the existing urban growth boundary that are considered suitable for accommodating urban development and expanding the growth boundary when additional urban land is determined to be needed over a 50-year period. The following urban reserve areas are within the Sherwood School District Boundary and are identified in Staff Report Attachment 6 (Figure 7 in petition):
>
> Sherwood North – North of Sherwood UGB
> Sherwood South – South of Sherwood UGB
> Sherwood West – West of Sherwood UGB
> Tonquin – South and West of Sherwood UGB
> Grahams Ferry – Northwest of Wilsonville

I-5 East – East of I-5 and north of Wilsonville
Elligsen Road - East of I-5 and north of Wilsonville

I-5 East, Elligsen Road and Grahams Ferry Urban Reserve Areas
These urban reserve areas were immediately rejected from further consideration due to the distance from west and south Sherwood where the majority of the student enrollment resides. These areas are 2 to 5 miles away in a straight line and even further when traveling on the road network.

Tonquin Urban Reserve Area
This area is directly south of the Sherwood Tonquin Employment UGB area and west of the Southwest Tualatin UGB area. The Tonquin Urban Reserve area encompasses approximately 571 acres. The area has parcels large enough to accommodate the high school site. However, much of the property is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II and III (Metro Title 3). This urban reserve area and it is likely to be designated industrial and/or employment due to its close proximity to other industrial areas. This urban reserve area is on the east side of the City and not centrally located for use by the majority of the School District students. The area is further isolated by a rock bluff that forms the eastern boundary of the current urban growth boundary and Sherwood City limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates this area from the existing residential neighborhoods of Sherwood. Finally, the area does not have adopted concept plan or plan for how utilities will be extended to serve the area.

Sherwood North Urban Reserve Area
This area represents slivers of land along the existing urban growth boundary at the north end of the City of Sherwood. The area was designated urban reserve because it is not within the floodplain of the Tualatin River. However, this land is not large enough to accommodate a high school site and therefore was rejected from further consideration.

Sherwood South Urban Reserve Area
This area is directly south of the Brookman Road UGB area. This area consists of rolling hills with much of the area identified by Metromap online mapping system having slopes greater than 10%. There is also two stream corridors that travel through the area with many areas mapped by Metromap as being riparian or upland habitat. One potential site is located between Oberst Road and Labrousse Road that is not mapped as having upland habitat or

riparian areas. However, this land is mapped by Metro as having slopes of greater than 10% making development of a high school campus and ballfields difficult. The biggest challenge of developing in this area is that the Brookman Road UGB area would need to be annexed and developed first before this area can be made available for development. Therefore, development in this urban reserve area is likely years away and the only promising site is at the south end of and not next to the existing Brookman Road UGB area. This area also does not have a concept plan. For these reasons, this area was rejected from further consideration.

Sherwood West Urban Reserve Area

In February 2016, Sherwood completed a Preliminary Concept Plan for the Sherwood West Planning area (aka Metro Urban Reserve Area 5B). Sherwood West encompasses 1,291 acres along the west border of Sherwood's existing urban growth boundary. The Sherwood West Planning Area is shown in Staff Report Attachment 7 (Figure 8 in petition).

Six alternative high school sites (A-F) were identified within the Sherwood West Urban Reserve Area that are large enough to accommodate a new high school. The six alternative sites (A-F) within the Sherwood West Concept Plan Area were evaluated based on site selection criteria. The site locations and evaluation criteria are indicated in Staff Report Attachment 8 (Figures 9 to 14 in petition). The School District's site alternative analysis is summarized in the table below.

(Table 1 – Alternative Sites Summary in petition)

Alternative Selection Criteria	***Alternative Sites****					
	A	***B***	***C***	***D***	***E***	***F***
Flat Topography	*N*	***U***	***Y***	*U*	*U*	*U*
Wetlands	*N*	***Y***	***Y***	*U*	*Y*	*N*
Water Service	*N*	***Y***	***Y***	*Y*	*N*	*N*
Sanitary Sewer Service	*N*	***Y***	***Y***	*N*	*N*	*Y*
Storm Drainage	*Y*	***Y***	***U***	*N*	*N*	*Y*
** Y-Meets Criteria - N-Does Not Meet Criteria – U-Undetermined*						

From the site alternatives analysis, it became clear that Sites B and C were the most promising with other sites lacking utilities, having significant wetlands, drainage issues and/or significant topography that would make construction challenging. Alternative Sites B and C are located near each other both west of SW Elwert Road at SW Haide Road, just north of Highway 99W. Site C was selected due

to having more of a gentle slope and less grade changes. Most of Site C has a consistent slope change of approximately 40 feet over the length of the site with only a small valley and ridge. Site B has a more drastic slope change of 50 to 60 feet with a more defined ridge running through the middle of the site. Site B would be far more challenging to grade and develop for a high school than Site C. The Sherwood West Concept Plan contained a phasing and funding strategy. The phasing plan identified six phases (A-F). The subject site (Site C) is located within Phase A of the concept plan.

The subject site represents an efficient location because:

- The location is next to existing western Sherwood and close to the vast majority of the District's student population (90%).
- City utilities are available to serve this site or can be extend as the site is adjacent to the city limits.
- Direct and efficient access will be available via major streets that are intended to accommodate significant motor vehicle, pedestrian and bicycle needs.
- The site will be developed on the north, south and west along existing right-of-ways and will be developed to the existing City limits and UGB. This location is a logical location to develop first within the Sherwood West Concept Plan, as it is really the first site north of 99W. Other sites in Sherwood West would result in undesirable leapfrog development.
- Utilizing the approximate 76-acre site to ultimately accommodate the large 2,400-student high school and the School District/City shared ballfields will provide greater efficiency than developing play fields independently. The district and City have a long history of partnering to maximize use of shared ball field resources.

As set forth in the District's narrative and response to MC 3.07.1440(a), there is an identified need for a major amendment of the UGB to provide for a new high school site and this need cannot wait until the next analysis of the building land supply under ORS 197.299. As allowed by MC 3.07.1425(b), the District specified characteristics necessary for land to be suitable for the identified need, *i.e.*, the new high school. *See* Applicant's Narrative at 18-19, 33-35. These characteristics included a minimum site size of 50 acres; zoning that would allow for an institutional use; within or contiguous to Sherwood, where 90% of the children served by the District reside; flat to mostly flat topography; no or minimal constraints such as streams, wetlands, intact upland habitat; adequate/feasible access to public utilities, including water, sanitary sewer, and storm sewer; and near to major (collector or arterial) streets to accommodate high school-level transportation impacts. As also required by MC 3.07.1425(b), the District has demonstrated that the need for the new high school cannot be accommodated on land already inside the UGB.

As shown above, the District undertook an analysis of seven urban reserve areas that are within the district boundary, three of which are not adjacent to the city of Sherwood. The Metro Code does not allow for the creation of an island of urban land so the analysis must be limited to those properties that are directly adjacent to the current UGB. MC 3.07.1425(f).

The Seven Urban Reserve Areas

Within the District's boundary, there are seven areas that contain urban reserves (*see* Application Narrative p. 22 of 39, showing map of all seven areas). They are:

- Sherwood North
- Sherwood South
- I-5 East
- Elligsen Road
- Tonquin
- Graham's Ferry
- Sherwood West

Each will be discussed in turn.

The Sherwood North Urban Reserve Area

The Sherwood North urban reserve area is comprised of slivers of land without flood plain constraints north of the existing city limits and south of Tualatin River. This area does not contain one or more contiguous parcels that would be large enough to meet any of the District's siting criteria for a high school site. Therefore, the hearings officer finds that the Sherwood North urban reserve area cannot accommodate the need for a new high school.

The Sherwood South Urban Reserve Area

The Sherwood South urban reserve area is adjacent to the Brookman Road UGB area. Some of the Brookman Road UGB area was recently annexed to the city, but much of it still has not been annexed. The Sherwood South area consists of rolling hills with much of the area identified by Metro Map as having slopes greater than ten percent, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 3.) There are also two stream corridors that traverse the area with many areas mapped by Metro as being riparian or upland habitat. (See Attachment 4.) There is a potential site located between Oberst Road and Labrousse Road that is not mapped as being constrained by upland habitat or riparian areas, but is mapped as having slopes greater than ten percent, which would not meet the District's siting criterion for a flat to relatively flat site. A challenge in the overall development of this area is that the Brookman Road area within the UGB must be annexed and developed first before the Sherwood South area will have the public services it needs to be able to develop. Further, Sherwood South is not even concept planned yet. As far as the hearings officer is aware, no such planning has been scheduled. As noted earlier, MC 3.07.1110 requires that urban reserve areas be concept planned before they be considered for inclusion in the UGB. As set forth in response

to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Sherwood South urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application. Therefore, the hearings officer concludes Sherwood South cannot accommodate the need for a new high school.

The I-5 East Urban Reserve Area

The I-5 East urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Elligsen Road Urban Reserve Area

Similarly, the Elligsen Road urban reserve area is at the extreme eastern end of the District's boundary, east of I-5, next to Tualatin, and immediately south of the I-5 East urban reserve area. This urban reserve area does not meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to western Sherwood would be at least five miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, these urban reserves are constrained by natural resources issues and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that this urban reserve cannot accommodate the new high school.

The Tonquin Urban Reserve Area

The fifth urban reserve is the Tonquin urban reserve area. This area lies on the east side of Sherwood and is contiguous to Sherwood's city boundary. As set forth in the Narrative, this urban reserve area is directly south of the Sherwood Tonquin Employment UGB area and, according to Julia Hajduk, the City's Community Development Director, will be used to accommodate the City's future industrial and employment needs given its proximity to other industrial uses and Sherwood's employment/industrial core. Therefore it is not likely to allow for zoning for an institutional use. As noted in the staff report, another issue with building a new high school in this area is that the majority of adjacent land within the UGB is not yet developed to urban standards. Any out-of-sequence development in this area, then, would require a costly and inefficient extension of public services. Further, much of the property in this urban area is mapped as containing Upland Habitat Class A (Metro Title 13) and Riparian Areas Class I, II, and III (Metro Title 13). (See Attachment 1.) This area is further isolated by a rock bluff that forms the eastern boundary of the current UGB and city limits. This bluff is perched above the Rock Creek stream corridor that effectively isolates the area from the existing residential neighborhoods of Sherwood, thereby making it less efficient to serve the student population

given that the bulk of that population is in the southern and western areas of the city. Significant areas of the urban reserve also have substantial slopes of ten percent and greater, along with floodplain constraints, which would not meet the District's siting criterion of a flat to relatively flat site. (See Attachment 2.) Further, this urban reserve area does not have a concept plan in place or a plan for how utilities might be extended to serve the area. Concept planning has not been completed for this area. MC 3.07.1110 requires that urban reserve areas be concept planned before these areas can be considered for inclusion in the UGB. As set forth in response to MC 3.07.1440(a) there is a pressing need for the new high school. To wait at least one or more years for the City to concept plan the Tonquin urban reserve area under MC 3.07.1110 is not consistent with the pressing need for the new high school that precipitated this major amendment application.[12] Therefore, the hearings officer concludes the Tonquin urban reserve area cannot accommodate the need for a new high school.

The Grahams Ferry Urban Reserve Area

The Grahams Ferry urban reserve area is at the District's extreme southeast boundary next to Wilsonville. This urban reserve areas meet the District's siting criterion that the new high school site be within or contiguous to Sherwood, where 90% of the children served by the District reside. Travel to from Graham's Ferry to western Sherwood would be at least seven miles for the vast majority of students along the already-congested Tualatin-Sherwood Road (*see* Application Narrative p. 22 of 39, showing map). Further, as set forth in the staff report, this urban reserve area is constrained by natural resources and steeper slopes yielding no buildable areas big enough to accommodate a new high school. For all of these reasons, the hearings officer finds and concludes that these urban reserves cannot accommodate the new high school.

The Sherwood West Urban Reserve Area

The seventh and final urban reserve area studied was Sherwood West. The hearings officer finds this is the only urban reserve area that can efficiently accommodate a new high school consistent with the citing criteria, for these reasons: Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre Sherwood West urban reserve for places within it that could accommodate a new high school site. The applicant District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major (collector or arterial) street network. Findings addressing MC 3.07.1425(c) can be found in the Narrative and in the staff report. The applicant District included an analysis of the six areas within Sherwood West. Therefore, the hearings officer finds that, given the framework of MC 3.07.1425(b) and (c), no urban reserve except for

[12] Urban Reserve Areas are intended to provide a 50-year supply of land. Given that the City has no plans to complete a concept plan for the area, and because contiguous areas within the UGB would need to develop first to extend the needed infrastructure, it is safe to conclude that development of this area is at least several years away.

Sherwood West should advance to MC 3.07.1425(c) to determine which urban reserve can best meet the identified need, because no other urban reserve can meet that need.

The Six Sites Studied within the Sherwood West Urban Reserve Area

The District identified six sites (designates Sites A through F) within the Sherwood West urban reserve area that were large enough to accommodate a new high school campus. Each of the six is discussed in turn:

Site A – The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, public infrastructure issues or a combination of these factors. There is a small wetland in the center of this site. The western portion is mostly occupied by Chicken Creek. There is no water service available from SW Elwert Road, and water extensions would be required along Elwert frontage and east from SW Edy Road. The site is low-lying and sanitary sewer connection is not available from SW Edy Road, so a major pumping station would have to be built.

Site B - The hearings officer finds this site *could* possibly accommodate the new high school. However, it has a significant ridge running through the middle of the site, which would require extensive grading, with slopes running both east and west with a 50-60 foot grade change. Both public water and a 15" sanitary sewer pipe are available off SW Elwert Road.

Site C - This site is quite flat, with no more than a 40 foot grade change required. It has water and sewer connections off SW Elwert Road. There are no wetlands. The hearings officer finds that Sites B and C are the two areas that can most efficiently accommodate a new high school, but Site C is clearly superior because Site B has a significant topographic ridge running north-south through the middle of the site with an approximately 50-60 foot grade change. Site C has less topography to manage, which is important when one considers that ballfields, tracks, and other sports facilities needed as part of the new high school cannot be developed on slopes. Therefore, the hearings officer concludes and finds Site C can most efficiently meet the identified need of a new high school.

Site D - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards private property, with a grade change in excess of 50 feet. There is no sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity. Street improvements on Kruger Road and offsite improvements would likely be required. Sites D also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Site E - The hearings officer finds this site cannot efficiently accommodate the new high school due to slope, natural area constraints, and public infrastructure issues. The entire site slopes down to the east towards Highway 99, with a grade change around 75 feet. There is no

sanitary sewer service available. A very costly sewer line extension and public system improvements would be necessary. There are no established public storm drains in the vicinity.

Site F - The hearings officer finds this site cannot efficiently accommodate the new high school due to wetlands, drainage, powerlines, and lack of public water supplu. While quite flat, this site has wetlands, drainage, and a BPA power line easement running through it. While there is a nearby sewer line, there is no water line, and costly improvements would have be made to supply the school with drinking and irrigation water as well as meeting firefighting needs. Site F is further constrained by a BPA easement that cuts diagonally through what would otherwise be the flattest, least constrained part of that area and this flat area is segregated from the existing UGB by Chicken Creek and protects a riparian corridor. Site F also suffers from not being adjacent to the existing Sherwood UGB, which means more land would be required to be brought into the UGB than is necessary for the school site in order to ensure contiguity and public infrastructure would have to be extended further to serve the new high school, which is inefficient and expensive.

Conclusion of the Alternative Sites Analysis for the Six Sites in Sherwood West

The District evaluated the alternative sites related to five selection criteria noted above and determined that four of the six sites (A, D, E & F) lacked utilities, had significant wetlands, drainage issues or topography that restricted the ability to efficiently accommodate the identified land need. In addition, site D is not adjacent to the current UGB and therefore would create an island of urban land which is not allowed under Metro Code. Areas B & C better met the selection criteria with site C being the best site due to less grading and site work to accommodate the identified land need. Based on the urban reserve areas analyzed site C in the Sherwood West urban reserve best meets the need considering efficient accommodation of the identified land need. For these reasons, the hearings officer concludes and finds that proposed Site C (on the northwest corner of SW Elwert and Kruger Roads) can most efficiently meet the identified need of a new high school.

MC 3.07.1425(c)(2): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(2) the orderly and economic provision of public facilities and services.

Hearings Officer's Analysis: This suitability factor focuses on the orderly and economic provision of public facilities and services. Because Sherwood West has been concept planned pursuant to MC 3.07.1110, the provision of public facilities and services within the Sherwood West Concept Plan area has been studied to a larger degree than other URAs. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, storm water, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. (See Sherwood West Concept Plan, pages 15-21, 40-44, Appendix 3 (Existing Conditions Report), and Appendix 8 (Transportation Options Alternative Analysis Report and Cost Estimates). The concept plan was prepared in coordination with all of the future service providers, including those services that

will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, Tualatin Valley Fire & Rescue, and Washington County. (*See* Sherwood West Concept, acknowledgements page and Appendix 6 (Service Provider Interviews). The District was also part of the Technical Advisory Committee that informed the concept planning effort. Because all of this extensive analysis and coordination work had already been done for Sherwood West, the District used that work as the jumping off point for its analysis of the area for orderly and efficient accommodation of public services.

As demonstrated in the Narrative, pages 24-31, four of the six sites (A, D, E, and F) have significant barriers to provision of public infrastructure. Sites B and C have the fewest barriers and are most feasible for public infrastructure service. This is consistent with the findings of the Sherwood West Concept Plan, which anticipates phasing public infrastructure to serve the area encompassed by Sites B and C first, i.e., Area A. (*See* Sherwood West Concept Plan, pages 40-44.) Service provider interviews conducted as part of the concept planning effort also identified Area A as the "first stage development area." (*See* Sherwood West Concept Plan, Appendix 6, page 5.) It is also worth noting that, according to the concept plan, Area A of the concept plan has most infrastructure in place, "presents the best near-term opportunity for development in Sherwood West," and the cost to serve is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address effects of a new high school on Site C on the surrounding transportation system. The Transportation Study found that, with appropriate mitigation, Site C can accommodate the new high school while maintaining an adequate transportation system. See also District's findings in response to Goals 11 and 12 with respect to the provision of public facilities and services to Site C.

As part of this UGB amendment application effort, the District obtained service provider comments from the City of Sherwood, Washington County, Tualatin Valley Fire and Rescue, and Clean Water Services, all of whom supported the siting of the new school on Site C from an infrastructure provision standpoint, consistent with the Sherwood West Concept Plan.

In sum, Sites B and C best meet the need for a new high school considering the orderly and economic provision of public services per the Sherwood West Concept Plan and the District's own analysis.

The primary opponent makes only a desultory effort to challenge the applicant's proposed findings. *See* letter from Jennifer Brager dated June 23, 2017, at p. 7. Ms. Bragar concludes, without much in the way of analysis, that "Site C is unworkable." The only evidence that the opponent cites as support for this theory is the DKS Traffic Study dated March 15, 2017, which shows that currently there are several failing intersections in the vicinity. However, failing intersections is not in any way determinative when considering the locational factors.

The proposed site has positive attributes from the transportation and traffic perspective. The site is close to the area's major north-south highway (Highway 99) and east-west arterial (the Tualatin-Sherwood Road). It has a relatively flat topography, reducing hazards in wet or snowy conditions. With the planning modifications, the site will have adequate access and

capacity for peak school commuting times (7.15 to 8 am and 2.50 to 3:45 pm). Road widths and sightlines will be sufficient for safety purposes, an important consideration for less-experienced drivers, such as high school juniors and seniors.

The traffic issue has been addressed by unrebutted evidence from the applicant's civil and traffic engineers - the *only* expert testimony in the record - and is belied by the fact that all of the public service providers for the Sherwood West area, including Washington County, the City of Sherwood, and Clean Water Services, submitted service provider letters that support the new high school on Site C, and state that such services can be provided. (*see* Appendix to the Application Narrative for copies of these letters).

At the public hearing, local residents Carolyn McBee and Karen Labahn raised issues of traffic safety at the proposed site, specifically on Kruger and Elwert Roads. They testified, convincingly, that the roads abutting the preferred alternative site are rural in nature and not capable of handling the traffic generated by the school. As the hearings officer emphasized at the hearing, the analysis is comparative in nature. A site does not have to be good; it just has to be better than the alternatives. This is true even if all of the alternatives are objectively bad. In fact, it will undoubtedly be the case that the roads in all seven of the candidate urban reserve areas are rural in nature and incapable of handling urban levels of traffic. At this stage, the analysis is high level and really only focused on identifying issues that made any one site particularly good or horrendously bad in relation to the others.

In this case, the applicant's traffic engineers Scott Mansur, P.E. and Carl Springer, P.E. of DKS Associates wrote the following in a June 28, 2017 memorandum:

> DKS prepared the March 15, 2017, Sherwood High School UGB Expansion Transportation Study ("March Transportation Study"). The March Transportation Study assesses the proposed UGB amendment impacts and identifies a roster of system improvements for the short-term and long-term. This study acknowledges that several local intersections are heavily congested during peak hours, and that the rural street infrastructure nearby the proposed UGB amendment site does not meet either the City's or the County's facility design standards today. What this study also tells us, however, is that with proper mitigation the proposed school site can be adequately served with transportation infrastructure. The next step in the planning process is the post-UGB amendment Title 11 planning, as required by Metro, and it is during that process that the next transportation planning steps will be taken. These planning steps include designating urban zoning and land use types within the newly added UGB area. During this stage, we will engage in additional technical studies, including a second transportation impact study, to (1) refine the specific project needs, (2) ensure that the Transportation Planning Rule is met, (3) ensure that performance standards can be maintained over time, and (4) ensure that a safe transportation network is provided for the new

> high school. Based on our transportation analyses so far, we are confident that the Sherwood School District can provide adequate state and local transportation facilities to support the proposed Site C high school.

While the residents' traffic safety concerns are well meant, and taken seriously by the hearings officer, the engineers are undoubtedly correct that the applicant's preferred alternative site can be improved with reasonable cost expenditure. The improvements discussed at the hearing were typical of what one would expect when land urbanizes, and do not involve any highly extravagant technical solutions such as bridges over wetlands / streams, or expensive highway overpasses. The hearings officer had the opportunity to evaluate these engineering experts and considers their representations highly credible. No evidence was presented pertaining to other sites that would suggest that any other site would be significantly better from a transportation standpoint, and several of the sites required more expensive improvements.

The opponents argue that the applicant gamed the system by counting traffic in the middle of winter. *See* letter from Jennifer Brager dated June 23, 2017, at p. 8. Again, this argument seems to lose focus of the intended exercise. That argument might have merit if the applicant's traffic engineers had performed their traffic counts at some locations in winter, but at other locations in summer (when traffic is lighter because school is out of session and many workers are not commuting, due to vacations). That did not happen. The applicant's traffic study clearly states:

> To perform the intersection analysis, traffic counts were collected during the AM peak (7:00 – 9:00 am) on Feb 1, 2017 and the PM peak (4:00-6:00 pm) on Jan 31, 2017. Study intersections on ODOT facilities (i.e. OR 99W) were analyzed using estimated 30th highest hour traffic volume (30 HV) conditions. The 30 HV development process for existing conditions *includes the determination of seasonal adjustments*. (DKS "Sherwood High School UGB Expansion Transportation Study" dated March 15, 2017, p. 9, italic emphasis added).

Site C is located in close proximity to existing urban arterials, which in and of itself makes it a better site as compared to alternatives such as Sites D and F, which are more isolated and remote. Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography.

The hearings officer wishes to emphasize that the public will have many additional opportunities to comment on and influence the types of transportation improvements that will be built.

MC 3.07.1425(c)(3): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(3) ***comparative environmental, energy, economic, and social consequences.***

A comparison of the six sites with respect to environmental, energy, economic, and social consequences of development is set forth below:

Environmental Consequences: There are areas within Sherwood West that have significant natural resources within them. The maps at Figure 6 of the Sherwood West Concept Plan and Appendix B of Appendix 3 of the Sherwood West Concept plan are instructive in this regard. From those maps one can see that Sites A, D, and F have significant areas of floodplains, wetlands, protected stream corridors, and inventoried wildlife habitat. In contrast, Sites B and C have little to no environmental resources on them. Further, Sites B and C are closest to the city's existing urban core, which give them the most direct transportation connections, thus limiting air quality degradation. Therefore, development of these sites with a high school would have the least negative environmental consequences of all of the alternative sites.

Energy Consequences: From an energy standpoint, all of the sites are reasonably close to the bulk of the student population to be served, but Sites E and F are more remote. This will be exacerbated as Sherwood West develops with mostly residential uses. Sites A, B, C, and D are most centrally located, which will allow more students to walk and bike to school and reduces the number of students being bused and driven to school, and allows for the least vehicle miles traveled for those who use cars and buses. Site D would require an out-of-sequence extension of public infrastructure to the more interior of the urban reserve, however, which ticks its adverse energy consequences somewhat higher than Sites A, B and C.

Economic Consequences: Public bond dollars are finite and must not be wasted. Taxpayers expect that school districts will be good stewards of the public money and building new school facilities is no exception. Being more remote from the existing urban area and public infrastructure, Sites A, E, and F will be more expensive to develop than Sites B and C. Sites D and F suffer from not being contiguous with the existing UGB and so public infrastructure would have to be extended further, out of sequence, to reach those sites. This creates a significant unnecessary expense. Further, sites with steeper topography and natural resource constraints, like Sites A, D, E, and F will also be more costly to develop. Sites B and C will cost less than the other sites to develop, but Site C will cost even less than Site B due to its flatter topography. The effect of topography on the cost of building a high school site with its need for ball fields and other sports facilities should not be under estimated. Even small amounts of slope will have significant, expensive consequences on a school site due to the cost of grading.

Site C has another factor that weighs in its favor over Site B, which is that Site B contains a number of single-family residences that would have to be purchased and demolished to build the new high school. Purchasing houses to tear them down is not a good use of bond dollars if it can be avoided. Therefore, Site C clearly comes out ahead in this consideration.

Social Consequences: Siting the new high school in the most centrally located area possible is important to fostering a sense of civic and school pride. Although high schools can have fairly significant impacts on an area, they should be sited where the bulk of the population resides and be a use that brings people together in a place that the citizens identify as an integral part of their community. One of the alternatives that the District considered in its facilities planning to alleviate the capacity issue at the existing Sherwood High School was building a second high school. The community, however, was very much opposed to that idea. A small, cohesive community like Sherwood wants to remain bound together not divided by different allegiances to different high schools. All of the sites analyzed in Sherwood West would be superior to any sites in any other urban reserve for these reasons alone; however, within Sherwood West Sites B and C are most centrally located - both now and in the future as the city continues to grow to the south and west. Even so, development of Site B has a more immediate social consequence that Site C does not have. There are a number of residences in Site B that would have to be purchased and demolished in order to develop the new high school. Displacing residents from their homes needlessly is a very adverse social consequence and should not occur if it can be avoided, which in this case it can. Therefore, Site C comes out ahead here, too.

Conclusion: Sites B and C are the two sites that come out the most favorably when one factors in the environmental, energy, economic, and social consequences. However, Site C edges ahead of Site B due to Site B's increased adverse economic and social consequences.

MC 3.07.1425(c)(4): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(4) compatibility of proposed urban uses with nearby agricultural and forest activities occurring on land outside the UGB designated for agriculture or forestry pursuant to a statewide planning goal.

Hearings Officer's Analysis: The District identified a number of site characteristics that a new site would need to meet in order to accommodate a new high school. As discussed above, is one urban reserve area that can efficiently accommodate a new high school - Sherwood West. Sherwood West has been MC 3.07.1110 concept planned and so may be considered for inclusion within the UGB. Sherwood West is adjacent to the city's existing UGB and in close proximity to the bulk of the District's student population. The area is planned for predominantly residential uses, including schools, and so as Sherwood West develops even more of the student population will reside in the vicinity of the proposed high school site. The District studied the 1,291-acre urban reserve for areas within it that could accommodate a new high school site. The District did this by utilizing an engineer and architect to evaluate all sites in the urban reserve that were flat to relatively flat; had a minimum buildable site size of approximately 50 acres or more; no or minimal constraints from streams, wetlands, and intact upland habitat; adequate/feasible access to public utilities; and proximity to a major street network. This analysis yielded six sites, which were then ranked according to the site criteria.

With respect to how the six sites meet the need for a new high school considering the compatibility of proposed urban uses with nearby agricultural and forest activities, it is important to note that the entire Sherwood West area is slated for eventual urban development, regardless of the current uses and zoning of land within it. It was designated as an urban reserve instead of a rural reserve partly due to its small-scale, intermittent farming and forestry activity, parcelization, and rural residential development. That said, urbanizing land that is adjacent to existing urban development is more consistent with this boundary location factor than urbanizing land further into the undeveloped portions of an area, which will likely remain in rural use much longer whether the new high school is built in the area or not. Sites A, B, and C are closest to existing urban development. Sites D, E, and F are more remote from existing urban development. Therefore, in this respect, A, B, and C will have fewer impacts on any nearby agricultural and forest activities. Site A does not appear to have any adjacent agricultural or forest activities occurring adjacent to it. The other sites have very minor to small amounts of agricultural activities occurring on adjacent land. Therefore, none of the sites would appear to have much impact on agricultural or forest activities. Given the sites' rough equivalency in this regard, Sites B and C are the least costly to serve and most readily developable according to the Sherwood West Concept Plan, so developing in those areas "now" will have fewer impacts on nearby agricultural and forest activities than jumping ahead to an area that might have otherwise remained rural for the next 20 years. This gives Sites B and C the edge in considering this factor.

MC 3.07.1425(c)(5): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(5) equitable and efficient distribution of housing and employment opportunities throughout the region.

Hearings Officer's Analysis: This factor is not directly relevant to the siting of a new high school and therefore is not determinative in any way.

MC 3.07.1425(c)(6): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(6) contribution to the purposes of Centers and Corridors.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro. According to Metro's 2040 Growth Concept Map, the proposed site is not in a Regional or Town center, nor is it directly on a Corridor. Site A is closest to a Corridor, but as staff pointed out in the staff report, it is mostly undeveloped or in single-family residential use. None of the other sites are close enough to any Centers or Corridors to contribute to them at this point in time. Therefore, none of the alternatives support the purposes of Centers and Corridors in any significant way.

MC 3.07.1425(c)(7): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering:

(7) protection of farmland that is most important for the continuation of commercial agriculture in the region.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

As noted by staff in the staff report, Metro and Washington County completed an urban and rural reserve process that designated the most important land for commercial agriculture in the county as rural reserve and the land most suitable for urban development as urban reserve. This means that development within any urban reserve will, at least presumptively, protect farmland that is most important for the continuation of commercial agriculture in the region.

However, this factor seems to reach beyond that concern and require further differentiation of urban reserve areas, at least to the extent that any of these urban reserves are still in commercial agricultural production. Of the six sites studied in Sherwood West urban reserve area, none appear to have any significant commercial agriculture. As such, it seems their agricultural output does not form a significant component of the Sherwood area's economy.

The applicant points out that development of sites within an urban reserve that are closest to the existing UGB and to areas within the UGB that actually contain urban-level development, helps to keep agricultural and forest land further from the UGB and urban areas in unaffected operation until such time as urban development grows further in that direction.

MC 3.07.1425(c)(8): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(8) avoidance of conflict with regionally significant fish and wildlife habitat.

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The Sherwood West urban reserve has some significant fish and wildlife habitat within in it, much of which is associated with Chicken Creek. According to the Sherwood West Concept Plan, Steelhead *(Oncorhynchus mykill),* a federally listed species, are known to exist within Chicken Creek. Sites located closer to Chicken Creek would therefore tend to be less suitable for this project.

All of the sites *except* for Sites B and C are constrained by a significant or moderate level of natural resources:

Site A has a wetland right in the middle, and the entire western portion of this site is mostly creek, and its drainage discharge is right into Chicken Creek (see Narrative, p. 25).

Site D has creek drainage running through the southern portion of the site. Since there is no established public storm drainage anywhere in the vicinity, so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site E is steeply sloped down to the east towards Highway 99, with a grade change around 75 feet. There are no established public storm drains in the vicinity. so a costly system to route storm discharge would have to be built with input from the City of Sherwood and Clean water Services to avoid negatively impacting significant fish and wildlife habitat.

Site F has creek drainage and potential wetlands running through the entire site (see Narrative, p. 30), so extensive mitigation measures could be required to avoid negatively effecting significant fish and wildlife habitat.

As shown on Figure 6 of the Sherwood West Concept Plan, the western edge of Site B abuts a tributary of Chicken Creek and includes some associated wildlife habitat. Site C has no such identified resources, and, therefore, the hearings officer concludes and finds that Site C best avoids conflicts with regionally significant fish and wildlife habitat.

MC 3.07.1425(c)(9): If the Council determines there is a need to amend the UGB, the Council shall evaluate areas designated urban reserve for possible addition to the UGB and shall determine which areas better meet the need considering

(9) ***a clear transition between urban and rural lands, using natural and built features to mark the transition.***

Hearings Officer's Analysis: This factor is not found within Statewide Planning Goal 14 but is instead a consideration created internally at Metro.

The boundaries of Sherwood West do not appear to have been designated according to providing a clear transition between urban and rural reserves using natural or built features. It is bisected in large part at its northern end by Chicken Creek. But Chicken Creek will not form a natural barrier between urban and rural uses, as the Sherwood West Concept Plan contemplates development on either side of the creek. So, Chicken Creek will end up being a natural area within an urban area - not a boundary between urban and rural uses. Because the boundaries of Sherwood West were not created according to natural or built features, and because all of the six sites studied within Sherwood West for a new high school are internal to Sherwood West and will eventually be in the midst of other urban area, this factor is not particularly relevant to this application. Even so, as staff notes in the staff report, there are no built or natural features that would mark even an internal transition from urban to rural lands for Sites C and E. Site B is flanked by Chicken Creek, which could form such a barrier, but, again, there will be urban development on the other side of that "barrier" one day. Site A is also flanked by Chicken Creek, but the creek and natural resources associated with that site also limit the development

potential of that site for a new high school. Further, there will be urban development on the other side of those natural barriers one day, so they will not really mark the transition that this factor contemplates. Site D has some natural resources on it that could provide a barrier of sorts, but which also reduce the buildable area, and, again, the concept plan does not contemplate these natural areas being any sort of permanent barrier between urban and rural uses. Site F has a large amount of wildlife habitat, but that habitat, too, cuts into the buildable area and will provide no such barrier as contemplated by this factor.

Hearings Officer's Analysis and Summary of the Nine MC 3.07.1425(c) Locational Factors

In summary, little weighing and balancing is needed in this case, because the applicant's preferred alternative, Site C, nearly always came out as the site that best met the intent of each individual factor. With respect to two factors, Sites B and C equally met the intent of the factor, and with respect to another factor Site B came in a fairly close second to Site C. All in all, however, Site C best met all of the factors. In sum, all of the factors were applied and evaluated, and on-balance, Site C came out ahead. Thus, whatever weighing and balancing of all of the nine locational factors with respect to the six sites that could potentially accommodate a new high school is required, the Hearings officer finds that the applicant's analysis clearly demonstrates that the proposed site, Site C, better meets the applicable locational factors than the other sites.

No discussion presented by any opponent to the contrary is convincing. In disputing the District's location factor analysis, the primary opponent pointed to individual aspects of different sites and argued why it believed those aspects made one site better than another with respect to a given, discrete aspect. The opponent's sniping is ineffective, however, because unlike the applicant, the opponent did not evaluate the sites *holistically* based on the nine enumerated factors. Stated it another, it may be the case, that some of the alternative sites fair better than the applicant's preferred alternative in some particular or another. No site is perfect, after all, and each site has its positives and its negatives. However, when viewed as a whole, on balance, the applicant's preferred alternative fairs the best over the broadest consideration of the nine factors. Therefore, the opponent failed to demonstrate that the MC 3. 07.1425(C) factors findings are deficient.

The opponent also argues that Sherwood South cannot be ruled out as a possible area for the Major Amendment even though it has not been concept planned under MC 3.07.1110, because MC 3.07.1110(6) provides that such an area can be added even if it has not yet been concept planned. *See* Brager letter dated June 23, 2017 at p.7. MC 3.07.1110(6) states:

> ***"If the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan by the date set under subsection (a), then the Metro Council may nonetheless add the area to the UGB if necessary to fulfill its responsibility under ORS 197.299 to ensure the UGB has sufficient capacity to forecasted growth."***

First, the MC 3.07.1110(6) exception is restricted to situations where "the local governments responsible for completion of a concept plan under this section are unable to reach agreement on a concept plan." There is no evidence that any local governments responsible for a concept plan for Sherwood South are unable to reach agreement on that concept plan. In fact, there seems to be no question that the City of Sherwood will be planning for Sherwood South-it just hasn't done it yet, and has no current plans to do so. Second, the fact that no pre-UGB expansion concept planning has been done for Sherwood South is just one of many reasons the District gave for why Sherwood South ceased to be considered as a viable area for the new high school. The opponent has not pointed to an area within Sherwood South that would meet the District's siting criteria. In fact, in the opponent's June 23, 2017, letter, the opponent points to "a large block of property" south of the recent Brookman Road annexation area, but then appears to agree that it is too sloped to work as a high school site. See Letter from Jennifer Brager dated June 23, 2017, at p.6.

Metro Code section 3.07.1425(D) The Council may consider land not designated urban or rural reserve for possible addition to the UGB only if it determines that:

1. ***Land designated urban reserve cannot reasonably accommodate the need established pursuant to subsection B of this section; or***
2. ***The land is subject to a concept plan approved pursuant to section 3.07.1110 of this chapter, involves no more than 50 acres not designated urban or rural reserve and will help the concept plan area urbanize more efficiently and effectively.***

Hearing Officer's Analysis: The proposed expansion is within an urban reserve. This criterion is not relevant because the site and surrounding properties to the north, east and south are within an Urban Reserve area (no property within or next to the subject site is outside of urban reserve areas).

This criterion is not applicable.

Metro Code section 3.07.1425(E): The Council may not add land designated rural reserve to the UGB.

Hearing Officer's Analysis: The proposed expansion is not within a rural reserve. This criterion is not relevant because the subject site and surrounding properties to the north, east and south are within an Urban Reserve area.

This criterion is either not applicable or has been met.

Metro Code section 3.07.1425(F): The Council may not amend the UGB in such a way that would create an island of urban land outside the UGB or an island of rural land inside the UGB.

Hearing Officer's Analysis: The subject site and the remaining portion of the Sherwood West urban reserve are adjacent to the City of Sherwood. The transformation of this area from rural to urban represents a logical and methodical way to enlarge an urban area, which will not create an island of urban development outside of the UGB.

The proposed expansion will not create an island of urban land outside the UGB or an island of rural land inside the UGB. The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.07.1440 (B)(1) The applicant shall also demonstrate that:

(1) The proposed uses of the subject land would be compatible, or through measures can be made compatible, with uses of adjacent land.

Hearing Officer's Analysis: The applicant addresses this criterion as follows:

> The proposed major amendment site is surrounded by land that is either within the City of Sherwood or the Sherwood Urban Reserve Area 5B (aka Sherwood West Preliminary Concept Plan Area) (see Attachment 6). The land in the City located north and east of SW Elwert Road is fully urbanized with single-family subdivisions and constructed houses. City land located south and east of SW Elwert Road is the location of the Sherwood Elks Lodge. The Elks Lodge site contains a large area of vacant land around the existing building and parking lot. The Elks Lodge and undeveloped surrounding land is zoned Low Density Residential (LDR).
>
> Land to the north, south and west is currently rural and within the urban reserve area (Sherwood West Concept Plan). This County land is zoned Agricultural Forest (AF) and is a patchwork of sites zoned AF-5, AF-10 and AF-20 with the subject site zoned AF-20. AF-5 has a minimum lot size of 5 acres, AF-10 of 10 acres and AF-20 has a minimum lot size of generally 80 acres. The surrounding property has been highly parcelized and consists of a patchwork of small forests/farms and rural residential properties with none more than 80 acres and many under five acres in size.
>
> The site is compatible with surrounding residential properties as the property has separation provided by existing streets on the north (Haide Road), south (Kruger Road) and west (Elwert Road) boundaries. The eastern boundary consists of mostly forestland with only one house near the site boundary near the northwest corner of the site. All school traffic will be able to access the site

from Elwert Road and will not be routed through existing or proposed residential areas or streets.

While the development of a school site will be the first urban development in the Sherwood West Concept Plan Area, the regional and local plans anticipate redevelopment of this entire area for primarily residential land. Schools typically locate within residential areas and are considered to be compatible with residential land uses when the impacts of the school on residential uses are considered within the design.

The first urban development projects to occur within rural areas typically can cause some tension between existing residents who welcome the change, and those who are content with its current rural character. So well-designed solutions to deal with compatibility issues may still feel like "encroachment" to rural residents. The development of the site will include public involvement during the design development and permit approval process, allowing ample opportunity for the neighbors to help address specific compatibility issues. In the long term, establishing the school will provide the opportunity for subsequent urban developments to be oriented and designed to optimize their physical relationship with the school. This will allow the development of future Sherwood West properties to "grow up together" compared to infilling a large public facility into an established residential neighborhood.

The subject site borders the UGB on the east along SW Elwert Road. Adjacent land uses include single family homes and the Sherwood Robin Hood Elk Lodge that also includes some vacant land that is zoned for residential use, which is expected to develop over time. Directly to the southeast across Highway 99W is the Sherwood Regional Family YMCA. To the north across SW Haide Road is mostly open land with some out-buildings and one dwelling that appears to be vacant. To the west are forested parcels with one dwelling adjacent to the NW corner of the subject parcel. To the south across SW Kruger Road is the Countryside Community Church, limited agricultural activities and four dwellings. The typical weekend use of the church complements the weekday uses of a school. The land to the south also borders Highway 99W.

The District has developed a preliminary site plan that shows the school buildings located in the center of the property with sports fields generally to the south and west and parking located to the north. The southeast corner of the site will contain the realignment of SW Elwert and SW Kruger Roads. The three adjacent roads provide some buffering for the very few adjacent homes and the NW Natural Gas Easement also buffers the southwest corner of the site. The district currently has a High School Design Committee charged with working with the design team to provide advice on a number of design elements and a couple of community input meetings will be scheduled in 2017. In addition there will be public input opportunities during the City's development review and permit approval process.

Finally the subject site is within a very large urban reserve area that has the potential to urbanize over time. As noted previously this portion of the Sherwood West urban reserve was identified as phase A in the preliminary concept plan the City completed. This allows the adjacent land to be designed and developed in a manner that enhances and embraces this important community facility. Therefore the proposed use of the site can be made compatible, through measures, with the uses of the adjacent land.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440 (B)(2) The applicant shall also demonstrate that:

If the amendment would add land for public school facilities, the coordination required by subsection C(5) of section 3.07.1120 of this chapter has been completed.

Hearing Officer's Analysis: MC 3.07.1120(C)(5) states:

> ***"Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110."***

The applicant addresses this requirement as follows:

> This requirement is satisfied as described in Section III of the application. In summary, the Sherwood School District adopted a long-term facilities plan in January of 2008. The long-term plan assumed that additional school capacity would likely be needed within 10 years of the plan's adoption. (The 2008 Long Term Facilities Plan is provided in Appendix C).
>
> In 2014 to 2016, the School District did significant planning prior to placing a bond on the November 2016 ballot that was ultimately approved by voters. This included inventorying existing school facilities, completing updated demographic information, as well as significant planning and public outreach to identify a plan for school facilities that includes the proposed new high school.

As the District points out, it experienced substantial growth in the late 1990's and early 2000's leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. The District completed a long term facilities plan in 2008. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school

year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District and the city of Sherwood have an intergovernmental agreement to share sport fields with most of the facilities occurring on school grounds. Thus the coordination required by subsection C(5) of Metro Code Section 3.07.1120 has been completed.

The applicant has met its burden of showing compliance with this factor by substantial evidence in the whole record.

Metro Code section 3.01.1440(B)(3) The applicant shall also demonstrate that:

If the amendment would add land for industrial use pursuant to section 3.07.1435, a large site or sites cannot be reasonably be created by land assembly or reclamation of a brownfield site.

Hearing Officer's Analysis: The proposed expansion is not for industrial use. This criterion is not applicable.

Findings Addressing OAR 660- Division 24 and the Applicable Statewide Planning Goals.

OAR 660-024-0020 requires that all UGB amendments apply the Statewide Planning Goals to the amendment process. This directive applies to the whole gamut of UGB amendments, from the every-six-year Metro legislative review of its UGB to a quasi-judicial major amendment under the Metro code to provide land for a specific public need, such as a school or other public facilities. However, this does not mean that the Goals will apply equally and in the same way in each situation. It may even be that one or more of the Goals may not apply at all to a given situation.

The primary opponent asserts that the applicant failed to adequately address the Statewide Planning Goals. *See* Letter from Jennifer Bragar dated June 6, 2017. While that was correct at the time Ms. Brager wrote her letter, the applicant followed up two days later with proposed findings. The Hearings officer finds that the applicant did adequately demonstrate compliance with the applicable Statewide Planning Goals by substantial evidence in the whole record, and adopts the applicant's suggested findings, with slight modification, as set forth below. The opponent's specific objections are also addressed below.

OAR 660-024 -0020

OAR 660-024-0020 sets out which of the Statewide Planning Goals are applicable to UGB amendments. The Goals will have a somewhat limited applicability to a UGB amendment for a specific need, but the relevant Goals are addressed below.

Goal 1 - Citizen Involvement

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

Hearings Officer Analysis: This Major Amendment application does not alter Metro's citizen involvement program. Consequently, compliance with Goal 1 is established through compliance with the public involvement requirements of Metro's code. Those requirements have been followed.

Goal 2 - Land Use Planning
"To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Hearings Officer Analysis: OAR 660-024-0020(1)(a) states that the exceptions process in Goal 2 and OAR 660, Division 4 are not applicable unless a goal exception is part of the application. A goal exception is not part of the Major Amendment application and so those provisions will not be addressed. Other than goal exceptions, Goal 2 requires the establishment of a comprehensive plan, a need for coordination of government entities in planning, and the need for public hearings and an opportunity for comment and review.

1) Coordination: This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred.

2) Public Hearings/Opportunities for Comment and Review: Metro staff sent the required notice for the hearing before the hearings officer, and there has been opportunity for comment and review of the application materials. The hearing was continued, which provides additional opportunity for comment and review, and the hearings officer has stated he is likely to leave the record open after the second hearing concludes. There will also be at least one hearing before Metro Council. Further, the proposed high school will have additional approvals to obtain after the Major Amendment application has been approved, such as annexation, a zone change and a conditional use permit, all of which include a public involvement component. Therefore, there has been and will continue to be public hearings and an opportunity for comment and review.

Goal 3- Agricultural Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 4 - Forest Lands

Hearings Officer Analysis: Not applicable under OAR 660-024-0020(3)(b).

Goal 5 - Natural Resources, Scenic and Historic Areas, and Open Spaces

"To protect natural resources and conserve scenic and historic areas and open spaces."

Hearings Officer Analysis: OAR 660-024-0020(1)(c) requires states that Goal 5 and its related rules apply only in areas added to the UGB. The area to be added to the UGB is the site identified in this application. There are no Goal 5 resources on the site identified by Metro, Washington County or the City of Sherwood in the Sherwood West Concept Plan. Therefore, this goal is not applicable.

Goal 6 - Air, Water and Land Resources Quality
"To maintain and improve the quality of the air, water and land resources of the state."

Hearings Officer Analysis: As LUBA recently stated:

> "[t]he relevant Goal 6 inquiry for a decision that amends comprehensive plan and zoning map designations, without approving any particular new development, is whether there is a reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed in the future. *See Friends of the Applegate Watershed v. Josephine County*, 44 Or LUBA 786, 802 (2003), (at the post-acknowledgment plan amendment stage, a local government need only show it is reasonable to expect that applicable state and federal environmental quality standards can be met); *see also Salem Golf Club v. City of Salem*, 28 Or LUBA 561, 583 (1995) (same).

See Nicita v. City of Oregon City, ___ Or LUBA ___ (LUBA No. 2016-045, Jan 25, 2017, slip op. at 27.

The hearings officer does not see how there could not be any "reasonable expectation that applicable state and federal environmental quality standards can be met at the time the property is developed [as a school]." The proposed school campus poses no significant adverse air, land or water quality impacts. There are no expected significant "waste or process discharges" from the new high school campus. The high school does not "process" anything and so there are no process discharges associated with the high school. Any waste that will be produced by high school activities will be handled through the normal course of business. For example, any solid waste generated by the school will be subject to recycling and solid waste collection by the franchised garbage hauler for the area. Any waste associated with sanitary sewers or storm events will be handled as part of the public sanitary and storm water facilities. As the property develops, the District will be required to coordinate with the state Department of Environmental Quality and with Clean Water Services to ensure that air, land and water resources are not degraded. As noted in response to Goal 5, no significant Goal 5 resources have been mapped on this property by Metro, Washington County or the City. Further, the proposed new high school site is adjacent to the existing UGB and will allow for efficient multi-modal transportation of the

bulk of the student population - especially as Sherwood West builds out with primarily residential uses in the decades to come.

The primary opponents make a half-hearted attempt to challenge the applicant's Goal 6 compliance, but its argument is too vague and too unfocused to provide a basis for denial. First, the opponent state that "air quality issues should be examined for a new school to be built near Highway 99." *See* letter from opponent's counsel Jennifer Brager, at p. 2, 6. This argument appears to assume that highway 99 causes sufficient level of pollution that a school should not be located in close proximity thereof. The opponents suggest that a "buffer" and "distancing is needed. The opponent never suggests what a proper buffer would be. The Hearings officer finds this concern to be speculative, unsupported by substantial evidence in the record, and beyond the scope of Goal 6's reach. Even if the hearings officer believed this was a valid concern, the hearings officer finds the air quality benefits of locating a school away from a major arterial would be offset by the additional VMT needed to transport school children a further distance.

Goal 7- Natural Hazards

"To protect life and property from natural disasters and hazards."

Hearings Officer Analysis: Goal 7 (Areas Subject to Natural Hazards). Goal 7 requires local governments to evaluate risks to people "upon receiving notice" of new hazard information from DLCD, and based on evaluation of that risk to prohibit development in areas "where the risk to public safety cannot be mitigated." Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires.

No natural hazards have been mapped on the properties that comprise the proposed school site. (*See, e.g.,* Sherwood West Concept Plan, figures 6 and 7.) The applicant's proposed site appears to be devoid of any natural hazards: It is not in a flood plain or a coastal zone. It does not have steep slopes that would be vulnerable to landslides. It does not contain soils that are exceptionally vulnerable to being an earth quake hazard (at least any more so in comparison to the rest of the Portland Metro region generally). Therefore, this goal is inapplicable.

Goal 8- Recreational Needs

"To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Hearings Officer Analysis: As set forth in the Narrative, the District provides most of the athletic fields for the City of Sherwood. The City and the District have had a long history of partnering in the provision, use, and maintenance of these fields so that recreational opportunities are provided as efficiently as possible. The new high school campus will include a number of new fields and sports facilities on which the City and the District will continue to partner. The new fields and sports facilities will be in addition to the existing fields and sports facilities already in use as part of the existing school facilities. See page 32 of the Narrative for additional

detail. The new high school campus, then is supportive of this goal, as it will help satisfy the need for recreational facilities in the city and in the District.

Goal 9 - Economic Development

> ***"To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens."***

Hearings Officer Analysis: Goal 9 applies to areas within an urban growth boundary. OAR 660-09-0010(1). *Port of St. Helens v. Land Conservation & Development Committee*, 164 Or App 487, 495, 996 P 2d 1014 (2000). Goal 9 requires that jurisdictions provide adequate opportunities for a variety of economic activities. Goal 9 planning is limited to areas within UGBs, and local land use plans are required to comply with Goal 9 at periodic review and whenever a jurisdiction undergoes a post-acknowledgment plan amendment that changes the plan designation of more than two acres of land from industrial/employment use to a nonindustrial/non-employment use. OAR 660-009-0010(1), 0010(2), and 0010(4).)

Pursuant to OAR 660-024-0020, certain Goals, including Goal 9, are also applicable when the UGB is amended. The Major Amendment application expands the UGB to allow an existing high school to move several miles away from one site within the City of Sherwood to another site that will be annexed into the City of Sherwood for that purpose. This appears to be fairly neural from the standpoint of economic opportunities.

The opponent cites *Barkers Five, LLC v. LCDC*, 261 Or App 259, 289 (2014), and states that Goal 9 "requires a determination of the potential future land need for employment and is supposed to occur at the time the UGB is expanded, " and that "the school itself has to be analyzed as an 'other employment use' as defined under OAR 660-009-0005 because it will involve a governmental employment activity. " *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. That might be true for a UGB amendment that proposes to add employment land, but it not explain the relevance of Goal 9 to this particular UGB application, which is specific to a need for land for a new high school. In this case, the UGB amendment is targeting a specific need, *i.e.,* the relocation of an existing high school several miles away within the same city. Goal 9 is not applicable as the UGB expansion is for a specific need for a high school.

The cited passage from *Barkers Five* should be read in context. LCDC was referring to OAR 660-027-0050(2) and Metro's analysis for employment land needs occurring as part of its urban growth report. There is nothing in that passage that would make such an analysis a requirement for a major amendment application submitted under ORS 197.299(4). As stated in the findings for Goal 9, this goal is not applicable to a UGB amendment for a specific high school need. To the extent that the high school will have any Goal 9 impacts, the Hearings officer finds those impacts will be positive in terms of temporary construction jobs during development and provision of part-and-full time employment year-round.

Furthermore, if the opponent is implying that Metro must engage in a full-blown economic opportunities analysis in the context of a major amendment application for a high school, that conclusion does not follow from the opponent's stated premises or from Goal 9. The

opponent's argument is not developed well enough to allow the hearings officer to evaluate it on the merits: the opponent has not explained how this application actually impacts the requirements or scope of Goal 9.

Goal 10 - Housing

"To provide for the housing needs of citizens of the state."

Hearings Officer Analysis: The applicant states that Goal 10 is not applicable as the UGB expansion is for a specific need for a high school. The opponent states that "Goal 10 is implicated because housing opportunities will be lost as a result of this large land grab by the school district." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. While it is true that any use of land for non-residential purposes results in that land not being available for housing, that truism does not create a Goal 10 violation. As best as the hearings officer can determine, the opponent is arguing that the Preliminary Sherwood West Concept Plan shows a small school site surrounded by housing, and the applicant's current plan shows the entire site being used for a school and no housing. The opponent concludes that this change in plans 'will limit the planned housing in the Sherwood West Concept Plan Area," which, according to the opponent, "has Goal 10 implications." *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2-3. It appears that the opponent is arguing that the Concept Plan locks in the density and mix of housing, and any change to the Concept Plan requires an analysis of Goal 10 compliance.

The hearings officer finds that the concept plan does not have the regulatory effect that the opponent assigns to it. The opponent cites to nothing in any local zoning code or Comprehensive Plan that gives this sort of regulatory effect to this (or any other) concept planning effort. Goal 10 would not have that type of regulatory effect until the property subject to the Concept Plan is brought into the UGB and assigned urban zoning designations. As currently situated, the land at issue is not within the UGB and so is not considered "buildable lands" under Goal 10 and Goal 14, and is not included in any buildable land inventory. Therefore, there is no buildable lands inventory to measure the Major Amendment application against and Goal 10 does not anticipate that there would be in this situation. By its terms, Goal 14 requires that jurisdictions "provide for the housing needs of citizens of the state" by inventorying "buildable lands for residential use. " Goal 10 defines buildable lands as lands in "urban and urbanizable areas that are suitable, available and necessary for residential use. " Under the definitions section of the Statewide Planning Goals, "urban land" is defined as "land inside an urban growth boundary, " and "urbanizable land" is defined as urban land, i.e., land inside a UGB, that is presently unavailable for any number of reasons. Therefore, the opponent' argument that, in the context of a Major Amendment, Goal 10 requires Metro to "demonstrate that its actions do not leave it with less than adequate residential land supplies" is wrong..

Moreover, as the applicant points out, the City's urban reserves include a 50-year land supply for the City. There is no evidence that siting a new high school in Sherwood West, in the location that the Concept plan contemplated a new school, will in any way negatively impact the ability of the City to provide for its housing needs, especially when Sherwood West is combined with Sherwood North and Sherwood South.

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The opponent also complains that the applicant is seeking to bring in 82 acres when it defined its current need as requiring only a 50-acre site. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. The hearings officer is at a loss to understand the relevance of this argument to a Goal 10 challenge. The opponent's argument is simply not developed sufficiently to allow the hearings officer to understand the nature of the complaint.

The opponent also argues that an 82-acre school site "contradicts the two school sites considered in the Preliminary Sherwood West Concept Plan. *See* letter from Jennifer Bragar dated June 6, 2017, at p. 2. However, Concept Plans are not regulatory documents in the sense that they do not limit the size of planned facilities. The Concept Plan took the provision of additional school sites into account when it was developed. Although the concept plan includes two identified school sites, it is important to remember that the Concept Plan is a general plan that addresses how the area will develop generally. The Concept Plan does not specify the types of schools that the conceptual school sites reflect, e.g., elementary, middle or high school. Therefore, one should not view the blue squares denoting school sites in the Concept Plan in the literal sense of trying to determine how big the Concept Plan believed the sites will ultimately be. Such information comes from future refinement of the Concept Plan after areas are brought into the UGB.

Moreover, as the applicant points out, Goal 10 concerns itself with land already within a UGB, which the subject property is not. Therefore, Goal 10 has very limited applicability to a Major Amendment application for a new public school site. That said, the justification for the proposed expansion area of 82 acres is included in the Narrative. (Narrative at 31-32.) As set forth in the Narrative, approximately seven of the 82 acres will be needed for transportation improvements that will support the new high school. There is also a 40-foot wide gas pipeline easement that runs across the site, occupying approximately 2.2 acres but requiring protection of additional, adjacent property of approximately 20 feet on either side. This pipeline easement essentially gives the site an irregular shape, which reduces the efficiency with which it can be developed. The Narrative also discusses the shared sports fields arrangement between the City of Sherwood and the District that provides for additional ballfields. The District would also note that Figure 3 of the Narrative depicts a conceptual layout of the high school site and related transportation improvements over the entire 82-acre area. (Narrative at 7.) As one can see on that conceptual layout, the entire site will be fully utilized.

In the Appendix 6 Service Provider Interviews, the District warns that the current high school was at-capacity at the time of the interview (the appendix is dated June 15, 2015), and with the growth expected in Sherwood the high school could be expected to become over-capacity. (See Appendix 6, pages 3-4.) The District stated that expanding the existing high school and adding a new high school to the District would both be explored. The relevant information to be gleaned from the Concept Plan is that the majority of Sherwood West is intended to be developed with varying densities of housing and that the Concept Plan integrated the need for at least two additional school sites, with an understanding that the existing Sherwood High School would soon be over-capacity.

In its June 23, 2017 letter, the opponent argues that Metro "must demonstrate that its actions do not leave it with less than adequate residential land supplies in the types, locations,

and affordability ranges affected." *See* letter from Jennifer Bragar dated June 23, 2017, at p.2. As support for this requirement, the opponent relies on *Burk v. Umatilla County*, 20 Or LUBA 54 (1990). In *Burk*, the Port of Umatilla filed an application with the City of Umatilla to amend the city's comprehensive plan map for a 42-acre area within the city's urban growth boundary, but outside the city limits, from single-family residential to industrial. The city's buildable land inventory for housing included the 42 acres, because that acreage was within its UGB. Even with the 42 acres included in the buildable lands inventory, the city was deficient in land available for single-family housing. The city approved the map amendment even though it increased that deficiency, which earned the city a remand by LUBA.

The facts of *Burk* are different than those presented by this Major Amendment application. The land in question in *Burk* was inside a UGB and was already planned for zoned and residential uses. That is a key factual difference from the present case, because the land in this case is planned for agriculture and forestry. The land proposed to be added to the UGB is not "buildable land," and is not in any current inventory. For this reason, the Goal 10 analysis required in *Burk* is not applicable here.

Goal 11 - Public Facilities and Services

> ***"To Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."***

Hearings Officer Analysis: As set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services with respect to that urban reserve. The concept plan was prepared with analyses of existing sanitary sewer, water, and storm water conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services. The concept plan discusses the provision of public facilities and services to the area at pages 16-18 and 40-44, as well as in Appendix 3 (Existing Conditions Report) and Appendix 6 (Service Provider Interviews). According to the Concept Plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) The District used this work as a jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative, pages 24-31 and Application Appendix A (New High School Preliminary Site and Utility Exhibit) and Appendix B (Service Provider Letters). All of the foregoing information addresses the orderly and efficient arrangement of sanitary sewer, water, and storm drainage facilities to serve the new school property, as well as the larger Sherwood West area and all of the evidence consistently points to the chosen property as a property that can served in a timely, orderly, and efficient manner.

The opponents argue that Goal 11 is not met, because the local sewer and water agency (Clean Water Services) has a concern about the installation of a temporary pump station. *See* letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents offer no testimony, expert

opinion, or evidence that would call into question the conclusions reached by the applicant's engineers, KPFF. Goal 11 does not require that every technical engineering solution be worked out at the time of UGB amendment. The KPFF engineers seem to believe that an engineering solution is not only possible, but likely, which is all that is required at this stage. See KPFF memo dated June 13, 2017. This Hearings officer has evaluated the opinion of the KPFF engineers, and finds them more credible.

The opponents further argue that "fire flow tests have not been completed." *See* Letter from Jennifer Brager dated June 23, 2017, at p. 5. The opponents do not explain why fire flow tests are mandated by Goal 11 in the context of a UGB amendment, nor is it obvious why they would be. The KPFF engineers seem to be satisfied that the fire flow issue can be adequately handled, and this hearings officer finds them more credible.

Goal 12 - Transportation

"To provide and encourage a safe, convenient and economic transportation system."

Hearings Officer Analysis: Early LUBA cases suggested that a local government could not "pass the buck" by deferring compliance with Goal 12 and the TPR until the time of site plan review.[13] However, more recent case law clarifies that conditions of approval can be used to limit new development until such time as the TPR is addressed. For example, in *Citizens for Protection of Neighborhoods v. City of Salem*, 47 Or LUBA 111 (2004) (*Citizens*), the City of Salem approved a zone change to allow mixed residential and commercial use of a 275-acre property. That approval included a condition that prohibited development of the property until later adoption of a master plan for the property. The City of Salem's code criteria applicable during the master plan process included requirements that were substantially identical to the requirements of the TPR. Based on the condition requiring master plan approval, the city found that the zone change did not significantly affect the transportation facility because no development could occur until the subsequent master plan phase. *Id*. at 115, 116. LUBA held that the city could properly conclude that the rezoning of the property did not significantly affect any transportation facility because the condition essentially prohibited development on the property without first showing that any allowed development is consistent with the function, capacity and performance standards of affected transportation facilities. *Id*. at 120.

In *ODOT v. City of Klamath Falls (Southview Dev'l, LLC)*, 39 Or LUBA 641, 660, *aff'd* 177 Or App 1, 34 P2d 667 (2001), LUBA affirmed that portion of a county decision which approved a zone change with a condition that prevented additional development from impacting a transportation facility until such a time in the future when the TPR is addressed. LUBA found that this condition was sufficient to ensure compliance with the TPR in the interim.

Finally, in *Willamette Oaks, LLC v. City of Eugene,* 59 Or. LUBA 60 (2009), the city approved a zone change, and imposed a condition of approval prohibiting development of the property without approval of a planned unit development (PUD) application and a showing of

[13] *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994), *aff'd*, 130 Or App 406 882 P2d 1130 (1994); *Concerned Citizens of the Upper Rogue v. Jackson County*, 33 Or LUBA 70 (1997).

consistency with the TPR as part of the PUD application and review. LUBA approved this approach, stating as follows:

> In sum, with one caveat discussed below,[14] we think it is permissible for the city to defer consideration of compliance with the TPR to a subsequent review process at the time actual development is proposed, provided that the zone change or plan amendment is effectively conditioned to prohibit traffic or other impacts inconsistent with the TPR's requirements unless and until those requirements are fully addressed. Applicant offers no reason in the present case why deferring the application of the provisions of the TPR to a later PUD application process is insufficient to ensure that allowed uses of the subject property are consistent with

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[14] LUBA stated in a footnote that the PAPA procedural requirements would still need to be satisfied as part of the deferred process:

> The caveat mentioned above is that unless the local government takes steps to ensure otherwise, the subsequent review process may not require a comprehensive plan or land use regulation amendment and therefore will not trigger [**12] the notice obligations of a post-acknowledgement action under ORS 197.610 *et seq*. Under those statutes, a local government that amends its comprehensive plan or land use regulations, including zone changes, must provide to the Department of Land Conservation and Development (DLCD) timely notice of the hearing on the proposed amendments as well the decision adopting the amendments. DLCD, in turn, provides notice of the proposed amendments and any subsequent adoption to persons or agencies who request such notice. OAR 660-018-0025. The requirement to provide notice of post-acknowledgment plan amendments to DLCD and other parties is a critical component of a statutory and rule-based scheme that is designed to ensure that post-acknowledgment plan and land use amendments comply with the applicable statewide planning goals and rules, including the TPR. *See Oregon City Leasing, Inc. v. Columbia County, 121 Or App 173, 177, 854 P2d 495 (1993)* (failure to provide DLCD the notice required under ORS 197.610 *et seq*. is a substantive, not procedural error). The efficacy of that scheme is undermined if a local government defers consideration [**13] of compliance with the TPR to a subsequent review process that does not provide equivalent notice to that required by ORS 197.610 *et seq*. Without such notice, it is possible that DLCD and parties who may rely on DLCD's re-notice, potentially including ODOT, may not learn of the review proceeding or have an opportunity to participate in that proceeding.

> the function, capacity and performance standards of the affected transportation facilities. *ODOT v. City of Klamath Falls,* 39 Or LUBA at 660.

Under OAR 660-024-0020(1)(d), the Transportation Planning Rule ("TPR") need not be applied to a UGB amendment if the land will remain zoned as urbanizable. That will be the case with the properties subject to the proposed UGB amendment. The current AF-20 zoning will remain until the is annexed into the City of Sherwood. During the forthcoming Metro Title 11 concept planning process for the properties, the City will determine the appropriate zone and this will include a TPR analysis. The zoning will not actually be changed, however, until after annexation.

With respect to Goal 12 generally, as set forth in response to MC 3.07.1425(c)(2), the Sherwood West Concept Plan extensively studied the provision of public facilities and services, including transportation, with respect to that urban reserve. The concept plan analyzed the existing transportation system and how that system will need to be upgraded, extended, and phased to meet the future development of Sherwood West. The concept plan was prepared in coordination with all of the future transportation service providers, including Washington County and ODOT. The concept plan discusses the transportation system within the plan area at 18-21, 40-44, as well as in Appendix 3 (Existing Conditions Report), Appendix 6 (Service Provider Interviews), and Appendix 8 (Transportation Options Alternative Analysis Report). The District used this work as the jumping off point to study the proposed site for inclusion in the UGB (as well as other sites within Sherwood West). See Narrative at pages 10-11, and Appendix B (Service Provider Letters). The District also engaged a licensed traffic engineer to prepare the March 15, 2017, Sherwood High School UGB Expansion Transportation Study (the "Transportation Study") to address the provision of a safe, convenient, and economic transportation system for the new high school site. (The Transportation Study has been submitted to the record.) The Sherwood West Concept Plan takes a higher-level look at the transportation needs of the Sherwood West area in general, including the need for new streets and intersection improvements. The Narrative provides general information about how the school site will be served and the Transportation Study provides more detail than is commonly found at the UGB expansion stage, but finds that, with some mitigation improvements, a new high school on the proposed site can be served by the appropriate transportation system. The Transportation Study will become more relevant at the Title 11 concept planning and annexation stages of the high school site development. Because the new high school is very near to an existing, urban-level street system, and because Washington County and the City will be constructing a new intersection improvement adjacent to the new high school, the provision of transportation services to the new school will be more economical. According to the concept plan, the area in which the school site is proposed "presents the best near-term opportunity for development in Sherwood West," and the cost to serve the area is on the lower end of the cost scale. (Sherwood West Concept Plan, pages 42-43.) In sum, all of the cited evidence supports a finding that it is possible to safely, conveniently, and economically provide for the transportation needs of the new high school.

For this reason, the applicant proposes a condition of approval to the UGB amendment that prohibits any new development on the subject property until a Comprehensive Plan Map and Zoning Map Amendment are completed, and that the TPR will be addressed at that time.

Several opponents expressed concerns about the adequacy of the surrounding transportation system to support the proposed high school. It is tempting to jump ahead to the specific traffic impacts of a proposed use even at this early stage of the land use process. It is important to keep in mind, however, that the Major Amendment application is just the first application in a series of land use proceedings that must occur prior to the high school actually being approved on the property. With respect to the Major Amendment application, Goal 12, OAR 660-024-0060(8), and MC 3. 07. l425(c)(2) are applicable and implicate transportation facilities. The District has submitted findings with supporting substantial evidence to address all of those provisions. The District also submitted additional evidence from its traffic engineer to address particular issues raised with respect to the March 15, 2017, Sherwood High School UGB Expansion Transportation Study. (See June 28, 2017, DKS memorandum.)

No one besides the District provided any evidence or testimony from a traffic engineer regarding any aspect of the Major Amendment application. Opponents correctly point out that there are existing transportation deficiencies in the area that surrounds the proposed high school site. Those opponents also correctly point out that if those deficiencies are not addressed then the new high school will exacerbate them. All of that is true, but it would be expected to be true regardless of where the new high school is sited, *i.e.,* nearly every area in and around Sherwood has existing transportation deficiencies and siting a new high school in any of those areas would impact the transportation system. Where the opponent's logic fails is in the apparent assumption that the transportation impacts of the new high school will not be addressed as part of the planning and permitting processes that are required prior to the new school opening its doors in 2020. That assumption is incorrect.

The laws and regulations that govern the permitting of the new high school simply do not allow the new school to be plopped down anywhere without transportation impacts being analyzed and mitigated in accordance with the law. The specifics of that analysis and mitigation for the chosen site are largely irrelevant at the UGB amendment stage. Instead, those specific transportation impacts will be addressed through subsequent Title ll planning for the UGB amendment area, and through annexation, zone change, and conditional use permit processes. Through these processes, the Transportation Planning Rule will be addressed, appropriate off-site mitigation within an appropriate timeframe will be required, and appropriate frontage improvements for all of the abutting streets will be conditioned. Public involvement is included in each of those steps as part of each of the planning and permitting processes. (See June 28, 2017, DKS & Associates memorandum.)

Goal 13 - Energy Conservation
"To conserve energy."

Hearings Officer Analysis: LUBA and the Courts have never given any regulatory affect to this Goal. The Hearings officer views this goal as being essentially meaningless. The general practice has been for applicants and staff to write some flowery prose that extorts the energy

saving virtues of the project. In this vein, the applicant states:

> As explained under the District's response to MC 3.07.1425(c)(3), which is the analog of Goal 14, Location Factor 3 (ESEE energy consequences), the proposed school site's adjacency to the existing UGB, served by major streets, facilitates multi-modal access for students, teachers, families, and administrative staff to and from the school campus. This will multi-modal facilitation will only increase as Sherwood West builds out into a predominantly residential area with nodes of neighborhood commercial.

Without some baseline standard to measure against, it is difficult to evaluate whether any given proposal will "conserve energy" or not. But at least it sounds good.

For its part, the opponent's arguments do not shed much light on the issue. They merely state that an "energy analysis" must be provided. *See* Letter from Jennifer Brager dated June 6, 2017, at p. 3. The opponents do not explain exactly what an "energy analysis" entails, nor it is particularly apparent on its face. Given that no focused argument concerning Goal 13 was raised by any party, the hearings officer finds that the applicant's proposed findings comply with Goal 13 – whatever it means.

Goal 14 - Urbanization

> ***"To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."***

Hearings Officer Analysis: Goal 14 is addressed throughout this submittal.

Goals 15 through 19

Hearings Officer Analysis: These goals are not applicable, as the proposed UGB expansion does not include Willamette River Greenway, Estuarine Resources, Coastal Shorelands, Beaches and Dunes or Ocean Resources.

OAR 660-024-0040 - 0050

OAR 660-024-0050 directs local governments to inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. The District's Major Amendment application does not directly implicate these rule provisions, because the need for the new high school site did not arise out of an OAR 660-024-0040 overall land needs analysis and subsequent OAR 660-024-0050 buildable lands analysis. A specific need for a new high school site arose out of long-term facilities planning engaged in by the District. However, once the need for the new high school was identified, the District analyzed land that was within both the District boundaries and the Sherwood, Wilsonville, and Tualatin UGBs for land that could accommodate the need for the

new high school based on its suitability criteria. (See Narrative at pages 8-21.) There was no suitable land within those areas. The analysis required by OAR 660-024-0050 tracks closely in some respects with the analysis required by MC 3.07.1425(a), which was addressed by the District in its application. The caveat, however, is that identified specific land need, such as land for a new school, is not the same as a generalized need for more residential land or employment land. Given the specific need for a new school site, MC 3.07.1440(a) allows a UGB expansion tailored to just that need under certain circumstances.

OAR 660-024-0060 - Metro Boundary Local Alternatives Analysis

OAR 660-024-0060 sets forth the provisions that apply when a need within the Metro UGB has been specified and there is no land within the UGB that can accommodate that need. The provisions in OAR 660-024-0060 track closely with the provisions contained in MC 3.07.1425(c), which have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

OAR 660-024-0060:

(1) When considering a Metro UGB amendment, Metro must determine which land to add by evaluating alternative urban growth boundary locations. For Metro, this determination must be consistent with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, Metro must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

Hearings Officer Analysis: The highest priority of land available is land designated urban reserve. (ORS 197.298(1)(a).) The District's application included an analysis of urban reserve land.

(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, Metro must apply the location factors of Goal 14 to choose which land in that priority to include in the Metro UGB.

Hearings Officer Analysis: As set forth in the District's Major Amendment application, there is suitable land within an existing urban reserve to satisfy the need deficiency, i.e., the new high school. Accordingly, the location factors of Goal 14 were applied to that land. Those location factors are the first four location factors found in MC 3.07.1425(c)(1)-(9) and have been addressed in the District's application submittal, the Metro staff report, and the additional findings submitted by the District in response to the hearings officer's request.

(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, Metro must determine which land in the next priority is suitable to

accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(d) Notwithstanding subsection (a) to (c) of this section, Metro may consider land of lower priority as specified in ORS 197.298(3).

Hearings Officer Analysis: This is not applicable as there is urban reserve land that can accommodate the need.

(e) For purposes of this section, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(2) Notwithstanding OAR 660-024-0050(4) and subsection (1)(c) of this rule, except during a legislative review of the Metro UGB, Metro may approve an application under ORS 197.610 to 197.625 for a Metro UGB amendment proposing to add an amount of land less than necessary to satisfy the land need deficiency determined under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

Hearings Officer Analysis: This provision is not applicable.

(3) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the Metro UGB location, Metro must show that all the factors were considered and balanced.

Hearings Officer Analysis: This provision is consistent with how Metro interprets its analogous boundary location factors in MC 3.07.1425(c), which were applied to the District's Major Amendment application.

(4) In determining alternative land for evaluation under ORS 197.298, "land adjacent to the UGB" is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.

Hearings Officer Analysis: The District's analysis took into account all of the land in the urban reserves that otherwise met the District's siting criteria. Some of the land analyzed did not abut the UGB, but was rejected for other reasons.

(5) If Metro has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, Metro may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.

Hearings Officer Analysis: This provision is similar to MC 3.07.1425(b), in which site characteristics may be specified for land to be suitable for an identified need. The District specified such characteristics in the Narrative at page 19.

(6) The adopted findings for a Metro UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.

Hearings Officer Analysis: The District mapped all of the alternative areas evaluated in the boundary location alternatives analysis and evaluated them separately.

(7) For purposes of Goal 14 Boundary Location Factor 2, "public facilities and services" means water, sanitary sewer, storm water management, and transportation facilities.

Hearings Officer Analysis: The District took into account the public facilities and services enumerated in this provision when it evaluated MC 3.07.1425(c)(2), which is the analog to Goal 14 Boundary Location Factor 2.

(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative Metro UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation (ODOT) with regard to impacts on the state transportation system. "Coordination" includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include:

(a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the Metro UGB;

(b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the Metro UGB; and

(c) The need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.

Hearings Officer Analysis: As set forth in the responses to Goals 11 and 12, Sherwood West has been concept planned pursuant to MC 3.07.1110, and so the provision of public

facilities and services within the Sherwood West concept plan area and as those services relate to the rest of the city have been studied extensively, as required by MC 3.07.1110. The Sherwood West Concept Plan was prepared with analyses of existing sanitary sewer, water, stormwater, and transportation conditions and analyses of how those systems need to be upgraded, extended, and phased to meet the future development of Sherwood West without adversely impacting the existing city development. The concept plan was prepared in coordination with all of the future service providers, including those services that will be provided by the City and those that will be provided by others, including Clean Water Services, ODOT, and Washington County.[15]

Additional Issues Raised by Opponents

1. **Metro Staff Provided Proper Notice to DLCD.**

Opponents allege that Metro failed to provide notice to DLCD of a proposed plan map amendment under ORS 197.610. *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 8. This is not correct. Metro submitted the requisite notice to DLCD on April 20, 2017, as evidenced on the weekly DLCD notice summary dated April 21, 2017, which is attached to the June 30, 2017 letter from Metro counsel Roger Alfred.

2. **The Fair Housing Act Is Inapplicable.**

The opponent argues that Metro must apply the Fair Housing Act ("FHA") to the Major Amendment application, because "Metro has a duty to affirmatively further fair housing." *See* Letter from Jennifer Bragar dated June 23, 2017, at p. 3-5.

The opponent does not point to any approval criterion that requires Metro to apply the FHA directly to this application, and did not include any convincing argument as to why a UGB expansion to accommodate a new public high school would require the FHA to be addressed. As best as the hearings officer can ascertain, the opponent's core argument is that the FHA is a *de-facto* approval standard for every Comprehensive Plan Amendment and zone change decision. In this regard, Ms. Brager states that "Metro has a duty to affirmatively further fair housing" and that "Metro needs to address fair housing implications in this Major Amendment application through analysis under Goal 10 and under Metro's locational factors, Metro Code 3.07.1425(c)(5) regarding equitable and efficient distribution of housing." The argument is not well-developed; the opponent seems to be arguing that the FHA must be complied with, but that compliance with Goal 10 and the Metro Code establishes compliance with the FHA.

Beyond that, the opponent complains that Sherwood does not have enough subsidized housing, which "does not properly address the housing issues in Washington County for low-income households, especially protected classes." That statement is followed up with the conclusion that the "failure to analyze the school siting in context of the regional need for fair housing only exacerbates the inequitable distribution of affordable housing in the Metro region."

[15] This coordination effort included service provider interviews included as Appendix 6 of the Sherwood West Concept Plan. Appendix 8 provides more detail regarding the provision of transportation infrastructure to the Sherwood West Concept Plan area.

Letter from Jennifer Bragar dated June 23, 2017, at p. 5. Again, the hearings officer is at a loss to understand the opponent's argument, especially since the opponent does not tie their ultimate policy concern back to any specific language in the FHA or any other law for that matter. This argument is simply not developed sufficiently to allow for its review and evaluation. If the argument is that every school siting project has an inclusionary zoning requirement for additional low-income / subsidized housing, that argument is rejected.

SECTION IV: HEARINGS OFFICER'S SUMMARY, RECOMMENDATION, AND PROPOSED CONDITIONS OF APPROVAL.

The applicant seeks to amend the UGB to include approximately 82 acres for a high school with sports fields and the realignment of SW Elwert and SW Kruger Roads. The Applicant has provided sufficient evidence to demonstrate that the criteria are satisfied and the locational factors have been addressed. As detailed herein, the applicant has demonstrated that the high school is currently over capacity and by 2025 will be severely over capacity. Delaying the decision to await a legislative amendment of the UGB by the Metro Council which may or may not occur in the 2018 timeframe only exacerbates the capacity issues which impacts the District's ability to meet the goals of its strategic plan. The applicant provided adequate comparison of the proposed UGB expansion area with other possible expansion areas in seven different urban reserve areas and a determination that the need cannot be met on land currently within the urban growth boundary. In addition the applicant has shown the proposed use can be made compatible with adjacent uses through site design and the city's development design review process provides for public involvement. Additionally the adjacent land is within an urban reserve and is expected to urbanize over time, allowing for the development of a cohesive neighborhood and school/park facility.

Therefore, the hearings officer forwards a recommendation to the Metro Council for ***approval*** of this petition, with the following two conditions of approval:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application are required for this Major Amendment.

2. The applicant must comply with the Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

Respectfully submitted this 21st day of July, 2017.

ANDREW H. STAMP, P.C.

Andrew H. Stamp

Andrew H. Stamp

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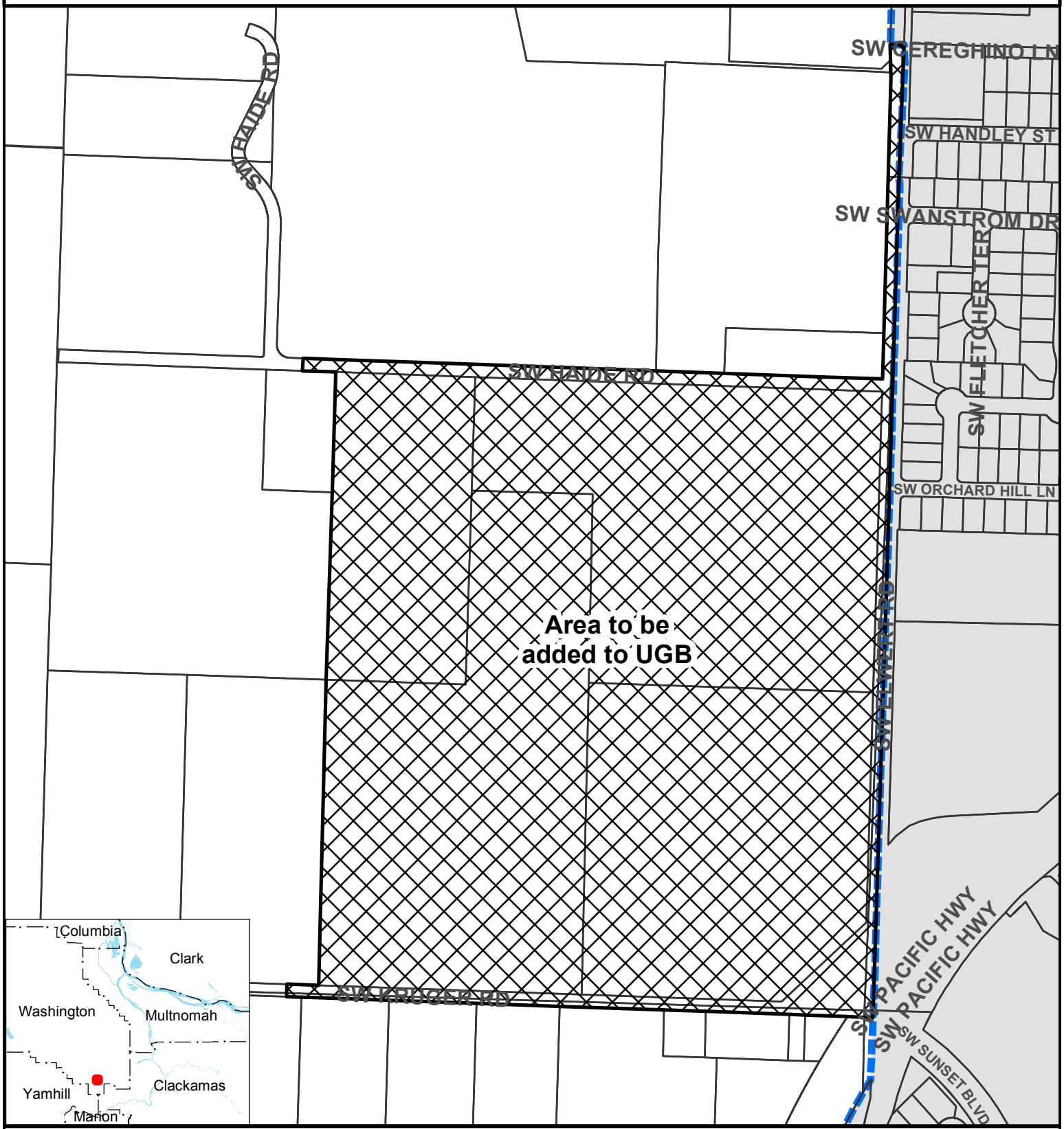
ATTACHMENTS

Attachment 1: Subject Property Map
Attachment 2: Current Enrollment and School Building Capacities, Table 1 of petition
Attachment 3: Projected Enrollment, Table 2 of petition
Attachment 4: Existing High School Campus, Figure 5of petition
Attachment 5: 2014 Sherwood Residential Buildable Lands Inventory Map, Figure 6 of petition
Attachment 6: Urban Reserve Areas within Sherwood School District Boundary, Figure 7 of petition
Attachment 7: Sherwood West Planning Area, Figure 8 of petition
Attachment 8: Sherwood West Alternative High School Sites, Figures 9-14 of petition

ATTACHMENT 1

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
http://www.oregonmetro.gov/drc

Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

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Date: 3/22/2017

Attachment 2

Current Enrollment and Main School Building Capacities

Existing Conditions	Enrollment March 1, 2017	January 2016 Main Building Capacity (without portables) (DOWA Architects)	% Capacity
Elementary School			
Archer Glen	548	500	110%
Edy Ridge	572	575	99%
Hopkins	529	625	85%
Middleton	599	575	104%
Subtotal	2248	*2275*	*99%*
Middle School			
Laurel Ridge	478	620	77%
Sherwood Middle	712	940	76%
Subtotal	1190	*1560*	*76%*
High School			
Sherwood High School	1689	1550	109%

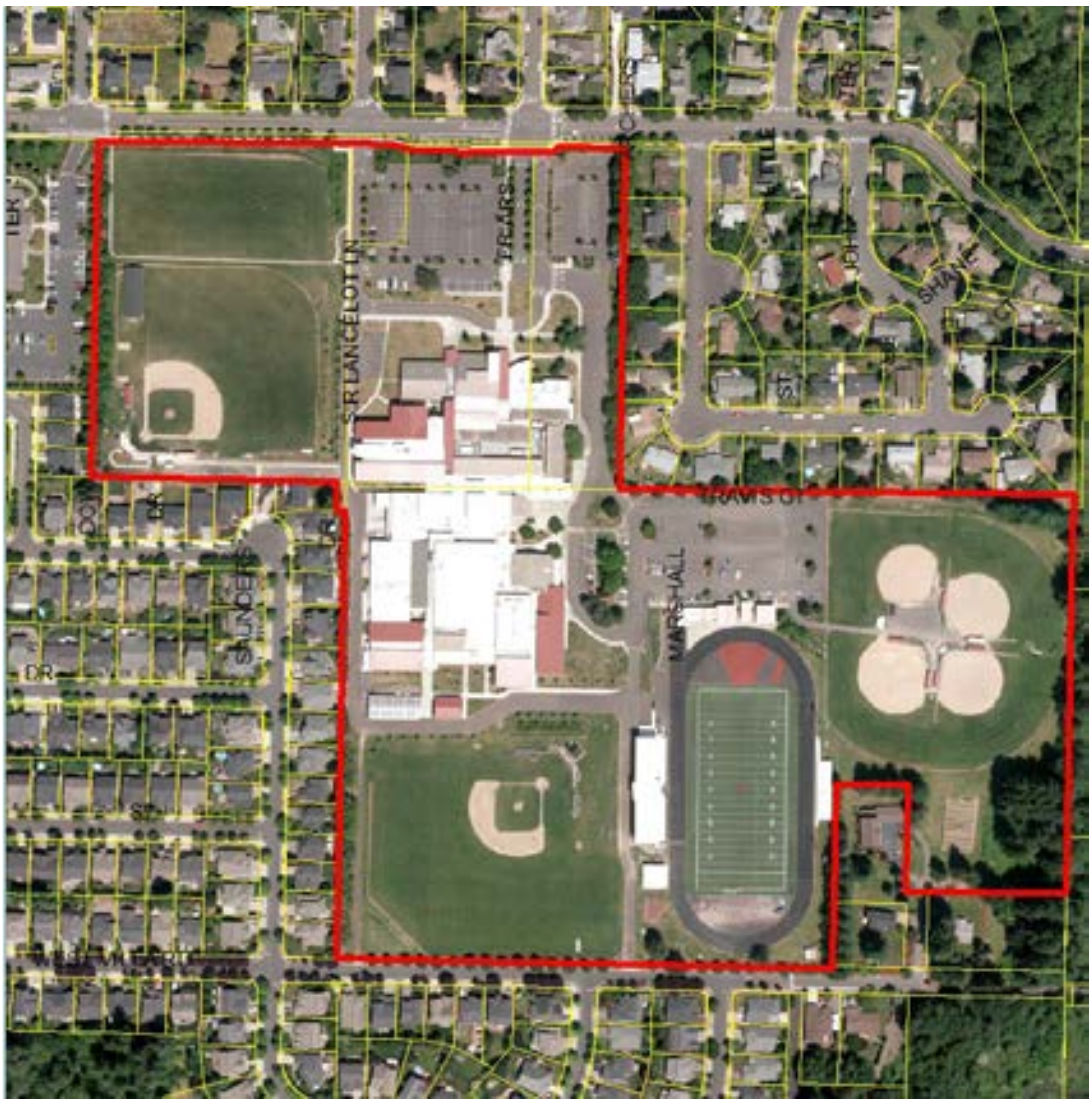
Attachment 3

Projected Enrollment (No Build)

Future Capacity (No-Build)	10-year Projection - Year 2025 (Davis Demographics)	January 2016 Main Building Capacity (without portables) (DOWA)	% Capacity
Elementary School			
Archer Glen	704.8	500	141%
Edy Ridge	505.8	575	88%
Hopkins	750.2	525	143%
Middleton	633.2	575	110%
Subtotal	2594.0	*2175*	*119%*
Middle School			
Laurel Ridge	554.1	620	89%
Sherwood Middle	1069.9	865	124%
Subtotal	*1624.0*	*1485*	*109%*
High School			
Sherwood High School	2181.9	1550	141%

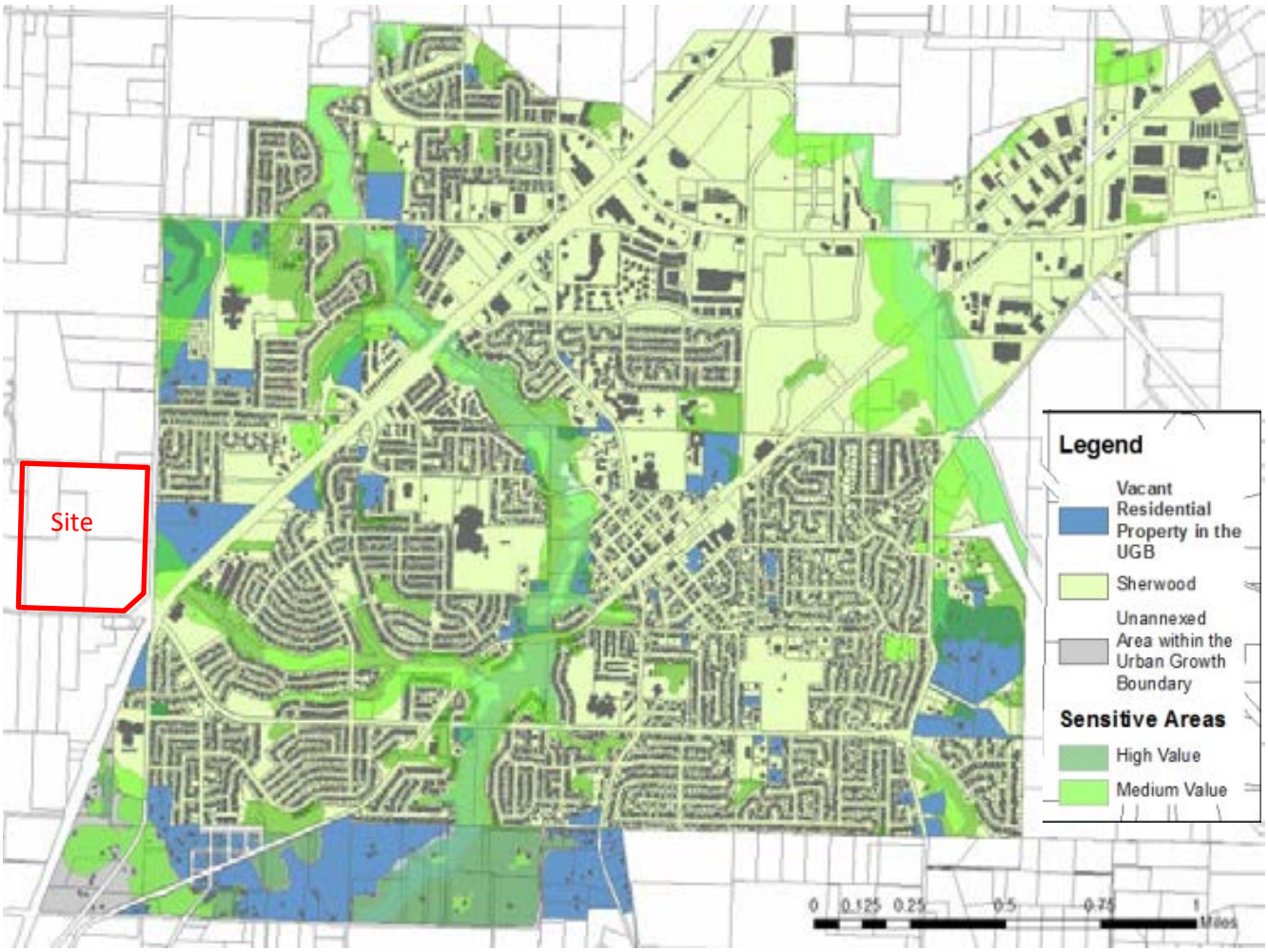
Attachment 4

Existing High School Campus



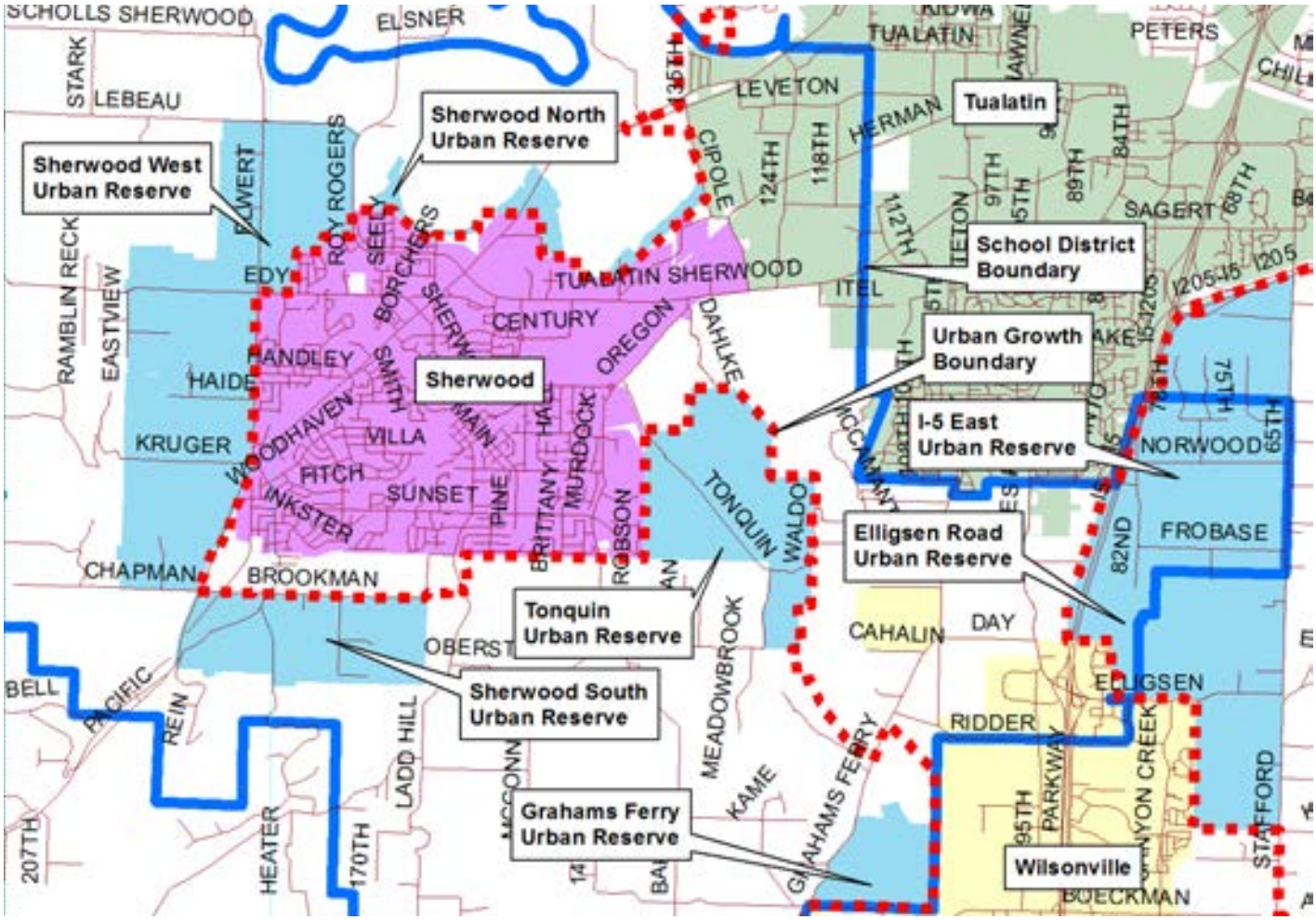
Attachment 5

2014 Sherwood Residential Buildable Lands Inventory Map



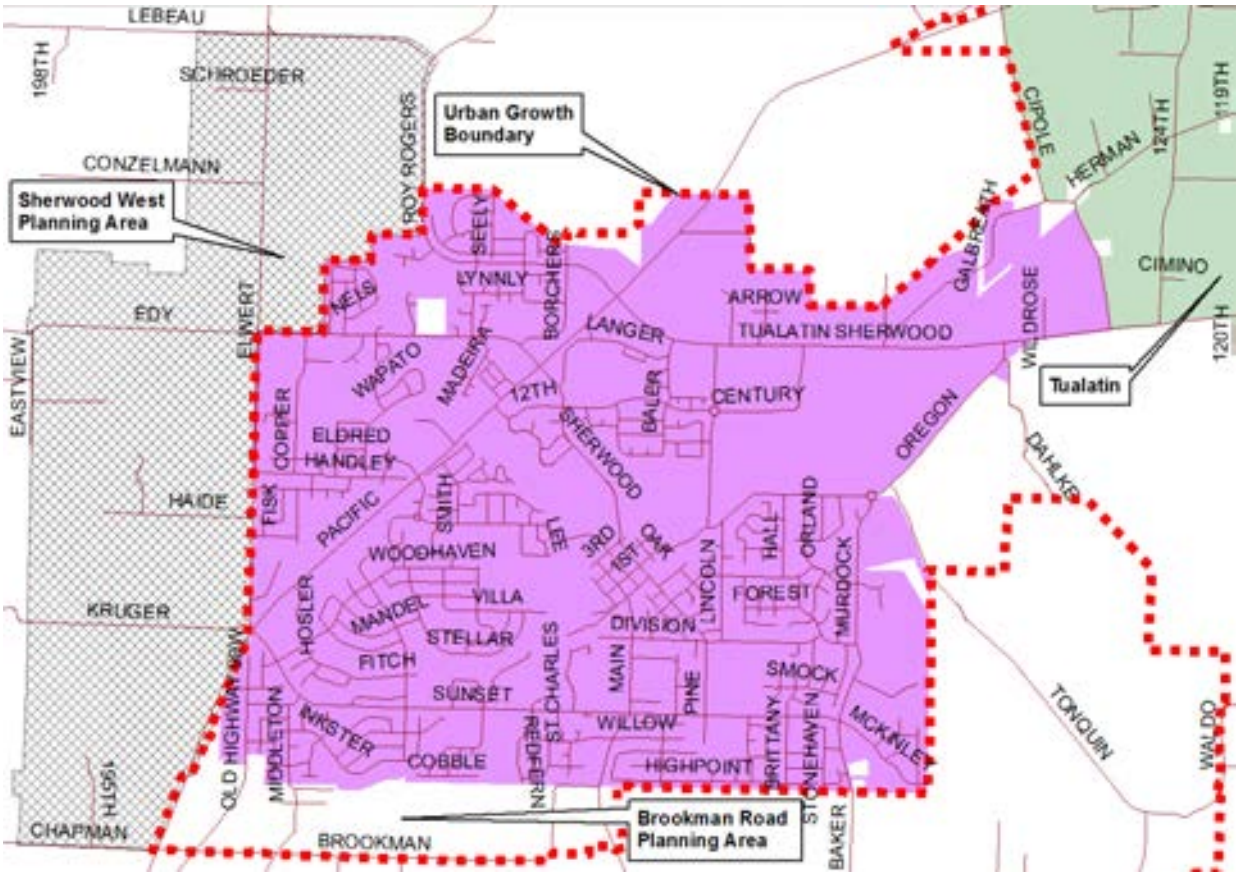
Attachment 6

Urban Reserve Areas within Sherwood School District Boundary



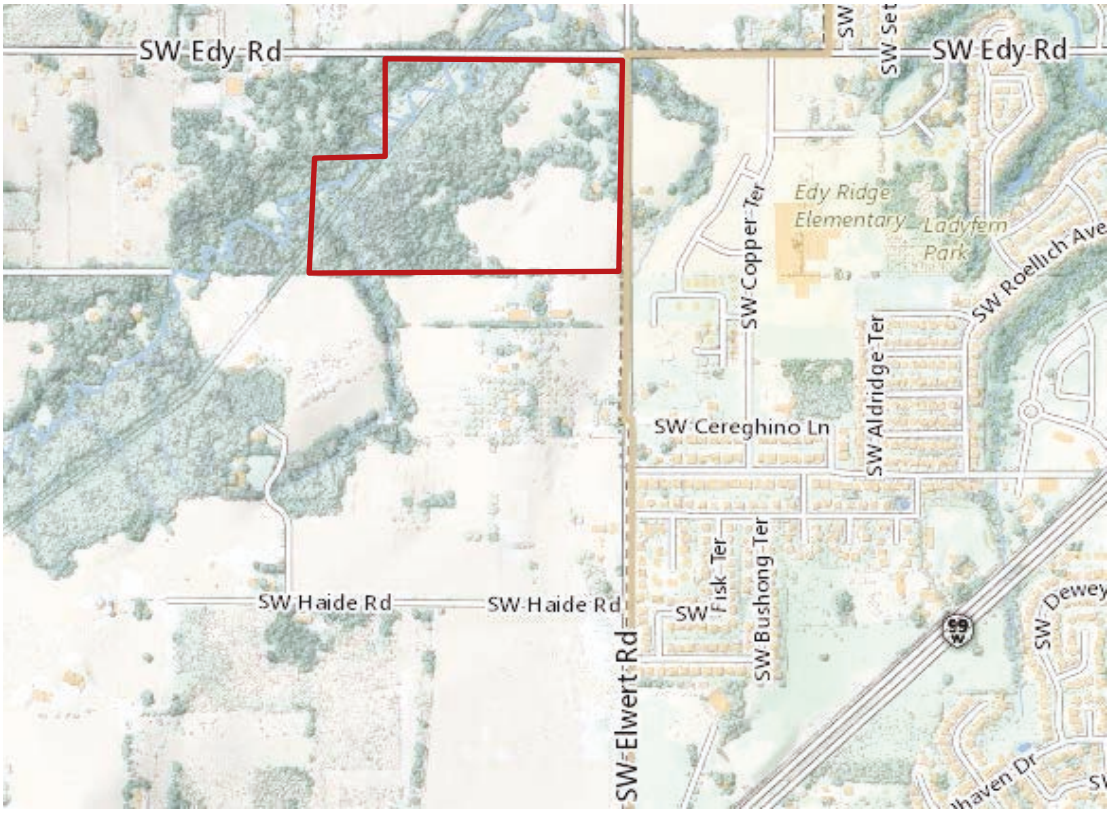
Attachment 7

Sherwood West Planning Area



Attachment 8

Alternative High School Site A
(SW Corner of Edy & Elwert Road)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
✗ Low-lying, relatively flat. Approximately 25 feet grade across site. Very low lying for sanitary sewer. Significant portion of site below elevation 200. Western portion mostly creek.	✗ Small wetland in center of site. Western portion of site mostly drainage area.	✗ No water available adjacent in Elwert. Would require water extensions along Elwert frontage and east on Edy.	✗ Low lying site - sanitary sewer not available in Elwert. Would require significant extension in Edy or pump station.

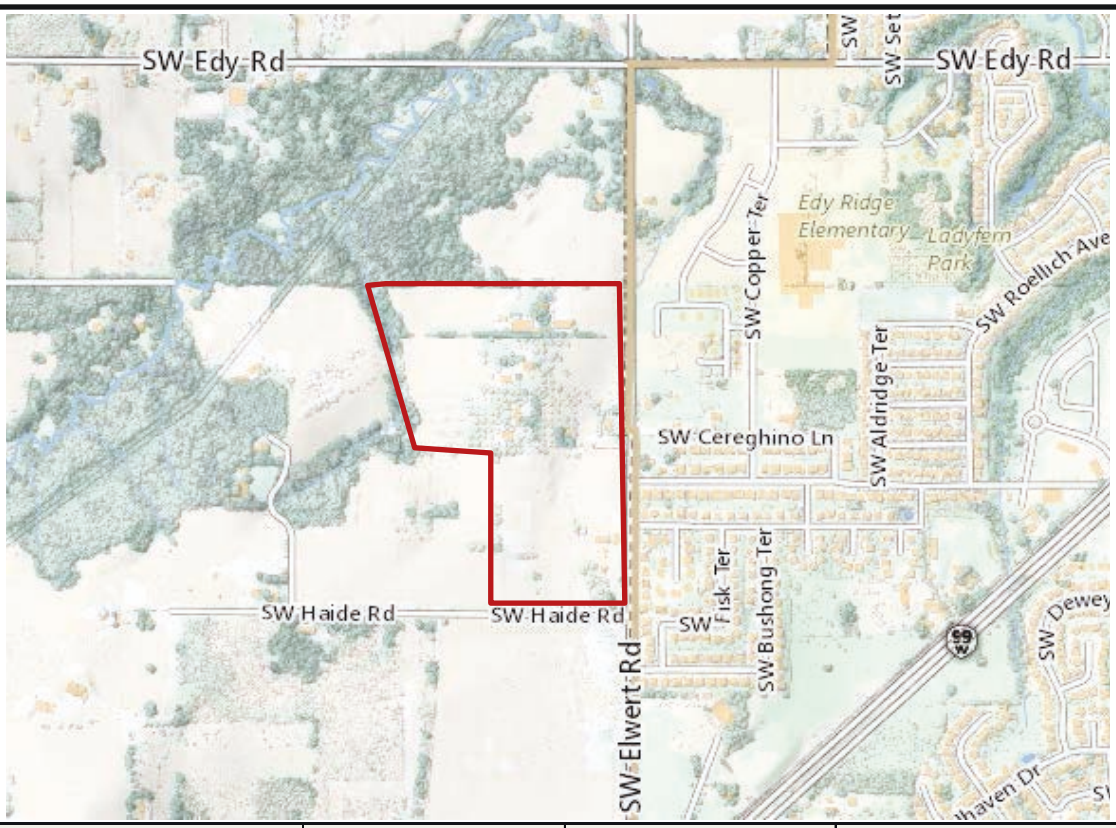
Storm Drainage	Public ROW Improvements
✓ Drainage discharge available onsite into Chicken Creek.	1. Water extension along Elwert frontage. 2. Sanitary upgrades in Edy and Elwert. 3. Storm drainage improvements along Elwert. 4. Street improvements on Elwert and Edy frontages.

LEGEND

✓ = Advantage ○ = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site B
(NW corner of Haide & Elwert)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Significant topographic ridge running N-S through middle of site. Site slopes both east and west. Approximately 50-60 feet grade change. Significant grading for fields.	✓ No wetlands shown.	✓ 12" City of Sherwood public water main available in Elwert.	✓ 15" sanitary sewer and manhole available in Elwert at Daybreak subdivision. (Confirmed with City of Sherwood). City would likely still require public sanitary improvement in Elwert.

Storm Drainage	Public ROW Improvements
✓ North-south ridge running through site. West portion could drain directly to Chicken Creek. East portion drains to public improvements and across road to Chicken Creek.	1. Although not needed for site development, sanitary and storm sewer improvements likely needed in Elwert frontage as part of public frontage improvements. 2. Street improvements on Elwert & Haide frontages.

LEGEND

✓ = Advantage O = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site C (Preferred Site)
(NW Corner Krugger & Elwert)

Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
✓ Entire site slopes down to the east toward Elwert. Relatively gentle topography. Approx. 40 feet grade change across entire site. Note: shallow valley and ridge complicates storm drainage.	✓ No wetlands shown.	✓ 12" City of Sherwood public water main in Elwert; also 18" public water main in Kruger.	✓ Feasible to extend 15" sanitary sewer main south on Elwert. Would require approximate 2,000 linear foot public extension. (Confirmed with City of Sherwood).

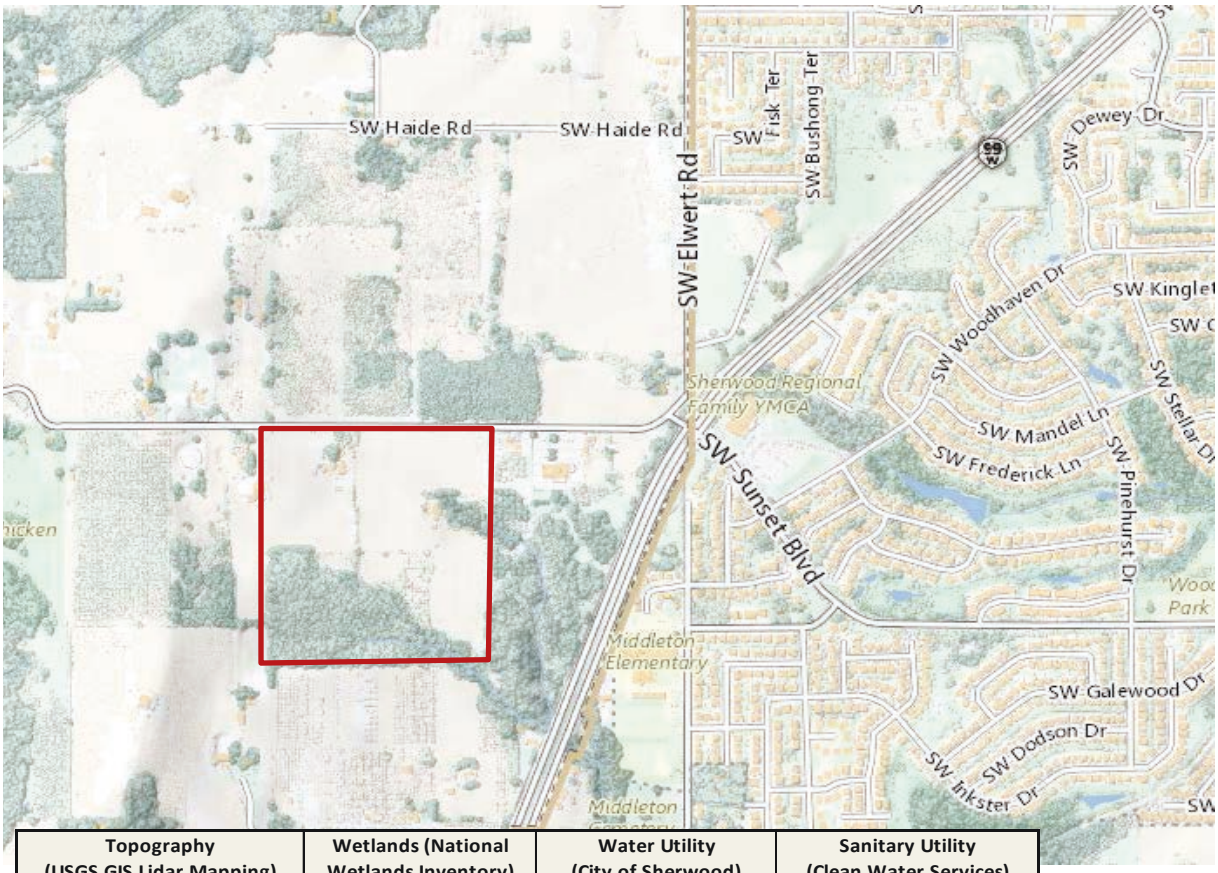
Storm Drainage	Public ROW Improvements
○ East-west ridge running through site. North portion could require long public storm extension to Chicken Creek. South portion would need to drain to new City intersection improvements at Elwert & Kruger intersection.	1. Sanitary extension in Elwert. 2. Storm drainage improvements along Elwert north to Chicken Creek. 3. Street improvements on Elwert frontage. 4. Need to consult with CWS to work out storm discharge.

LEGEND

✓ = Advantage ○ = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternative High School Site D
(South Side of Kruger Road)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Entire site slopes down to the east toward private property. Moderate topography. Approximately 50-60 feet grade change.	O No wetlands shown, but creek drainage runs through south portion of site.	✓ 18" public water main in Kruger.	✗ No sanitary sewer services available. Significant sewer extension and public system improvements necessary.

Storm Drainage	Public ROW Improvements
✗ No established public storm drainage systems in vicinity. Storm discharge would need to be worked out with the City and CWS along 99W. Storm extension likely required.	1. Sanitary sewer extension (exact route to be determined). 2. Storm drainage extension (exact route to be determined). 3. Street improvements on Kruger. 4. Offsite street improvements likely required.

Attachment 8 continued

Alternative High School Site E
(NW Corner Chapman & Pacific Highway)

Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Entire site slopes down to the east toward Pacific Highway. Slightly steeper topography. Approximately 75 feet grade change. Would need to evaluate for fields.	✓ No wetlands shown.	✗ No public water service in immediate vicinity of site. Need to extend water south from Kruger or under Pacific Highway.	✗ No sanitary sewer services available. Significant sewer extension and public system improvements necessary.

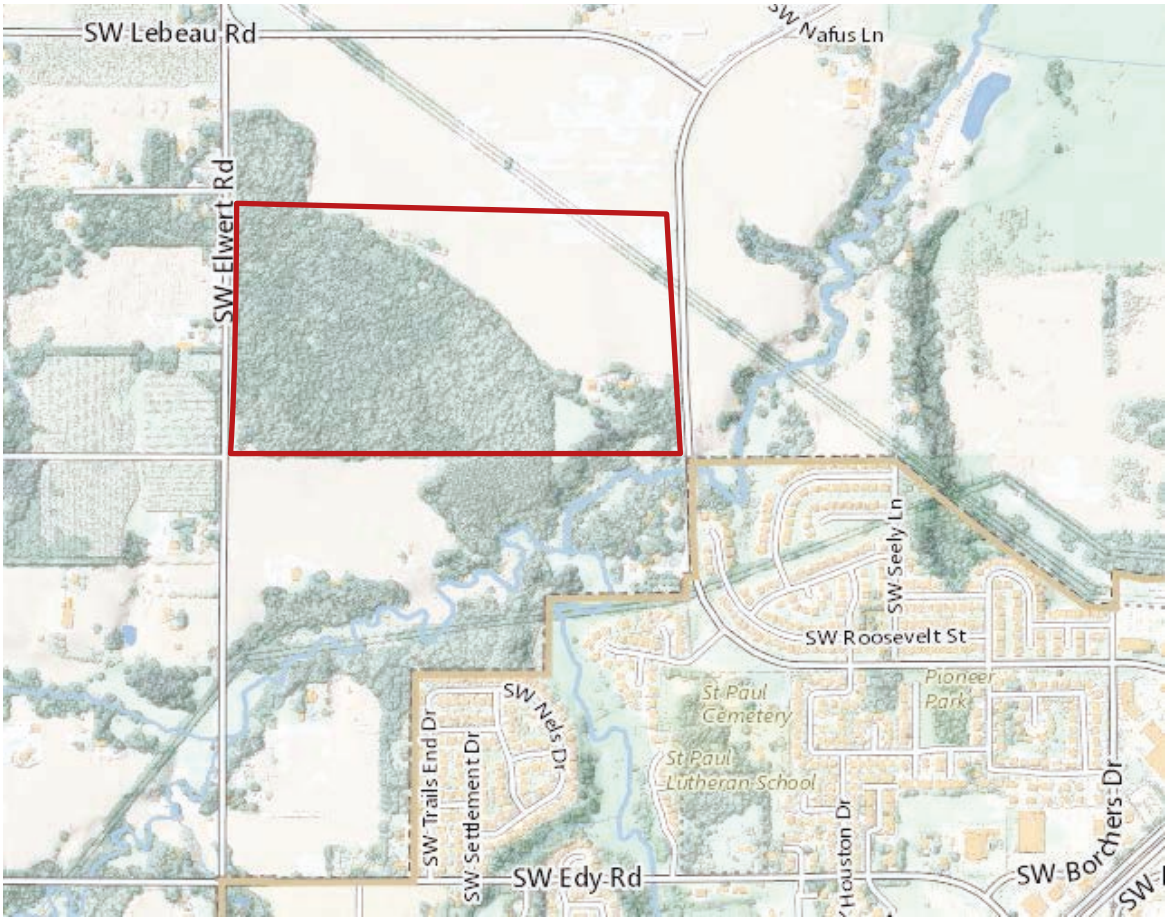
Storm Drainage	Public ROW Improvements
✗ No established public storm drainage systems in vicinity. Storm discharge would need to be worked out with the City and CWS along 99W. Storm extension likely required.	1. Sanitary sewer extension (exact route to be determined). 2. Storm drainage extension (exact route to be determined). 3. Street improvements on Chapman.

LEGEND

✓ = Advantage O = Still to be Determined ✗ = Disadvantage

Attachment 8 continued

Alternate High School Site F
(North Elwert)



Topography (USGS GIS Lidar Mapping)	Wetlands (National Wetlands Inventory)	Water Utility (City of Sherwood)	Sanitary Utility (Clean Water Services)
O Very flat site, but complicated by power lines and drainages running through.	X Drainages and potential wetlands running through site.	X Significant improvements to public water system would be needed to get adequate fire water supply.	✓ Sanitary sewer available along Chicken Creek.

Storm Drainage	Public ROW Improvements
✓ Storm drainage available into Chicken Creek drainages.	1. Public water line extensions. 2. Street improvements along Elwert.

LEGEND		
✓ = Advantage	O = Still to be Determined	X = Disadvantage

EXHIBIT C to Ordinance No. 17-1406

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: August 15, 2017
To: Metro Council
From: Roger Alfred, Senior Assistant Attorney
Subject: Sherwood School District UGB Amendment; Metro Ordinance No. 17-1406
Responses to Issues Raised at Public Hearing

This memorandum provides responses to issues raised in the letter submitted by attorney Jennifer Bragar on behalf of Byers Properties LLC ("Byers") at the public hearing before the Metro Council on August 10, 2017. For the reasons set forth below, the Office of Metro Attorney concludes that the arguments are without merit, and the Metro Council may adopt the hearings officer's recommendation of approval.

Most of the issues raised in the Byers letter have been considered and addressed in the hearings officer's decision. Where that is the case, this memo refers to the appropriate pages of that decision.

1. This UGB amendment process is quasi-judicial, not legislative

Byers first contends that Metro is making a legislative decision, rather than a quasi-judicial decision. This issue is thoroughly analyzed at pages 13-16 of the hearings officer's decision, where he correctly reaches the fairly obvious conclusion that this is a quasi-judicial process. The hallmark of a quasi-judicial land use process is that it is initiated by an application, which the local government is then obligated to either approve or deny. Here, the "major amendment" process is initiated when an applicant files a request for a UGB amendment with Metro. Metro then appoints a hearings officer, who holds a public hearing that is governed by the quasi-judicial procedures set forth in Oregon statute (ORS 197.763). It is worth noting that, during the hearing before the hearings officer, Byers invoked the quasi-judicial procedures in that statute by requesting that the record be held open for additional evidence, a request that was granted by the hearings officer. Metro's final decision on the application is based on applying preexisting criteria to the facts of the application, and it impacts a discrete parcel of property, rather than a broad population. The process is clearly quasi-judicial under the relevant case law.

2. This UGB amendment does not involve or implicate housing

The reason Byers contends this process is legislative is in order to implicate ORS 197.296(2), which is the statute that directs Metro to ensure there is a 20-year supply of housing inside the UGB when it conducts the 6-year "regular cycle" urban growth management process (which is a legislative process, not quasi-judicial). As correctly concluded by the hearings officer, the arguments raised by Byers regarding the decision being legislative are a "red herring," because even if this UGB major amendment process was legislative, ORS 197.296(2) would still not apply because the express purpose of the major amendment process is to provide land for non-housing uses. There is no legal,

or rational, reason why Metro would undertake a regionwide housing need analysis as part of a decision to expand the UGB for a non-housing use. The fact that this UGB amendment process is governed by a different statutory section, and does not implicate housing need under ORS 197.296, is analyzed in detail by the hearings officer at pages 16-24 of his decision, and is also addressed in my memorandum to the hearings officer dated June 9, 2017.

Byers also argues, for the first time, that the ESEE analysis is inadequate because it fails to address social consequences arising out of "the loss of housing land" resulting from approving this UGB expansion. Byers is correct that this issue is not addressed in the hearings officer's analysis, but that is because Byers failed to raise this issue below. Under Metro Code, this proceeding before the Metro Council is "on the record" of what was before the hearings officer. Specifically, section 3.07.1430(u) of the Metro Code provides: "Argument must be based upon the record of those [hearings officer] proceedings." Accordingly, participants before the Metro Council may not introduce new evidence or issues beyond what was presented to the hearings officer. *See DLCD v. Tillamook County*, 34 Or LUBA 586, 591 (1998) (noting that where a hearing is held on the record, "petitioner could not have raised a new issue at that stage of the proceeding.") Allowing parties to raise new issues before the Metro Council could trigger a need to respond with new evidence, which is not permitted in an "on the record" process.

Adoption of this memorandum by the Metro Council in support of approving the application is an express interpretation by the Council of 3.07.1430(u) to mean that any issues not raised before the hearings officer are waived. This interpretation is consistent with the meaning of "on the record" expressed in the statutes governing LUBA's scope of review (ORS 197.835(2)(a) and (3)), which prohibit new issues from being raised on appeal.

Even if this issue had not been waived by Byers, the hearings officer expressly rejected Byers' argument below that approval of this UGB amendment results in a "loss of housing land." The land being added to the UGB is currently zoned for agricultural use, not housing. Accordingly there are no social impacts arising out of a loss of land for housing.

3. The application is based on a demonstrated need for a high school, not for parks

Byers contends that the application includes a request for a park use, and is deficient because it did not consider "alternatives to the park use separate from collocation with the high school." Like the ESEE argument addressed above, Byers did not raise this issue in the proceedings before the hearings officer, and has therefore waived the ability to raise it before the Metro Council.

In the event this issue was not waived, on the merits Byers mischaracterizes the nature of the UGB amendment application. The application is for a high school use, a use that necessarily and customarily includes active play space, including a number of ball fields, and other sports facilities, such as a track and tennis courts. This is depicted on the concept plan for the high school, which is included in the application, and explained in the application narrative and in the applicant's

testimony before the hearings officer. The UGB amendment application is not for park land, and the references to the future shared use of the new high school's active ball fields should not be construed to that effect. The nature and purpose of the application is not changed by the facts that (1) the city does not generally provide ball fields or other active sports facilities, and (2) the city and the school district have an IGA that generally allows the community to use the District's ball fields and other active sports facilities when those fields and facilities are not in use by the school district. As set forth in the record, the property proposed for the relocated high school will be fully utilized by the needs of the high school, and the larger campus of the new high school (when compared to the existing high school) will allow for the full range of facilities normally provided at a comprehensive high school. The availability of more sports fields that can be shared with the community is merely an additional benefit arising out of the agreement between the school district and the city.

On this point, one aspect of the hearings officer's findings should be clarified. At page 29 the hearings officer includes a finding that the applicant has shown there is a "demonstrated land need to accommodate both school and park services." This is a mis-statement by the hearings officer, as the school district's application is based on the need for a new school, and not on a need to provide park services.

4. The application is "consistent with" Metro's 20-year population range forecast

One criterion for a UGB expansion under the Metro Code is that the application must show a need to accommodate future urban population "consistent with a 20-year population range forecast." Byers argued below, and argues again to the Council, that this requires Metro to undertake a new regionwide 20-year population forecast, and the school district's 10-year school population forecast is therefore deficient. The hearings officer addressed this argument at page 26, concluding that the code requires the applicant to show a need that is "consistent with" a 20-year forecast, which "in this context simply means using the same or similar growth rates contemplated in the 2015 UGR, and that appears to be the case here."

In support of this argument Byers references materials attached to their August 10, 2017 letter to the Metro Council regarding a 2016 study of race and ethnicity impacts. This is a new document that was not part of the evidentiary record before the hearings officer and therefore cannot be considered by the Metro Council in this proceeding.

5. Public facilities and services are available to serve the proposed site, and the applicant must comply with the TPR upon rezoning

As part of the consideration of alternative urban reserves areas for potential expansion of the UGB, one location-related factor that must be considered is the "orderly and economic provision of public facilities and services." This issue is analyzed and addressed at pages 43-45 of the hearings officer's decision. The hearings officer also correctly notes, at page 35, that these are locational "factors" that

must be *considered* by Metro, and are not criteria that must be satisfied: "one point that cannot be over-emphasized is that no one locational factor can be considered to be a determinative reason to include or exclude any one particular site. Thus, a decision to include or exclude land from a UGB must be based on a balancing of all these factors, rather than a reliance on any one factor."

Nonetheless, Byers contends that this factor is a criterion that must be satisfied, arguing that the applicant must show whether the proposal will impact availability of public facilities. Byers then contends that the applicant's traffic impact analysis does not demonstrate that nearby intersections will meet applicable level of service standards.

The issue raised by Byers is not relevant to the applicable inquiry for purposes of a UGB expansion, which is a much more general question of whether public facilities are available to serve the site. Questions related to traffic impacts from a new school on existing and planned transportation facilities in the area will need to be addressed as part of the comprehensive plan and zoning map amendments that will be necessary to develop a school, which will trigger application of the state Transportation Planning Rule (TPR). The ordinance proposed for adoption by the Metro Council includes the hearings officer's recommended condition of approval requiring application of the TPR at the time zoning for the school is being adopted.

6. Metro has satisfied the coordination requirement

Byers contends that Metro failed to coordinate with affected local governments as required by ORS 195.025. This issue was not raised before the hearings officer and is therefore waived. In the event the issue is not waived, the hearings officer adopted the following findings regarding the coordination requirement at page 58 of his decision:

"This Major Amendment application has required coordination with and between Metro, Washington County, the City of Sherwood, and public service providers including ODOT, Tualatin Valley Fire & Rescue, and Clean Water Services. This includes coordination at the Major Amendment level and at the Sherwood West Concept Plan level. Therefore, the required coordination has occurred."

The record includes evidence that Metro fulfilled its coordination obligation by providing written notice to all cities and counties inside the UGB regarding the proposed UGB amendment, as well as to ODOT and relevant service providers. The City of Sherwood supports approval of the application and included the following comments in its service provider letter dated March 11, 2017:

"The Sherwood West preliminary concept plan was developed through community input and had community and Council support. The voters within the Sherwood School District approved a bond for the new high school. While there will be challenges to building a new school within the Sherwood West area, and coordination between the District, City, County and ODOT will be

required, the District is committed to ensuring that is serves as a great cornerstone to the future growth in the area."

In response to questions at the public hearing from members of the Metro Council regarding coordination with the City of Sherwood, the school district representatives verbally stated that the district is currently working with the city on Title 11 concept planning and that district representatives attended a city planning commission meeting earlier in the week where they were told that the planning effort is on the right track. These are evidentiary statements that were not included in the record before the hearings officer and therefore will not be considered or relied upon by the Metro Council in its final decision.

Finally, Byers suggests that the school district has not satisfied a coordination obligation, but cites no authority regarding why or how the school district is obligated to coordinate as part of its application. The coordination requirement applies to Metro through the major amendment process and ORS 195.025, and not to the school district. Byers also states that comments received from Washington County "suggest that coordination is incomplete as the management of transportation systems has not been finalized." It is not entirely clear what this means; however, there is no requirement, coordination-related or otherwise, that management of transportation systems must be "finalized" at the point of a UGB amendment. The Metro Ordinance includes a condition of approval requiring the city to finalize its concept plan for the area prior to development occurring on the site, which will include coordination with the county regarding transportation planning. Additional transportation planning will occur at the time of annexation by the city and rezoning of the property, at which point the TPR must be applied to ensure that transportation facilities serving the new school will be adequate.

All coordination obligations have been satisified.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 17-1406, FOR THE PURPOSE OF AMENDING THE URBAN GROWTH BOUNDARY IN THE VICINITY OF THE CITY OF SHERWOOD UPON APPLICATION BY THE SHERWOOD SCHOOL DISTRICT

Date: July 27, 2017

Prepared by: Tim O'Brien
Principal Regional Planner

PROPOSED ACTION

Adoption of Ordinance 17-1406, approving *UGB Case 17-02: Sherwood School District,* a major amendment to the urban growth boundary (UGB). The proposed amendment area is shown on Attachment 1. Staff recommends approval of the ordinance as described below, which would add approximately 82 acres to the UGB west of Sherwood for a high school campus and sports fields. In addition a portion of the land will be used for the construction of a roundabout at SW Elwert and SW Kruger Roads.

SUMMARY OF PROCESS

The proposed amendment is a "major amendment" to the UGB under the Metro Code, which is a special process reserved for requests to include land for public facilities and other non-housing needs that cannot wait until the next UGB cycle. An application for a major amendment is first considered at a public hearing before a hearings officer appointed by Metro. After receiving testimony from interested parties, the hearings officer prepares a proposed order, with findings of fact and conclusions of law recommending approval or denial of the application, and forwards the recommendation to the Metro Council along with the record of the hearing. The Metro Council must consider the hearings officer's report and recommendation at an "on the record" public hearing where individuals who participated in the proceeding before the hearings officer are allowed to submit oral and written argument. The argument must be based on the evidence that was provided to the hearings officer, and no new evidence may be submitted to the Metro Council. If the Council decides to approve the application and expand the UGB, the Council must adopt an ordinance within 15 days after holding a public hearing.

BACKGROUND AND ANALYSIS

Proposal Description:
The Sherwood School District filed an application for an 80-acre amendment to the UGB for a high school campus and sports fields. The site consists of four tax lots located within unincorporated Washington County on the west side of SW Elwert Road, between SW Haide Road and SW Kruger Road, immediately west of the City of Sherwood. The site has frontage on all three roads, is zoned Agriculture and Forest (AF-20) and is located within Sherwood West Urban Reserve 5B. The adjacent properties to the north, south and west are also within Urban Reserve 5B and contain rural residences with limited agriculture and a church to the south, wooded lots and rural residences to the west and open fields and rural residences to the north. The subject properties have been used for various agricultural activities including a Christmas tree farm, tree plantation and row crops. The tax lot in the southeast corner of the site, adjacent to the intersection of SW Elwert and SW Kruger Roads is owned by the City of Sherwood, a portion of which will be used for the SW Elwert and SW Kruger Road roundabout improvement. A 40-foot wide permanent Northwest Natural gas easement zigzags along the western edge of the site, separating the northwest corner of the site from the remainder of the property.

The Sherwood School District is centered on the city of Sherwood and extends into the surrounding rural area in all directions, including a small area east of I-5, between Wilsonville and Tualatin. The District includes an area of 4.31 square miles and an estimated population of 18,884. The District has seven schools that provide educational services to just over 5,000 students, the majority of which live in the city of Sherwood. The District experienced substantial growth in the late 1990s and early 2000s leading to a community effort in 2005 to determine facility needs. This resulted in the successful 2006 bond measure which included funding for an addition to the current high school to increase capacity to 1,550 students, consistent with phase 1 of the 2006 high school master plan. Current enrollment at the high school is over 1,700 students and projections show over 2,250 students by the 2025-26 school year. In early 2014 the District's Long Range Planning Committee made recommendations to the School Board regarding enrollment and growth challenges, facilities analysis and needs and financing options. In 2015 the District documented the condition and educational adequacy of its facilities, leading to bond visioning and steering committees in 2016. This resulted in the District's voters approving a bond measure in 2016 providing funding for school improvements including construction of a new high school. The District continues to engage the community through a design committee and community input sessions.

Public Hearing before the Hearings Officer

The hearings officer, Andrew H. Stamp, conducted a public hearing at the Sherwood Police Department Community Room on May 24, 2017. Metro staff recommended approval of the application. Six people testified at the hearing, five in favor of the application and one against the application. The hearings officer continued the hearing to June 13, 2017 in response to a procedural question. Three people testified at the June 13th hearing, all in opposition to the application, including one who had also testified at the May 24th hearing. The hearings officer granted a request to keep the record open for ten days, followed by additional time for rebuttal by participants and final argument by the applicant; the record closed on July 7, 2017.

The primary opponent of the application is Byers Properties, LLC, which is the entity that owns one of the parcels of property to be included in the proposed expansion. Byers is currently involved in condemnation proceedings with the Sherwood School District regarding acquisition of the property for public use. Byers raised numerous legal issues in the proceedings before the hearings officer, all of which were ultimately rejected in the final order and recommendation to the Metro Council.

Hearings Officer Recommendation and Proposed Findings

On July 21, 2017 the hearings officer submitted a proposed order recommending approval of Case 17-02, based upon the findings and conclusions in his report. The hearings officer included two conditions of approval in his recommendation:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this Major Amendment.
2. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.

A hearing on the recommendation before the Metro Council is set for August 10, 2017. All parties to the case were notified in writing of the Council hearing date and the notice was also posted on Metro's website. In addition, the hearings officer's proposed order was made available for review by all parties.

Record (*Click here to view record*)

Sherwood School District Application, dated March 14, 2017, with supplemental information dated March 23, 2017
Letter from attorney Jennifer Bragar of Tomasi Salyer Martin on behalf of Byers Properties LLC, dated May 22, 2017
Presentation by Sherwood School District dated May 24, 2017

Sherwood West Preliminary Concept Plan (12/08/15) submitted by applicant on May 24, 2017
Letter from hearings officer Andrew Stamp dated May 25, 2017
Email from Gayle Ostgard dated May 25, 2017
Sherwood West Preliminary Concept Plan Appendices, submitted by applicant on June 1, 2017
Sherwood High School UGB Expansion Transportation Study, submitted by applicant on June 1, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 6, 2017
Letter from attorney Kelly Hossaini of Miller Nash LLP on behalf of the Sherwood School District, dated June 8, 2017
Metro Staff memorandum, dated June 9, 2017
Letter from attorney Kelly Hossaini on behalf of the Sherwood School District dated June 13, 2017
Written testimony from Carolyn Mcbee and Karen Labahn dated June 13, 2017
Email from Carolyn Mcbee and Karen Labahn dated June 21, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 23, 2017
Metro Staff memorandum, dated June 23, 2017
Letter from attorney Jennifer Bragar on behalf of Byers Properties LLC, dated June 30, 2017
2014 Metro Urban Growth Report, submitted June 30, 2017
Memo from Mark Wharry, KPFF Consulting Engineers, dated June 30, 2017
Letter from Metro attorney Roger Alfred to hearings officer Andrew Stamp dated June 30, 2017
Memo from DKS Associates dated June 28, 2017
Letter from attorney Kelly Hossaini on behalf of Sherwood School District, dated July 7, 2017

SUMMARY/OPTIONS

According to Metro Code 2.05.045(b), the Council may either:

- Adopt Ordinance 17-1406 to approve *Case 17-02: Sherwood School District* based on the findings of fact and conclusions of law in the hearings officer's order. Staff recommends this option.
- Vote in favor of adopting Ordinance 17-1406 to approve *Case 17-02: Sherwood School District* based on revised findings of fact and conclusions of law to be prepared by Metro staff.
- Remand the proceeding to the Hearings Officer for further consideration.
- Vote to adopt a Resolution entering an order to deny *Case 17-02: Sherwood School District* based on revised findings of fact and conclusions of law to be prepared by Metro staff.

In addition, pursuant to Code Section 3.07.1455, the Council may establish conditions of approval it deems necessary to ensure the addition of land complies with state planning laws and the Regional Framework Plan. Metro staff recommends the Council include the following three conditions of approval, the first two of which were recommended by the hearings officer:

1. The property must be used for a public high school, associated accessory uses, and public transportation improvements consistent with the application for this Major Amendment.
2. The applicant must comply with the state Transportation Planning Rule (TPR) at the time the zoning is established on the subject property.
3. The City of Sherwood shall complete the requirements of Urban Growth Management Functional Plan Title 11, section 3.07.1120: Planning for Areas Added to the UGB, prior to development occurring.

INFORMATION

Known Opposition: Attorney Jennifer Bragar, representing one of the subject property owners, testified verbally and in writing in opposition to the application before the hearings officer and by providing additional written information during the open record period. Two persons who live in the vicinity of the proposed UGB expansion area testified verbally and in writing in opposition to the application before the

hearings officer and by providing additional written information during the open record period. One person who lives in the vicinity of the proposed UGB expansion area testified in writing in opposition to the application during the continued public hearing timeframe.

Legal Antecedents: The Metro Regional Framework Plan and Urban Growth Management Functional Plan Title 14: Urban Growth Boundary authorizes amending the Urban Growth Boundary through the major amendment process.

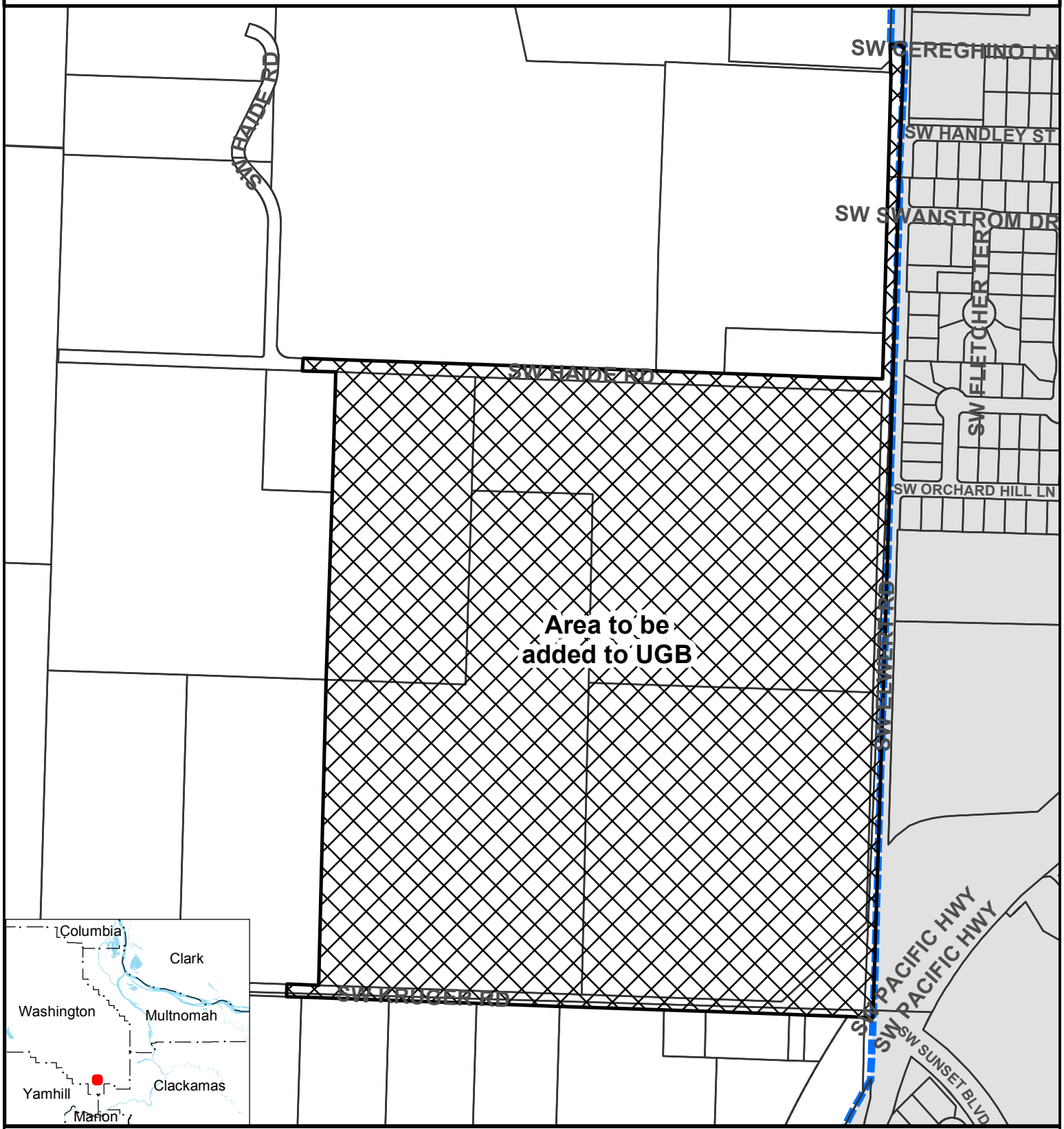
Anticipated Effects: The adoption of Ordinance 17-1406 will add 82.3 acres of land to the urban growth boundary in the vicinity of Sherwood for a high school campus with sports fields and road improvements.

Budget Impacts: There is no budget impact from adopting this ordinance.

ATTACHMENT 1

Case No. 17-02

2S2W25, 2S2W36 | **Urban Growth Boundary Major Amendment** | Washington County



Metro

Research Center
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1742
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Case No. 17-02 UGB Major Amendment

Area to be annexed
Taxlots
Urban growth boundary

1:5,000
0 500 1,000 Feet

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2023 Annual report
June 20, 2024

Metro affordable housing bond program

oregonmetro.gov/housing

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Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Memo

Date: June 10, 2024
To: Metro Council
From: Metro Housing Bond Community Oversight Committee
Subject: 2023 Annual Report

A report to the Metro Council and the community from the Metro Housing Bond Community Oversight Committee

We are pleased to present the 2023 annual report for the Metro affordable housing bond, covering the period from January 1, 2023 through December 31, 2023.

The Metro Housing Bond Community Oversight Committee has reviewed progress reports from all eight implementation partner agencies, as well as an analysis of regional progress and performance presented by Metro staff. The committee also reviews quarterly progress and expenditure reports on an ongoing basis to monitor and evaluate progress toward production and policy goals outlined in the Metro Council's adopted policy framework for the bond.

The bond framework established a goal of creating at least 3,900 new homes as well as policy expectations for advancing racial equity throughout the implementation process. This report demonstrates that the bond is delivering on its promises. Metro and its partners are on track to build 800 more homes than expected, bringing 4,700 affordable homes to the region. These new affordable homes will help tackle the region's housing shortage and stabilize communities so that all people can thrive.

KEY HIGHLIGHTS

In its fourth year of implementation, the bond program outpaced housing production targets while continuing to make significant progress in advancing regional goals to increase equitable access to housing.

Production progress

As of December 2023, there were 52 bond-funded projects underway that will provide 4,361 new affordable homes. These homes represent 112% of the bond's total unit production target of 3,900 affordable homes.

- **Total units:** The 4,361 affordable homes (which are collectively referred to as the "bond portfolio" throughout the report) include 1,410 units that have completed construction, 1,374 units under construction and 1,577 units in pre-construction.

Regional progress toward production goals

- **Very affordable units:** 1,635 of these homes will be affordable to households with incomes at or below 30% of area median income, representing 102% of the program's production goal for deeply affordable homes.
- **Family-size units:** 2,233 of these homes will have two or more bedrooms, representing 115% of the program's production goal for family-size homes.

Plans are in place that will commit nearly all remaining bond funds by 2024 with final projects expected to break ground by 2026. **The program is projected to achieve at least 120% of its original production target once all funds are expended**, creating an estimated 4,700 affordable homes that will provide housing for 9,000 to 15,000 people across the region.

By December 2023, 1,443 people had moved into their new homes in 10 bond-funded projects located in Beaverton, Forest Grove, Gladstone, Gresham, Happy Valley, Portland and Tigard.

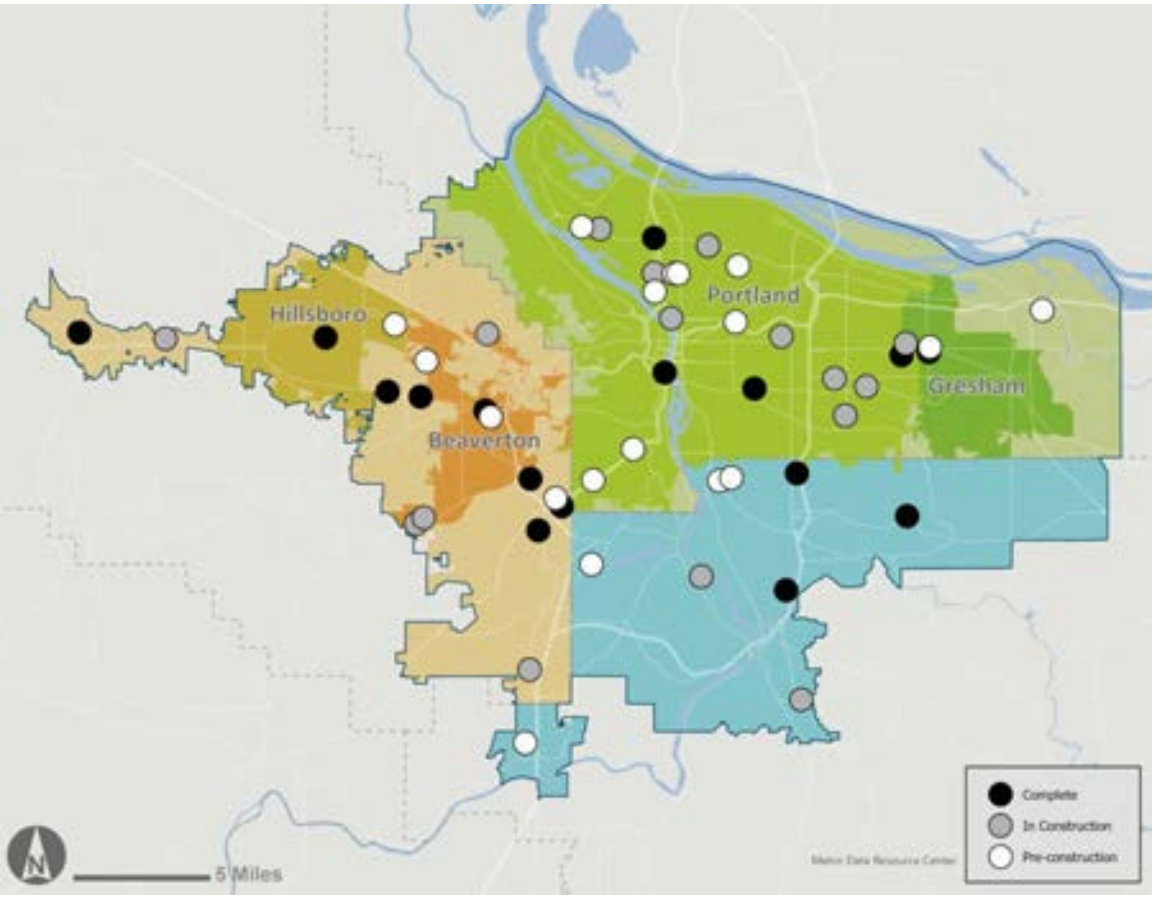
Addressing disparities and advancing racial equity

Metro and its implementation partners are making ongoing progress in moving forward the bond program's goals of addressing disparities, increasing equitable access to housing and advancing racial equity:

- **Addressing disparities through project location:** The locations of the bond portfolio's homes expand access to housing options in a diversity of areas throughout the region: 42% of units are located in areas that have historically lacked affordable housing, 58% are located in areas where communities at risk of displacement live today and 42% are located in areas historically inaccessible to communities of color. This not only improves access to affordable housing in communities across greater Portland and provides residents with greater choice about where to live, it also helps connect people

to schools, jobs and other opportunities while preventing displacement in changing neighborhoods.

Affordable housing bond project locations



- **Advancing economic opportunity through construction:** Bond-funded projects represented about 15% of regional multifamily housing construction in 2023 and have supported an average of 3,286 jobs in the construction sector annually – jobs that pay an average of $91,000 per year in wages and benefits. To ensure equitable access to the economic opportunities provided by bond investments, the program aims to direct construction contracts to underrepresented firms. The bond's development projects are on track to meet or exceed the regional goal of at least 20% of construction contract funding going to state certified minority- or women-owned and/or emerging small businesses (MWESB). Ten projects reached completion in 2022 and 2023 with a combined $50.3 million in contracts paid to certified MWESB firms, representing 24.9% of total construction costs.
- **Promoting equitable access through marketing and lease-up:** All bond projects are required to develop plans for affirmatively marketing housing opportunities and reducing lease-up barriers to ensure equitable access to bond-funded units. Data from projects that have completed lease-up suggest that these affirmative marketing and lease-up strategies are working, with a

higher percentage of people of color housed in bond-funded units than the percentage of households with low incomes that are people of color in the surrounding neighborhoods and the region as a whole.

- **Advancing housing stability through services:** On-site services can support households with low incomes to remain stably housed. Across the 52 projects in the portfolio, 96% include formal partnerships with culturally responsive or culturally specific organizations to provide resident services and other programming. In addition, 54% of projects will provide ongoing case management for households in permanent supportive housing units intended for people exiting long-term homelessness; 57% of these projects are leveraging funding from Metro's supportive housing services fund.
- **Promoting community engagement:** Implementation partners and developers are expected to conduct outreach and organize engagement opportunities to involve the community in providing input on project design, services and other priorities. In 2023 more than 1,103 people participated in community engagement opportunities to inform planning for 16 projects. Their input led to modifications to outdoor areas, common spaces, unit amenities, on-site services, security features and parking.

Addressing emerging opportunities and challenges

Metro works with its partners on an ongoing basis to support regional alignment and coordination in response to emerging challenges and opportunities. Key policy and program refinement work undertaken in 2023 included:

- **Convening stakeholders to regionalize best practices:** Metro worked with stakeholders and partners to improve post-occupancy reporting on marketing, screening and demographic data, resulting in improved data quality. Metro also worked with partners to create standards and templates for affordable homeownership projects, supporting the addition of four homeownership developments to the portfolio. The Tri-County Planning Body, which develops regional strategies to support implementation of Metro's supportive housing services fund, identified six regional goals that will guide investments to address homelessness.
- **Strengthening system integration and alignment:** Metro dedicated funding and staff capacity to strengthen regional permanent supportive housing coordination and alignment, which includes supporting jurisdictional partners to align housing bond and supportive housing services resources. Metro also continued to coordinate with Oregon Housing and Community Services on funding alignment while supporting federal legislative changes that would increase the availability of private activity bonds.
- **Analysis and planning for the future:** Metro Council laid the groundwork for a community conversation to explore how the region can continue to work

together to create affordable homes as well as provide services that keep people housed. A stakeholder advisory table was convened in early 2024 that will inform a recommendation from Metro's chief operating officer to the Metro Council on future funding options. Metro also expanded its staffing capacity to focus on programmatic integration and policy alignment of Metro's capital development and supportive housing services funds – work that is critical to the region's ability to deliver on its housing commitments.

RECOMMENDATIONS

The committee commends Metro and its implementation partners on the milestones reached this year. The bond program is on track to exceed unit production goals, and considerable progress has been made on the committee's previous recommendations. This sets a firm platform for the committee to make the following recommendations to continue to optimize the impact of these resources and set up the region to continue to address pressing regional housing needs.

- **Funding coordination and alignment:** 20 projects (1,577 units) have received a commitment of Metro bond funds and are still in the pre-construction stage. These projects continue to face challenges due to unprecedented cost escalation and statewide shifts necessary to address private activity bond constraints, presenting significant risks to reaching construction start. Metro should continue to work with funding and development partners to ensure that projects have the flexibility and support they need to navigate funding gaps or other barriers. Metro should continue to coordinate with Oregon Housing and Community Services and jurisdictional partners on funding processes and alignment to provide predictability and certainty for developers, ensure that funding and underwriting standards are responsive to their needs, and prioritize deeply affordable and permanent supportive housing units.
- **Affordable housing operations:** While the bond program is exceeding its housing production goals and demonstrating strong outcomes for racial equity in construction and initial marketing, the ongoing stability of residents – and the organizations that own and operate the housing – will be the long-term measure of success for this program. Affordable housing owners and operators face new challenges navigating rising operating costs and supporting property management and operational practices that are responsive to the needs of residents. Metro should conduct an analysis and convene stakeholders to evaluate needs/gaps and identify opportunities to support property management and operational practices that will ensure long-term stewardship of the community assets created through this investment program.

- **Plan for the future:** Metro should continue working with partners and stakeholders to develop plans to ensure the region can address its affordable housing needs into the future. This includes planning for continued funding for affordable housing, coordination of local strategies to eliminate barriers to affordable housing production in alignment with State Land Use Goal 10, and planning for the intentional integration and alignment of Metro's capital and supportive housing services funds. This work is necessary to ensure that we are maximizing the impact of these combined investments in addressing our region's housing and homelessness crisis.

The Portland region should be proud that we are addressing the national issues of affordable housing and homelessness with an active approach that centers racial equity. This bond continues to be successful and will exceed the commitments made to voters. We have an opportunity to build upon this work and expand its impact. We would like to applaud Metro and jurisdictional partner staff for their continued dedication, and we are honored to have the opportunity to provide oversight for this important program for our region.

Thank you,

Jenny Lee (Co-chair)
Steve Rudman (Co-chair)
Scott Greenfield
Ann Leenstra
Jesse Neilson
Jeffery Petrillo
Mara Romero
Katherine Rozsa
Andrea Sanchez
Karen Shawcross

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INTRODUCTION

Across greater Portland, communities continue to struggle with having enough affordable housing to meet everyone's needs. According to the most recent data from the National Low-Income Housing Coalition, the Portland region is short about 81,000 homes for households making 50% or less of the area median income ($56,400 for a household of four).[1]

This shortage has resulted in a housing crisis that puts households with low incomes at risk of housing instability and homelessness. Populations with additional barriers to housing have been hit particularly hard. These groups include people of color, immigrants, veterans, people with disabilities, older adults and families.

On November 6, 2018, voters took action to address the region's housing crisis, passing the nation's first regional affordable housing bond. The voter-approved bond generates $652.8 million in funding, with the goal of building 3,900 affordable homes to house about 12,000 people. Since voter approval, Metro and partners in community, government and business have worked together to deliver the results sought by voters.

This report provides an update on implementation progress for the Metro affordable housing bond. The report summarizes bond implementation through December 2023, building upon and aggregating information provided in progress reports from seven local implementing partner jurisdictions plus Metro's site acquisition program. The report includes:

- A summary of local and regional progress toward unit production targets, funding commitments and expenditures
- Analysis of progress to advance racial equity through geographic distribution of investments, commitments for equitable contracting and hiring, low-barrier screening, affirmative marketing and strategies to provide ongoing services to meet the needs of residents
- Activities and outcomes for community engagement to ensure that feedback from communities of color and other priority groups meaningfully shapes project outcomes to meet their needs
- Financial analysis of the current portfolio to analyze efficient use of subsidy and alignment with leveraged funds to maximize the benefits of these investments.

[1] Data are for the Portland-Vancouver-Hillsboro Metropolitan Statistical Area.

BACKGROUND

When Metro Council referred the 2018 bond to voters, it adopted an implementation framework developed through months of engagement with partners and community members. The framework continues to guide implementation today.

Core values

The framework includes four core values:

1. **Lead with racial equity.** Ensure that racial equity considerations guide and are integrated throughout all aspects of implementation, including community engagement, project location, inclusive workforce, tenant marketing and screening, and resident and/or supportive services strategies.
2. **Create opportunity for those in need.** Ensure that program investments serve people currently left behind in the region's housing market, especially communities of color, families with children and multiple generations, people with disabilities, seniors, veterans, households experiencing or at risk of homelessness and households at risk of displacement.
3. **Create opportunity throughout the region.** Ensure that investments are distributed across the region to: a) expand affordable housing options in neighborhoods that have not historically included sufficient supply of affordable homes, b) increase access to transportation, employment, education, nutrition, parks and natural areas, and c) help prevent displacement in changing neighborhoods where communities of color live today.
4. **Ensure long-term benefits and good use of public dollars.** Provide for community oversight to ensure transparency and accountability in program activities and outcomes. Ensure financially sound investments in affordable, high-quality homes. Allow flexibility and efficiency to respond to local needs and opportunities, and to create immediate affordable housing opportunities for those in need.

Leading with racial equity

Because people of color have been and continue to be among those most harmed by housing discrimination and lack of access to safe, stable, affordable homes, the Metro Council directed the housing bond program to lead with racial equity in all aspects of the program. Explicitly focusing policies and investments to benefit communities of color can reduce racial disparities while benefiting the whole community.

The housing bond program partially addresses these barriers through its ambitious goals for family-size and deeply affordable homes. The program also prioritizes racial equity throughout implementation – from community engagement that informs projects, to the geographic distribution of investments, to creating economic opportunity with the development of affordable housing, to strategies for reducing barriers to access and promoting culturally responsive services to meet the needs of future residents.

Implementation partner jurisdictions

Metro works to deliver the housing bond program in close partnership with seven local implementation partners: the cities of Beaverton, Gresham, Hillsboro and Portland; Clackamas and Washington counties; and Home Forward, as the implementation partner for east Multnomah County. In recognition of the unique knowledge, experience and opportunities in communities across the region, each partner has developed its own implementation strategy to meet local needs while serving the bond's regional goals. Jurisdictions are responsible for administering funds to invest in property acquisition and eligible development projects. Some projects are being developed and operated by public housing authorities, but the majority are public-private partnerships with third-party affordable housing developers, owners and property managers.

Metro is responsible for providing oversight and accountability, including reviewing each proposed investment at concept and final stages to ensure alignment with program requirements and contribution to the production outcomes promised to voters. In addition, Metro directly invests housing bond funds through its site acquisition program, which strategically acquires and invests in the development of promising sites for affordable housing in collaboration with local implementation partners.

Work plan and local implementation strategies

In 2019, the Metro Council adopted a housing bond work plan to provide operational guidance for program administration activities including roles and responsibilities, funding allocation and eligibility criteria, and processes for funding approvals. In accordance with requirements set forth in the work plan, each implementing partner created a local implementation strategy informed by community engagement. Each strategy includes a development plan to achieve the local share of unit production goals and commitments for advancing racial equity and ensuring community engagement input informs projects.

Community Oversight Committee

Independent community oversight is a hallmark of accountability to voters and the community. The Metro Council appointed a Housing Bond Community Oversight

Committee in January 2019 to provide independent and transparent oversight of implementation, including evaluating local implementation strategies for consistency with program goals and guiding principles, monitoring investment outcomes and providing an annual report to the Metro Council.

Throughout 2019, the committee reviewed and recommended local partners' implementation strategies for approval by Metro Council. During this time, the committee also identified considerations for ongoing monitoring and evaluation. In 2020, the committee monitored early implementation. Beginning in 2021, the committee submitted annual reports to Metro Council. The most recent annual report, released in 2023, recommended convening stakeholders to regionalize best practices, focusing on systemic integration, and evaluating the bond's impact to support planning for the future (*Exhibit G*).

Funding requirements and intergovernmental agreements

The Metro Council approved local implementation strategies as part of intergovernmental agreements with each implementation partner describing the terms and conditions for using bond funds for eligible investments and program administration. Intergovernmental agreements include these provisions:

- All projects selected for bond funding must demonstrate contribution to unit production targets and consistency with approved local implementation strategies as confirmed through Metro staff review at the concept endorsement and final approval stages.
- All funded projects will have a regulatory agreement ensuring long-term affordability and monitoring obligations for a term of at least 60 years (or 30 years for acquired buildings that are more than 10 years old).
- Implementing jurisdictions will submit annual progress reports to Metro, to support the oversight committee's annual progress review.
- Metro will disburse administrative funding to implementation partners annually based on a schedule established in the intergovernmental agreement. One exception is City of Portland, which will have its administrative share included in project funding, to be reimbursed to the City through a "project delivery fee."
- Implementing jurisdictions will submit annual end-of-fiscal-year reports to Metro summarizing direct project expenditures and program administrative expenditures, the latter of which is subject to the 5% administrative cap included in the housing bond measure.

The community oversight committee completed its review and recommendation of local implementation strategies between July 2019 and February 2020, and Metro Council approved strategies as part of intergovernmental agreements. Six intergovernmental agreements were executed between November 2019 and August

2020. The intergovernmental agreement for Home Forward was approved in March 2021 due to the relatively small funding allocation in Multnomah County outside the cities of Portland and Gresham.

Funding allocation

The housing bond framework called for funding to be allocated region-wide based on assessed value of property in each of the three counties and set a 5% cap on administrative funding across the program.

As of December 2023, the housing bond work plan allocated $662,001,105 for investments in property acquisition and development, to be allocated as follows:

- Ten percent of original project allocation ($62,016,000) allocated for investment through Metro's site acquisition program, which acquires regionally significant sites and supports their development in coordination with local implementing jurisdictions.
- All remaining funds ($599,985,105) allocated to support local implementation, with distribution on the basis of share of assessed property value to achieve a proportionate distribution of investments across the region (45% in Multnomah County, 34% in Washington County and 21% in Clackamas County).

This includes additional funding generated through bond sale premiums and interest earnings, which has been allocated toward investments in air conditioning, permanent supportive housing, and additional project and administration costs in alignment with Metro Council direction. Current funding availability and adjusted allocations are shown in *Exhibit F*.

The bond measure included an administrative funding cap of 5% of total bond proceeds. Including interest earnings through December 2023, $34,842,163 is available for administrative costs. Of these funds, $19,409,319 is directed to Metro's regional oversight and accountability functions, and $12,803,823 is allocated for the administrative costs of implementing partners and Metro's site acquisition program.[2] The remaining $2,629,021 within the 5% cap is reserved for future allocation.

The administrative activities for the bond program are expected to span fiscal years 2019-2028. Averaged over that 10-year period, the program has a total of $3,484,216 per year in administrative funding for all implementation and oversight activities of Metro and its local implementation partners combined. This funding is insufficient to cover the full administrative costs of implementation, a

[2] Portland does not receive an allocation for administrative costs as Portland uses a Program Delivery Fee, not paid for by Metro's affordable housing bond, to cover administrative expenses.

challenge which has led to capacity gaps and the need for supplemental administrative funding from Metro and other funding sources.

Targets and metrics

From 2019 through 2020, Metro engaged implementation partners, stakeholders, practitioners and the community oversight committee to further define metrics for evaluating progress toward goals and targets in the measure.

The implementation framework established the following goals for the program:

- Create 3,900 affordable homes.
    - Reserve 1,600 homes for people with very low incomes (30% or less of area median income).
    - Build half of the homes with two or more bedrooms – big enough to accommodate families.
    - Up to 10% of homes may be moderately affordable for people with below average incomes (61-80% of area median income).
- Distribute investments across the region to create 21% of homes in Clackamas County, 34% in Washington County and 45% in Multnomah County.
- No more than 5% of total funding may be spent on program administration activities.
- At least 20% of construction contracts for each project should be awarded to state certified minority- or women-owned and emerging small business (MWESB) firms, and jurisdictions should demonstrate progress toward increasing equitable contracting outcomes over time.

Metro defined additional metrics to further operationalize the values and goals in the framework and support program evaluation. These metrics relate to the following areas:

- Community engagement outcomes, including demographics of participants and how feedback changed processes and projects
- Location outcomes related to access, fair housing and community stabilization
- Outreach to MWESB/COBID (Certification Office for Business Inclusion and Diversity) certified firms
- Construction workforce diversity
- Affirmative marketing activities and outcomes (e.g., referral sources)
- Screening and lease-up outcomes (e.g., application denials)
- People served and resident diversity
- Efficient use of subsidy.

It is important to note that many metrics will not be reported until after projects reach completion (e.g., contracting/workforce outcomes) and lease-up (e.g., marketing/lease-up outcomes, resident demographics). The first post-completion outcomes were reported in December 2022.

Metro supportive housing services fund

In May 2020, voters in greater Portland approved a new regional tax to fund supportive housing services, an unprecedented effort to direct funding toward investments in rental assistance and supportive services for people experiencing or at risk of homelessness. The fund aims to stabilize 5,000 households experiencing prolonged homelessness with complex disabilities and 10,000 households experiencing short-term homelessness or at risk of homelessness. Implementation is guided by a commitment to lead with racial equity, with community-informed strategies, goals and outcome metrics.

The supportive housing services fund presents an opportunity to integrate rental assistance and supportive services funding with the bond program's capital investments to maximize the ability of both programs to serve households experiencing or at risk of homelessness, with a particular focus on providing permanent supportive housing. Integration of supportive housing services funding with bond investments also enables the bond program to further advance its racial equity commitments.

2023 POLICY EFFORTS

In June 2023, the Housing Bond Oversight Committee presented recommendations to the Metro Council designed to maximize the impact of housing bond resources and equip the region to plan for the future. The committee noted that Metro's strong stewardship of the housing bond made it possible to start thinking about long-range and big-picture planning.

The committee's recommendations focused on regionalizing best practices, strengthening system alignment and integration, and conducting analysis and planning for the future. Fully responding to these recommendations will take ongoing coordination with jurisdictional partners and housing providers to improve and align practices, policies and systems and to invest in capacity and technical assistance needs across a range of areas related to affordable housing funding, construction and operations. Key policy and program refinement work undertaken in 2023 in response to the recommendations is summarized below.

Convening stakeholders to regionalize best practices

- **Post-occupancy reporting**: In 2023, Metro worked with partners and stakeholders to improve post-occupancy reporting on marketing, screening and demographic data. The updated reporting templates resulted in more comprehensive and accurate data on occupancy outcomes for bond-funded projects that completed lease up in 2023. Among the improvements, projects consistently reported on data at the occupant level rather than just the household level, which was an issue for previous reporting.
- **Affordable homeownership standards**: Metro reviewed and approved four affordable homeownership developments for bond funding in 2023. To support the inclusion of homeownership projects in the bond portfolio, Metro worked with jurisdictions and development partners to create regional standards, including templates for affordability covenants. Established local partners Habitat for Humanity and Proud Ground provided support with this work.
- **Tri-County Planning Body**: The Tri-County Planning Body (TCPB), which develops regional strategies to support implementation of Metro's supportive housing services fund, identified six regional goals in 2023 that will guide regional investment priorities to address homelessness. These goals focus on coordinated entry, regional landlord recruitment, healthcare systems alignment, training, technical assistance, and employee recruitment and retention. The TCPB's first implementation plan focuses on increasing the availability of readily accessible and appropriate housing units to support housing placements.
- **Regional training and technical assistance**: Metro is building a regional capacity team charged with developing technical assistance and training programs to support the capacity of housing and homeless service providers.

The team is leading a cooperative regional procurement process to expand the number and types of consultants available to partner with Metro and jurisdictions to provide technical assistance and capacity building support. The team will also work with partners to develop a series of regional capacity building trainings and support programs.

Strengthening system integration and alignment

- **Permanent supportive housing pilot funding**: In fall 2022, Metro earmarked $20 million in unallocated bond interest earnings to support additional investments in expanding permanent supportive housing (PSH). These investments are aligned with supportive housing services (SHS) funding commitments for ongoing rental assistance and wraparound services tailored to meet the needs of individuals and families experiencing long-term homelessness. Funding was proportionately allocated to the three counties as administrators of SHS funding. In 2023, Clackamas County directed its $4.2 million allocation to support funding for 20 additional PSH units. Multnomah County, with an allocation of $9.1 million, is working with Portland Housing Bureau and has released a notice of funding available to solicit projects via a competitive process; the County will submit PSH projects to Metro for initial concept endorsement review in summer 2024. Washington County, with an allocation of $6.7 million, is continuing to explore options to commit the PSH pilot funding to acquisition or new construction projects.
- **Permanent supportive housing systems alignment**: In 2023, Metro strengthened its commitment to PSH by dedicating staff capacity to support regional PSH coordination and alignment. Initial work is focused on supporting jurisdictional partners to align housing bond and SHS resources and identifying opportunities for regional definitions, quality standards, financial planning, and training and technical assistance needs. To date, the work has included the development of a financial planning tool, identification of potential regional definitions, and planning for an engagement strategy to gather input from key stakeholders that will inform recommendations for improving service and resource levels to meet growing project and tenant needs.
- **State and federal resources:** Metro staff continued work with Oregon Housing and Community Services (OHCS) to advance strategies for state and local funding alignment. Metro staff participated in an OHCS affordable rental housing engagement series focused on creating a coordinated funding process for available OHCS resources. Staff provided feedback regarding funding allocations to the Metro region and shared information about funding needs and gaps for upcoming projects in the Metro bond pipeline. The availability of private activity bonds continues to be an issue statewide. Metro is coordinating with a coalition of partners across the state to advocate for federal legislative changes that would increase access to private activity bonds.

Analysis and planning for the future

- **Exploration of future funding options**: With Metro housing bond funding soon coming to an end, Metro Council laid the groundwork for a community conversation to explore how the region can continue to work together to create affordable homes as well as provide services that keep people housed. This conversation will inform a potential recommendation by the Metro chief operating officer to the Metro Council in late spring 2024, including a possible new funding proposal for voters' consideration. A stakeholder advisory table was convened in early 2024 that will help shape the recommendations.
- **Integration and alignment of Metro funding**: Metro expanded its staffing capacity to support programmatic integration and regional policy alignment of Metro's housing bond and supportive housing services fund – work that is critical to the region's ability to deliver on the commitments in these funding measures. The team is in the early stages of launching several bodies of research, analysis and engagement to support development of regional frameworks for permanent supportive housing, affordable housing production and asset management of existing housing funded by the bond.

UNIT PRODUCTION PROGRESS

The housing bond program is on track to exceed the goal of creating 3,900 affordable homes, including 1,950 family-size homes and 1,600 homes regulated for affordability to households making 30% of area median income or below.

As of December 2023, the program had committed funding to 52 projects representing 4,361 new affordable homes, including:

- 16 projects (1,410 units) that have completed construction
- 16 projects (1,374 units) that are under construction
- 20 projects (1,577 units) that are in pre-construction

Of these homes:

- 2,233 will have two or more bedrooms, representing 115% of the program's production goal of 1,950 family-size homes.
- 1,635 will be affordable to households with incomes at or below 30% of area median income (AMI)[3], representing 102% of the program's production goal of 1,600 deeply affordable homes.

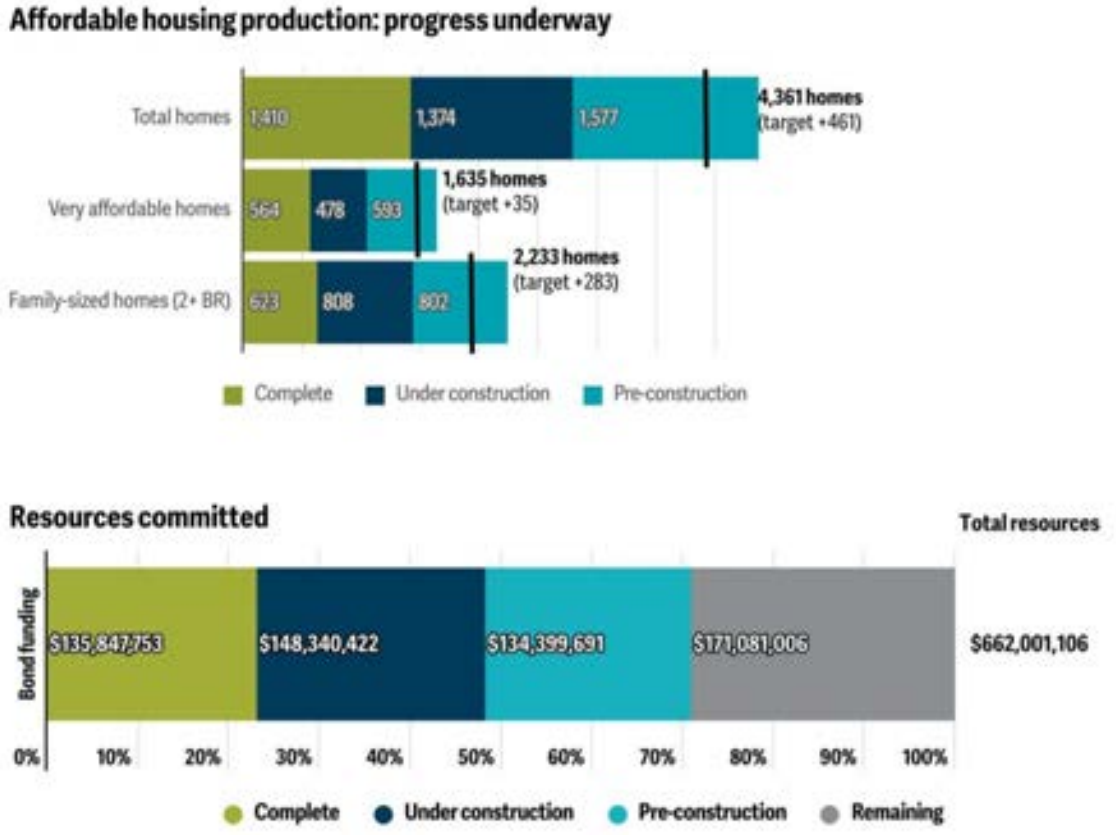
The 4,361 homes in the current portfolio will provide affordable housing for an estimated 8,000 to 14,000 people (detailed occupancy estimates are available in *Exhibit A*).

By December 2023, 1,443 of these occupants had moved into their new homes in the first 10 projects to complete lease-up, located across the region in Beaverton, Forest Grove, Gladstone, Gresham, Happy Valley, Portland and Tigard.

The current portfolio's 4,361 affordable homes represent 112% of the bond program's total production target. Figure 4.1 shows regional progress toward production goals relative to funding committed. About 74% of total bond resources have been encumbered to fund the 4,361 homes already in progress. Plans are in place that will commit nearly all remaining bond resources to projects in 2024 with all funds committed in 2025.

[3] In the Portland metropolitan area, 30% of area median income in 2023 was an annual income of $23,700 for a household with one person and $33,840 for a household with four people.

Figure 4.1 Regional progress toward production goals relative to funding committed



While the program is currently tracking ahead on unit production relative to funding committed, changes in the funding and financial landscape present significant challenges.

The production goals for the affordable housing bond were established based on modeling that reflected conditions and projections in 2018. Favorable tax credit pricing and low interest rates, as well as swift action by implementing partners, enabled the program to exceed expectations in early phases of implementation. Staff expected that market cost escalation would impact costs and subsidy needs throughout the course of the implementation timeframe (2019-2026), but the past three years have brought unprecedented cost escalation due to broader economic factors impacting the cost and availability of materials and labor. Ongoing impacts of the COVID-19 pandemic have created a construction cost premium for wood-framed projects with slab-on-grade foundations that is estimated at 8%-12% above that which would have occurred with standard, pre-COVID construction cost escalation. Inflation and interest rate increases since early 2022 have further impacted costs, with the Portland Housing Bureau reporting an average 1% increase in construction "hard" costs per month for projects in its pipeline.

In addition, the state of Oregon faces new funding constraints as a result of oversubscription of private activity bonds, necessary for financing 4% low income housing tax credits, which represent the largest source of leveraged funding across

the portfolio. Limitations in tax credit availability create uncertainty across the state's affordable housing development pipeline and subject projects to funding delays, resulting in higher cumulative cost escalation.

These challenges have contributed to significant increases in housing production costs. Across the bond-funded portfolio, the weighted average total project cost per unit was $447,053 in 2023 compared with $387,283 in 2022. Analysis of more recent projects in the portfolio indicates that project costs are trending toward a weighted average of $508,188 per unit.

Due to these increases, many projects are requiring higher Metro bond subsidy amounts. The average Metro bond subsidy for a typical project in the portfolio is $106,456 per unit, but for more recent projects the average is trending toward $148,766 per unit. (This analysis excludes outliers, such as projects using Metro bond subsidy to fill a small gap and projects relying on unusually high levels of bond funding.)

Local production progress

As of December 2023, five of the seven implementing jurisdictions had already met or exceeded their local share of the bond's production goal:

- **Beaverton's** portfolio achieved 100% of its unit goal, 69% of its goal for 30% AMI units and 100% of its goal for family-size units, with 98% of funding committed.
- **Clackamas County's** portfolio achieved 119% of its unit goal, 124% of its goal for 30% AMI units and 138% of its goal for family-size units, with 90% of funding committed.
- **Gresham's** portfolio achieved 158% of its unit goal, 100% of its goal for 30% AMI units and 147% of its goal for family-size units, with 78% of funding committed.
- **Portland's** portfolio achieved 104% of its unit goal, 90% of its goal for 30% AMI units and 103% of its goal for family-size units, with 75% of funding committed.
- **Washington County's** portfolio achieved 107% of its unit goal, 102% of its goal for 30% AMI units and 108% of its goal for family-size units, with 97% of funding committed.

Hillsboro's portfolio achieved 76% of its unit goal, 77% of its goal for 30% AMI units and 106% of its goal for family-size units, with 67% of funding committed. Planning is underway for a final project that will utilize the remaining funding to meet the city's production targets.

Home Forward achieved 85% of its unit goal for east Multnomah County, 85% of its goal for 30% AMI units and 85% of its goal for family-size units. It will not be

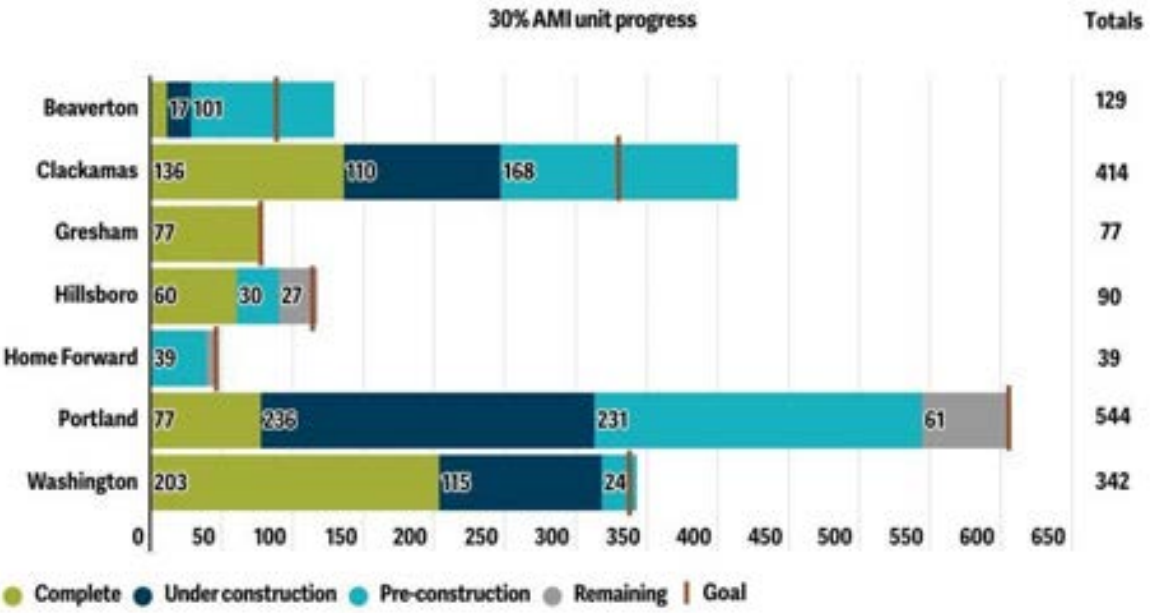
able to add more units because it is using bond funding for a single project that has encountered challenges with parking requirements and land use approvals. However, any shortfall will be offset by the units produced by other jurisdictions.

Local progress toward the total, family-size and very affordable units goals is shown in Figures 4.2-4.4. Details about local implementation partners' plans for remaining funds are included in their local progress reports, posted on the bond program's webpage.

Figure 4.2 Local progress toward total unit production goals

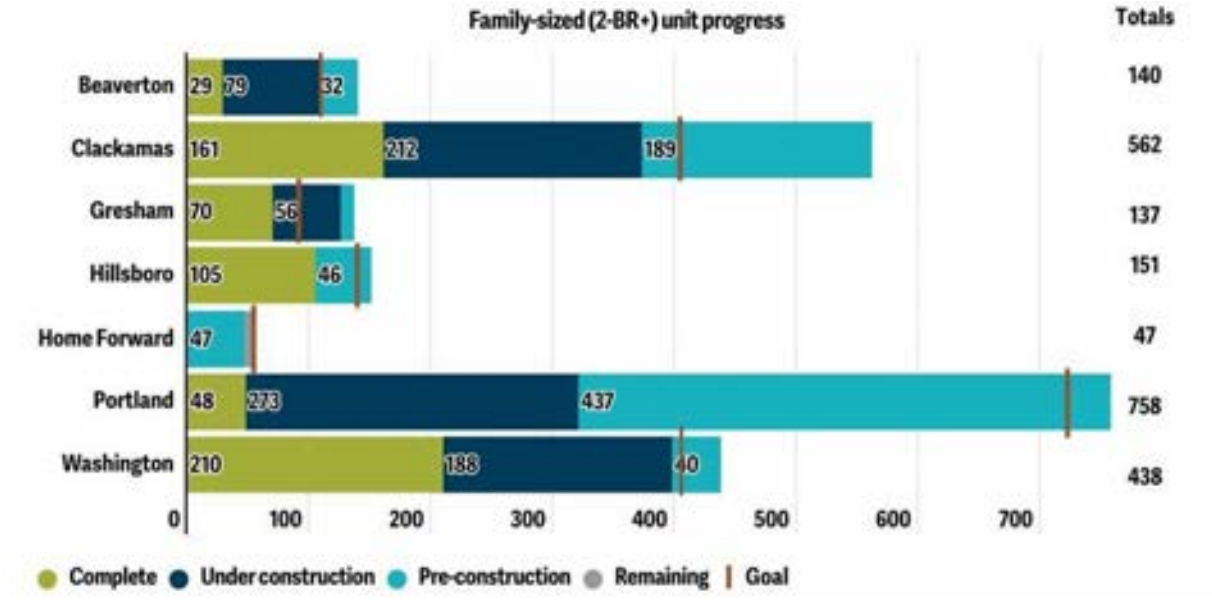
Implementation partners are on track to meet overall targets for very affordable (30% AMI or below) units, with funding committed to 1,635 units currently planned to serve households with incomes at or below 30% AMI (102% of the regional goal for very affordable units). As anticipated, the targets for very affordable units have been particularly challenging to achieve. These units require additional subsidy because their rental income is lower and their operating expenses can be higher, creating operating funding gaps and limiting projects' ability to carry debt. Additionally, buildings serving households with very low incomes often require investment in ongoing services that are beyond the scope of traditional real estate related operating expenses.

Figure 4.3 Local progress toward 30% AMI unit production goals



Implementation partners are also on track to exceed the overall 1,950 goal for homes with two or more bedrooms, with funding committed to 2,233 family-size units in the portfolio (115% of the target for family-size homes). Of the family-size homes in the portfolio, 30% are regulated for affordability at 30% AMI or below and 31% are larger unit sizes with three or more bedrooms.

Figure 4.4 Local progress toward family-size production goals



The bond program limits the number of homes provided for households making 61%- 80% AMI to 10% of overall units. To date, 108 of the bond-funded units (less than 3%) are affordable to households making 61%-80% AMI. This includes 22 units located in the Scholls Ferry project, 32 units in the

Wilsonville Transit Oriented Development project and 54 units in the portfolio's homeownership projects – Abbey Townhomes, Carey Boulevard, Oak Row and Shortstack Milwaukie. Flexibility to allow these more moderately affordable units in bond-funded developments was an intentional policy choice intended to support cross-subsidization of deeply affordable units. This is particularly important given that many of the bond portfolio's very affordable (30% AMI or below) units do not include long-term rental assistance.

Metro site acquisition program

Metro's site acquisition program (SAP) manages implementation of 10% of total bond funds toward investments in property acquisition as well as development of sites already controlled by Metro. Development is facilitated through joint solicitations with implementing jurisdictions, and properties are transferred from Metro to a long-term owner prior to development. The site acquisition program aims to proportionately invest funds in implementing jurisdictions to contribute toward local production goals; funds remaining after acquisition support the development of the site. In most cases, projects developed on Metro-acquired properties require additional development funding from an implementing jurisdiction's bond allocation.

As of December 2023, the program had reserved 100% of SAP funds for sites in all seven implementing jurisdictions. SAP acquires property in areas with strong access to amenities important to households with low incomes such as transit, grocery stores, parks and elementary schools, and in areas with limited existing regulated affordable housing. The program prioritizes deep stakeholder engagement to set priorities for the development of its sites. By acquiring and competitively offering high-quality development sites, SAP brings regulated affordable housing to communities where affordable housing developers have not been able to secure property and is able to attract proposals from a wide range of developers, not just those that control properties within the implementing jurisdiction.

Figure 4.5 Site acquisition program resources reserved per jurisdiction

Jurisdiction	Total SAP allocation	SAP funds reserved: For due diligence and site acquisition	SAP funds reserved: For development of Metro owned sites	SAP funds reserved: Total reserved	SAP funds reserved: Percent reserved	Notes
Beaverton	$3,460,066	$0	$3,460,066	$3,460,066	100%	All funds invested in previous Metro TOD program property purchased at Elmonica Station; developer: REACH CDC; construction start: late 2024
Clackamas	$12,909,788	$2,621,532	$10,288,256	$12,909,788	100%	Metro SAP program acquired Boone's Ferry Road site in Lake Oswego's Lake Grove neighborhood; developer: Hacienda CDC; construction start: spring 2025

Gresham	$2,972,999	$18,744	$2,954,255	$2,972,999	100%	All funds committed to previous Metro TOD program property purchased at northeast portion of Gresham Civic Station; developer: Home Forward; construction start: early 2025
Hillsboro	$4,517,453	$2,695,267	$1,822,186	$4,517,453	100%	Metro SAP program acquired Walker Road site in Hillsboro's Tanasbourne neighborhood; developer: Hacienda CDC; construction start: summer 2024
Home Forward	$1,764,347	$0	$1,764,347	$1,764,347	100%	Project acquired and developed by Home Forward; construction start: summer 2024
Portland	$23,450,731	$4,618,725	$18,832,006	$23,450,731	100%	All funds committed to development of two sites: Glisan Landing (TOD-purchased site); developer: Related NW; construction complete: late 2024. Barbur Portland Value Inn (SAP-funded acquisition); developer: Community Partners for Affordable Housing in partnership with HAKI Community Organization and Urban League; construction start: spring 2025
Washington	$12,940,615	$3,085,407	$9,855,208	$12,940,615	100%	Metro purchased property at 209th and TV Highway in Aloha-Reedville; developer: Housing Authority of Washington County; construction start: fall 2025
Totals	**$62,015,999**	**$13,039,675**	**$48,976,324**	**$62,015,999**	**100%**	

Affordable homeownership

In 2023, Metro worked with jurisdictions to add four developments to the bond portfolio that will offer affordable homeownership to 87 households: Abbey Townhomes in Northeast Portland, Carey Boulevard in North Portland, Shortstack Milwaukie in Milwaukie's Ardenwald neighborhood and Oak Row at Rockwood Townhomes in Gresham. The projects will use a community land trust model in partnership with Proud Ground to provide permanent affordability that will benefit multiple generations of future owners through a shared equity model. Total funding for the four projects combined is about $10 million, or roughly 2% of total bond funds. The projects will expand access to homeownership, particularly for communities of color who have been intentionally excluded from opportunities to build intergenerational wealth due to racist policies like redlining and restrictive covenants.

Pipeline forecasting

Implementation partners are actively working on funding solicitations and plans to commit remaining funds. Nearly all remaining funds are expected to be committed in 2024 with final projects currently expected to break ground by 2026.

Figure 4.6 shows the anticipated timeline for disbursement of remaining funds and completion of remaining units. In 2024 and 2025, annual disbursements are expected in the range of $105-$143 million. The final disbursements of approximately $102 million are expected in 2026. Projects typically take 39 to 47 months from solicitation and pre-development through construction and lease-up. Most remaining units are expected to be complete by 2027 with the final 53 units reaching completion in 2028 or 2029.

Figure 4.6 Forecasted timeline for remaining disbursements and unit completion

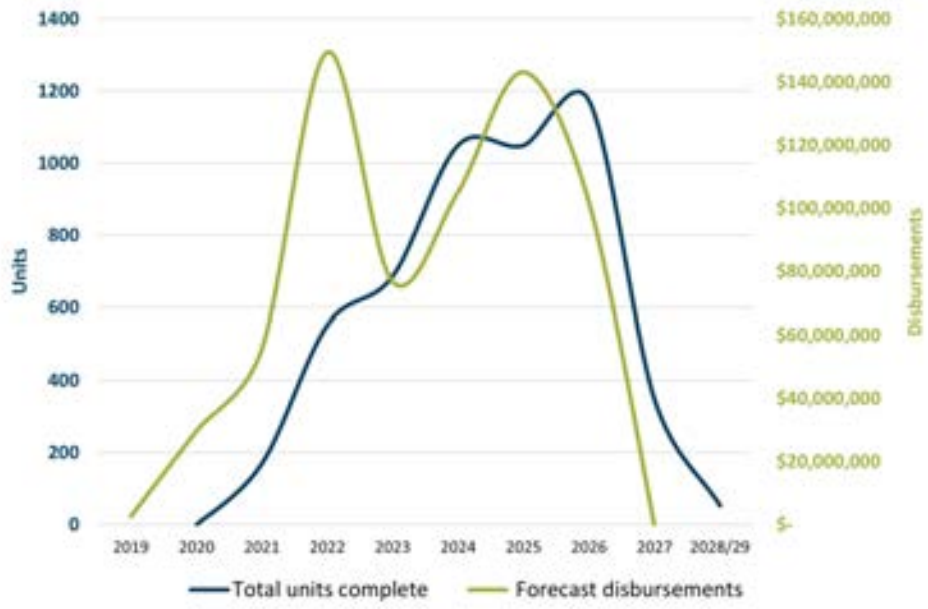
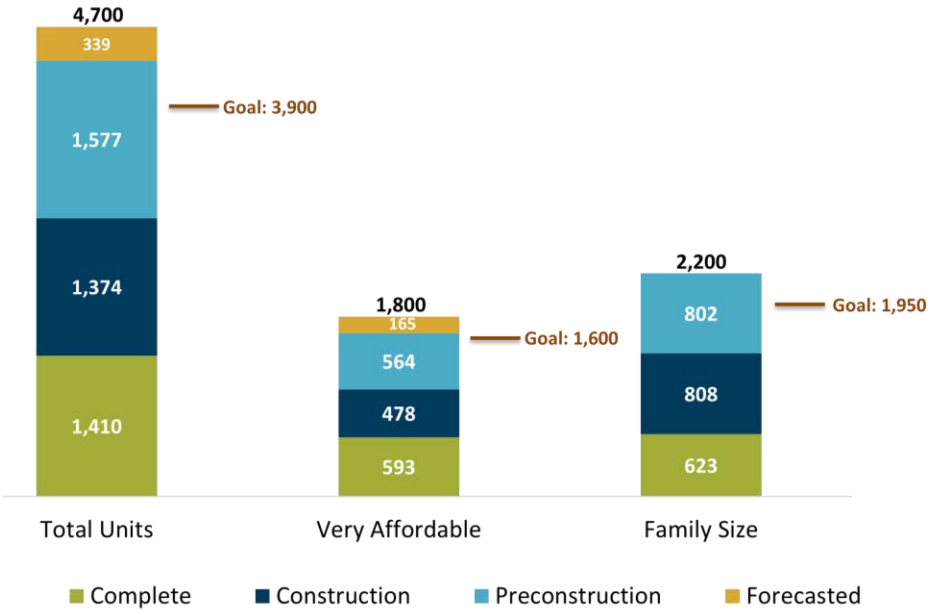


Figure 4.7 shows expected outcomes when accounting for all remaining funds. **The bond program is projected to achieve at least 120% of its original production target once all funds are expended, with an estimated total production of 4,700 units that will provide housing for 9,000 to 15,000 people.** These projections are based on conservative assumptions about cost escalation and delays due to private activity bond availability.

Figure 4.7 Forecasted production outcomes



ADVANCING RACIAL EQUITY THROUGH PROJECT LOCATION

Metro's bond work plan required local implementation partners to develop a project location strategy that considers geographic distribution of housing investments, access to opportunity, strategies to address racial segregation, and strategies to prevent displacement and stabilize communities.

Metro analyzes project locations to assess how they are distributed and how they support goals for advancing access to opportunity and racial equity. Each implementing jurisdiction's progress report provides additional detail on access to transportation, employment, education, nutrition, parks and natural areas for specific project locations.

Figure 5.1 summarizes the percentages of the total eligible units that meet different location-based characteristics. See *Exhibit B* for a more detailed table. Each metric is described after Figure 5.1, including how it supports the program's core values and how it has been measured for this analysis.

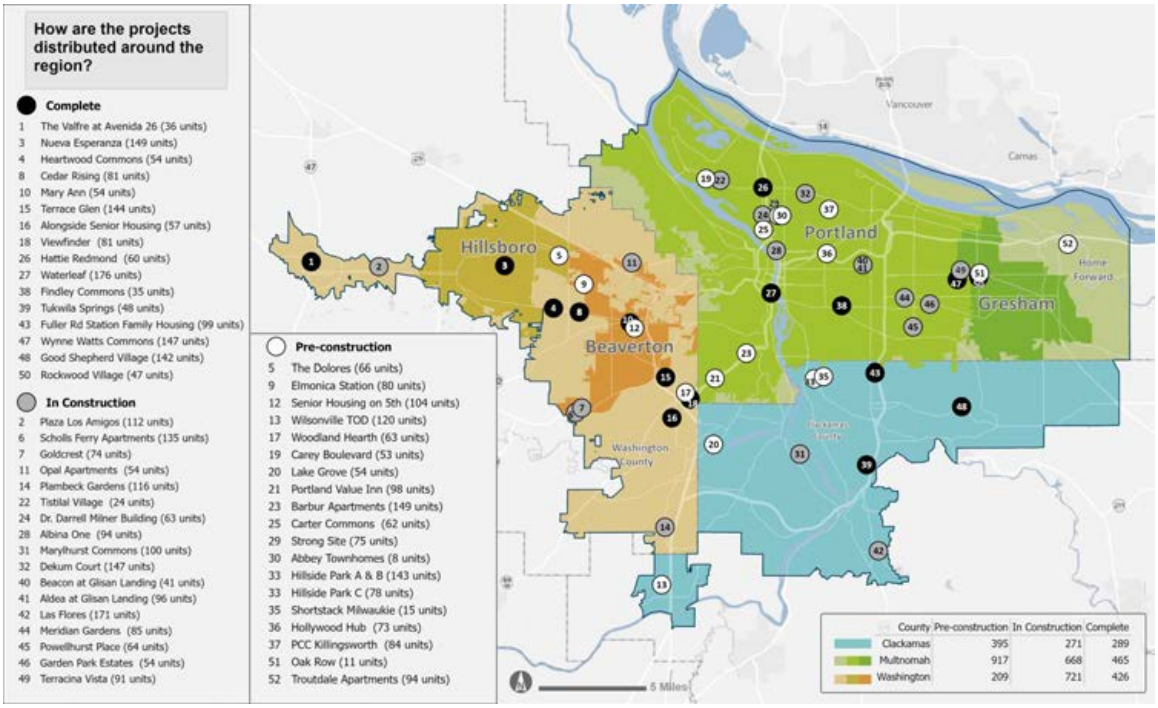
Figure 5.1 Summary of project location metrics

Project	Eligible units	County	Areas where communities at risk of displacement live today	Areas historically inaccessible to communities of color	Areas with limited regulated affordable housing	Areas with access to transit	Walkable areas
The Valfre at Avenida 26	36	Wash.		X			X
Plaza Los Amigos	112	Wash.	X		X	X	X
Nueva Esperanza	149	Wash.	X		X	X	
Heartwood Commons	54	Wash.	X			X	X
The Dolores	66	Wash.	X				X
Scholls Ferry Apartments	135	Wash.	X		X		
Goldcrest	74	Wash.		X	X		
Cedar Rising	81	Wash.	X			X	X
Elmonica Station	80	Wash.	X			X	X
Mary Ann	54	Wash.	X		X	X	X
Opal Apartments	54	Wash.	X				X
Senior Housing on 5th	104	Wash.	X		X	X	X
Wilsonville TOD	120	Clack.		X			
Plambeck Gardens	116	Wash.		X	X		
Terrace Glen	144	Wash.	X		X	X	X
Alongside Senior Housing	57	Wash.		X		X	X
Woodland Hearth	63	Wash.		X		X	X
Viewfinder	81	Wash.	X			X	X
Carey Boulevard	53	Mult.	X		X	X	X
Lake Grove	54	Clack.	X		X		X
Portland Value Inn	98	Mult.	X		X	X	X
Tistilal Village	24	Mult.	X			X	X
Barbur Apartments	149	Mult.	X		X	X	X
Dr. Darrell Milner Building	63	Mult.		X		X	X
Carter Commons	62	Mult.		X		X	X
Hattie Redmond	60	Mult.		X		X	X
Waterleaf	176	Mult.		X		X	X
Albina One	94	Mult.		X		X	X
Strong Site	75	Mult.	X				X
Abbey Townhomes	8	Mult.	X			X	X
Marylhurst Commons	100	Clack.		X	X		
Dekum Court	147	Mult.	X		X	X	X
Hillside Park A & B	143	Clack.		X		X	X
Hillside Park C	78	Clack.		X		X	X
Shortstack Milwaukie	15	Clack.		X	X		X
Hollywood Hub	73	Mult.		X		X	X
PCC Killingsworth	84	Mult.	X		X	X	X
Findley Commons	35	Mult.		X	X	X	X
Tukwila Springs	48	Clack.		X	X		X
Beacon at Glisan Landing	41	Mult.		X		X	X
Aldea at Glisan Landing	96	Mult.		X		X	X
Las Flores	171	Clack.		X			
Fuller Road Station	99	Clack.	X			X	X
Meridian Gardens	85	Mult.	X			X	X
Powellhurst Place	64	Mult.	X			X	
Garden Park Estates	54	Mult.	X			X	X
Wynne Watts Commons	147	Mult.	X			X	X
Good Shepherd Village	142	Clack.	X		X		
Terracina Vista	91	Mult.	X			X	X
Rockwood Village	47	Mult.	X			X	X
Oak Row	11	Mult.	X			X	X
Troutdale Apartments	94	Mult.		X			X
	Percent of total units		**58%**	**42%**	**42%**	**70%**	**75%**

Geographic distribution

The housing bond framework allocates funding to achieve the following distribution of new homes across the region: 45% in Multnomah County, 34% in Washington County and 21% in Clackamas County. This distribution formula was based on the assessed value of property within the portion of each county located in Metro's jurisdictional boundary, and the percentages also tie closely to population distribution. Local implementation strategies include goals for distributing investments across each partner jurisdiction in locations that advance fair housing choices, stabilize communities vulnerable to displacement and expand access to transit, food, jobs and amenities.

Figure 5.2 Affordable housing bond project locations



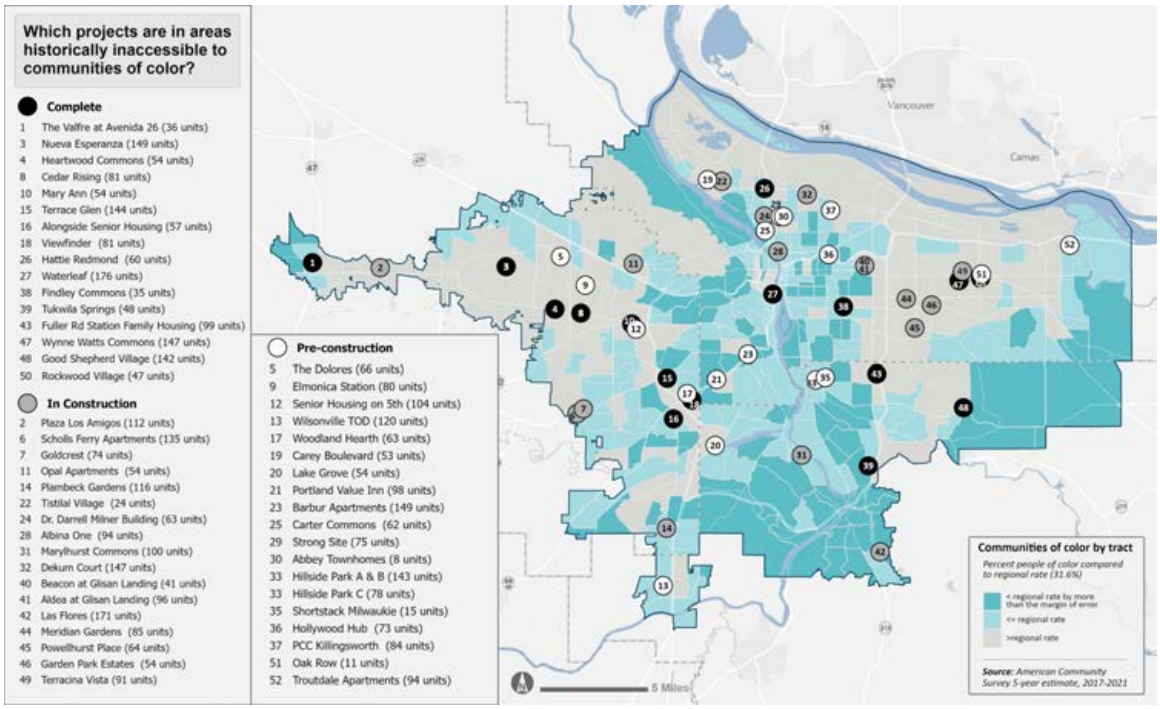
Larger versions of the maps in this section are available in *Exhibit B*.

Advancing fair housing access and reducing segregation

The geographic distribution of affordable homes in the bond portfolio demonstrates strong outcomes for advancing regional fair housing access and reducing segregation. This goal is measured by analyzing the percentage of bond-funded homes located in areas where (a) the population has a lower proportion of people of color than the region and (b) the rate of affordable housing units is lower than the average rate for the region.

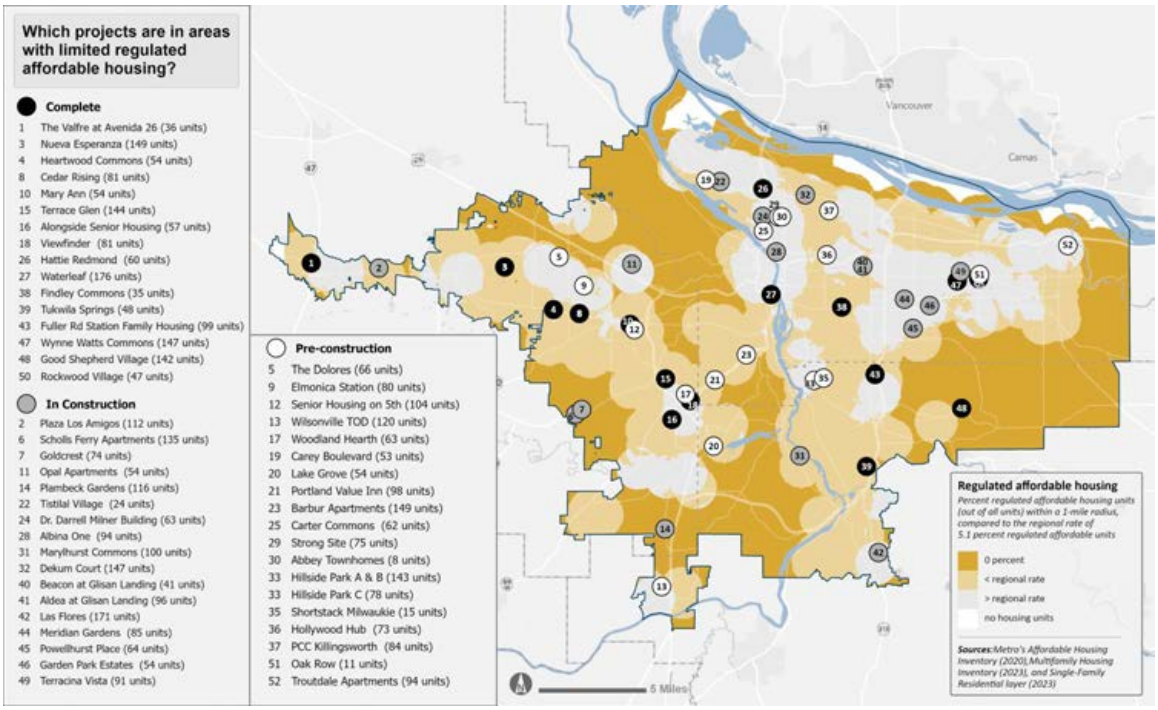
Of the total affordable homes in the current bond portfolio, 42% are in areas historically inaccessible to communities of color, defined as areas where the percentage of people of color is less than or equal to the regional average (based on recent American Community Survey estimates).

Figure 5.3 Projects located in areas that have been inaccessible to communities of color



Of the total affordable homes in the current portfolio, 42% are in areas with limited existing affordable housing, defined as areas where the percentage of regulated affordable housing units (out of all units within a one-mile radius) is lower than the average rate for the region. Four projects, representing 11% of the total units, have no existing regulated affordable housing within a one-mile radius.

Figure 5.4 Project locations relative to existing regulated affordable housing



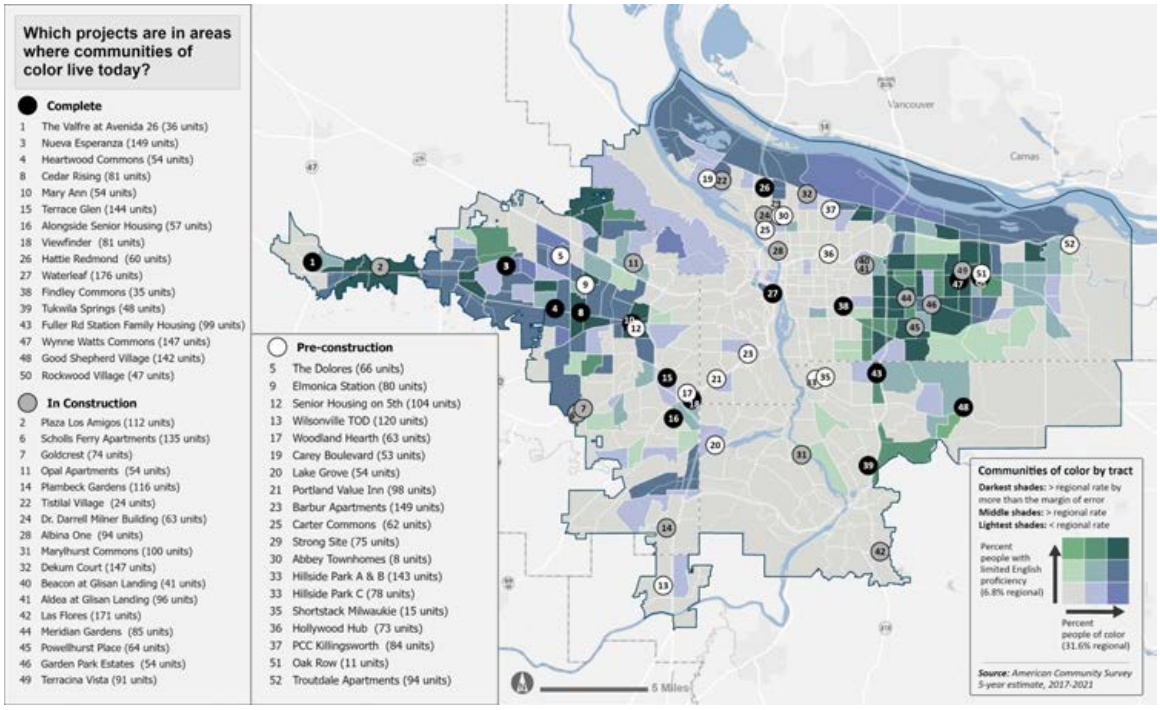
Preventing displacement and stabilizing communities

In addition to supporting investments in places that have historically lacked affordable homes, the housing bond framework also includes a goal of supporting investments in places that stabilize communities at higher risk of displacement. This is measured by identifying which projects are located in areas where the population has a high proportion of people of color and/or people with limited English proficiency (people age five or older who speak English less than "very well"), based on recent American Community Survey estimates. **Of the total affordable homes in the current portfolio, 58% are in areas with higher proportions than the region of people of color and/or people with limited English proficiency.**

Because there are limitations in American Community Survey estimates, the analysis also identifies areas where the percentage of people of color and/or people with limited English proficiency exceeds the regional average by more than the margin of error. These represent areas where there is more certainty of

concentrations of communities of color and people with limited English proficiency: census tracts with up to 61% people of color and up to 27% people with limited English proficiency, compared to regional averages of 32% people of color and 7% people with limited English proficiency. See the detailed table in *Exhibit B* for more information.

Figure 5.5 Projects located in areas where communities of color live today



Access to transit and amenities

Of the total eligible units in the portfolio, 70% are within either ¼ mile of a frequent service bus stop or ½ mile of a MAX station, and 75% are rated with a Walkscore of 50 ("somewhat walkable") or better. The detailed table in *Exhibit B* provides the Walkscore and the distance to the nearest frequent service bus stop or light rail station for each project location.

Many of the projects also have access to a range of amenities including grocery stores, natural areas, schools and jobs. Each implementing jurisdiction's progress report provides additional detail on nearby amenities.

ADVANCING ECONOMIC OPPORTUNITY THROUGH CONSTRUCTION

Economic impact

Metro affordable housing bond investments have had a significant impact on the local economy. Across the region, bond-funded units represented about 15% of multifamily housing construction in 2023. Bond-funded projects have supported an average of 3,286 direct jobs in the construction sector annually. These are living wage jobs, paying an average of $91,000 per year in wages and benefits. Bond investments have also supported jobs in related industries such as insurance, finance, raw materials, architecture and engineering.

Equitable contracting progress

To ensure equitable access to the economic opportunities provided by bond investments, the program aims to direct construction contracts to underrepresented firms. In their local implementation strategies, all implementing partners established a minimum goal of awarding 20% of project contracts to minority- or women- owned and/or emerging small businesses (MWESB) certified by the state Certification Office for Business Inclusion and Diversity (COBID), and the City of Portland committed to a goal of 30% COBID participation. In certain cases, projects have set higher aspirational goals exceeding the jurisdictional minimum.

Metro requires that projects report on contracting outcomes within six months of certificate of occupancy. While most projects have not reached this milestone, 10 projects reached completion in 2022 and 2023 and submitted contracting and workforce outcomes data. Across the 10 projects, **COBID certified firms were paid a combined $50.3 million in contracts, representing 24.9% of total construction costs for those projects.** With these contracts, firms can grow their businesses and create high-paying local jobs, while providing opportunities for workers to learn new skills and further their careers.

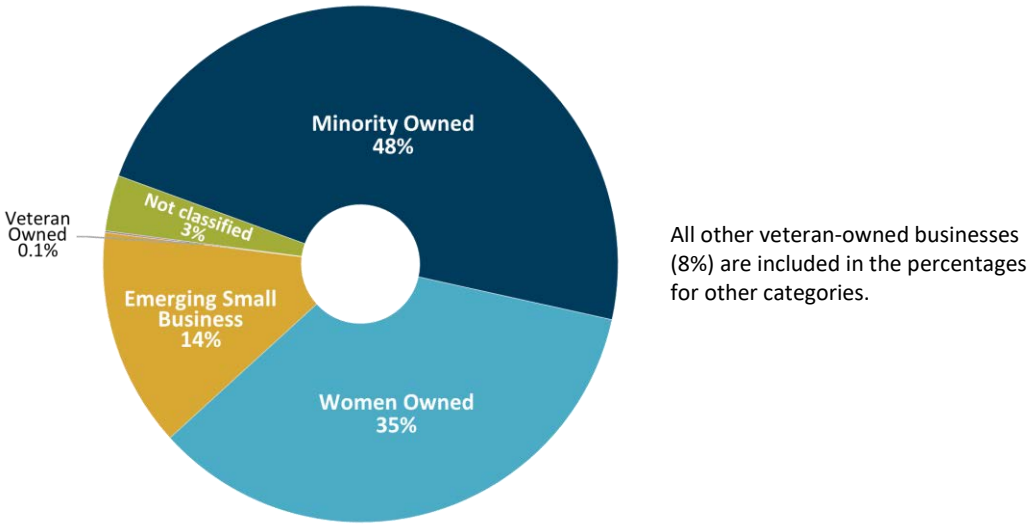
Figure 6.1 Summary of equitable contracting goals and outcomes for completed projects

Jurisdiction	Project	Construction costs	COBID contract dollars paid	COBID goal		COBID outcome	
				Hard costs	Soft costs	Hard costs	Soft costs
Beaverton	Mary Ann	$14,389,822	$3,921,179	20%	20%	27.5%	22.6%
Clackamas County	Tukwila Springs	$11,208,808	$2,476,081	20%	20%	21.9%	75.0%
	Fuller Road Station	$32,689,095	$6,465,376	20%	20%	19.8%	15.0%
Portland	Findley Commons	$5,006,088	$1,318,505	24%	20%	19.7%	58.4%

Gresham	Wynne Watts Commons	$32,577,823	$8,286,752	20%		25.4%	
	Rockwood Village	$39,460,973	$9,172,867	20%		21.9%	
Washington County	Viewfinder	$22,635,382	$4,964,925	20%	20%	21.8%	26.0%
	The Valfre at Avenida 26	$9,047,142	$2,990,573	20%	20%	33.1%	n/a
	Heartwood Commons	$3,919,523	$989,251	20%	20%	21.6%	76.3%
	Terrace Glen	$31,186,415	$9,718,240	20%	20%	31.2%	n/a
Totals		**$202,121,071**	**$50,303,749**	**24.9% of total construction dollars paid to COBID firms**			

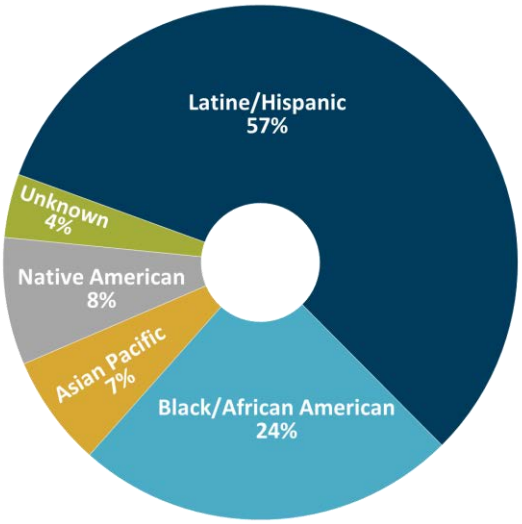
Of the $50.3 million in construction dollars paid to COBID certified firms, 48% went to minority-owned business enterprises (MBE), 35% went to women-owned business enterprises (WBE), 14% went to emerging small businesses (ESB) and 8% went to service-disabled veteran-owned business enterprises (SDVBE). In Figure 6.2, businesses that fell into multiple categories are reported based on the following hierarchy: MBE, WBE, SDVBE and ESB.

Figure 6.2 Payments to COBID certified firms by firm type



Among the minority-owned businesses, 57% were Latine/Hispanic, 24% were Black/African American, 8% were Native American and 7% were Asian Pacific. (The remaining 4% did not provide race/ethnicity data.)

Figure 6.3 Minority-owned businesses by race/ethnicity



Workforce diversity progress

While equitable contracting goals measure participation by smaller firms and those owned by women and people of color, workforce diversity goals aim to track the diversity of workers involved in the construction process. Efforts to support construction workforce diversity are limited in jurisdictions without a history of setting goals or tracking workforce diversity. Currently, no projects located outside Multnomah County have established project-specific goals for workforce diversity. All implementation strategies included, at a minimum, a commitment to explore opportunities to support workforce diversity, and several jurisdictions stated an intention to consider tracking and reporting on workforce diversity if they determined this to be feasible based on contractor and jurisdiction capacity. Additionally, some jurisdictions have taken steps to invest in their own capacity to support tracking through implementing new software. Currently, 37 of 52 projects (71%) have committed to report on workforce diversity outcomes. This data will help to establish a baseline on which future workforce diversity goals could be established.

Metro has developed reporting metrics and templates to support consistent tracking for projects and jurisdictions that are able to report on workforce diversity. Figure 6.4 summarizes the outcomes for the projects that completed construction in 2022 and 2023 and reported on workforce diversity. Some projects that are not yet complete provided preliminary workforce data in their local progress reports.

Figure 6.4 Summary of workforce outcomes for completed projects

Jurisdiction	Project	Workforce goal *% of labor hours worked by:*			Workforce outcomes *% of labor hours worked by:*		
		Apprentices	**POC**	**Women**	**Apprentices**	**POC**	**Women**
Portland	Findley Commons	20%	18%	9%	18.4%	41.9%	<1%
Washington County	Viewfinder	Jurisdiction did not set workforce diversity goals			18.4%	42.3%	2.5%
Beaverton	Mary Ann	Jurisdiction did not set workforce diversity goals			11.8%	41.9%	<1%
Clackamas	Fuller Road Station	Jurisdiction did not set workforce diversity goals			12.7%	61.8%	2.7%

Of the four completed projects tracking workforce participation, only Portland's Findley Commons had defined workforce goals. The Beaverton, Clackamas and Washington County projects committed to tracking workforce participation in order to understand workforce activity and establish a baseline on which future workforce diversity goals could be established.

Across the four projects, 41%-62% of labor hours were worked by people of color (POC), 12%-18% of labor hours were worked by apprentices, and less than 3% of labor hours were worked by women. More work is needed to ensure that affordable housing investments can tackle broader workforce equity issues, which also require upstream investments to create a pipeline of diverse workers.

A project-by-project breakdown of COBID goals, workforce tracking commitments and prevailing wage requirements is provided in *Exhibit C*.

ADVANCING EQUITABLE ACCESS TO HOUSING

The housing bond is guided by a commitment to advance equitable access to housing for communities of color and other populations with disproportionate barriers to housing. Jurisdictions are working to advance equitable access through the use of affirmative marketing and low barrier screening and by designating units to serve specific populations. Leasing data for projects that have reached full occupancy demonstrate the impact of these strategies in expanding access to housing for priority communities.

Serving priority communities

The housing bond framework identified the following priority communities to be served by program investments:

- People of color
- Families with children and multiple generations
- Seniors and older adults
- Veterans
- Households experiencing or at risk of homelessness
- Households experiencing or at risk of displacement
- People with disabilities

The regional portfolio includes buildings with different mixes of unit sizes intended to serve different household sizes and configurations. Additionally, many units are restricted for households with very low incomes and/or households experiencing homelessness, including a subset of units designated as permanent supportive housing (PSH) for individuals and families living with a disability who have experienced prolonged homelessness.

Figure 7.1 provides information on the projects and units designated to serve each of the bond's priority populations and the outcome metrics used to track the program's effectiveness in serving each priority population.

Figure 7.1 Designated units/projects and outcome metrics for serving priority populations

Priority population	Designated units/projects	Outcome metrics
People of color	▪ All projects committed to low-barrier screening and affirmative marketing to ensure access for people of color ▪ 40 projects include partnerships with culturally specific organizations	▪ Race/ethnicity for occupants
Families with children and multiple generations	▪ 43 projects include family-size units ▪ 4 projects aim to serve multiple generations	▪ Number/percent of households that include children
Seniors and older adults	▪ 9 projects aim to serve seniors or older adults	▪ Number/percent of seniors/older adults
Veterans	▪ 4 projects aim to serve veterans experiencing chronic homelessness	▪ Number/percent of veterans
Households experiencing or at risk of homelessness	▪ 1,635 units are restricted for households with extremely low incomes (30% AMI) ▪ 1,052 units have project-based rental assistance ▪ 747 units are designated as PSH for people who have experienced prolonged homelessness and have at least one disabling condition	▪ Number of households referred through coordinated access or local HUD Continuum of Care approved referral systems into PSH units
Households experiencing or at risk of displacement	▪ 7 projects are participating in the City of Portland's N/NE Preference Policy ▪ 30 projects are located in areas where communities at risk of displacement live today	▪ Number of residents placed through N/NE Preference Policy ▪ Number of units located in areas where communities at risk of displacement live today
People with disabilities	For projects that provided data on physical accessibility features: ▪ 23% of units are ground floor units ▪ 6% of units are ADA (Type A) units ▪ 89% of projects have universal design	▪ Number of applicants requesting reasonable accommodations who were matched with a unit ▪ Number/percent of households that include a person with a disability

Strategies for affirmative marketing and low-barrier screening

All local implementation strategies included commitments to affirmative marketing and low-barrier screening. Affirmative marketing approaches include working with property management companies to ensure materials and services are accessible to people with limited English proficiency via translation and interpretation in multiple languages, as well as strategies to market units through partnerships with community-based organizations that can leverage informal channels and word of mouth.

Across the 52 bond-funded projects, 71% report partnerships with culturally specific organizations to support their affirmative marketing strategies. These partners include organizations serving a wide range of populations, such as Native American Rehabilitation Association (NARA), Native American Youth and Family Center (NAYA), Urban League of Portland, Beyond Black, El Programa Hispano

Católico, Centro Cultural, HAKI Community Organization, Somali Empowerment Circle, Asian Pacific American Network of Oregon, Immigrant and Refugee Community Organization (IRCO), Muslim Educational Trust and more.

Many projects also partner with a wide range of other types of organizations to support affirmative marketing, such as homeless services providers, social service agencies, school districts and community colleges, public libraries, organizations serving children and families, organizations serving seniors, government agencies such as the Department of Veterans Affairs, and community-based organizations such as The Rosewood Initiative and Living Cully.

The following examples illustrate how bond-funded projects engage with partners to implement affirmative marketing:

- Fuller Road Station is a 100-unit development in unincorporated Clackamas County for families and households with very low incomes, including 25 PSH units for households experiencing homelessness. In advance of opening the waitlist, emails and marketing flyers were sent to partners such as Asian Health and Service Center, IRCO, NAYA, Urban League, Oregon Outreach, Impact NW, Independent Living Resources and surrounding employers. The leasing team also worked closely with the project's supportive services partners, Dev NW and Clackamas Women's Shelter, to house applicants from their waitlists.
- Hillsboro's Nueva Esperanza provides 150 affordable homes for households with low and very low incomes, with a focus on serving families of color from Latine, Somali and other immigrant communities. Project co-sponsor Bienestar developed marketing materials designed to reach Spanish-speaking households and African and other immigrant populations in Hillsboro. Bienestar partnered with Somali Empowerment Circle, Adelante Mujeres, Family Promise, Community Action and others to support outreach and distribution of the marketing information.
- Portland's Waterleaf is a 176-unit development for families and veterans with very low incomes. The project's partners conducted research to identify the demographic groups least likely to apply and targeted outreach to those groups through community-based organizations and by placing ads in culturally specific newspapers. Applicants were referred by 41 community-based and culturally specific organizations such as Central City Concern, Urban League, Northwest Pilot Project, Transition Projects, Community Vision, Veterans Affairs, Cascadia Health, New Narrative, Street Roots, Do Good Multnomah, Our Just Future, New Avenues for Youth, Outside In, Path Home and Impact NW.

In addition to affirmative marketing, low-barrier screening is a key strategy for promoting equitable access to housing. Low-barrier screening is specifically designed to promote accessibility for households with adverse credit, rental and legal histories, and with very low incomes.

Among the examples of ways that sponsors are implementing low-barrier screening practices for bond-funded projects:

- The leasing team for Clackamas County's Good Shepherd Village developed screening criteria designed to eliminate common screening barriers. Credit score minimums are not used, alternative forms of identification are accepted, a lack of rental history or rectified past debt are not penalized, and the leasing team worked with community partners to establish application fee assistance for their clients and referrals. The leasing team also established clear procedures and timelines to ensure applicants receive adequate communication and time to assemble documentation.
- Bienestar, the project co-sponsor for Hillsboro's Nueva Esperanza, worked with project partners and supportive housing experts to identify common screening barriers such as negative credit history, past evictions, inadequate income and criminal records. In the project's screening criteria, prior eviction is not grounds for denial if the eviction was due to severe rent burden. The criminal conviction review process also removes any crimes that are no longer illegal at the state or federal level. Each application is reviewed with consideration of relevant individualized evidence of mitigating factors using an equity lens.

Leasing outcomes

Bond-funded projects are required to submit a leasing outcome report once they reach at least 95% occupancy. The report collects data on applications received, applicant screening results (including denials and appeals), PSH unit placements, placements in accessible units and affirmative marketing outcomes. As of December 2023, 10 projects had submitted leasing outcome reports.

Figure 7.2 Projects reaching at least 95% occupancy by December 2023

Project	Location	Eligible units	30% AMI units	2+ BR units	PSH units
The Valfre	Forest Grove	36	8	30	8
Rockwood Village	Gresham	47	47	39	0
Mary Ann	Beaverton	54	11	29	0
Tukwila Springs	Gladstone	48	48	0	48
Viewfinder	Tigard	81	34	56	30
Findley Commons	Portland	35	0	0	35
Hattie Redmond	Portland	60	60	0	60
Fuller Road Station	Happy Valley	99	30	82	25
Waterleaf	Portland	176	17	48	20
Wynne Watts Commons	Gresham	147	30	31	30
	Totals	**783**	**285**	**315**	**256**

The occupancy reports submitted in 2022 for the first six fully leased-up projects (The Valfre, Rockwood Village, Mary Ann, Tukwila Springs, Viewfinder and Findley Commons) pointed to areas where occupancy data collection and reporting could be improved. Metro worked with jurisdiction partners on improvements to reporting templates and methodologies in 2023, resulting in more accurate and comprehensive data for the projects that submitted occupancy reports in 2023 (Hattie Redmond, Fuller Road Station, Waterleaf and Wynne Watts Commons). Because occupancy data is only submitted once for each project, the data for the projects that leased up in 2022 continues to include some incomplete information.

Unit availability relative to applications

The volume of applications across the 10 properties demonstrates that the need for affordable units is greater than the number of units available. Figure 7.3 shows the number of applications received compared with the number of units available across the projects, broken out by unit size. The number of applications received far outpaced unit availability, and these data do not include the prospective applicants who remained on waitlists and were not able to apply for a unit.

Figure 7.3 Availability of units relative to applications across the leased properties

	Studios	1 BR units	2 BR units	3 BR units	Total
Total units available*	208	299	288	168	963
Total rental applications received	983	1,223	852	449	3,507
Total percentage of applicants housed	21%	24%	34%	37%	27%

**Rockwood Village reported leasing information for all of its affordable units (224) rather than just the bond-funded units (47), increasing the total units and applications included in the analysis.*

The discrepancy between applications and available units highlights both the important role of the bond in alleviating the region's severe shortage of affordable housing and the continuing need for affordable units. In total, only 27% of applicants were able to be housed in the available units. The percentages ranged by unit size, with the lowest percentages of applicants housed in studios and one bedroom units. Additional analysis of regional need by household size may support future leasing outcome data analysis.

Demographics of building occupants

The leasing outcome reports also collect information on the demographics of the initial building occupants, including race and ethnicity, disability status, age, veteran status, household size and household composition. It is important to note that demographic characterizations of diverse, multifaceted and intersectional communities are often difficult to get right. For Metro's demographic collection and reporting purposes, efforts have been made to align with existing data and reporting sources specific to the affordable housing industry and emerging best practices in reporting on priority communities.

Across the 10 projects, demographic data were reported for 57% of occupants, although the reporting percentages varied significantly from project to project. In some cases the projects only reported on household-level demographics rather than the demographics of individual occupants, and some occupants chose not to disclose demographic information. This section provides an analysis of the available data while recognizing that it is incomplete.

For each demographic category, the data for occupants of bond-funded units are compared with data at the neighborhood and regional levels. The neighborhood comparison data points were created using a half-mile buffer around each site. The data sources for the comparisons are based on Census and American Community Survey data sets.

Metro recognizes the importance of analyzing intersectionality across demographic data categories and providing fully disaggregated data when reporting on demographics. However, because occupancy data are submitted to Metro in aggregate form, not as individual client-level records, analysis of intersectionality is not feasible. Inconsistencies in data reporting categories across the projects also create barriers to accurately reporting on fully disaggregated demographic data. For this reason, data on race and ethnicity are analyzed in this section for people of color as a whole but not for individual races/ethnicities. The improvements to reporting templates and methodologies implemented in 2023 will support analysis of disaggregated data in future reports.

Race and ethnicity

Figure 7.4 shows the percentage of total occupants of bond-funded units who provided race and ethnicity data followed by the percentage of those occupants who identified as people of color (POC), defined as all races and ethnicities except white non-Hispanic. The table compares these percentages with the percentage of people of color households within a half-mile buffer around each project location, and the percentage of people of color households with incomes less than $60,000 within the half-mile buffer.

Figure 7.4 Occupancy outcome data: race and ethnicity

				Demographic data for surrounding neighborhood	
	# of occupants in bond-funded units	% of occupants who provided race/ ethnicity data	% POC of occupants who provided race/ ethnicity data	% of households that are POC	% of households with incomes <$60,000 that are POC
The Valfre	92	100%	79%	20%	26%
Rockwood Village	141	22%	65%	45%	50%
Mary Ann	117	74% of households	25% of households	48%	71%

Tukwila Springs	48	77%	41%	16%	19%
Viewfinder	189	33%	19%	20%	34%
Findley Commons	35	94%	12%	19%	30%
Fuller Road Station	274	31%	14%	28%	30%
Hattie Redmond	60	100%	100%	19%	26%
Waterleaf	271	71%	54%	24%	41%
Wynne Watts	216	86%	44%	41%	47%
Total	**1,443**	**57%**	**48%**	**29%**	**41%**
Region				**26%**	**30%**

Overall, 48% of occupants of bond-funded units were people of color, compared with a regional rate of 26% (30% for households with incomes less than $60,000) and a rate of 29% in the neighborhoods surrounding the projects (41% for households with incomes less than $60,000). Six of the 10 projects have a higher percentage of households of color than their surrounding neighborhoods and the regional rate.

Disability status

Figure 7.5 shows the percentage of occupants of bond-funded units who provided disability status, followed by the percentage of those occupants who are living with a disability. These data are compared with the percentage of the population living with a disability in the surrounding neighborhood.

Figure 7.5 Occupancy outcome data: disability status

	# of occupants in bond-funded units	% of occupants who provided disability status	% living with a disability of occupants who provided data	% living with a disability in surrounding neighborhood
The Valfre	92	92%	11%	11%
Rockwood Village	141	33%	11% of households	13%
Mary Ann	117	N/A	N/A	16%
Tukwila Springs	48	100%	69%	17%
Viewfinder	189	43%	7% of households	15%
Findley Commons	35	100%	34%	13%
Fuller Road Station	274	1%	N/A	17%
Hattie Redmond	60	100%	30%	8%

Waterleaf	271	100%	16%	15%
Wynne Watts	216	92%	28%	19%
Total	**1,443**	**57%**	**22%**	**14%**
Region				**12%**

Overall, the percentage of occupants living with a disability ranges from 7% to 69%. Only Rockwood Village and Viewfinder – both of which have low reporting rates – show the percentage living with a disability as lower than the comparison neighborhood data points and the regional rate of 12%. The percentage of occupants living with a disability at the Valfre is one percentage point lower than the regional rate but equal to the percentage for the surrounding neighborhood.

Age

Figure 7.6 shows the percentage of occupants of bond-funded units who are children under age five, children and youth under age 18, and seniors ages 62 and older. These data are compared with age demographics for the surrounding neighborhood.

Figure 7.6 Occupancy outcome data: age

	Occupants of bond-funded units			Demographic data for surrounding neighborhood		
	% under age 5	% under age 18	% 62 or over	% under age 5	% under age 18	% 62 or over
The Valfre	18%	51%	1%	5%	24%	11%
Rockwood Village	23%	55%	6%	8%	31%	12%
Mary Ann	N/A	N/A	N/A	5%	20%	19%
Tukwila Springs	0%	0%	35%	3%	16%	25%
Viewfinder	21%	50%	4%	6%	21%	20%
Findley Commons	0%	0%	37%	4%	16%	12%
Fuller Road Station	24%	57%	2%	4%	17%	23%
Hattie Redmond	0%	0%	35%	4%	14%	13%
Waterleaf	12%	25%	11%	1%	3%	18%
Wynne Watts	13%	26%	1%	7%	22%	18%
Total	**16%**	**38%**	**8%**	**5%**	**19%**	**16%**
Region				**5%**	**20%**	**18%**

In projects with a focus on families with larger unit sizes – The Valfre, Rockwood Village, Viewfinder and Fuller Road Station – more than half of the occupants are

under age 18. This is higher than both the neighborhood averages and the regional rate of 20%. Tukwila Springs, Findley Commons and Hattie Redmond, which are all permanent supportive housing projects, have rates of residents over age 62 that are higher than the neighborhood averages and the regional rate of 18%.

ADVANCING HOUSING STABILITY

Metro's bond framework established expectations that affordable housing projects offer connections to services to support residents' housing stability. All bond-funded projects provide access to resident services that connect individuals and families to resources such as energy assistance, food, health services, transportation and financial planning. Many projects include partnerships that offer additional programs and services for residents on site or in the community. Some homes, including those designated as permanent supportive housing, provide individual residents with one-on-one case management and connections to wraparound services to meet their unique needs.

Culturally responsive service partnerships

Ninety-six percent of bond-funded projects report partnerships with culturally responsive organizations that will provide resident services, case management, wraparound services or other programming. (The remaining projects have not finalized service partnerships yet.) For 77% of the projects, these partnerships include culturally specific service providers such as Hacienda CDC, Latino Network, Virginia Garcia Health Center, Native American Rehabilitation Association (NARA), NAYA, IRCO, Islamic Social Services of Oregon, Somali American Council of Oregon, Black Parent Initiative, Self Enhancement, Urban League and Black Community of Portland.

The following examples illustrate how bond-funded projects are incorporating partnerships with culturally responsive and culturally specific service providers to support housing stability:

- Plambeck Gardens in Tualatin will provide housing for individuals and families with low and extremely low incomes, including people transitioning out of homelessness into permanent supportive housing. Project sponsor Community Partners for Affordable Housing is partnering with Centro Cultural for employment-related services, Virginia Garcia and NARA for health and wellness activities, Neighborhood Health Center for youth health services, and NARA and Community Action for permanent supportive housing services.
- Meridian Gardens in outer southeast Portland will provide single room occupancy and studio apartments to individuals and couples experiencing or at risk of homelessness who are in recovery from substance use disorders. Project sponsor Central City Concern will provide recovery-focused programming for all residents, including peer-delivered services. On-site culturally specific services will be provided by Puentes, the Imani Center and Flip the Script.
- Albina One, which is being co-developed by Albina Vision Trust in Portland's Eliot neighborhood, will provide affordable homes to families as well as displaced or longtime residents of North and Northeast Portland. Designed to

counter intentional displacement of Black people through urban renewal, freeway siting and long-term gentrification, the mix of one, two and three bedroom units will serve young Portlanders, notably those who work in the trades. Portland Opportunities Industrialization Center + Rosemary Anderson High School will support residents with culturally specific education, mentoring, family support, employment training and career placement.

- The Opal in Cedar Mill will provide affordable homes for older adults with low and extremely low incomes, with an emphasis on serving LGBTQ+ residents. The project was developed through a partnership between Home First Development Partners and Christ United Methodist Church, which owns the land and the adjacent church. Friendly House Elder Pride Services will provide resident services, with the goal of creating a safe, welcoming community where residents have the support and resources they need to live healthy, active, independent lives. Church members made over 60 quilts to welcome new residents. The church is also donating supplies for the communal kitchen.

Permanent supportive housing

The policy framework for the affordable housing bond included a commitment to serve households experiencing homelessness. For households with disabilities experiencing prolonged homelessness, permanent supportive housing (PSH), which pairs a housing unit with long-term rental assistance and wraparound services, is the nationally recognized solution. Because resources for PSH were limited when the housing bond measure passed in 2018, Metro's framework included goals for deep affordability (30% AMI units) but not a regional goal for PSH. Two partners established PSH goals:

- Portland set a goal of 300 PSH units that would be supported with capital investments through the Metro bond. As of December 2023, Portland had exceeded that goal with 311 Metro bond-funded PSH units open or in the pipeline. This includes 289 PSH units in existing projects plus 22 PSH units in projects that are still moving through Metro's concept endorsement process.
- Washington County's local implementation strategy for the Metro bond included a goal of at least 100 PSH units. As of December 2023, Washington County had exceeded that goal with 157 Metro bond-funded PSH units open or in the pipeline.

While other local implementation strategies did not establish formal PSH goals, the regional portfolio includes PSH units distributed across the region, in alignment with the goal of serving households experiencing homelessness. **As of December 2023, partners reported a total of 747 PSH units across the bond-funded portfolio.** This includes five projects that are entirely PSH (Findley Commons, Hattie Redmond, Heartwood Commons, Tukwila Springs and Beacon at Glisan Landing) and an additional 23 projects that include a subset of PSH units. PSH

units make up 17% of total bond-funded units, and 54% of all bond-funded projects contain PSH units.

Units designated as PSH offer deep affordability along with ongoing case management and wraparound services to support housing stability. Voters' approval of the Metro supportive housing services (SHS) measure in 2020 has created opportunities to increase PSH production by matching bond-funded units with SHS-funded rent subsidies, case management and wraparound services. Of the 28 bond-funded projects with PSH units, 25% are using SHS funding for rental assistance and 57% are using SHS funding for services. Several additional projects are likely to use SHS funding for PSH units, with the details finalized closer to completion of construction.

Among the examples of ways that jurisdictions are aligning bond capital funding with SHS-funded services and rent assistance:

- The Housing Authority of Clackamas County has been offering service packages that pair rental assistance with wraparound services to encourage project sponsors to dedicate additional PSH units in their bond-funded projects. Staff worked with the project sponsors for Tukwila Springs and Good Shepherd Village to add 59 more PSH units beyond what was originally contemplated across the two projects. In addition, each subsequent Metro bond-funded rental project in Clackamas County's pipeline includes PSH units that are supported by SHS-funded services and/or rent assistance.
- The Portland Housing Bureau partnered with Multnomah County's Joint Office of Homeless Services to integrate SHS-funded services in three PSH projects. Meridian Gardens is a recovery-focused project with 65 PSH units and SHS-funded services provided by Central City Concern. Powellhurst Place has 12 PSH units with SHS-funded services provided by Native American Rehabilitation Association of the Northwest. Beacon at Glisan Landing includes 41 PSH units with services provided by Catholic Charities and IRCO.

Figure 8.1 summarizes PSH units across the bond portfolio as of December 2023 based on information provided in partners' annual progress reports and post-completion reporting. For some projects, PSH unit commitments and other details are still being finalized.

Metro worked with partners in 2023 to ensure greater clarity and consistency in the definition of PSH for reporting. All units defined as PSH (a) serve people with extremely low incomes who have one or more disabling conditions and are experiencing or at imminent risk of experiencing long-term or frequent episodes of literal homelessness and (b) use coordinated access systems for referrals.

Figure 8.1 Distribution, target population and service partners for permanent supportive housing units across the portfolio

Jurisdiction	Project	Total units	PSH units	PSH target population	Service partners
Beaverton	Senior Housing on 5th	104	30	Seniors 55+	NARA, Bienestar
Clackamas	Fuller Road Station	99	25	Families and individuals, including foster youth exiting or having exited the system	Clackamas Women's Services, Cornerstone Community Housing, DevNW
	Good Shepherd Village	142	58	Families and individuals, including 15 units expressly for veterans	Catholic Charities of Oregon, APANO, El Programa Hispano Católico, Familias en Acción, Do Good Multnomah
	Las Flores	171	9	Families and individuals	Northwest Housing Alternatives
	Tukwila Springs	48	48	Age 50 or older; leasing preference for Gladstone residents and applicants who request culturally specific services for Native Americans	NARA
	Marylhurst Commons	100	40	Families	Mercy Housing NW
	Hillside Park A & B	143	13	Families	Impact NW, Community Vision, Unite Oregon
	Hillside Park C	78	8	Families	Impact NW, HACC Service Team
	Lake Grove	54	10	Latine, families	New Narrative
	Wilsonville TOD	120	20	Latine, families	Latino Network
Gresham	Wynne Watts Commons	147	30	Those with intellectual and developmental disabilities	Integration with the State's K Plan which provides services to those living independently, Albertina Kerr
Hillsboro	The Dolores	66	10	Individuals and families	New Narrative
Portland	Hattie Redmond	60	60	BIPOC singles/couples experiencing chronic homelessness	Urban League of Portland, Home Forward
	Findley Commons	35	35	Veterans	Veterans Administration, Do Good Multnomah
	Waterleaf	176	20	Veterans	Veterans Administration
	Beacon at Glisan Landing	41	41	BIPOC seniors, survivors of domestic violence/sexual assault coming out of homelessness	Catholic Charities
	Meridian Gardens	85	65	People in substance use disorder treatment, people experiencing chronic homelessness	Central City Concern, Puentes, Imani Center, Flip the Script
	Tistilal Village	24	16	Native American families	NARA, NAYA
	Portland Value Inn	98	15	Formerly homeless families, intergenerational families, BIPOC families at risk of displacement, with disabilities	Urban League of Portland, CPAH, HAKI Community Organization

Jurisdiction	Project	Total units	PSH units	PSH target population	Service partners
	Powellhurst Place	64	12	People exiting homelessness, BIPOC community	Northwest Housing Alternatives, NARA
	Garden Park Estates	54	25	Individuals	Innovative Housing, Inc.
Washington	Heartwood Commons	54	54	Individuals	Community Partners for Affordable Housing (CPAH), Sequoia Mental Health
	Plambeck Gardens	116	16	Individuals and families	Centro Cultural, Virginia Garcia, NAYA
	Terrace Glen	144	3	Youth	HomePlate Youth Services, IRCO
	The Valfre at Avenida 26	36	8	Individuals and families, Latine	Bienestar, Sequoia Mental Health
	Alongside Senior Housing	57	24	Seniors, veterans	Veterans Administration
	Viewfinder	81	30	Individuals and families, veterans	Project Homeless Connect, Cornerstone Partners
	Woodland Hearth	63	22	Individuals and families	HAKI, NAYA
	Total PSH units		**747**		

COMMUNITY ENGAGEMENT TO SHAPE PROJECT OUTCOMES

Metro's bond work plan requires jurisdictional partners to conduct community engagement to inform implementation planning. To remedy decades of disinvestment and displacement, engagement activities are expected to focus on reaching communities of color and other priority populations, including people with low incomes, seniors, people with disabilities, immigrants and refugees, existing tenants in acquired buildings, and people who have experienced or are experiencing housing instability or homelessness. Each jurisdiction reports on this community engagement, including participant demographic information, descriptions of outreach and activities, themes from engagement and how feedback informed implementation.

In 2023, community engagement was conducted for 16 projects across the seven implementing jurisdictions and Metro's site acquisition program. A total of 29 specific engagement opportunities were organized for the 16 projects, with more than 1,103 participants.

Engagement of communities of color and other priority populations

Demographic information on race/ethnicity was collected for 53% of the participants in the 2023 engagement opportunities. Of those participants, 73% were people of color.

Participant information was not tracked consistently for other priority populations. Information on income was collected for 17% of the participants; of those participants, 78% were people with low incomes. Reports from the engagement opportunities where other demographic information was collected show additional participation by immigrants, refugees, existing tenants, and people with lived experience of homelessness and housing instability.

Themes of input

Most of the engagement opportunities were for projects that are in the design and planning phases. The most common themes from the input across the projects were related to:

- **Community gathering spaces**, such as requests for community rooms and common areas as well as exterior spaces that support community building
- **Outdoor spaces** including community gardens, green spaces, covered outdoor gathering spaces and play areas
- **Unit design and amenities**, such as closets, storage and larger units
- **On-site services**, including community building for residents, culturally specific services, services to support transitions from homelessness, and services that are responsive to residents' needs and experiences

- **Safety and security**, such as lighting, controlled access, staffing and security cameras
- **Parking** to meet residents' needs and reduce the impact on the surrounding neighborhood

How engagement input informed projects

Partner jurisdictions' reports demonstrate how input gathered during community engagement was incorporated into project planning. Some examples of ways that projects were changed in response to feedback include:

Input to inform developer selection

- Metro's site acquisition program and the Housing Authority of Clackamas County conducted stakeholder outreach to gather input on priorities for Clackamas County's Lake Grove site. A workgroup of neighbors and community members met six times over four months to develop a statement of values that was used to evaluate developer proposals. Guided by these values, Hacienda CDC's proposal was selected.

Input to inform project design and planning

- During engagement for Portland's Albina One project, participants highlighted the opportunity for storytelling about Black Portland. In response, the building incorporates exterior metal screens to be designed by artists and other opportunities for storytelling through art. Discussions with social service providers also led to the inclusion of laundry in larger family-size units and an enclosed outdoor play space near the shared laundry room.
- In response to feedback related to service priorities for Washington County's Woodland Hearth, project sponsor Community Partners for Affordable Housing will work closely with service partners NARA and Community Action to develop programming that addresses the identified priorities, including Rent Well classes, trauma-informed training with property management, safety meetings and wellbriety.
- In focus groups and a virtual public town hall to gather input for Clackamas County's Hillside Park project, participants emphasized the importance of community garden spaces. In response, the project's design team added garden boxes to the landscape plan for Buildings A and B and increased the scope of the community garden in Building C.
- Gresham's Oak Row at Rockwood Townhomes is a homeownership project co-sponsored by Habitat for Humanity. At three information sessions, a key theme from participants' input was the need for streamlined and transparent applications. In response, the project partners revamped the application and updated the website to better communicate about the application process and the available homes.

EFFICIENT USE OF FUNDS

Good use of public funds is a core guiding principle of the affordable housing bond for Metro and its partners. In 2023, the average per-unit investment of Metro bond subsidy was $108,570, which is considerably lower than the average of $143,000 per unit in Metro bond subsidy available to achieve the goals. This reflects a variety of factors, including some projects that are only utilizing Metro bond funds to fill a small gap. In general, it is anticipated that higher Metro bond subsidy levels will be needed for remaining projects due to significant cost escalation and anticipated delays due to emerging constraints in the availability of private activity bonds, which are necessary to finance 4% low income housing tax credits.

This section highlights key findings related to development costs and capital and operating funding sources. *Exhibit A* provides a summary of the portfolio projects, including configuration, size, unit mix, cost and Metro bond subsidy. *Exhibit D* provides additional detail regarding capital financing sources, and *Exhibit E* provides a summary of ongoing rental assistance and services funding attached to Metro bond units.

Development costs

The Metro affordable housing bond portfolio includes 52 properties that range in size from 10,200 to 245,705 square feet, with an average size of 117,290 square feet. The portfolio's 48 multifamily rental projects range from one to 17 buildings, with an average of three buildings, and they range from 35 to 224 apartments, with an average of 122 units. The portfolio's four homeownership projects range from eight to 53 units, with an average of 35 units, in two to 21 buildings, with an average of seven buildings.

The housing development industry recognizes two general categories of cost: *hard costs*, which are focused on construction itself, and *soft costs*, which include a variety of project development, permitting and financing costs. Compared to market rate housing, affordable housing is widely recognized to have higher per-unit soft costs, due to the need to combine various public and private funding sources and greater regulatory and compliance requirements.

In general, the housing bond portfolio's development costs align with similar affordable housing trends in the region and nationally. Development costs across the portfolio span a wide range and are influenced by a variety of factors including project size, unit configurations and construction type. The bond program's priority focus on family-size units contributes to higher average hard costs per unit. For this reason, cost per square foot and cost per bedroom are important metrics. Similarly, the program's priority focus on advancing racial equity was established with an understanding that prioritizing equitable contracting and workforce diversity may mean additional development costs. A

number of other factors impact costs including prevailing wage requirements, parking requirements and more.

Figure 9.1 Average total project costs

Metric	Weighted average
Total project cost per unit	$447,053
Total project cost per bedroom	$259,190
Total project cost per square foot	$462.83

Development costs have escalated across the affordable housing industry over the past three years due to broader economic factors impacting the cost of materials and labor. Supply chain issues and labor shortages along with inflation and interest rate increases have significantly increased construction costs. The impact of these increases is evident in the construction costs for bond projects approved after 2021. The average cost of construction per square foot for new construction projects financed with 4% low income housing tax credits was $287 for bond projects approved in 2021 or earlier and $363 for projects approved after 2021. The full impact of the cost increases is masked by wide variations in other factors that affect construction costs across the portfolio, such as construction type, prevailing wage requirements, on- and off-site construction requirements, and the availability or absence of building fee exemptions and/or systems development charge waivers.

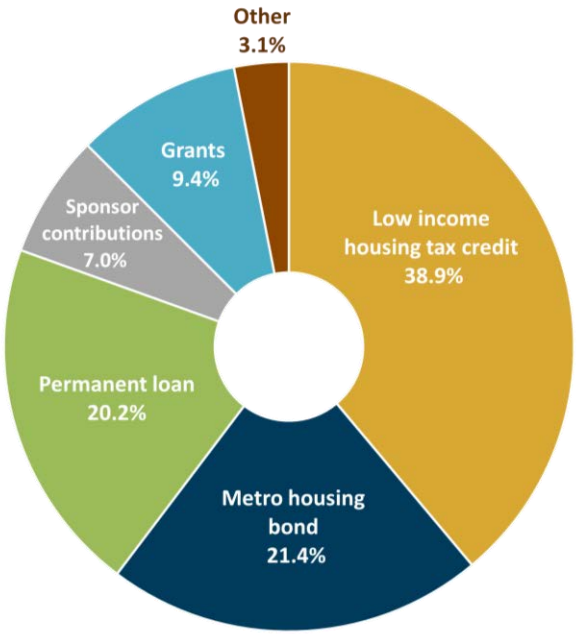
Alignment with other subsidy sources

The affordable housing bond program was structured to provide flexible gap funding that can be layered with other capital sources to achieve desired outcomes. While the production goals were modeled assuming the leverage of 4% low income housing tax credits and modest bank debt, the program requirements are intentionally flexible to allow for a range of models.

The current affordable housing bond portfolio represents $2.18 billion in investments, of which approximately 21.4%, or $466 million, is Metro affordable housing bond funding and $1.71 billion is leveraged from other sources.

Figure 9.2 provides a high-level breakdown of funding sources; Figure 9.3 provides more detail.

Figure 9.2 Project funding sources



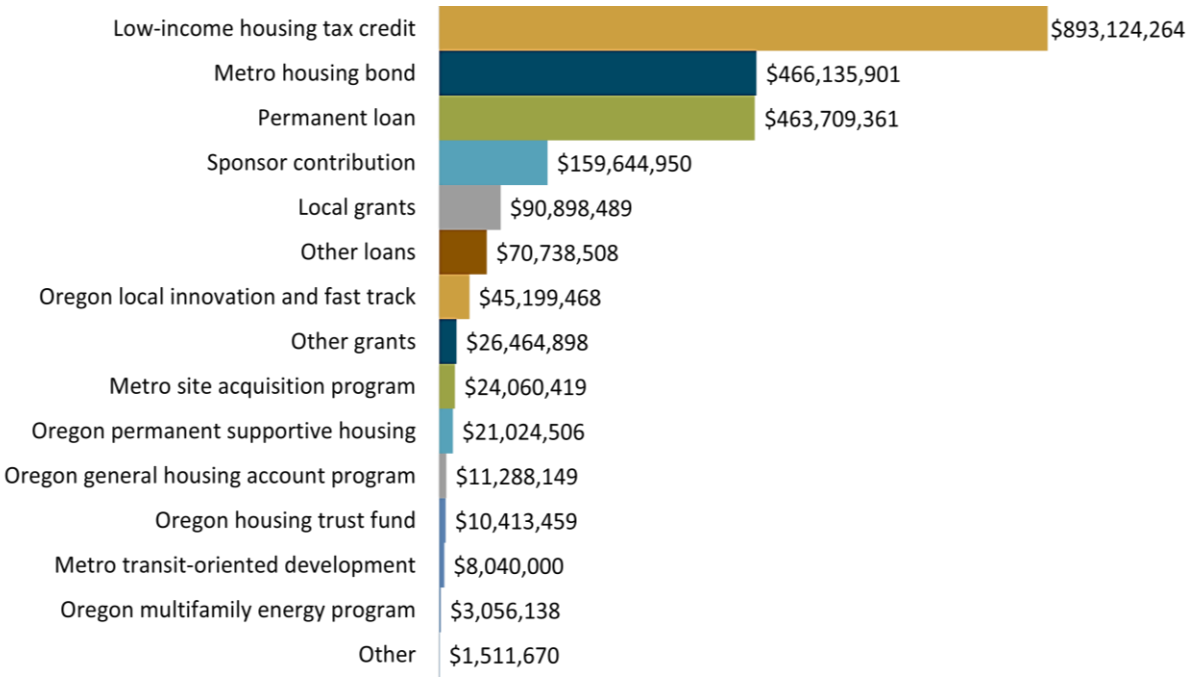
Low income housing tax credits (LIHTC) represent the most substantive leveraged funding source in bond projects. Of the 48 rental projects in the portfolio, 46 are utilizing LIHTC. Of these, four projects (the Mary Ann, Tistilal Village, Garden Park and Meridian Gardens) are financed using highly competitive 9% LIHTCs. For these projects, the Metro bond subsidy represents 17% of project costs due to deep subsidy from the tax credits. The remaining 42 projects are utilizing or plan to utilize 4% LIHTCs. These projects require higher levels of Metro bond funding, representing 21% of project costs.

Unlike 9% LIHTCs, 4% LIHTCs are not subject to an annual cap but are based on federal requirements for utilization of private activity bonds (PABs), which are dependent on a federal allocation to states. Historically, PABs were undersubscribed in Oregon. However, in 2021, Oregon Housing and Community Services announced a pause on reviewing 4% LIHTC applications due to oversubscription of PABs. Combined with construction cost escalation, this poses a significant challenge for the bond program and the statewide affordable housing pipeline. Metro is working with implementation partners and Oregon Housing and Community Services to develop a coordinated strategy to ensure that projects with local funding commitments and deeply affordable units are prioritized and don't face delays in accessing PABs.

Two projects – Findley Commons and Heartwood Commons – are being financed without tax credits, relying primarily on Metro bond funds and other local sources. Heartwood Commons is an acquisition rehab project sponsored by Washington County. The project is 100% PSH units and Washington County wanted to keep costs as low as possible. Findley Commons is also a 100% PSH unit project. At 35 total units the project is too small to effectively utilize LIHTC funding.

After LIHTC, other funding sources include Metro housing bond funds, permanent loans, sponsor contributions and state and local grants and loans. Figure 9.3 shows a breakdown of total leveraged funding by source. *Exhibit D* provides additional details on the financing mix for each project.

Figure 9.3 Capital funding sources



Operating costs and subsidy

The affordable housing bond program includes ambitious goals for very affordable units, defined as those affordable to households making less than 30% of the area median income (AMI). In 2023, this was an annual income of $23,700 for a household with one person and $33,840 for a household of four. Providing deeply affordable units requires additional subsidy. Rental income from these units is lower and their operating expenses can be higher, creating operating funding gaps and limiting projects' ability to carry debt.

Across the housing bond portfolio, 1,635 units are designated to serve households with very low incomes (30% AMI or below); 1,052 units include project-based rental assistance, funded through a combination of federal and local sources, including Metro's supportive housing services fund.

Additionally, buildings serving households with very low incomes often require investment in ongoing services that are beyond the scope of traditional real estate related operating expenses and require external operating funding to be financially feasible. Lender and/or tax credit investors may also require the capitalization of reserves to mitigate the risk that these operating expenses may not be able to be adequately funded from projects' operating revenue. Across the buildings serving very low income households, **747 units are designated as**

permanent supportive housing and include additional funding commitments to provide wraparound services.

Exhibit E provides a summary of the total units, 30% AMI units and units with project-based rental assistance and ongoing services funding.

Local affordable housing policy tools and incentives

Affordable housing development can be supported or hindered by local jurisdictions' policies and regulations. Some bond projects have encountered barriers or delays due to zoning and permitting challenges in local jurisdictions. For example, approval of Home Forward's land use application for the Troutdale Apartments was delayed for 18 months due to concerns about density, parking and traffic. Home Forward finally secured land use approval in 2023 for a modified plan that includes a reduction in the number of affordable units and more parking. The delay was particularly impactful during a time of high cost escalation, increasing the project's construction costs by $2.87 million.

There are also affordable housing policy tools and incentives in place across the region that can ease the development of affordable housing, including housing bond projects. In 2020, Metro staff surveyed all 24 cities in the region to identify incentives and policies in place to support affordable housing development. This information was further refined and updated in spring 2022. Tracking these policies helps the program anticipate what resources and incentives exist to encourage the development of affordable housing throughout the region, and which are being leveraged in Metro affordable housing bond projects.

Administrative costs

The Metro affordable housing bond framework includes a cap of 5% of bond proceeds for administrative costs. While only a small portion of the overall budget, these costs are vital to delivering on bond outcomes through effective and efficient implementation of the work plan. They include expenses related to financial and legal administration and oversight, monitoring and evaluation, oversight committee engagement, communications and policy development, to name a few.

While most of the administrative funding was allocated to implementing partners and Metro via the initial work plan, Metro Council action in March 2023 allocated an additional $12,706,638 in administrative funding within the 5% funding cap. Any administrative costs over the 5% cap stipulated in the bond measure must be funded with non-bond funding sources.

As of December 2023, $19,736,206 in administrative funding had been expended or disbursed to partners and Metro; this is 57% of the administrative funding budgeted in the work plan. Details of administrative expenditures can be found in *Exhibit F.*

SUSTAINABILITY AND CLIMATE RESILIENCE

In the Portland region, as in many places around the globe, events in recent years have made the effects of climate change clear. With issues such as prolonged wildfires and extreme heat, the building industry will need to adapt to new climate-related challenges. These challenges are much bigger than a single funding program can address and will require ongoing work to support policy and funding alignment.

While Metro has not developed sustainability related metrics or requirements for bond-funded projects, the program tracks information reported by partners on each project's sustainability features. In addition, Metro has provided policy guidance and funding to encourage development partners to incorporate in-unit cooling strategies into bond-funded buildings.

Cooling strategies

Metro issued a policy statement in September 2021 strongly encouraging implementing jurisdictions to work with development partners to incorporate cooling strategies for projects, including in-unit air conditioning, to ensure safety and livability for residents. Metro also allocated $8 million in unprogrammed affordable housing bond interest earnings/premiums to support additional investments in cooling.

The projects added to the bond portfolio since the guidance was issued all include in-unit air conditioning, and jurisdictions incorporated the requirement into funding solicitations for future projects. A few projects that were already near completion when the guidance was issued will not be able to incorporate in-unit air conditioning but will offer other cooling options.

Sustainability strategies

The affordable housing bond reduces energy use and greenhouse gas emissions by funding new homes in multifamily affordable housing buildings. If these units were not available, many residents would likely live in older, less dense housing. According to data from the Energy Information Administration's Residential Energy Consumption Survey, the average multifamily housing unit consumes roughly one-third of the energy and produces one-third the greenhouse gas emissions of a typical single-family unit.

Jurisdictional partners' annual progress reports demonstrate a strong commitment to additional energy efficiency and sustainability measures across the portfolio. Many projects pursue Earth Advantage certification and commonly achieve the silver, gold or platinum levels. About two-thirds of projects also participate in Oregon Housing and Community Services' Multifamily Energy

Program, which provides financial incentives to affordable housing projects for energy efficiency measures aimed at reducing electricity consumption.

Highlights of partners' sustainability strategies include:

- Hillsboro's Dolores project will be designed to meet or exceed Earth Advantage Gold certification through specific strategies for the building envelope, energy, water and indoor air quality. The development team will use highly efficient systems, including LED lighting, occupancy sensor controls, in-unit energy recovery ventilation, mini-splits and energy efficient appliances. Low-flow water-saving fixtures are incorporated to save water and energy. To achieve additional energy savings, the project will include a highly efficient central hot water production system.
- The development team for Clackamas County's La Flores Apartments collaborated with the Center for Public Interest Design, which promotes socially conscious, environmentally sustainable and economically accessible design. The development team integrated packaged thermal air conditioner (PTAC) heat pumps into every unit and is targeting Earth Advantage Multifamily Gold certification. Included among the project's various sustainable design elements is a functioning solar panel array on the community building, and all of the residential buildings will be solar ready.
- The Wilsonville Transit Oriented Development project will include a rooftop photovoltaic solar system, enhanced insulation, high-performance windows, LED lighting, Energy Star appliances and smart thermostats in every unit. The landscape design will use native water-smart plants, and the units will include low-flow water fixtures. Each residential unit will include through-wall PTAC air conditioning combined with ceiling fans in each bedroom. The common areas of the building will be serviced by roof-top condensers. The development will also include electric vehicle parking spaces on site for residents and guests.
- The design for Home Forward's Troutdale Apartments incorporates energy-efficient mini-split heat pumps for heating and cooling in all units. In community spaces, a combination of single-zone and multi-zone split system heat pumps will be utilized for effective heating and cooling. Funding has been secured to integrate solar panels into the project, providing solar powered electrical energy to reduce the costs of common area electricity.

LESSONS LEARNED

The first four years of the bond program's implementation offer insights that can help to inform the region's affordable housing strategies into the future. While the bond program has been successful in meeting its goals, there are lessons learned and areas for improvement.

Metro compiled the following list of lessons learned from jurisdictions' annual report presentations to the Housing Bond Oversight Committee and from conversations with jurisdictional partners and technical experts in the affordable housing community:

- **Site acquisition:** Site acquisition is a helpful tool. The use of bond funds to acquire property brought affordable housing to strategic locations throughout the region and helped to remove barriers for smaller organizations to participate in affordable housing development. Future site acquisition efforts should maintain this intentionality while improving efficiency by ensuring there is clarity of jurisdictional and sponsor roles throughout the development process. Future efforts should also consider flexible tools that can be responsive to opportunities in the market.
- **Predevelopment funding:** Lack of predevelopment funding is a persistent issue for affordable housing development and a barrier for the ability of smaller organizations, including culturally specific organizations, to participate in development. This challenge is deepening as operating cost escalation puts smaller, nonprofit organizations into more difficult financial positions. However, due to restrictions of general obligation bonds, the Metro bond funds are not able to be used to support predevelopment activities.
- **Funding coordination:** Coordination with funding partners, including Oregon Housing and Community Services, is essential to the success of a local gap funding program. Alignment on timing and criteria among state and local funders will reduce risks and impacts of cost escalation for affordable housing developments. Opportunities exist to streamline funding processes to reduce complexity for affordable housing developers and to improve outcomes and impacts across funding streams.
- **Affirmative marketing:** Community networks are critical for equitable access. Affirmative marketing strategies, including partnering with culturally specific organizations and service providers, have led to successful and timely lease-up processes for bond-funded properties. In addition to ensuring fair housing access, timely lease up is also essential for the financial stability of a property.
- **Deeply affordable units:** Deeply affordable units have higher operating costs and require an array of resident services and other supports to meet resident needs and ensure long-term property stability, requiring additional non-leasable space to support offices and other service areas. This can be especially

true in high quality permanent supportive housing. Future funding opportunities should consider the unique funding needs of different unit and property types and levels of affordability, as well as the impacts of changing economic conditions.

- **Regional standards and best practices:** Throughout the implementation of the affordable housing bond, Metro convened jurisdictional partners and stakeholders to develop regional standards to support best practices in the industry, provide clarity and guidance on policy goals, establish metrics and benchmarks to track progress and outcomes, and build relationships that have the potential to improve coordination over time. For example, Metro established regional net cash developer fee guidelines to support fiscal stewardship and racial equity. However, more evaluation of the unintended consequences of net cash developer fee caps is needed to ensure these policies do not impede small nonprofit and culturally specific organizations' ability to respond to cost escalations or build organizational capacity.
- **Balancing local discretion and regional alignment:** Allowing for local discretion can support jurisdictional partners in addressing local housing priorities, but it can also make regional accountability and transparency more difficult. While balancing local discretion with regional alignment can prove challenging, such efforts result in stronger outcomes and more consistency and transparency in reporting on outcomes.
- **Communication and engagement:** The bond program has been successful at creating new affordable housing that is specific to the needs of each community. Metro and its partners should proactively share the success of this and any future programs with partners, local leaders and voters in a way that resonates with their values and priorities.

LOOKING AHEAD

The Metro bond program has exceeded its housing production targets while making significant progress in advancing regional goals to increase equitable access to housing. As the program prepares to commit the remaining bond funds, Metro is committed to working with its partners to strengthen the long-term impact of these investments. The oversight committee has proposed recommendations to support the ongoing success of the bond-funded portfolio while positioning the region to continue to address critical housing needs. Metro housing staff will work in collaboration with the oversight committee, jurisdictional partners and other stakeholders to move forward these recommendations over the upcoming year.

Funding coordination and alignment: Metro will work with its partners to develop creative solutions to help remaining projects in the bond pipeline navigate current funding and development challenges. This includes actively coordinating with funding partners to monitor the remaining pipeline and ensure that projects have the flexibility they need to navigate funding gaps or other barriers, and continuing to advocate for changes at the federal level to address state funding limitations due to the private activity bond volume cap. Metro has initiated work to better understand the current challenges in development and operations of affordable housing across the region. Metro will continue its work with Oregon Housing and Community Services and jurisdictional partners to integrate and align funding resources to create a more efficient and effective affordable housing funding system.

Affordable housing operations: Metro housing policy staff will convene stakeholders and decision makers to move forward a body of work focused on the successful management and operations of bond-funded housing. This work will address the current challenges faced by properties, operators and residents. It will also aim to identify regionally aligned solutions that can be supported by Metro's new regional capacity team, which is charged with developing technical assistance and training programs to help housing and homeless services providers enhance their capacity. Metro is also planning to develop a regional framework for asset management of existing housing funded by the bond to ensure long-term monitoring and stewardship of these critical resources.

Planning for the future: Metro housing staff will support ongoing planning to address the region's future housing needs through research, analysis and engagement. In coming months, the Metro housing department will share findings from technical research and engagement with affordable housing funders and providers – work that is intended to support near-term and ongoing planning for affordable housing production in the region. In the coming year, Metro's housing and planning, development and research departments will work jointly to develop a state-mandated regional housing coordination strategy, with the goal of

identifying regional strategies to expand resources and eliminate barriers for affordable housing production that meets the needs and income levels of residents. Additionally, Metro will continue working to strengthen the integration of Metro's capital and supportive housing services funds through the development of a regional framework for permanent supportive housing and other strategies that align with implementation of the Tri-County Planning Body's established regional priorities to address homelessness.

Acknowledgements

Metro staff: Melissa Arnold, Nui Bezaire, Clint Chiavarini, Mercedes Evangelista, Lauren Everett, Liam Frost, Joe Gordon, Emily Green, Rachael Lembo, Emily Lieb, Patrick McLaughlin, Valeria McWilliams, Jimmy Oporta, Andrea Pastor, Daisy Quinonez, Emma Lee Reasoner, Patricia Rojas, David Stein, Alison Wicks.

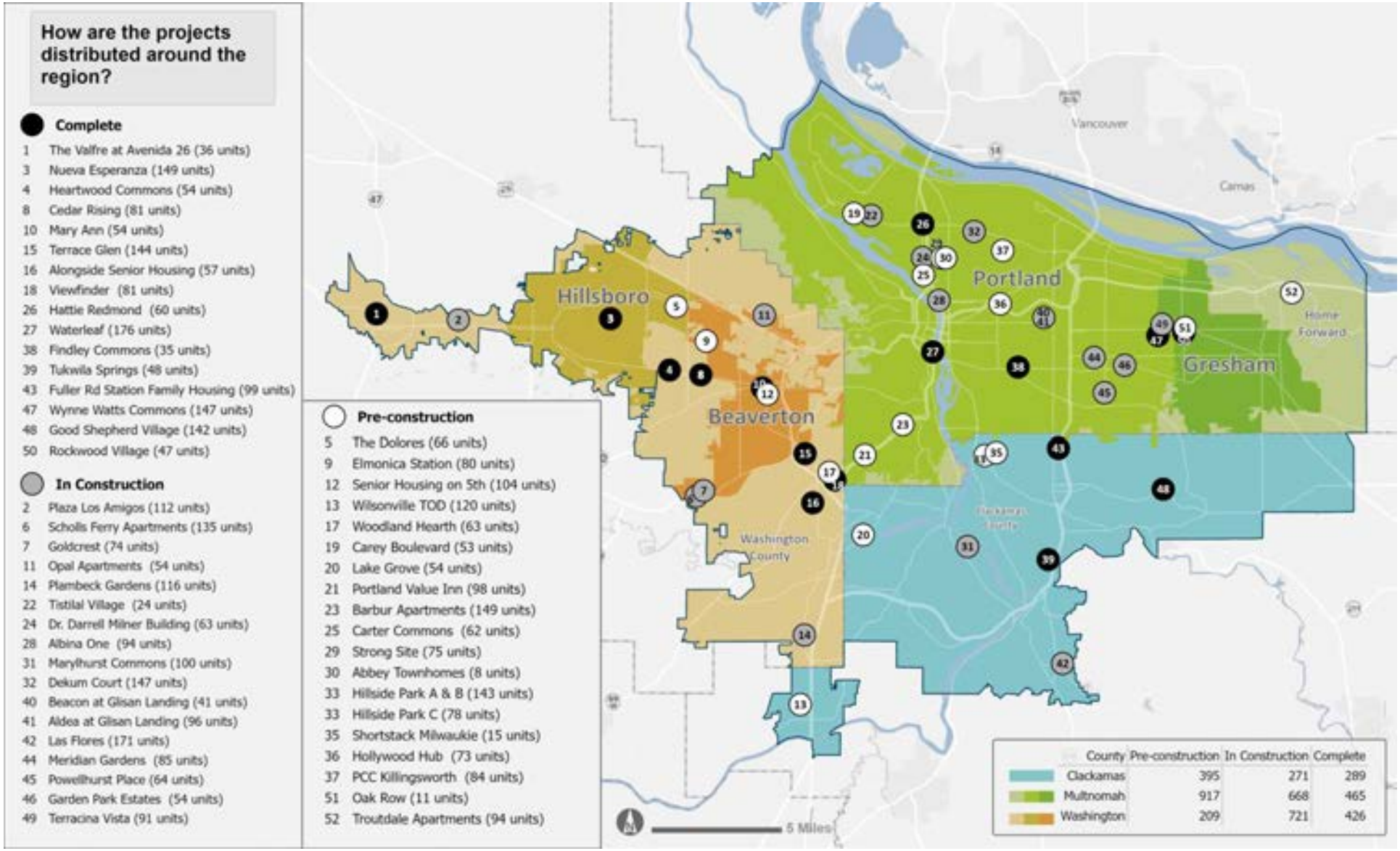
Consultants: Kris Smock, John Warner.

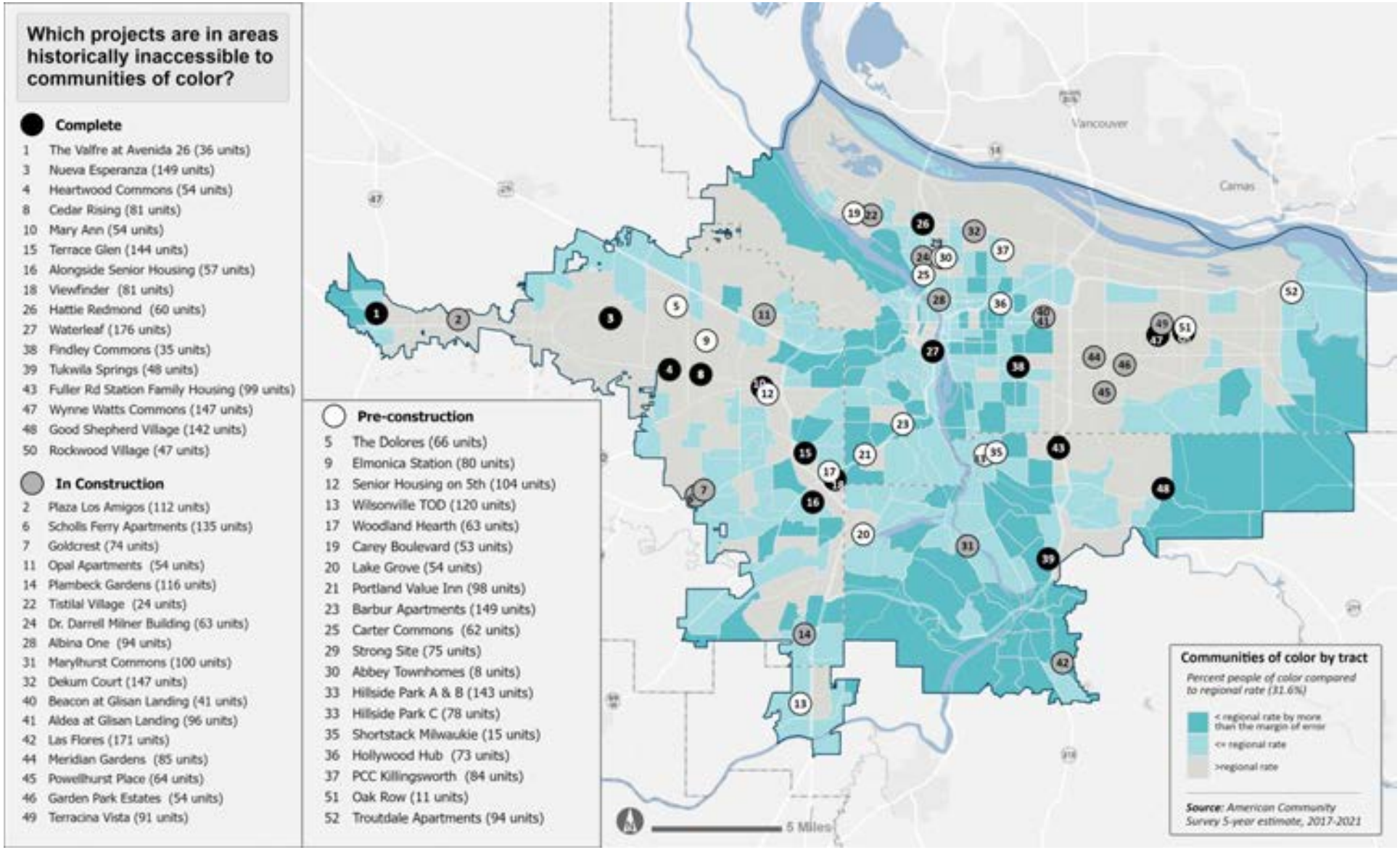
EXHIBIT A. SUMMARY OF AFFORDABLE HOUSING BOND PORTFOLIO THROUGH DECEMBER 2023

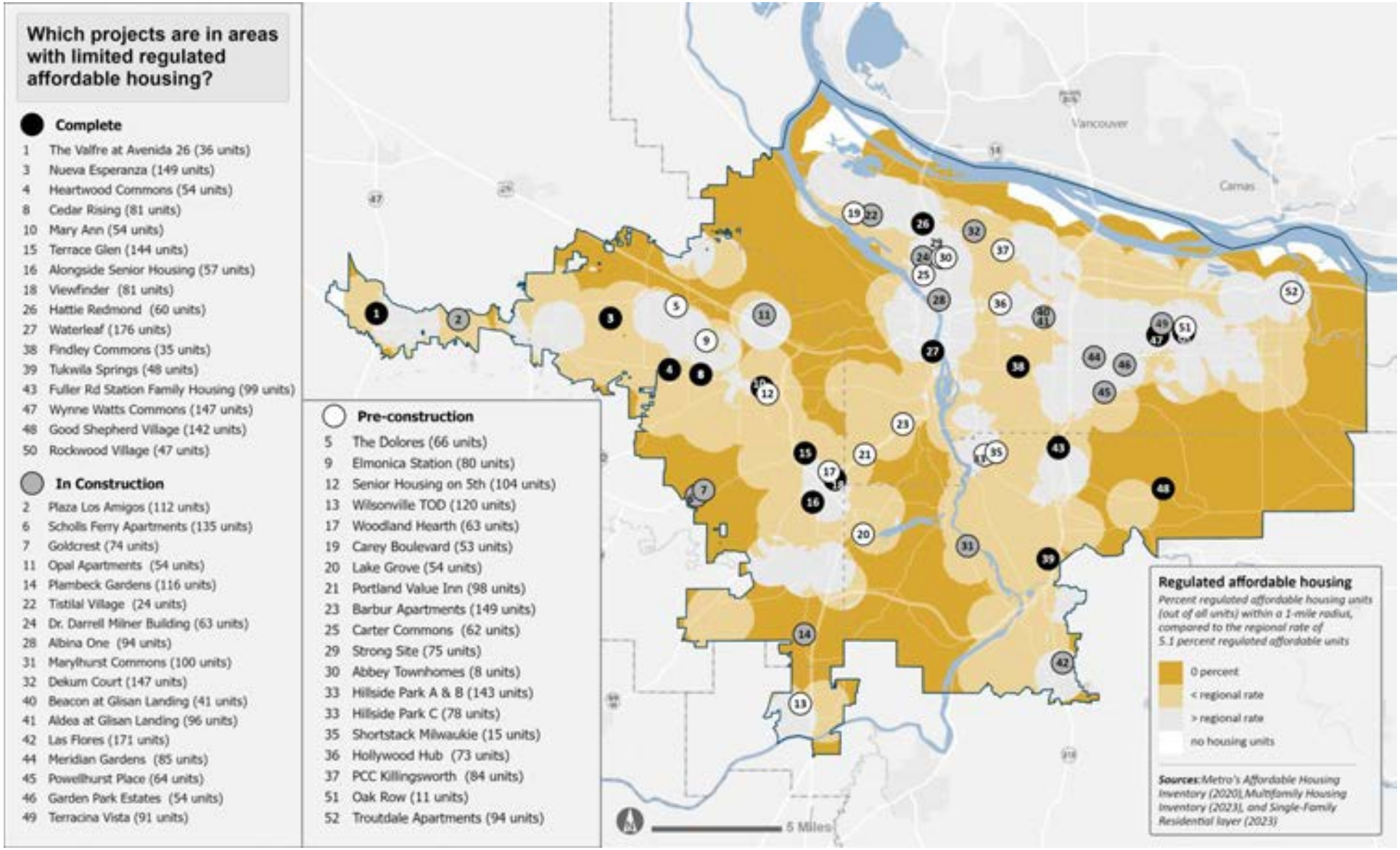
			Units				≤30% AMI		2+ Bedroom		Total	Occupancy Estimates			Total	Cost Efficiency (Total Project)			Metro Affordable Housing Bond			
																			Site	Development		
Jurisdiction	Project Name	Type	Affordable	Total	Eligible	PBV	No.	% Tot	No.	% Tot	Bdrms	High	Low	Avg	Project Cost	Per Sq Ft	Per Unit	Per Bdrm	Acquisition	Total	Per Unit	Per Bdrm
Beaverton	Elmonica Station	Rental	80	81	80	8	33	41.3%	32	40.0%	129	230	142	186	$33,448,353	$359.08	$412,943	$259,290	$3,460,066	$8,439,934	$105,499	$66,456
	Mary Ann	Rental	54	54	54	8	11	20.4%	29	53.7%	86	172	89	131	$21,867,324	$315.96	$404,950	$254,271	$0	$3,000,000	$55,556	$34,884
	Scholls Ferry	Rental	164	164	135	0	17	12.6%	79	58.5%	258	448	234	341	$74,012,211	$301.22	$451,294	$286,869	$0	$9,000,000	$66,667	$40,179
	Senior Housing on 5th	Rental	104	104	104	19	68	65.4%	0	0.0%	104	200	104	152	$47,080,608	$467.60	$452,698	$452,698	$0	$10,500,000	$100,962	$100,962
Clackamas	Fuller Road Station	Rental	99	100	99	25	30	30.3%	82	82.8%	203	402	221	312	$45,645,146	$353.67	$456,451	$224,853	$0	$8,570,000	$86,566	$42,637
	Good Shepherd Village	Rental	142	143	142	35	58	40.8%	79	55.6%	243	469	261	365	$55,192,053	$497.80	$385,958	$227,128	$0	$18,330,000	$129,085	$76,058
	Hillside Park A & B *	Rental	143	144	143	20	40	28.0%	14	9.8%	165	283	169	226	$88,267,282	$613.36	$612,967	$534,953	$0	$25,454,545	$178,004	$156,163
	Hillside Park C *	Rental	78	78	78	100	68	87.2%	53	67.9%	131	262	131	197	$61,028,742	$591.75	$782,420	$465,868	$0	$14,545,454	$186,480	$111,034
	Lake Grove	Rental	54	55	54	10	20	37.0%	28	51.9%	88	172	90	131	$28,386,744	$623.12	$516,123	$322,577	$0	$10,000,000	$185,185	$116,279
	Las Flores	Rental	171	171	171	70	70	40.9%	129	75.4%	384	768	468	618	$60,180,855	$413.55	$351,935	$156,721	$0	$15,903,000	$93,000	$41,414
	Marylhurst Commons	Rental	100	100	100	40	40	40.0%	83	83.0%	205	410	227	319	$39,980,085	$492.61	$399,801	$195,025	$0	$3,000,000	$30,000	$14,634
	Shortstack Milwaukie	Owner	15	15	15	0	0	0.0%	15	100.0%	30	60	30	45	$7,542,391	$549.54	$502,826	$251,413	$0	$700,000	$46,667	$23,333
	Tukwila Springs	Rental	48	48	48	48	48	100.0%	0	0.0%	48	48	48	48	$21,233,701	$816.68	$442,369	$442,369	$0	$5,548,542	$115,595	$115,595
	Wilsonville TOD	Rental	120	121	120	0	40	33.3%	79	65.8%	212	414	223	319	$50,412,715	$409.46	$416,634	$237,796	$0	$8,000,000	$66,667	$37,915
Gresham	Oak Row	Owner	11	11	11	0	0	0.0%	11	100.0%	22	44	22	33	$4,180,476	$321.25	$380,043	$190,022	$0	$2,200,000	$200,000	$100,000
	Rockwood Village	Rental	224	224	47	0	47	100.0%	39	83.0%	518	234	148	191	$60,524,159	$253.83	$270,197	$116,842	$0	$5,237,814	$111,443	$44,768
	Terracina Vista	Rental	91	92	91	0	0	0.0%	56	61.5%	188	372	225	299	$41,404,746	$435.32	$450,052	$220,238	$0	$2,500,000	$27,473	$13,441
	Wynne Watts Commons	Rental	147	147	147	30	30	20.4%	31	21.1%	186	348	194	271	$43,268,985	$448.38	$294,347	$232,629	$0	$11,292,447	$76,819	$60,712
Hillsboro	The Dolores	Rental	66	67	66	8	30	45.5%	46	69.7%	146	288	176	232	$32,864,617	$422.85	$490,517	$225,100	$0	$10,500,000	$159,091	$72,917
	Nueva Esperanza	Rental	149	150	149	8	60	40.3%	105	70.5%	310	616	362	489	$52,545,844	$337.25	$350,306	$169,503	$0	$16,940,731	$113,696	$55,002
Multnomah	Troutdale Apartments	Rental	94	94	94	25	39	41.5%	47	50.0%	154	294	167	231	$40,802,771	$502.96	$434,072	$264,953	$1,764,347	$13,449,238	$143,077	$87,333
Portland	Dr. Darrell Milner Building	Rental	63	63	63	0	17	27.0%	48	76.2%	136	48	32	40	$30,648,469	$555.02	$486,484	$225,356	$0	$9,216,838	$146,299	$67,771
	Aldea at Gilsan Landing	Rental	96	96	96	15	15	15.6%	63	65.6%	180	351	201	276	$53,784,392	$518.30	$560,254	$298,802	$11,500,000	$3,685,679	$38,392	$20,476
	Beacon at Gilsan Landing	Rental	41	41	41	41	41	100.0%	0	0.0%	41	342	193	268	$20,040,816	$428.74	$488,800	$488,800	$0	$5,822,000	$142,000	$142,000
	Abbey Townhomes	Owner	8	8	8	0	0	0.0%	8	100.0%	24	550	299	425	$5,084,152	$490.20	$625,000	$208,333	$0	$1,200,000	$150,000	$50,000
	Albina One	Rental	94	94	94	19	32	34.0%	55	58.5%	171	41	41	41	$62,110,015	$681.33	$660,745	$363,216	$0	$14,424,597	$153,453	$84,354
	Barbur	Rental	149	150	149	19	32	21.5%	102	68.5%	277	336	230	283	$65,776,445	$475.35	$438,510	$237,460	$0	$22,519,248	$151,136	$81,888
	Carey Boulevard	Owner	53	53	53	0	0	0.0%	53	100.0%	168	118	62	90	$22,385,000	$333.14	$436,426	$137,682	$0	$5,950,000	$112,264	$35,417
	Carter Commons	Rental	62	63	62	11	21	33.9%	0	0.0%	63	454	285	370	$25,736,657	$490.88	$408,518	$408,518	$0	$5,800,000	$93,548	$93,548
	Dekum	Rental	187	187	147	27	61	41.5%	78	53.1%	360	272	161	217	$80,499,636	$536.40	$430,479	$223,610	$0	$21,034,082	$143,089	$82,487
	Findley Commons	Rental	35	35	35	20	0	0.0%	0	0.0%	35	55	35	45	$6,667,137	$507.01	$190,490	$190,490	$0	$1,945,175	$55,576	$55,576
	Garden Park	Rental	117	117	54	25	25	46.3%	40	74.1%	227	192	106	149	$54,855,892	$509.01	$468,854	$241,656	$0	$3,691,051	$68,353	$36,911
	Hattie Redmond	Rental	60	60	60	60	60	100.0%	0	0.0%	60	60	60	60	$22,876,252	$664.66	$381,271	$381,271	$0	$4,411,737	$73,529	$73,529
	Hollywood Hub	Rental	222	224	73	0	39	53.4%	24	32.9%	385	185	117	151	$151,686,602	$724.37	$677,172	$393,991	$0	$4,750,000	$65,068	$44,393
	Meridian Gardens	Rental	85	85	85	65	70	82.4%	0	0.0%	85	85	85	85	$28,971,832	$748.90	$340,845	$340,845	$0	$13,365,160	$157,237	$157,237
	PCC Killingsworth	Rental	84	84	84	28	28	33.3%	60	71.4%	159	300	174	237	$47,542,254	$568.86	$565,979	$299,008	$0	$2,538,237	$30,217	$15,964
	Portland Value Inn	Rental	98	98	98	39	39	39.8%	58	59.2%	182	347	208	278	$51,179,267	$539.81	$522,237	$281,205	$7,336,006	$6,155,974	$137,673	$74,132
	Powellhurst Place	Rental	64	65	64	12	12	18.8%	45	70.3%	111	218	109	164	$25,498,001	$436.98	$392,277	$229,712	$0	$4,091,048	$63,923	$37,533
	Strong Site	Rental	75	75	75	0	11	14.7%	54	72.0%	151	302	173	238	$35,895,409	$416.17	$478,605	$237,718	$0	$11,250,000	$150,000	$74,503
	Tistilal Village	Rental	57	58	24	24	24	100.0%	22	91.7%	101	110	64	87	$36,102,021	$577.98	$622,449	$357,446	$0	$4,632,538	$193,022	$84,228
	Waterleaf	Rental	176	178	176	20	17	9.7%	48	27.3%	246	423	260	342	$78,224,388	$417.33	$439,463	$317,985	$0	$1,929,219	$10,961	$7,972
Washington	Cedar Rising	Rental	81	82	81	0	33	40.7%	50	61.7%	138	114	57	86	$33,031,515	$548.11	$402,823	$239,359	$0	$10,230,000	$126,296	$75,221
	Goldcrest	Rental	74	75	74	0	14	18.9%	45	60.8%	128	265	141	203	$39,546,233	$501.63	$527,283	$308,955	$0	$12,000,000	$162,162	$96,000
	Heartwood Commons	Rental	54	54	54	54	54	100.0%	0	0.0%	54	250	131	191	$10,045,608	$312.56	$186,030	$186,030	$0	$9,283,000	$171,907	$171,907
	Plambeck Gardens	Rental	116	116	116	8	47	40.5%	62	53.4%	206	54	54	54	$60,378,752	$477.17	$520,506	$293,101	$0	$14,700,000	$126,724	$71,359
	Plaza Los Amigos	Rental	112	113	112	16	26	23.2%	72	64.3%	198	126	63	95	$46,030,000	$407.76	$407,345	$232,475	$0	$13,670,523	$122,058	$69,748
	Opal Apartments	Rental	54	54	54	24	28	51.9%	9	16.7%	63	412	234	323	$21,988,663	$662.31	$407,197	$349,026	$0	$6,149,000	$113,870	$97,603
	Terrace Glen	Rental	144	144	144	8	51	35.4%	74	51.4%	237	392	208	300	$51,276,941	$350.67	$356,090	$216,358	$0	$17,484,000	$121,417	$73,772
	The Valfre at Avenida 26	Rental	36	36	36	8	8	22.2%	30	83.3%	72	445	256	351	$13,227,998	$400.84	$367,444	$183,722	$0	$3,792,088	$105,336	$52,668
	Alongside Senior Housing	Rental	57	58	57	23	23	40.4%	0	0.0%	58	144	78	111	$23,021,464	$482.84	$396,922	$396,922	$0	$6,270,000	$110,000	$110,000
	Viewfinder	Rental	81	81	81	16	34	42.0%	56	69.1%	147	294	157	226	$32,244,411	$369.86	$398,079	$219,350	$0	$11,583,000	$143,000	$78,796
	Woodland Hearth	Rental	63	63	63	16	24	38.1%	40	63.5%	132	260	161	211	$31,601,079	$476.12	$501,604	$239,402	$0	$9,450,000	$150,000	$71,591
Total			4,852	4,873	4,361	1,052	1,635	33.6%	2,233	45.8%	8,405	14,079	8,166	11,123	$2,177,827,110					$466,135,901		
Weighted Average			120	120	104	22	36	37.5%	53	51.2%	212	337	195	266	$53,436,987	$462.83	$447,053	$259,190		$10,421,560	$108,570	$68,761

** Note: The project costs for Clackamas County's Hillside Park projects include infrastructure costs required to build an entirely new street grid and related infrastructure.*

EXHIBIT B. MAPS AND DETAILED SUMMARY OF LOCATION METRICS FOR AFFORDABLE HOUSING BOND PROJECTS




Which projects are in areas historically inaccessible to communities of color?
Complete
1 The Valfre at Avenida 26 (36 units)
3 Nueva Esperanza (149 units)
4 Heartwood Commons (54 units)
8 Cedar Rising (81 units)
10 Mary Ann (54 units)
15 Terrace Glen (144 units)
16 Alongside Senior Housing (57 units)
18 Viewfinder (81 units)
26 Hattie Redmond (60 units)
27 Waterleaf (176 units)
38 Findley Commons (35 units)
39 Tukwila Springs (48 units)
43 Fuller Rd Station Family Housing (99 units)
47 Wynne Watts Commons (147 units)
48 Good Shepherd Village (142 units)
50 Rockwood Village (47 units)
In Construction
2 Plaza Los Amigos (112 units)
6 Scholls Ferry Apartments (135 units)
7 Goldcrest (74 units)
11 Opal Apartments (54 units)
14 Plambeck Gardens (116 units)
22 Tistilal Village (24 units)
24 Dr. Darrell Milner Building (63 units)
28 Albina One (94 units)
31 Marylhurst Commons (100 units)
32 Dekum Court (147 units)
40 Beacon at Glisan Landing (41 units)
41 Aldea at Glisan Landing (96 units)
42 Las Flores (171 units)
44 Meridian Gardens (85 units)
45 Powellhurst Place (64 units)
46 Garden Park Estates (54 units)
49 Terracina Vista (91 units)
Pre-construction
5 The Dolores (66 units)
9 Elmonica Station (80 units)
12 Senior Housing on 5th (104 units)
13 Wilsonville TOD (120 units)
17 Woodland Hearth (63 units)
19 Carey Boulevard (53 units)
20 Lake Grove (54 units)
21 Portland Value Inn (98 units)
23 Barbur Apartments (149 units)
25 Carter Commons (62 units)
29 Strong Site (75 units)
30 Abbey Townhomes (8 units)
33 Hillside Park A & B (143 units)
33 Hillside Park C (78 units)
35 Shortstack Milwaukie (15 units)
36 Hollywood Hub (73 units)
37 PCC Killingsworth (84 units)
51 Oak Row (11 units)
52 Troutdale Apartments (94 units)
Vancouver
Camas
5 Miles
Communities of color by tract
Percent people of color compared to regional rate (31.6%)
< regional rate by more than the margin of error
<= regional rate
>regional rate
Source: American Community Survey 5-year estimate, 2017-2021


Which projects are in areas with limited regulated affordable housing?
Complete
1 The Valfre at Avenida 26 (36 units)
3 Nueva Esperanza (149 units)
4 Heartwood Commons (54 units)
8 Cedar Rising (81 units)
10 Mary Ann (54 units)
15 Terrace Glen (144 units)
16 Alongside Senior Housing (57 units)
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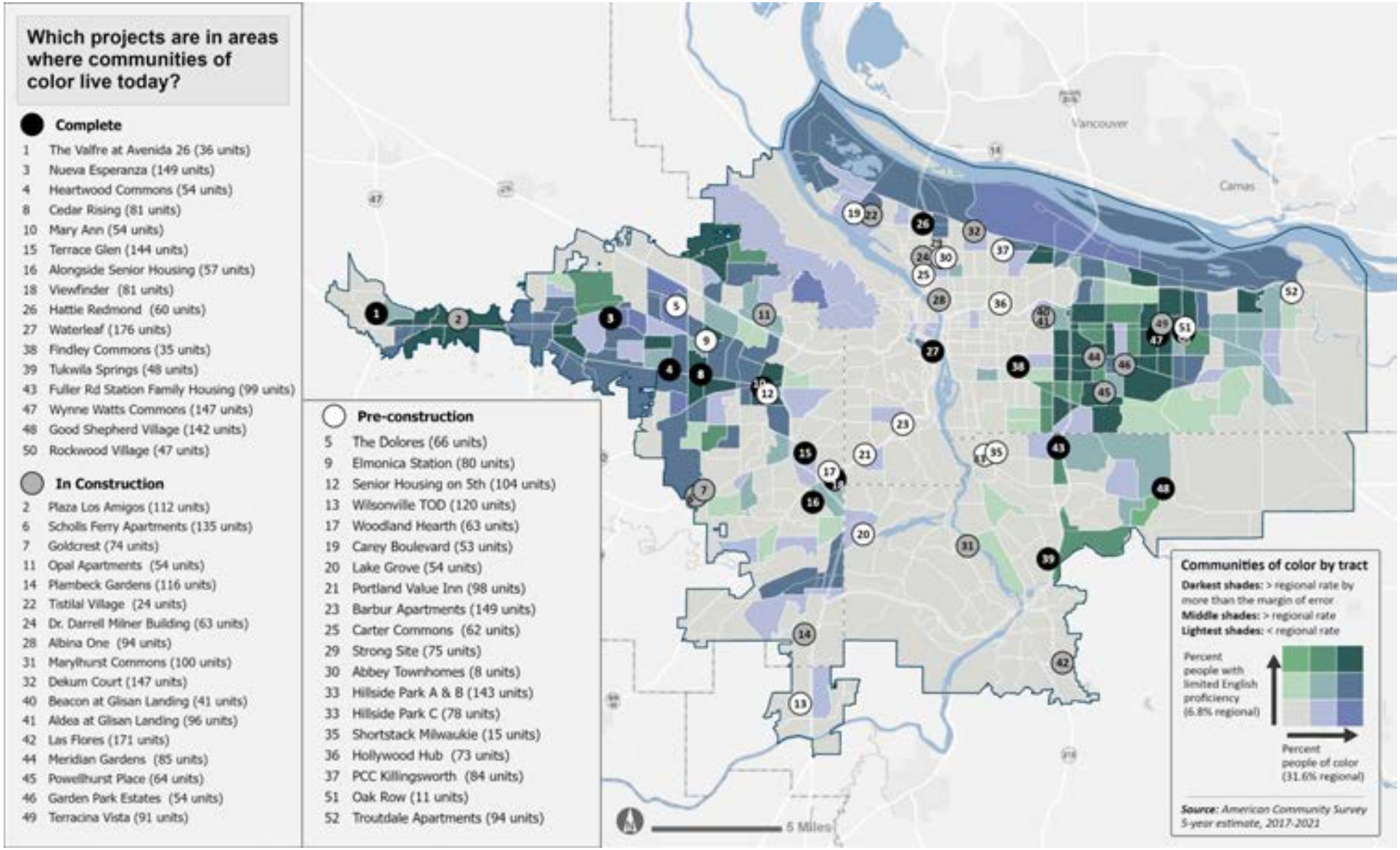
35 Shortstack Milwaukie (15 units)
36 Hollywood Hub (73 units)
37 PCC Killingsworth (84 units)
51 Oak Row (11 units)
52 Troutdale Apartments (94 units)
Vancouver
Camas
5 Miles
Regulated affordable housing
Percent regulated affordable housing units (out of all units) within a 1-mile radius, compared to the regional rate of 5.1 percent regulated affordable units
0 percent
< regional rate
> regional rate
no housing units
Sources: Metro's Affordable Housing Inventory (2020), Multifamily Housing Inventory (2023), and Single-Family Residential layer (2023)


Which projects are in areas where communities of color live today?
Complete
1 The Valfre at Avenida 26 (36 units)
3 Nueva Esperanza (149 units)
4 Heartwood Commons (54 units)
8 Cedar Rising (81 units)
10 Mary Ann (54 units)
15 Terrace Glen (144 units)
16 Alongside Senior Housing (57 units)
18 Viewfinder (81 units)
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36 Hollywood Hub (73 units)
37 PCC Killingsworth (84 units)
51 Oak Row (11 units)
52 Troutdale Apartments (94 units)
Vancouver
Camas
5 Miles
Communities of color by tract
Darkest shades: > regional rate by more than the margin of error
Middle shades: > regional rate
Lightest shades: < regional rate
Percent people with limited English proficiency (6.8% regional)
Percent people of color (31.6% regional)
Source: American Community Survey 5-year estimate, 2017-2021

Detailed Table of Location Metrics

			How are the projects distributed around the region? *(see Figure 5.2)*				Which projects are in areas where communities of color live today? *(see Figure 5.3 and notes A, B and C below)*					Which projects are in areas historically inacccessible to communities of color? *(see Figure 5.4 and notes A, B and C below)*			Which projects are in areas with limited regulated affordable housing? *(see Figure 5.5 and notes A and D below)*	How is the physical access near each project? *(see notes E and F below)*		
Map ID	Project name	Eligible units	County	POC	LEP	POC-LEP	People of color *(vs. regional rate of 31.6%)*		Combined POC and LEP, vs. regional rates	People with limited English proficiency *(vs. regional rate of 6.8%)*		People of color *(vs. regional rate of 31.6%)*			Affordable housing share *(vs. regional rate of 5.1%)*	Access to transit *(miles to nearest stop/station)*		Walkscore
							Estimate	*MOE*	*POC / LEP*	*Estimate*	*MOE*	*Estimate*	*MOE*			*MAX ½ mi*	*FS Bus ¼ mi*	
1	The Valfre at Avenida 26	36	Washington	low	low	lowlow	24%	±13%	≤ / ≤	3%	±2%	24%	±13%	high	6.1%	5.9	0.5	61
2	Plaza Los Amigos	112	Washington	high	high	highhigh	54%	±8%	> / >	16%	±7%	54%	±8%	med	2.2%	2.8	0.2	58
3	Nueva Esperanza	149	Washington	high	low	highlow	50%	±8%	> / ≤	5%	±4%	50%	±8%	med	3.0%	0.4	0.4	34
4	Heartwood Commons	54	Washington	med	med	medmed	36%	±12%	≥ / ≥	10%	±4%	36%	±12%	high	5.3%	1.5	0.1	61
5	The Dolores	66	Washington	high	med	highmed	50%	±8%	> / ≥	8%	±5%	50%	±8%	high	11.3%	0.8	0.8	69
6	Scholls Ferry Apartments	135	Washington	high	med	highmed	41%	±9%	> / ≥	8%	±5%	41%	±9%	low	0.0%	5.1	3.8	8
7	Goldcrest	74	Washington	low	low	lowlow	28%	±12%	≤ / ≤	4%	±3%	28%	±12%	low	0.0%	4.8	3.4	11
8	Cedar Rising	81	Washington	high	high	highhigh	48%	±12%	> / >	16%	±5%	48%	±12%	high	6.8%	1.1	0.1	80
9	Elmonica Station	80	Washington	med	med	medmed	37%	±15%	≥ / ≥	9%	±7%	37%	±15%	high	11.4%	0.2	0.2	54
10	Mary Ann	54	Washington	high	high	highhigh	58%	±12%	> / >	18%	±10%	58%	±12%	med	3.0%	0.3	0.1	93
11	Opal Apartments	54	Washington	med	med	medmed	39%	±9%	≥ / ≥	9%	±7%	39%	±9%	high	9.9%	1.7	1.1	86
12	Senior Housing on 5th	104	Washington	high	high	highhigh	41%	±9%	> / >	17%	±10%	41%	±9%	med	3.1%	0.5	0.0	93
13	Wilsonville TOD	120	Clackamas	low	low	lowlow	24%	±11%	≤ / ≤	5%	±3%	24%	±11%	high	8.2%	10.8	4.5	30
14	Plambeck Gardens	116	Washington	low	low	lowlow	24%	±12%	≤ / ≤	3%	±2%	24%	±12%	low	0.0%	8.8	1.9	14
15	Terrace Glen	144	Washington	med	low	medlow	41%	±12%	≥ / ≤	6%	±5%	41%	±12%	med	2.0%	3.1	0.1	70
16	Alongside Senior Housing	57	Washington	low	low	lowlow	24%	±8%	≤ / ≤	3%	±3%	24%	±8%	high	8.1%	5.0	0.2	60
17	Woodland Hearth	63	Washington	low	low	lowlow	24%	±11%	≤ / ≤	2%	±1%	24%	±11%	high	10.5%	4.2	0.1	66
18	Viewfinder	81	Washington	med	med	medmed	32%	±14%	≥ / ≥	7%	±7%	32%	±14%	high	12.0%	4.5	0.2	61
19	Carey Boulevard	53	Multnomah	med	low	medlow	35%	±9%	≥ / ≤	2%	±1%	35%	±9%	med	3.1%	2.4	0.2	71
20	Lake Grove	54	Clackamas	med	low	medlow	35%	±8%	≥ / ≤	3%	±2%	35%	±8%	med	1.5%	4.9	1.1	64
21	Portland Value Inn	98	Multnomah	med	low	medlow	34%	±11%	≥ / ≤	6%	±3%	34%	±11%	med	0.3%	4.2	0.1	69
22	Tistilal Village	24	Multnomah	high	med	highmed	58%	±6%	> / ≥	9%	±3%	58%	±6%	high	14.2%	1.8	0.1	83
23	Barbur Apartments	149	Multnomah	med	low	medlow	35%	±10%	≥ / ≤	3%	±2%	35%	±10%	med	3.7%	2.8	0.0	79
24	Dr. Darrell Milner Building	63	Multnomah	low	low	lowlow	23%	±12%	≤ / ≤	1%	±1%	23%	±12%	high	9.0%	0.2	0.2	82
25	Carter Commons	62	Multnomah	low	low	lowlow	28%	±10%	≤ / ≤	3%	±3%	28%	±10%	high	13.0%	0.0	0.0	62
26	Hattie Redmond	60	Multnomah	low	low	lowlow	27%	±11%	≤ / ≤	3%	±2%	27%	±11%	high	7.6%	0.0	0.0	89
27	Waterleaf	176	Multnomah	low	low	lowlow	25%	±12%	≤ / ≤	6%	±4%	25%	±12%	high	17.3%	0.3	0.2	80
28	Albina One	94	Multnomah	low	low	lowlow	28%	±9%	≤ / ≤	4%	±3%	28%	±9%	high	21.1%	0.4	0.1	88
29	Strong Site	75	Multnomah	med	low	medlow	34%	±8%	≥ / ≤	4%	±4%	34%	±8%	high	12.5%	0.8	0.3	78
30	Abbey Townhomes	8	Multnomah	med	low	medlow	34%	±8%	≥ / ≤	4%	±4%	34%	±8%	high	12.1%	0.9	0.1	87
31	Marylhurst Commons	100	Clackamas	low	low	lowlow	22%	±11%	≤ / ≤	3%	±2%	22%	±11%	med	0.2%	2.3	1.2	42
32	Dekum Court	147	Multnomah	med	low	medlow	34%	±11%	≥ / ≤	3%	±2%	34%	±11%	med	2.7%	2.0	0.1	52
33	Hillside Park A & B	143	Clackamas	low	low	lowlow	24%	±10%	≤ / ≤	1%	±1%	24%	±10%	high	5.3%	0.7	0.1	64
33	Hillside Park C	78	Clackamas	low	low	lowlow	24%	±10%	≤ / ≤	1%	±1%	24%	±10%	high	5.3%	0.7	0.1	64
35	Shortstack Milwaukie	15	Clackamas	low	low	lowlow	24%	±10%	≤ / ≤	1%	±1%	24%	±10%	med	5.0%	1.0	0.3	64
36	Hollywood Hub	73	Multnomah	low	low	lowlow	25%	±12%	≤ / ≤	3%	±2%	25%	±12%	high	6.9%	0.0	0.0	96
37	PCC Killingsworth	84	Multnomah	high	med	highmed	56%	±6%	> / ≥	11%	±9%	56%	±6%	med	3.1%	2.1	0.1	76
38	Findley Commons	35	Multnomah	low	low	lowlow	21%	±14%	≤ / ≤	3%	±2%	21%	±14%	med	0.9%	2.0	0.1	89
39	Tukwila Springs	48	Clackamas	low	low	lowlow	20%	±12%	≤ / ≤	4%	±2%	20%	±12%	med	0.3%	3.1	1.3	53
40	Beacon at Glisan Landing	41	Multnomah	low	low	lowlow	10%	±30%	≤ / ≤	1%	±2%	10%	±30%	high	8.1%	0.7	0.2	87
41	Aldea at Glisan Landing	96	Multnomah	low	low	lowlow	10%	±30%	≤ / ≤	1%	±2%	10%	±30%	high	8.1%	0.7	0.2	87
42	Las Flores	171	Clackamas	low	low	lowlow	17%	±11%	≤ / ≤	3%	±2%	17%	±11%	high	10.6%	7.0	0.7	42
43	Fuller Rd Station Family Housing	99	Clackamas	med	med	medmed	34%	±12%	≥ / ≥	12%	±5%	34%	±12%	high	5.5%	0.1	0.1	67
44	Meridian Gardens	85	Multnomah	med	high	medhigh	42%	±12%	≥ / >	26%	±9%	42%	±12%	high	8.1%	1.0	0.0	73
45	Powellhurst Place	64	Multnomah	high	high	highhigh	45%	±11%	> / >	16%	±6%	45%	±11%	high	5.4%	1.4	0.0	43

Detailed Table of Location Metrics

Map ID	Project name	Eligible units	How are the projects distributed around the region? *(see Figure 5.2)* County	POC	LEP	POC-LEP	Which projects are in areas where communities of color live today? *(see Figure 5.3 and notes A, B and C below)* People of color *(vs. regional rate of 31.6%)* Estimate	MOE	Combined POC and LEP, vs. regional rates POC / LEP	People with limited English proficiency *(vs. regional rate of 6.8%)* Estimate	MOE	Which projects are in areas historically inacccessible to communities of color? *(see Figure 5.4 and notes A, B and C below)* People of color *(vs. regional rate of 31.6%)* Estimate	MOE		Which projects are in areas with limited regulated affordable housing? *(see Figure 5.5 and notes A and D below)* Affordable housing share *(vs. regional rate of 5.1%)*	How is the physical access near each project? *(see notes E and F below)* Access to transit *(miles to nearest stop/station)* MAX ½ mi	FS Bus ¼ mi	Walkscore
46	Garden Park Estates	54	Multnomah	high	high	highhigh	48%	±7%	> / >	18%	±6%	48%	±7%	high	7.3%	1.7	0.1	60
47	Wynne Watts Commons	147	Multnomah	high	high	highhigh	45%	±12%	> / >	27%	±15%	45%	±12%	high	8.6%	0.4	0.2	54
48	Good Shepherd Village	142	Clackamas	med	med	medmed	36%	±7%	≥ / ≥	8%	±3%	36%	±7%	low	0.0%	3.7	3.7	30
49	Terracina Vista	91	Multnomah	high	high	highhigh	61%	±9%	> / >	27%	±10%	61%	±9%	high	8.1%	0.2	0.1	70
50	Rockwood Village	47	Multnomah	med	high	medhigh	44%	±13%	≥ / >	20%	±10%	44%	±13%	high	8.3%	0.3	0.1	80
51	Oak Row	11	Multnomah	high	high	highhigh	54%	±9%	> / >	15%	±8%	54%	±9%	high	8.6%	0.2	0.1	85
52	Troutdale Apartments	94	Multnomah	low	low	lowlow	25%	±12%	≤ / ≤	4%	±3%	25%	±12%	high	7.3%	2.9	1.5	59

Percent of Total Eligible Units

22% Clackamas	27% > regional	30% > regional	19% > regional	4% < regional
44% Multnomah	31% ≥ regional	28% ≥ regional	19% ≥ regional	38% ≤ regional
33% Washington	42% ≤ regional	42% ≤ regional	62% ≤ regional	58% ≥ regional

> or ≥ region for either POC or LEP

11% none	24% FS Bus and MAX	39% score ≥ 70
31% < regional	46% FS bus or MAX	36% score 50-69
58% > regional	30% neither	25% score < 50

Abbreviations: FS = frequent service; LEP = limited English proficiency; MOE = margin of error; POC = people of color.

Notes on data sources and assumptions

A Regional rates are calcuated based on Metro's jurisdictional boundary.

B People of color and people with limited English proficiency (people age 5 and older who speak English less than "very well") use the American Community Survey 2017-2021 5-year estimate, by tract.

C The darkest cell shading for people of color or people with limited English proficiency means greater (or less) than the regional rate by more than the MOE. Middle shades are greater (or less) than the regional rate but within the MOE.

D Affordable housing share is based on Metro's inventories of affordable housing (2023), multifamily housing (2023), and single-family housing (2023).

E Access to transit is calculated based on linear distance ("as the crow flies"), using Metro's data on existing transit (RLIS).

F Walkscore is calculated at https://www.walkscore.com. A score of 50-69 is "somewhat walkable" and a score of 70+ is "very walkable" or "walker's paradise"

EXHIBIT C. SUMMARY OF CONTRACTING GOALS AND PRELIMINARY OUTCOMES, WORKFORCE TRACKING COMMITMENTS AND PREVAILING WAGE REQUIREMENTS

Jurisdiction	Project	COBID goal		COBID progress		Workforce tracking?	Prevailing wage
		Hard costs	Soft costs	Hard costs	Soft costs		
Beaverton	Mary Ann	20%	20%	28%	23%	Y	
	Scholls Ferry	20%	20%	n/a	n/a	Y	
	Elmonica	25%	25%	n/a	n/a	Y	Davis Bacon
	Senior Housing on 5th	30%	30%	n/a	n/a	Y	Davis Bacon, BOLI
Clackamas	Fuller Road Station	20%	20%	20%	15%	Y	Davis Bacon, BOLI
	Good Shepherd Village	25%	20%	36%	36%	Y	Davis Bacon
	Las Flores	20%	20%	34%	94%	Y	Davis Bacon
	Tukwila Springs	20%	20%	22%	75%		Davis Bacon
	Marylhurst Commons	20%	20%	32%	19%	Y	
	Hillside Park A & B	30%	20%	n/a	n/a	Y	Davis Bacon
	Hillside Park C	30%	20%	n/a	n/a	Y	Davis Bacon
	Lake Grove	25%	25%	n/a	n/a	Y	
	Shortstack Milwaukie	30%	30%	n/a	n/a		
	Wilsonville TOD	25%	25%	n/a	n/a	Y	BOLI
Gresham	Wynne Watts Commons	20%		25%			
	Rockwood Village	20%		22%			
	Terracina Vista	30%	20%	n/a	n/a	Y	
	Oak Row	20%		n/a			
Hillsboro	Nueva Esperanza	20%	20%	n/a	n/a		
	The Dolores	20%	20%	n/a	n/a	Y	
Home Forward	Troutdale	28%	20%	n/a	n/a	Y	Davis Bacon
Portland	Hattie Richmond	30%	20%	35%	29%	Y	
	Dekum (Home Forward)	28%	20%	n/a	n/a	Y	Davis Bacon
	Findley Commons	24%	20%	20%	58%	Y	Davis Bacon
	Waterleaf	30%	20%	36%	22%	Y	Davis Bacon, BOLI
	Beacon at Glisan Landing	30%	20%	n/a	n/a	Y	
	Aldea at Glisan Landing	30%	20%	n/a	n/a	Y	Davis Bacon
	Dr. Darrell Milner Bldg	30%	20%	28%	n/a	Y	BOLI
	Albina One	30%	20%	n/a	n/a	Y	Davis Bacon, BOLI
	Meridian Gardens	30%	20%	n/a	n/a	Y	Davis Bacon
	Hollywood Hub	30%	20%	n/a	n/a	Y	Davis Bacon, BOLI
	PCC Killingsworth	30%	20%	n/a	n/a	Y	Davis Bacon, BOLI
	Tistilal Village	30%	20%	n/a	n/a	Y	
	Powellhurst	30%	20%	19%	n/a	Y	
	Garden Park Estates	30%	20%	n/a	n/a	Y	Davis Bacon
	Barbur Apartments	30%	20%	n/a	n/a	Y	Davis Bacon
	Carey Boulevard	20%		n/a		Y	

Jurisdiction	Project	COBID goal		COBID progress		Workforce tracking?	Prevailing wage
		Hard costs	Soft costs	Hard costs	Soft costs		
	Carter Commons	30%	30%	n/a	n/a	Y	Davis Bacon, BOLI
	Portland Value Inn	30%	30%	n/a	n/a	Y	
	Strong Site	30%	20%	n/a	n/a	Y	
	Abbey Site	30%		n/a		Y	
Washington	Cedar Rising	25%	20%	n/a	n/a		
	Heartwood Commons	20%	20%	22%	76%		BOLI
	Plambeck Gardens	20%	20%	n/a	n/a		
	Goldcrest	20%	20%	n/a	n/a		
	Plaza Los Amigos	20%	20%	20%	20%	Y	Davis Bacon
	Opal Apartments	20%	20%	n/a	n/a		Davis Bacon
	Terrace Glen	20%	20%	31%	n/a		
	The Valfre at Avenida 26	20%	20%	33%	n/a		
	Alongside Senior Housing	20%	20%	23%	25%	Y	Davis Bacon
	Viewfinder	20%	20%	22%	26%	Y	Davis Bacon
	Woodland Hearth	30%	20%	n/a	n/a	Y	Davis Bacon

EXHIBIT D. SUMMARY OF LEVERAGED CAPITAL FUNDING SOURCES

Jurisdiction	Project	LIHTC equity	Grants	Permanent loan	Metro housing bond	Sponsor contribution	Other
Beaverton	Elmonica Station	42.8%	3.7%	16.4%	34.9%	2.2%	0.0%
	Mary Ann	54.9%	16.8%	14.6%	13.7%	0.0%	0.0%
	Scholls Ferry	36.1%	15.3%	28.7%	11.3%	7.0%	1.6%
	Senior Housing on 5th	44.9%	9.3%	15.8%	20.8%	6.8%	2.4%
Clackamas	Fuller Road Station	42.8%	3.8%	31.7%	18.1%	3.6%	0.0%
	Good Shepherd Village	32.3%	6.0%	20.8%	30.1%	9.2%	1.6%
	Hillside Park A & B	33.0%	13.7%	14.5%	26.9%	6.7%	5.2%
	Hillside Park C	34.5%	1.2%	27.7%	22.0%	7.6%	6.9%
	Lake Grove	41.6%	4.0%	15.7%	33.7%	5.0%	0.0%
	Las Flores	33.1%	1.6%	36.5%	25.6%	3.1%	0.0%
	Marylhurst Commons	43.5%	10.3%	29.2%	7.1%	5.9%	4.0%
	Shortstack Milwaukie	0.0%	43.7%	47.0%	9.3%	0.0%	0.0%
	Tukwila Springs	29.1%	10.9%	21.3%	25.2%	11.6%	1.8%
	Wilsonville TOD	40.4%	7.1%	29.9%	14.6%	7.9%	0.0%
Gresham	Oak Row	0.0%	0.0%	46.5%	52.6%	0.9%	0.0%
	Rockwood Village	36.3%	6.6%	40.9%	7.9%	8.3%	0.0%
	Terracina Vista	40.0%	20.2%	28.6%	5.8%	5.3%	0.0%
	Wynne Watts Commons	40.7%	0.4%	22.1%	24.9%	11.9%	0.0%
Hillsboro	The Dolores	41.5%	0.6%	21.9%	30.4%	5.6%	0.0%
	Nueva Esperanza	43.7%	0.8%	21.5%	31.4%	2.5%	0.0%
Home Forward	Troutdale	36.2%	0.0%	19.5%	36.2%	8.2%	0.0%
Portland	Abbey Townhomes	0.0%	31.5%	43.3%	23.6%	1.7%	0.0%
	Aldea at Glisan Landing	34.5%	15.0%	17.3%	26.3%	6.9%	0.0%
	Albina One	41.5%	10.1%	14.4%	21.1%	10.1%	2.9%
	Barbur	37.9%	9.6%	13.6%	31.8%	7.1%	0.0%
	Beacon at Glisan Landing	31.0%	25.0%	11.1%	27.5%	5.4%	0.0%
	Carey Boulevard	0.0%	14.4%	56.7%	25.7%	3.2%	0.0%
	Carter Commons	41.5%	7.0%	11.7%	21.2%	5.8%	12.8%
	Dekum	41.4%	0.0%	20.4%	25.4%	12.8%	0.0%
	Dr. Darrell Building	45.7%	0.5%	20.4%	28.6%	4.9%	0.0%
	Findley Commons	0.0%	60.6%	7.2%	27.9%	4.3%	0.0%
	Garden Park	52.7%	5.6%	14.9%	6.5%	10.1%	10.4%
	Hattie Redmond	40.2%	36.7%	0.0%	18.4%	4.7%	0.0%
	Hollywood Hub	43.2%	15.2%	11.5%	3.1%	9.5%	17.5%
	Meridian Gardens	42.8%	8.3%	0.0%	43.8%	5.1%	0.0%
	PCC Killingsworth	48.2%	24.4%	15.9%	5.3%	6.1%	0.0%
	Portland Value Inn	43.8%	5.7%	14.6%	23.8%	9.6%	2.4%
	Powellhurst Place	43.0%	1.3%	18.5%	15.6%	2.8%	18.8%
	Strong Site	43.8%	3.0%	17.7%	29.4%	6.1%	0.0%
	Tistilal Village	48.8%	10.5%	11.1%	12.6%	2.2%	14.8%
	Waterleaf	34.4%	38.2%	17.2%	2.4%	7.7%	0.0%
Washington	Alongside Senior Housing	34.8%	7.7%	22.6%	24.5%	10.4%	0.0%
	Cedar Rising	42.7%	10.5%	11.7%	30.4%	3.2%	1.5%
	Goldcrest	41.6%	0.1%	15.1%	29.5%	9.6%	4.1%
	Heartwood Commons	0.0%	7.6%	0.0%	92.4%	0.0%	0.0%
	Opal Apartments	33.8%	5.3%	28.4%	26.2%	6.2%	0.0%
	Plambeck Gardens	44.6%	7.5%	14.6%	22.3%	8.7%	2.3%
	Plaza Los Amigos	34.3%	5.2%	23.4%	28.3%	4.7%	4.2%
	Terrace Glen	42.6%	0.9%	18.8%	32.3%	5.4%	0.0%
	The Valfre at Avenida 26	30.4%	3.7%	35.3%	27.9%	2.8%	0.0%
	Viewfinder	34.8%	0.8%	27.2%	35.2%	2.1%	0.0%
	Woodland Hearth	34.9%	2.1%	22.4%	26.8%	10.4%	3.4%

EXHIBIT E. SUMMARY OF ONGOING FUNDING FOR LONG-TERM RENTAL ASSISTANCE AND WRAPAROUND SERVICES

Jurisdiction	Project	Total affordable units	Metro bond-funded units		
			30% AMI	With project-based rental assistance	PSH units with ongoing funding for wraparound services
Beaverton	Elmonica Station	80	33	8	0
	Mary Ann	54	11	8	0
	Scholls Ferry	135	17	0	0
	Senior Housing on 5th	104	68	19	30
Clackamas	Fuller Road Sta.	99	30	25	25
	Good Shepherd	142	58	35	58
	Hillside Park A & B	143	40	20	13
	Hillside Park C	78	68	100	8
	Lake Grove	54	20	10	10
	Las Flores	171	70	70	9
	Marylhurst Commons	100	40	40	40
	Shortstack Milwaukie	15	0	0	0
	Tukwila Springs	48	48	48	48
	Wilsonville TOD	120	40	0	20
Gresham	Oak Row	11	0	0	0
	Rockwood Village	47	47	0	0
	Terracina Vista	91	0	0	0
	Wynne Watts	147	30	30	30
Hillsboro	Nueva Esperanza	149	60	8	0
	The Dolores	66	30	8	10
Home Forward	Troutdale	94	39	25	0
Portland	Abbey Townhomes	8	0	0	0
	Albina One	94	32	19	0
	Aldea at Glisan Landing	96	15	15	0
	Barbur	149	32	19	0
	Beacon at Glisan Landing	41	41	41	41
	Carey Boulevard	53	0	0	0
	Carter Commons	62	21	11	0
	Dekum	147	61	27	0
	Dr. Darrell Milner Bldg	63	17	0	0
	Findley Commons	35	0	20	35
	Garden Park	54	25	25	25
	Hattie Redmond	60	60	60	60
	Hollywood Hub	73	39	0	0
	Meridian Gardens	85	70	65	65
	PCC Killingsworth	84	28	28	0
	Portland Value Inn	98	39	39	15
	Powellhurst Place	64	12	12	12
	Strong Site	75	11	0	0
	Tistilal Village	24	24	24	16
	Waterleaf	176	17	20	20
Washington	Alongside Senior Housing	57	23	23	24
	Cedar Rising	81	33	0	0
	Goldcrest	74	14	0	0
	Heartwood Commons	54	54	54	54
	Opal Apartments	54	28	24	0
	Plambeck Gardens	116	47	8	16

Jurisdiction	Project	Total affordable units	Metro bond-funded units		
			30% AMI	With project-based rental assistance	PSH units with ongoing funding for wraparound services
	Plaza Los Amigos	112	26	16	0
	Terrace Glen	144	51	8	3
	The Valfre at Avenida 26	36	8	8	8
	Viewfinder	81	34	16	30
	Woodland Hearth	63	24	16	22
Total		**4,361**	**1,635**	**1,052**	**747**

EXHIBIT F. AFFORDABLE HOUSING BOND FINANCIAL REPORT THROUGH DECEMBER 2023

METRO AFFORDABLE HOUSING BOND

Financial Report Through December 2023

FINANCIAL SUMMARY

TOTAL REVENUE	$696,843,268
TOTAL EXPENSES and DISBURSEMENTS	$333,581,903
TOTAL COMMITTED	$210,434,645
TOTAL FUNDING REMAINING	$152,826,721

REVENUE

	FY 2018 - 2023	FY 2023 - 2024	TOTAL REVENUE
Bond Proceeds	$652,800,000		$652,800,000
Premiums on Bonds	$2,630,335		$2,630,335
Interest Earnings	$35,973,700	$5,439,233	$41,412,933
TOTAL REVENUE:	**$691,404,035**	**$5,439,233**	**$696,843,268**

EXPENSES

PROJECTS Jurisdiction:	Prior Years Expended or Disbursed	FY2023-24 Expended or Disbursed	Committed – Not Yet Disbursed	TOTAL EXPENDED, DISBURSED or COMMITTED	WORK PLAN FUNDING (Amended)	% of Work Plan Funding Expended, Disbursed or Committed
Beaverton	$12,000,000	$0	$18,939,934	$30,939,934	$31,587,595	98%
Clackamas County	$51,351,542	$0	$58,700,000	$110,051,542	$122,018,094	90%
Gresham	$16,530,261	$2,500,000	$2,200,000	$21,230,261	$27,140,995	78%
Hillsboro	$16,940,731	$0	$10,500,000	$27,440,731	$41,240,081	67%
Home Forward (East Multnomah Co.)	$21,034,083	$0	$13,449,238	$34,483,321	$37,141,206	93%
Portland	$65,763,299	$0	$84,635,054	$150,398,353	$199,652,992	75%
Washington County	$105,161,611	$0	$9,450,000	$114,611,611	$118,135,532	97%
Metro Site Acquisition Program	$22,154,319	$188,409	$12,560,419	$34,903,147	$62,016,000	56%
Other Metro Direct Project Costs	$161,824	$59,618	$0	$221,442	$0	N/A
PSH IGAs in progress (Portland and Wash Co)					$15,834,000	N/A
Funding to be allocated (Interest Earnings)					$7,234,610	N/A
TOTAL:	**$311,097,670**	**$2,748,027**	**$210,434,645**	**$524,280,342**	**$ 662,001,106**	**79%**

ADMINISTRATIVE Jurisdiction:	Prior Years Expended or Disbursed	FY2023-24 Expended or Disbursed	TOTAL EXPENDED or DISBURSED	WORK PLAN FUNDING (Amended)	% of Work Plan Funding Expended or Disbursed
Beaverton	$569,252	$376,583	$945,835	$974,615	97%
Clackamas County	$1,712,246	$641,376	$2,353,622	$3,636,371	65%
Gresham	$450,643	$147,702	$598,345	$837,421	71%
Hillsboro	$684,752	$0	$684,752	$1,272,457	54%
Home Forward (East Multnomah Co.)	$334,297	$162,676	$496,973	$496,973	100%
Portland[1]	$0	$0	$0	$0	N/A
Washington County	$1,759,590	$627,716	$2,387,306	$3,645,054	65%
Metro Site Acquisition Program[2]	$0	$0	$0	$1,940,932	N/A
Metro Accountability and Financial Transaction Costs	$11,226,696	$1,042,677	$12,269,373	$19,409,319	63%
Funding to be allocated (Interest Earnings)				$2,629,021	N/A
TOTAL:	**$16,737,476**	**$2,998,730**	**$19,736,206**	**$34,842,163**	**57%**

[1] PHB uses a Project Delivery Fee, not paid for by Metro's Affordable Housing Bond, to reimburse their administrative expenses.

[2] Administrative expenses in support of Metro's Site Acquisition Program are combined with Metro's total Administrative expenses and included in "Metro Accountability and Financial Transaction Costs."

METRO COSTS ANNUAL BASIS[3]	FY2023-24 YTD Actuals	FY2023-24 Metro Budget	YTD % Spent
	1,215,003	3,068,547	40%

[3] In addition to Metro's Administrative costs, these costs include certain Metro Direct Costs reported under the "Project" Cost table above (e.g. Metro Site Acquisition Program Staff and Other Metro Direct) that were not provided a Work Plan Funding allocation, and therefore must be covered by Metro's Administrative Funding allocation.

EXHIBIT G. OVERSIGHT COMMITTEE 2022 ANNUAL REPORT MEMO TO THE METRO COUNCIL (SUBMITTED MAY 2023)

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: May 25, 2023
To: Metro Council
From: Metro Housing Bond Community Oversight Committee
Subject: 2022 Annual Report

A report to the Metro Council and the community from the Metro Housing Bond Community Oversight Committee

We are pleased to present the 2022 annual report for the Metro affordable housing bond, covering the period from January 1, 2022 through December 31, 2022.

The Metro Housing Bond Community Oversight Committee has reviewed progress reports from all eight implementation partner agencies, as well as an analysis of regional progress and performance presented by Metro staff. The committee also reviews quarterly progress and expenditure reports on an ongoing basis to monitor and evaluate progress toward production and policy goals outlined in the Metro Council's adopted policy framework for the bond.

The bond framework established a goal of creating at least 3,900 new homes, as well as policy expectations for advancing racial equity throughout the implementation process. This report demonstrates that the bond is delivering on the promises made to voters, creating housing opportunities and addressing racial disparities in access to housing for people across the region. These new affordable homes help tackle the crisis of homelessness and stabilize communities so that all people can thrive.

KEY HIGHLIGHTS

In its third year of implementation, the bond program outpaced housing production targets while continuing to make significant progress in advancing regional goals to increase equitable access to housing.

Production progress

As of December 2022, there were 34 bond-funded projects underway representing 3,243 new affordable homes.

- **Total units:** The pipeline of bond projects underway represents 83% of the total unit production target of 3,900 affordable homes. These projects (which are collectively referred to as the "bond portfolio" throughout the report) include 7 projects that have completed construction, 17 projects under construction and 10 projects in pre-construction.

Regional progress towards production goals relative to funding committed

- **Family-size units:** 1,678 of these homes will have two or more bedrooms, representing 86% of the program's production goal for family-size homes.
- **Deeply affordable units:** 1,242 of these homes will be affordable to households with incomes at or below 30% of area median income, representing 78% of the program's production goal for deeply affordable homes; 747 of these units also have project-based rental assistance, ensuring even those with very low or no income can be served.

Plans are in place that will commit all remaining bond funds by 2024 with final projects expected to break ground by 2026. **The program is projected to achieve at least 120% of its original production target once all funds are expended**, creating an estimated 4,700 affordable homes that will provide housing for 9,000 to 15,000 people across the region.

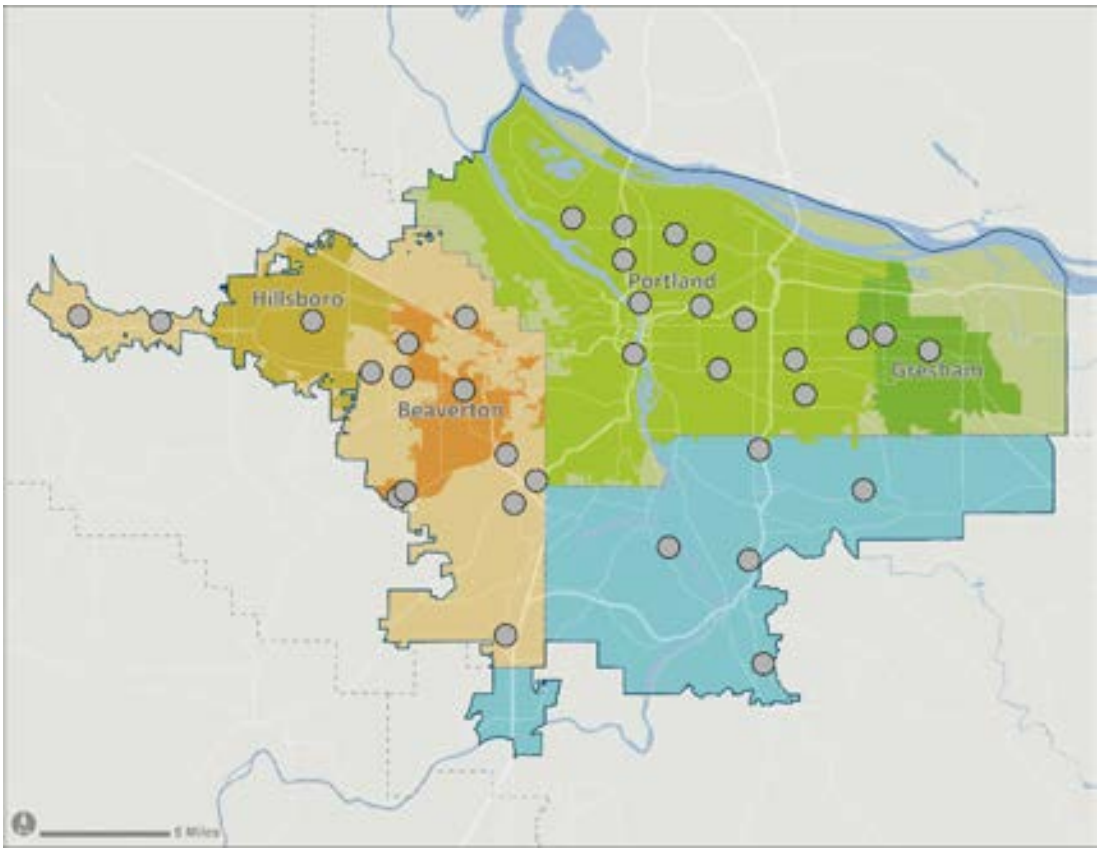
The bond program reached an important milestone in 2022, with the first cohort of projects completing construction and lease-up. **By December 2022, 528 people had moved into their new homes in six bond-funded projects** located in Beaverton, Forest Grove, Gladstone, Gresham, Portland and Tigard.

Addressing disparities and advancing racial equity

Metro and its implementation partners are making ongoing progress in moving forward the bond program's goals of addressing disparities, increasing equitable access to housing and advancing racial equity:

- **Addressing disparities through project location:** The locations of the bond portfolio's homes expand access to housing options in a diversity of areas throughout the region: 42% of units are located in areas that have historically lacked affordable housing, 67% are located in areas where communities at risk of displacement live today and 45% are located in areas historically inaccessible to communities of color. This not only improves access to affordable housing in communities across greater Portland and provides residents with greater choice about where to live, it also helps connect people to schools, jobs and other opportunities while preventing displacement in changing neighborhoods.

Affordable housing bond project locations



- **Advancing racial equity through opportunity in construction:** To ensure equitable access to the opportunities provided by bond investments, the bond program aims to direct construction contracts to underrepresented firms. The bond's development projects are on track to meet or exceed the regional goal of at least 20% of construction contract funding going to state certified minority- or women-owned and/or emerging small businesses (MWESB). Seven projects reached completion in 2022 with a combined $33.1 million in contracts paid to certified MWESB firms, representing 24.7% of total construction costs.
- **Promoting equitable access through marketing and lease-up:** All bond projects are required to develop plans for affirmatively marketing housing opportunities and reducing lease-up barriers to ensure equitable access to bond-funded units. Initial data from the six projects that completed lease-up in 2022 suggest that the projects' affirmative marketing

and lease-up strategies are working, with a higher percentage of people of color housed in bond-funded units than the percentage of low-income households in the region that are people of color.

- **Advancing housing stability through services:** On-site services can support households with low incomes to remain stably housed. Many bond-funded projects include formal partnerships with culturally responsive and culturally specific service providers to provide resident services. Twenty projects will also provide ongoing case management for 587 households (representing more than 18% of total households served) in permanent supportive housing units intended for people exiting long-term homelessness. Many of these units are leveraging funding for services and rent assistance from Metro's regional supportive housing services fund.
- **Promoting community engagement:** Implementation partners and developers are working with a wide range of community-based organizations to conduct outreach and engage the community. In 2022, more than 720 people and 43 community-based organizations participated in community engagement opportunities to inform planning for 12 projects.

Addressing emerging opportunities and challenges

Along with significant progress, the past year was marked by continued challenges with funding gaps due to cost escalations related to interest rate increases, hard cost escalation and constraints in the availability of state-issued private activity bonds (PABs), which are necessary for the financing of 4% low income housing tax credits. Metro worked with its partners to respond to these challenges, including:

- **Advocacy to focus and expand private activity bonds:** Metro worked with partners to advocate for federal expansion of PAB availability and statewide strategies to focus and prioritize limited PAB resources for affordable housing, including Metro bond-funded projects. This includes advocacy for state legislation (SB 225), expected to pass during the 2023 session, that would ensure that PABs are prioritized for affordable housing and would support stronger coordination in the affordable housing pipeline.
- **Coordination and alignment with state funding:** Metro worked with Oregon Housing and Community Services to advance strategies for state and local funding alignment to ensure that limited resources are focused on projects with the greatest benefits for communities of color and those experiencing or at risk of homelessness. This includes the development of a suballocation framework for directing Housing Trust Fund and Local Innovation Fast Track (LIFT) funding for layering with Metro bond-funded projects.

Metro also worked with its partners to support regional coordination to strengthen housing access and stability, including:

- **Supportive housing services fund integration and alignment:** Metro earmarked $20 million in unallocated bond interest earnings to support additional investments in expanding permanent supportive housing. These investments will be aligned with funding

from Metro's supportive housing services fund to support rental assistance and wraparound services to meet the needs of people experiencing long-term homelessness.

- **Evaluation and engagement to support effective equitable leasing practices:** Metro has continued to engage jurisdictional partners and housing providers to identify barriers to and effective practices for equitable lease-up, and to refine lease-up and demographic reporting tools to support strong accountability for ensuring low-barrier access to housing.

RECOMMENDATIONS

The committee applauds the work of Metro and its implementation partners in building a successful funding program for regional affordable housing production and addressing opportunities and challenges as they have arisen throughout the life of the program. This solid foundation allows the committee to make the following recommendations that aim to further maximize the impact of this important resource and equip the region for essential work to come.

Convene stakeholders to regionalize best practices

In 2022, our region celebrated the lease up of the first seven Metro Housing Bond projects. A review of these early projects has allowed the committee to identify inconsistencies in local approaches and a need for Metro to convene stakeholders to define and share effective strategies.

As this report outlines, real improvements can and should be made in systematizing best practices that strengthen equitable access to bond-funded homes. We must also be sure that when bond units are designated as permanent supportive housing, they are able to effectively house and serve those who need it most. Through better understanding existing local standards and practices, barriers to access, and effective practices for affirmative marketing and proactive leasing supports, Metro can support greater consistency and improved long-term outcomes throughout the region. Metro can also explore opportunities for creative partnerships and other models, such as those in affordable homeownership.

Additionally, for the public to fully understand the program's progress toward its stated racial equity goals, we recommend that Metro and its partners prioritize improvements in reporting and data quality, especially related to occupancy and workforce outcomes. The committee is eager to see reporting improvements that allow for a more disaggregated picture of bond outcomes. We must also be mindful of the impact of data collection on both housing providers and the people who are sharing their personal information. Data collection should be actionable to outcomes, which means limited to necessary areas of focus and of reliable quality. Through collaboration and sharing of emerging best practices and standards, Metro can aid implementing partners in collecting, monitoring and reporting the information that most fully tells the story of the bond program's successes and allows for timely adjustments to improve outcomes when needed.

When we come together to address challenges, our community benefits. Metro staff should prioritize continued efforts to convene conversations and elevate regional best practices in partnership with jurisdictions, technical experts and communities with lived experience.

Focus on systemic integration

The bond program has made significant progress over the past year in aligning, integrating and streamlining resources to strengthen outcomes and mitigate against risks due to a shifting financial landscape. As mentioned above, highlights of this work include creating permanent supportive housing through layering supportive housing services fund (SHS), and coordinating with Oregon Housing and Community Services (OHCS) to facilitate suballocations of state and federal funding. There is more work to do to fully integrate and align funding resources across the system.

Local affordable housing developers have consistently called for better coordination between funding entities such as Metro and OHCS to reduce the risks and overall cost escalations due to lack of alignment in timing and criteria across different funding sources. Metro should work to strengthen its relationship and coordination with OHCS and participate in conversations to create a more efficient and effective system.

We also want to encourage Metro to think more holistically about system alignment opportunities. The committee is enthusiastic about the recommendations put forth by the Metro-convened Tri-County Planning Body, including planned work in aligning Medicaid tenancy support resources with SHS funding. Overall integration of SHS and bond funding remains a priority, given the opportunity to truly maximize the impact of both funds.

In addition to continuing to strengthen SHS and bond integration, we ask that Metro consider better supporting workforce diversity and other bond outcomes through regional workforce initiatives and by leveraging Metro programs such as the Careers to Construction Pathways Program. We want to see Metro developing more strategic, cross-system partnerships that address barriers to housing production, promote successful building operations and, most importantly, support opportunities for the people who call bond-funded properties home.

Analysis and planning for the future

The end of the bond pipeline is on the horizon, and the committee is confident the region has benefitted from these investments. Now is the time for Metro to evaluate its impact and plan for the future.

We are eager to see Metro continue this regional housing pipeline beyond its planned end and urge Metro to refer another measure to voters. This is an important moment to understand lessons learned from this bond and opportunities to strengthen Metro's role in supporting regional coordination.

This region and others stand to benefit from an analysis of the strengths of the program and through an independent review of areas where the structure or implementation could be

improved as well as other lessons learned. Areas of focus should include an understanding of the administrative gaps of the program and analysis of program policy decisions, such as the impact of cash developer fee limits in a shifting financial landscape.

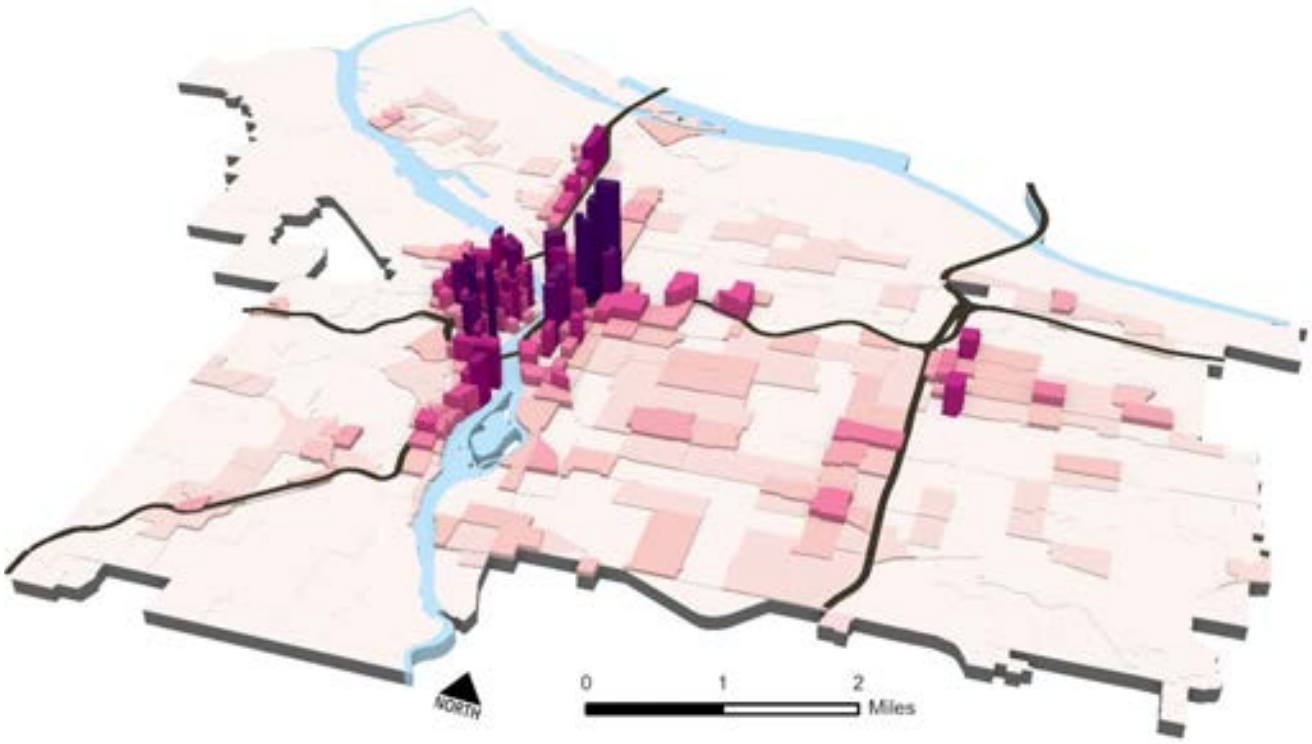
We also support Metro in its planned work to launch bodies of analysis that will contextualize the bond within the broader housing landscape to best understand the overall impact of the program. Through considering the full housing pipeline, funding ecosystem, and projected population and systems shifts, Metro can best prepare for meeting future regional needs.

Along with assessing lessons learned and the housing landscape, it is imperative that Metro analyze risks related to the long-term asset management strategy of this new portfolio. We know that bond-funded properties have been evaluated for financial success, but also want to emphasize that proactive asset management is vital to maintaining the long-term public benefits in which voters invested. Managing these assets requires that we think not only on a property-by-property level, but also community-wide. Further analysis is needed to ensure Metro is adding beneficial and not duplicative support to the system and that all parties possess a comprehensive understanding of the roles and responsibilities for long-term stewardship of this new portfolio. We do not yet have a clear picture of how asset management will work and wish to understand this better as an oversight committee. We call for this to be a focus as the program moves forward.

As a region, we should be proud of having passed this bond measure and of the work completed to date. This bond has been successful, exceeding commitments to voters, and it is exciting that we are in a position to recommend improvements for additional impact. We are honored to have the opportunity to provide oversight for this important program and would like to thank Metro and jurisdictional partner staff for their support.

Thank you,

Jenny Lee (Co-chair)
Steve Rudman (Co-chair)
Kira Cador
Brandon Culbertson
Scott Greenfield
Ann Leenstra
Willie Poinsette
Mara Romero
Andrea K. Sanchez
Karen Shawcross
Nicole Stingh
Trinh Tran
Juan Ugarte Ahumada



Residential Buildable Lands Inventory

Methodology and Summary Results

As Adopted

Ordinance 191547

December 2023

THE BUREAU OF PLANNING & SUSTAINABILITY

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Introduction

This document presents the City of Portland's 2023 Residential Buildable Lands Inventory (BLI), which is based on a Geographic Information System (GIS) model developed by the Bureau of Planning and Sustainability (BPS). The Residential BLI is an assessment of the City's residential development capacity under current City plans and zoning and market conditions. Oregon's statewide planning goals require cities to maintain at least a 20-year supply of land to accommodate forecasted housing growth. This Residential BLI is a critical component of the Housing Needs Analysis (HNA)[1] to identify whether there is an adequate supply of land to meet future housing needs through the year 2045.

There are several reasons for conducting this analysis:

- to quantify the existing residential development capacity within Portland under the current Comprehensive Plan and zoning regulations;
- to identify likely redevelopment scenarios and prospective clusters of future development activity by identifying sites that are likely to develop based on market feasibility and development potential;
- to estimate development capacity for different areas of the City;
- to serve as a basis for predicting residential growth under different development scenarios; and
- to help measure the possible impact of recommended land use plans, by predicting where residential growth may occur, which provides a basis to evaluate impacts – for example, impacts to the transportation system, tree canopy, housing supply, and air quality.

Important note: This is a 'supply-side' analysis. The model does not predict market demand for new construction. It only identifies lands within the City that could potentially become available for development/redevelopment should market demand exist.

[1] Statewide Planning Goal 10 requires cities to inventory "buildable lands" and ensure there is enough zoned land to accommodate their housing needs over the next 20 years. The HNA addresses how the City of Portland will accommodate future population growth by ensuring there is enough zoned land for housing, and that specific housing production strategies are created to support the development of needed housing.

Buildable Lands Inventory (BLI) Model Methodology

The BLI is based on a GIS model developed by BPS that applies a market-feasible development capacity analysis, which calculates the likelihood of development for different housing types. This model identifies capacity where development is financially feasible.

The BLI model consists of five steps, each of which is explained in detail in the following pages.

1. Calculate existing development in terms of building square footage and number of residential units;
2. identify likely development parcels based on development feasibility and site condition (vacant/non-vacant underutilized);
3. calculate gross development capacity using a matrix derived from market research;
4. apply development constraints to determine remaining, estimated development capacity in terms of number of residential units; and
5. integrate permit data for new housing units built since 2020 as 'realized' capacity.

Step 1. Calculate Existing Development

The BLI model uses the latest taxlot data from Multnomah County as the base dataset. The model uses only those taxlots with a centroid (the center point of the parcel) within the Portland urban service boundary (USB). The primary fields used for the analysis include those relating to the property type and description, property value, and ownership. Several other datasets related to building footprints, location, zoning and overlays, market and development information, and other information are then joined to the taxlot data for the analysis to occur.

Existing Development

The first main step in the BLI model is to analyze existing development to determine how much of each development parcel's potential capacity is currently being used to understand whether a site is likely to have a net positive increase in capacity.

Existing building square footage and residential unit counts are determined using the City of Portland's building footprint GIS layer. If the building square footage is not known for a site, or the data is missing

from the dataset, the model treats that site as having no existing development (until a square footage value exists in the building footprints layer).[2]

The model takes residential units from the building footprint layer when that data exists. When data about residential units does not exist and the zone is residential, the model approximates the number of existing units by using the building square footage, if known, and calculates the residential portion by applying market data from the 'Zoning Capacity' spreadsheet (which is described in the following section). In the single-dwelling zones ('R' zones), the model assumes lots with a building footprint of at least 600 square feet are occupied by one unit unless a different number exists in the residential unit count of the building footprint layer.

Step 2. Identify Development Parcels

The second step in the BLI model is to identify potential vacant and non-vacant development sites that are significantly underutilizing their potential development capacity. The methodology used to identify non-vacant underutilized parcels is significantly more involved than for vacant parcels.

Table 1. Approaches to Identifying Vacant and Underutilized Sites

Site Status	Approach
Vacant	Determined by the property descriptions in the Multnomah County Assessor database ("Vacant Land"), as well as a building footprint coverage threshold. If the building footprint on a given site covers less than five percent of the site area, the site is considered vacant.
Non-vacant (Developed)	Properties that have redevelopment potential in residential, mixed-use, and commercial zones are determined by a pro forma feasibility analysis. This analysis is described in more detail below. Properties may also be manually added or removed from consideration by staff.

[2] Of the 247,262 current buildings in the urban service boundary (USB), 240,575 have square footage values (97 percent), as of July 24, 2023. BPS GIS staff undergo sporadic reviews of the building footprint data to ensure the footprints of the largest developments are complete with residential units, square footage, and number of floors.

Ignored Taxlots. Several taxlots are removed from consideration, regardless of being vacant or developed, unless the property is manually added to the inventory by staff. These include any taxlot:

- Occupied by a public agency, including schools, but not including property owned by the Port of Portland, Home Forward (Portland Housing Authority), and Prosper Portland (formerly Portland Development Commission);
- Owned by Portland General Electric (PGE), Pacific Power, and Northwest Natural Gas;
- Owned by a railroad, which is mostly Union Pacific or Burlington Northern Santa Fe (BNSF) railways;
- Considered a gas station, church, public building, or residential condominium (per the Assessor's property description);
- Considered a park, natural area, or cemetery (more than 33 percent of the taxlot must be covered by one of these polygons in Metro's ORCA data and City of Portland parks data to be considered); or
- Within the PDX security fence.

Further explanation about the evaluation of vacant and non-vacant parcels is as follow.

Vacant Properties

Using the Multnomah County property description field in the taxlot data, any parcel with the property description "vacant land" is identified as vacant (this does not apply to land within the EOA Industrial Geographies).

Land is also considered vacant if the building footprint used in Step 1 covers less than five percent of the lot area. A map of vacant residential land is included in the appendix.

Non-vacant Properties

The BLI model assesses the likelihood of redevelopment activity on non-vacant properties, or developed lots, through a development feasibility analysis. Campus institution (CI) zones have an FAR that was developed in an analysis conducted for the 2016 BLI model; lots zoned CI are automatically considered underutilized and net development capacity is calculated based on that FAR.

For all zones, recently developed lots are excluded from consideration. Using the City's permit database, properties are identified as recently developed if there is an addition, alteration, or new construction permit (using the work description field) that adds new residential units or building square feet and was finalized within the past 10 years (dating back to 2013). These properties are not expected to redevelop within the 2045 timeframe and are not included in the underutilized inventory.

Detailed information about the process to identify redevelopable and underutilized non-vacant lots is as follows.

Pro Forma Feasibility Analysis

Non-vacant properties in residential and mixed-use commercial zones are individually identified as underutilized if they meet a development feasibility threshold as determined by a development feasibility pro forma model.

A pro forma model simulates real estate investment decision-making tools by considering multiple market attributes such as revenue, construction costs, and land prices. Here, the financial pro forma model is used to calculate the residual land value (RLV)[3] for 17 residential prototypical developments, or prototypes. Each of the prototypes has varying scales of intensity and tenure and is loosely calibrated to different mixed-use and residential zones. The pro forma and related code were developed by ECONorthwest in 2021 and updated by BPS in early 2023. The list of the inputs and assumptions and the characteristics of the prototypes used in the analysis are in the appendix.

The 17 different housing prototypes evaluated in the pro forma model include:

- Detached single dwelling: regular and narrow lot,
- Middle housing (ownership): duplex, duplex in an R7 zone, triplex, fourplex in an R2.5 zone, and townhomes,
- Middle housing (rental): duplex, triplex, fourplex, townhomes, and
- Apartments (rental[4]): wood frame (x2)[5], podium (x2), and tower.

Using Multnomah County assessor data, underutilized or redevelopable sites are identified wherever a property's adjusted market value (AMV) per square foot is lower than the residual land value (RLV) per square foot for at least one of the housing types allowed in its zone. Any lot where the AMV exceeds the RLV is not considered an economically viable development site.

- AMV < RLV = Viable development site
- AMV > RLV = Not a viable development site

---

[3] Residual land value is a metric that shows the maximum price a developer could spend on land, after all costs of developing have been subtracted.

[4] Multi-dwelling prototypes are limited to rentals because of the lack of multi-dwelling condominium development since before the Great Recession. Condo construction activity has declined to near-zero levels because of the liability challenges; condo developers are liable for damages for up to 10 years after construction and the insurance premiums have become prohibitively expensive, rendering almost every condo project infeasible.

[5] The pro forma model includes a wood-frame inner and wood-frame outer prototype. The Wood frame Inner is excluded from the Outer market area and the Wood Frame Outer is excluded from the Central City and Inner market areas.

The AMV is an adjusted version of the Assessor's real market value (RMV), calculated by multiplying the RMV by an adjustment factor. This was deemed necessary to reflect property values more accurately after analyzing Multnomah County Assessor real market value data and recent residential sale data from RMLS (the median RMV was compared to the median sales price to determine how much the RMV should be adjusted). Adjustments vary spatially by market area, as shown in the table below.

Figure 11. Portland Market Areas

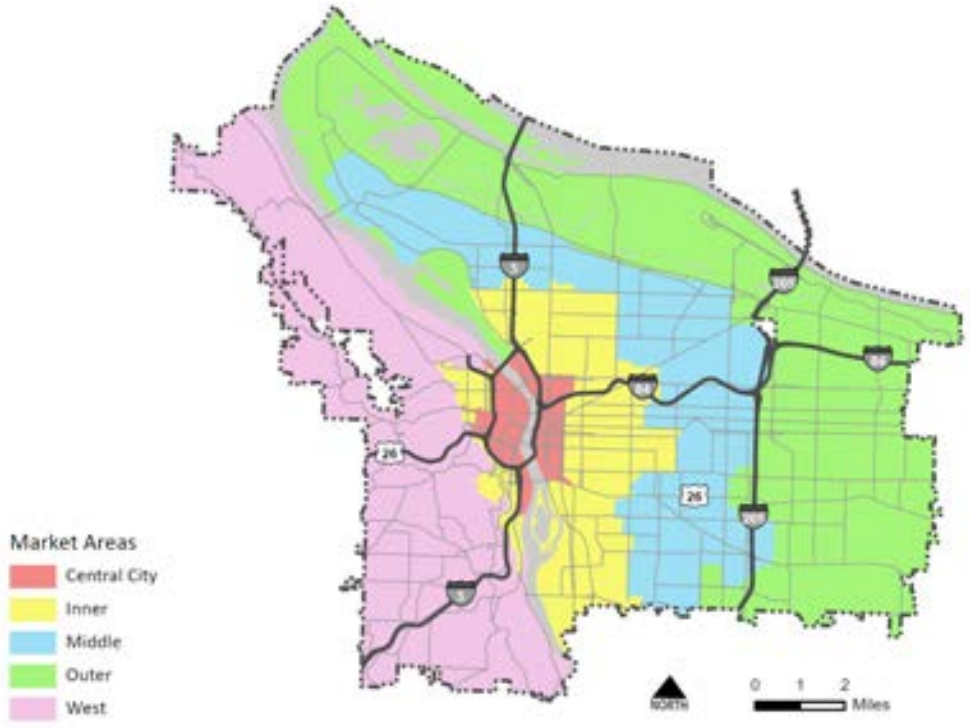


Table 2. Real Market Value (RMV) Adjustment Factors

Market Area	RMV Adj. Factor
Central City	1.20
Inner	1.20
Middle	1.22
Outer	1.40
West	1.25

RENT AND SALES PRICES

As revenue and land prices in Portland vary substantially compared to construction costs, the model uses revenue and land prices as spatial variables across Portland. Average predicted rents and sales prices for housing are generated for each of the City's 24 "Portland Plan Areas." The model populates

the revenue data in the pro forma for each site based on its Portland Plan Area. Rents and sales prices for each area are shown in the table below.

Rent Data Analysis. Rents were primarily estimated using Costar data in the Fall of 2022. This analysis excluded outlier observations that might indicate unreliable data. Rents were collected for middle housing developments and apartments.

To evaluate the possibility of different rent levels based on the building prototype and construction material, ECONorthwest ran model simulations to estimate the range of rents for different construction types. They found that high-rise buildings generated six percent (6%) higher rents than mid-rise buildings on average throughout the City. Low-rise buildings with fewer amenities were forecast to generate rents that are 20% lower than a podium-built prototype on average across Portland. These differences are applied as adjustment factors in the pro forma model.

The 'Middle Housing Rent' values in the table below populate the revenue assumptions for the duplex, triplex, fourplex, and townhome development types, while the 'Apartment Rent' values populate the wood frame, podium, and tower apartments.

Sales Price Data Analysis. Sales prices were calculated by analyzing five years of home sales (2018 to 2022) using the RMLS dataset. Staff implemented a trends-based analysis that determined the likely median sales price in 2023 for a single-dwelling home.

Where data was limited for a particular Portland Plan Area, resulting in smaller data sample sizes, the Area was combined with one or more adjacent Areas based on staff understanding of shared market conditions.

Table 3. Predicted Housing Revenue Data by Portland Plan Area

Portland Plan Area	Sale Price ($/sq.ft.)	Middle Housing Rent ($/sq.ft.)	Apartment Rent ($/sq.ft.)
122nd-Division	$303	$1.69	$2.19
Belmont-Hawthorne-Division	$385	$2.30	$2.79
Centennial-Glenfair-Wilkes	$307	$1.59	$2.04
Central City	$432	$2.07	$2.78
Forest Park-Northwest Hills	$337	$1.93	$2.41
Gateway	$291	$1.90	$2.42
Hayden Island-Bridgeton	$311	$1.92	$2.47
Hillsdale-Multnomah-Barbur	$357	$1.96	$2.68
Hollywood	$433	$2.23	$2.61
Interstate Corridor	$395	$2.07	$2.61
Lents-Foster	$321	$1.99	$2.48
MLK-Alberta	$398	$2.15	$2.61
Montavilla	$331	$1.98	$2.48
Northwest	$408	$2.69	$2.94
Parkrose-Argay	$288	$1.82	$2.21
Pleasant Valley	$315	$1.71	$2.21
Raleigh Hills	$343	$1.92	$2.63
Roseway-Cully	$315	$1.94	$2.42
Sellwood-Moreland-Brooklyn	$397	$2.32	$2.71
South Portland-Marquam Hill	$394	$2.06	$2.75
St. Johns	$298	$2.08	$2.38
Tryon Creek-Riverdale	$328	$1.94	$2.43
West Portland	$334	$1.94	$2.44
Woodstock	$410	$2.21	$2.48

Source: BPS analysis using RMLS sales data and Costar rental data.

Manual Edits

The initial outputs of the Buildable Lands Inventory GIS model were thoroughly reviewed by the BPS staff. Based on staff knowledge, parcels that were known to have high development or redevelopment potential and were not identified by the model as underutilized were "manually" flagged as underutilized and included in subsequent model outputs. These "likely" parcels are all mapped as underutilized regardless of the existing or allowed development capacity.

Parcels that were not identified as constrained in Step 2 of the model, but that are known to have a very low likelihood for development or redevelopment, were manually flagged as "unlikely" to develop, and therefore not included in the final map of underutilized parcels, nor considered for capacity in the following step.

Step 3. Calculate Gross Residential Capacity

After identifying the underutilized and vacant lots in Step 2, the next step is to calculate the gross capacity (before constraints) for residential units.

Residential unit capacity is calculated different for single-dwelling (R) zones and multi-dwelling, mixed-use, and other (RM/CM/Other) zones.

R Zones

For economically viable vacant and non-vacant sites in the single-dwelling zones, the housing type in the pro forma with the highest number of units (no more than four units) is used to calculate the residential capacity of the lot. For all vacant sites in the single-dwelling zones, gross capacity is also capped at four units per lot, in keeping with recent housing production trends. The Residential Infill Project one-year report[6] showed a developer preference for four-unit townhouse and fourplex developments in the single dwelling zones; 73 percent of units permitted were middle housing, and of these, 76 percent were fourplexes and four-unit townhouse developments.

Land Divisions. If lots are 10,000 square feet or greater, the model reduces the area by 25 percent to reflect the likely reduction in buildable area due to right-of-way dedications, then divides the remaining square feet by the minimum lot size in the base zone, with the following exceptions:

[6] https://www.portland.gov/bps/planning/rip/news/2023/7/5/new-study-shows-promising-housing-production-results-residential

- Lots in a "Constrained Sites" overlay zone[7] (shown on the zoning map with the "z" map symbol) are limited to two units per lot. The model will undergo the land division process on lots larger than 10,000 square feet, but the resulting lots will still be subject to the two-unit maximum.
- Lots larger than two acres in RF zones are limited to two units and are not subject to the land division process.

RM/CM/Other Zones

For vacant and economically viable non-vacant sites in the mixed-use commercial (CM) and multi-dwelling (RM) zones, residential capacity is applied using a 'Zoning Capacity' matrix that dictates the likely densities, residential splits, and unit sizes for each geographic market area and zone. Capacity is not calculated for non-vacant sites that are not viable per the pro forma. The fields and attributes in the matrix are listed and described in the table below. The matrix was populated after extensive analysis and market research using the City's new construction permit data, Costar, and RMLS. and The full 'Zoning Capacity' matrix is provided in the appendix.

Gross residential capacity is calculated using the following formula:

Lot Area	X	Max FAR * FAR utilization rate	X	Residential split percentage	/	Average gross unit size

For example, a quarter-acre (10,000 square foot) site in the Middle market area with CM2 zoning has a maximum allowable FAR of 4 to 1 (after bonuses). An FAR utilization rate of 0.64 means the average development is expected to utilize 64 percent of the development entitlement, equating to an FAR of 2.6. Residential uses are expected to account for 60 percent of the development square footage, and at an average gross residential unit size (i.e., inclusive non-leasable space) of 750 square feet, this would result in 20.5 residential units of capacity on that site.

10,000	X	4.0 * 0.64	X	60%	/	750 sf	=	20.5 units

[7] The Constrained Sites overlay zone reduces development potential to comply with protective measures adopted and acknowledged pursuant to statewide land use planning goals. This overlay zone reduces risk to life or property from certain natural hazards.

Table 4. 'Zoning Capacity' Matrix Fields, Descriptions, and Attributes

Field	Description	Attributes
Market Area	Five areas of the City that share similar market conditions	Central City, Inner, Middle, Outer, West
Zone / Comprehensive Plan Designation	All City of Portland zoning and comprehensive plan designations	CE, CI1, CI2, CM1, CM2, CM3, CX, EG1, EG2, EX, IG1, IG2, IH, IR, IS, OS, R10, R2.5, R20, R5, R7, RF, RX, RM1, RM2, RM3, RM4, RMP, IC, MD-C, MD-N, MDP, MD-U, ME, MU-C, MU-D, MU-N, MU-U, CR
FAR	Allowable floor area ratio under base zoning	NA; 0.5:1 to 4.0:1
FAR + IH Bonus FAR	Total allowable floor area ratio after inclusionary housing bonus (applies to sites larger than 9,500 square feet).	NA; 1.5:1 to 6:0:1
FAR Utilization	Average utilization rate of allowable FAR under base zoning.	0.00 to 1.00
FAR + IH Bonus FAR utilization	Average utilization rate of allowable FAR under base zoning.	0.00 to 1.00
Residential Split	Percentage of total development square footage expected to be residential, based on permit trends.	0.00 to 1.00
MFR Split	Percentage of development expected to be residential, based on permit trends.	0.00 to 1.00
Parking Split	Percentage of development expected to be structured parking, based on permit trends.	0.00 to 1.00
Commercial Split	Percentage of development expected to be commercial, based on permit trends.	0.00 to 1.00
Average Unit Size	Anticipated gross residential unit size, in square feet.	600 to 3,000 square feet

FLOOR AREA RATIOS (FAR) AND UTILIZATION

Base FAR and Bonus FAR Selection. Portland's zoning and development regulations include a base FAR and a bonus FAR. Bonus FARs are intended to incentivize developers to build more affordable housing and can therefore be achieved by providing affordable housing units as part of the development. The City's Inclusionary Housing requires that all residential buildings proposing 20 or

more new units provide a percentage of the new units at rents affordable to households at 80% of the median family income or below.

Base FAR and Bonus FAR Selection. The base FAR is used wherever inclusionary housing does not apply—i.e., in non-residential zones—and on lots that are smaller than 9,500 square feet. The maximum FAR including IH bonus is used for lots in residential and mixed-use zones that are greater than 9,500 square feet. A recent analysis of 2019 to 2021 permit data by BPS found that 81 percent of two to 19-unit multi-dwelling developments were built on lots smaller than 10,000 square feet, compared to just 10 percent of 20+ unit multi-dwelling developments. The model, therefore, reflects the high probability that residential development on lots above 9,500 square feet will include at least 20 units and trigger inclusionary housing (9,500 was used instead of 10,000 to ensure the model captured most of the City's 'double' lots).

FAR Utilization Rate. An 'FAR Utilization Rate' is then applied to the base and bonus FARs to reflect the probable development densities. This approach 'right-sizes' the allowable densities to market realities. To come up with these rates, staff analyzed permit data from 2008 through 2019 to calculate the average FAR for each zone and market area and compared it to the maximum allowable FAR.

Plan Districts. Wherever a Plan District exists, the 'FAR' and 'FAR + IH Bonus FAR' outlined in the plan district override the development FAR limits in the Zoning Capacity matrix. The same utilization rates of the underlying zone then apply to the base and bonus development limits outlined in the Plan District. The same logic regarding lot size is used for bonus FARs in Plan District, i.e., bonus FARs are used, if applicable, for lots larger than 9,500 square feet.

LAND USE SPLITS

Once the overall development square footage is determined by the FAR and FAR Utilization Rates, the development is split between residential, commercial (or employment), and parking space using land use splits or ratios. These splits are based on an analysis of development trends using City permit data from 2008 through 2019.

For the residential component, the Zoning Capacity matrix (see appendix) includes average residential unit sizes (gross square feet) that are used to calculate the number of units from the residential square footage.

Step 4. Apply Development Constraints

Steps one through three calculate *gross* development capacity based on market potential, which does not consider development constraints that reduce the development capacity of the land.

BPS identified 26 different constraints to apply to the BLI model. Constraints are applied using a series of 'rates,' which range from 0.0 (completely constrained) to 1.0 (unconstrained) depending on the likely impact the presence of a given constraint has on development potential for housing, commercial, and employment uses. Development constraint rates were identified in an analysis of development permits that included constrained lands. Constrained lands include sites that lack needed urban infrastructure (for example, sites without sewer service), and physical or regulatory barriers to development (such as environmentally sensitive areas, historic landmarks, flood hazards, etc.).

Multiple Constraints. If multiple constraints exist on a site, the model applies the lowest applicable constraint rate (i.e., the most impactful). Then, to reflect the challenges that a developer might face where multiple constraints exist, the constraint rate is further reduced by 0.1 or 0.2 if two or three or more constraints exist, respectively.

Partial Lot Constraints. Constraints are incorporated into the model as two separate GIS feature classes, one for constraints that apply to an entire parcel (i.e., slope, brownfields, historic resources), and one for partial lot constraints (i.e., environmental protection overlays, wetlands, flood hazards). If a partial lot constraint exists, the BLI model uses a lot coverage threshold of 33 percent to determine whether or not to apply the constraint to the lot. In other words, if a partial lot constraint is on 50 percent of the lot, the BLI model proceeds as though that constraint impacts the entirety of the site; if a partial lot constraint is on 20 percent of the lot, the BLI model proceeds as though that constraint does not exist on the site, reflecting the general likelihood that a prospective developer can build around the constraint to such an extent that it does not infringe on development potential.

Following is a list of each constraint used in the BLI model. A full matrix that includes the constraint rates for housing and Central City, commercial, and industrial employment uses is in the appendix. Maps of each constraint can be found online on the BLI project webpage at https://www.portland.gov/bps/planning/bli/2023-documents.

Table 5. Constraint Rates

Category	Field	Description
Brownfields	conECSI	DEQ, Environmental Cleanup Sites I (ECSI)
Brownfields	conLUST	DEQ, Underground Storage Tank Cleanup Sites (UST)
Cultural Resources	conHist	Historic and Conservation districts
Cultural Resources	conHistLdm	Historic and Conservation Landmarks
Cultural Resources	conNatAm	Parcels requiring archaeological scan or consultation with Native American tribal governments
Environmental Overlays	conCovrly	Environmental Conservation Zones
Environmental Overlays	conPovrly	Environmental Protection Zones
Flight Limitations	conAirHgt	Approach and departure cones
Flight Limitations	conHeliprt	Heliport Landing (impacts several buildings near Portland Heliport)
Flight Limitations	conNoise	Noise contours (areas above LDN 65 and 68 noise contours)
Greenway	conGW	All land with g/r/n overlays; land within I overlay where 10% or more of the parcel is within 125' of OHW
Hazards	conFld100	FEMA 100-Year Floodplain Map
Hazards	conFldway	FEMA Floodway Map
Hazards	conLSHA	Parcels within 50' of a mapped landslide hazard area
Hazards	conSlp25	Parcels where 25% or more of the parcel has a slope of more than 25%
Infrastructure	conSewer	Infrastructure Constrained Areas: Sewer
Infrastructure	conStorm	Stormwater System
Infrastructure	conWater	Water System
Natural Resources	conWetland	Wetlands
Public Ownership	conInstit	Institutional Campuses
Public Ownership	conPrvCom	Private Common Open Space
Public Ownership	conPubOwn	Publicly owned or controlled lots that do not provide for residential uses
Scenic Areas	conView	Views
Transportation	conTranCap	2008 Volume to Capacity Ratios
Transportation	conTranInt	ODOT Highway Interchanges
Transportation	conTranSub	Substandard and Unimproved Streets

Constrained Lands Analysis. The constraint rates for each of the above constraints were determined by an analysis of development permit data from 2012 to 2022 on constrained and unconstrained land. Steps in the analysis that calculated the constraint rates are outlined below. This analysis was implemented for all constraints. For constraints that had an insufficient number of developments in the permit data to analysis, the constraint rates match those used in the 2016 BLI.

1. Starting with the 2012 BLI taxlot data, identify which sites were considered developed, underutilized, and vacant. This analysis focuses on the development rates of sites considered underutilized and vacant as of 2012.
2. Join all constraints to the 2012 BLI taxlot data in GIS, then join the General EOA Geographies.

3. Join the permit data from the past decade (2012-2022), including only finaled permits for new construction and a permit description of either "Residential 1 & 2 Family" or "Commercial Building Permit."
4. Flag any site as "developed" if the FAR increased by at least 0.2. Sum the total of the square footage of new construction permits during the FAR calculations because some multi-building developments have separate permits for each building.
5. For each constraint, calculate the constrained and unconstrained development rate on vacant and underutilized BLI lots. Divide the newly developed building square footage on constrained land by the constrained acreage, then divide the newly developed building square footage on unconstrained land by the unconstrained acreage.
6. To get the constraint rate for each constraint, divide the latter (unconstrained development rate) by the former (constrained development rate). The constraint rate reflects the anticipated rate of development on constrained sites compared to unconstrained sites.

The following table demonstrates the calculations using real data for the brownfield (ECSI) constraint.

Table 6. Constraint Rate Calculations (Brownfield Example)

	2012 BLI Lot Acres	Recently Developed Bldg. Sq. Ft.	Development Sq. Ft. per BLI Lot Acre	Calc. Rate: Constrained / Unconstrained	Constraint Rate Used in Model
Unconstrained					
Central City	1,032	7,198,223	6,974		
Commercial	3,236	12,714,202	3,929		
Industrial	7,942	5,106,873	643	*N/A*	
Institutional	671	393,996	587		
Residential	31,418	15,961,661	508		
Constrained					
Central City	158	1,831,849	11,619	167%	0.95
Commercial	143	1,195,073	8,382	213%	0.95
Industrial	5,843	1,874,275	321	50%	0.5
Institutional	86	0	0	0%	0.05
Residential	130	113,934	874	172%	0.95

Source: BPS Analysis of Permit and Taxlot data

Step 5. Integrate Recent Permit Data

The BLI uses 2020 as a base year. However, development continues in the real world. The model integrates actual development data as 'realized' capacity on recently developed sites. The BLI, therefore, incorporates permit data (housing unit counts and building square footage) on any lot not already deemed underutilized and with a build year in the Multnomah County taxlot layer of 2020 to 2023. The model draws this information from issued, under inspection, and finaled permits in the City's permit database from 2015 to 2023 to ensure that no permit activity is missed for newly developed lots. Specifically, housing unit counts and building square footage overrides the modeled capacity of any developed site, in recognition that newly developed sites are unlikely to redevelop again through 2045.

The table below provides a summary of the permit data that is integrated into the BLI model as realized capacity. A total of 2,856 properties were developed between 2020 and 2023 (through June), delivering almost 20,000 residential units across 695 acres at an average density of 29 units per acre and seven units per lot.

Table 7. Residential Permit Data for Lots Developed from 2020 through June 2023

District	Number of Properties	Residential Units	Total Taxlot Acres
Central City	45	5,121	24
East	509	2,016	144
North	471	3,424	121
Northeast	574	2,713	159
Southeast	876	3,858	109
West	381	2,772	139
Total	**2,856**	**19,904**	**695**

Source: BPS

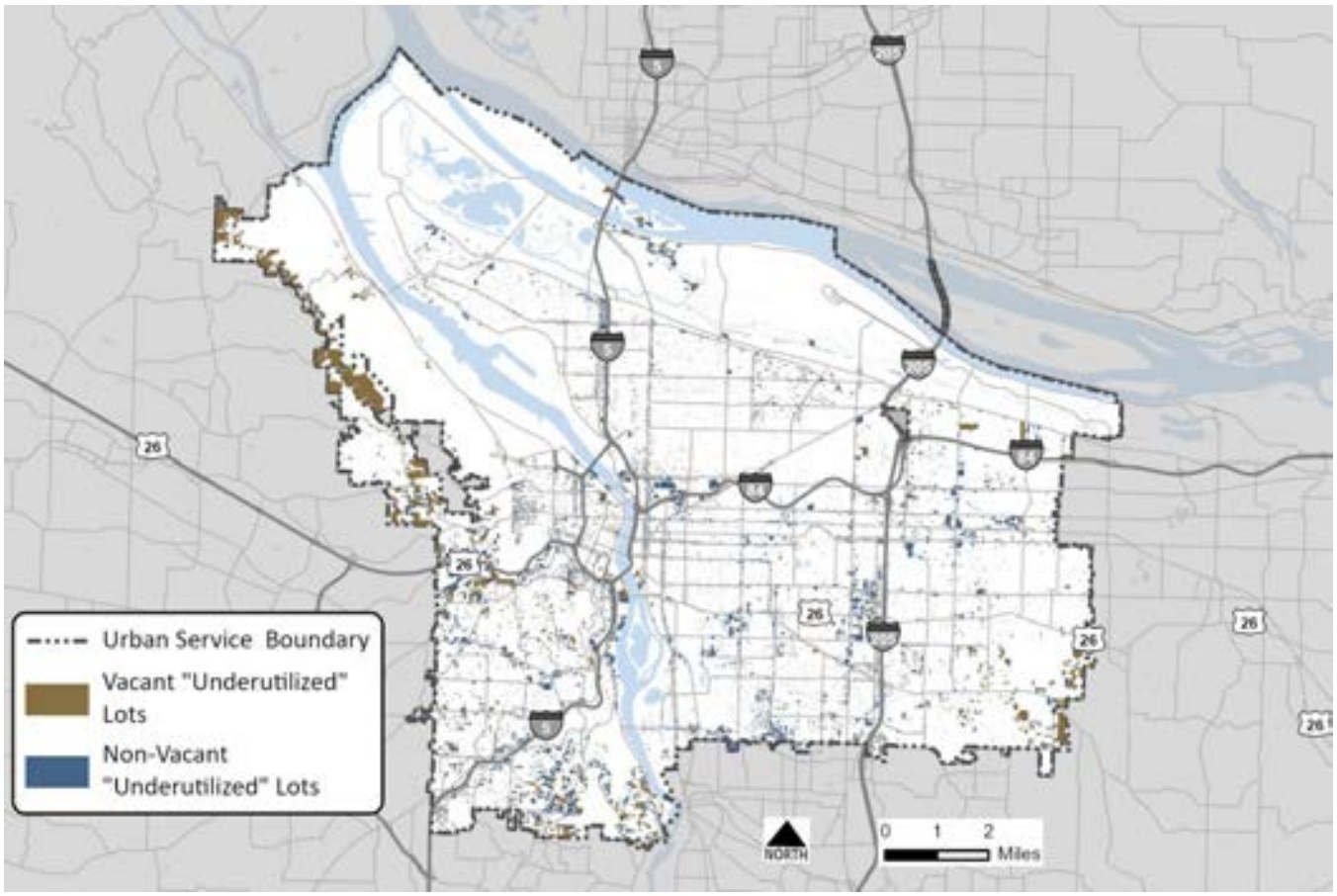
Residential Buildable Lands Inventory Results

This section describes the BLI model results, including vacant and underutilized land and capacity for new residential (units) development. For more detailed analysis, see the Housing Needs Analysis (HNA).

Vacant and Underutilized Residential Land

The map below shows vacant and non-vacant underutilized lots available for residential development and considered in the BLI model for residential unit capacity. Central City accounts for 4.6 percent of the vacant and non-vacant utilized lots, Inner Portland for 22.7 percent, Middle Portland for 31.0 percent, Outer Portland for 16.0 percent, and West Portland for 25.7 percent. These lots include both constrained and unconstrained land throughout Portland and do not necessarily correspond to potential unit capacity in each market area.

Figure 2. Vacant and Underutilized Residential Lots



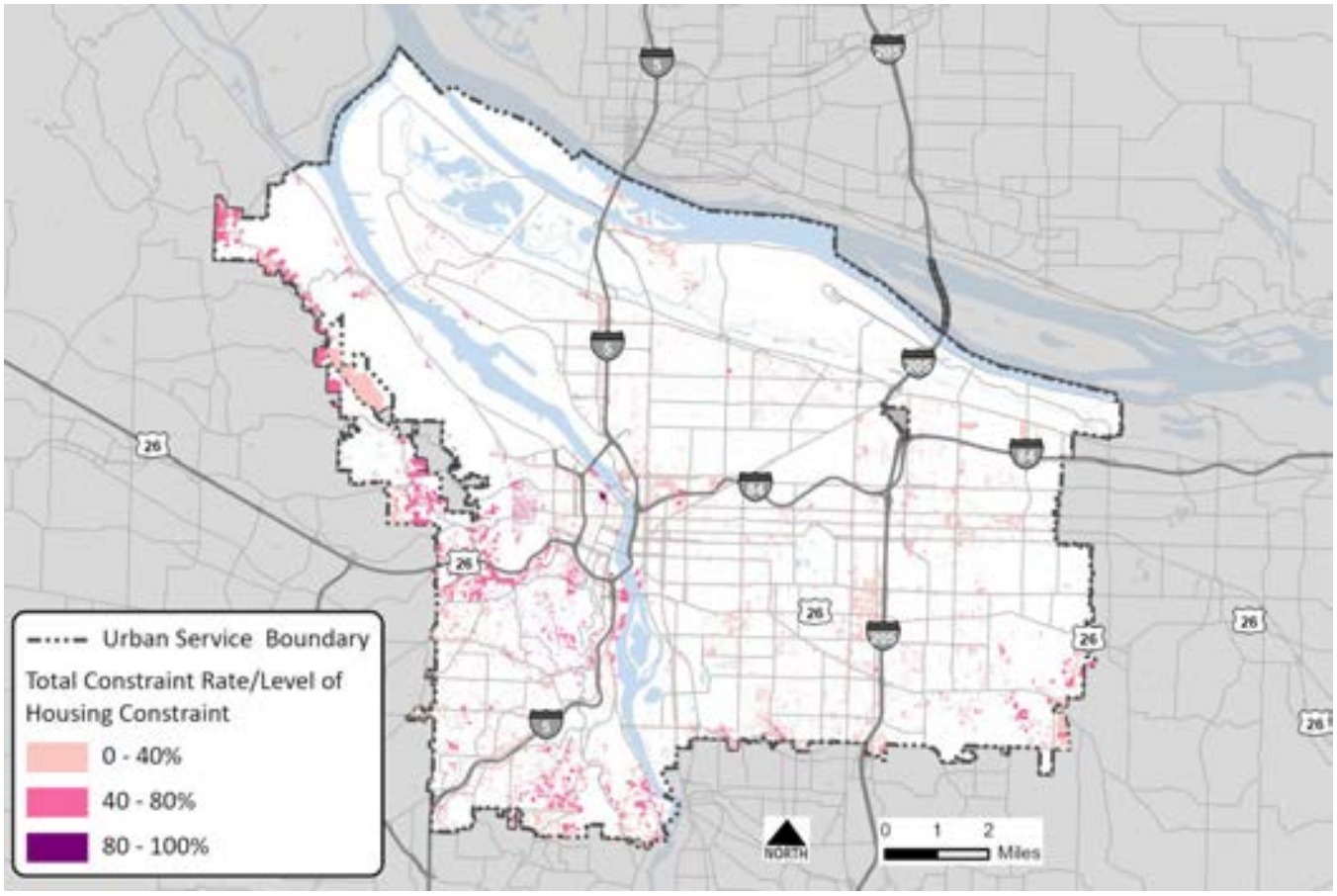
Source: BPS

Residential Constraints

The following map shows the total constraint rate used by the BLI model for residential development. The map shows three levels of housing constraints: 0-40 percent (unconstrained to mildly constrained), 40-80 percent (moderately to severely constrained), and 80-100 percent (severely to completely constrained).

About 83 percent of Portland's acreage is constrained by at least one of the 26 development constraints in the model. About 79 percent of Portland's underutilized residential land is constrained. West Portland, where steep slopes and environmentally sensitive areas are common, accounts for 58 percent of Portland's underutilized residential land acreage. East Portland accounts for 19 percent. Central City and Southeast, Northeast, and North Portland each account for less than 10 percent.

Figure 3. Level of Housing Constraint



Source: BPS

Net Residential Development Capacity

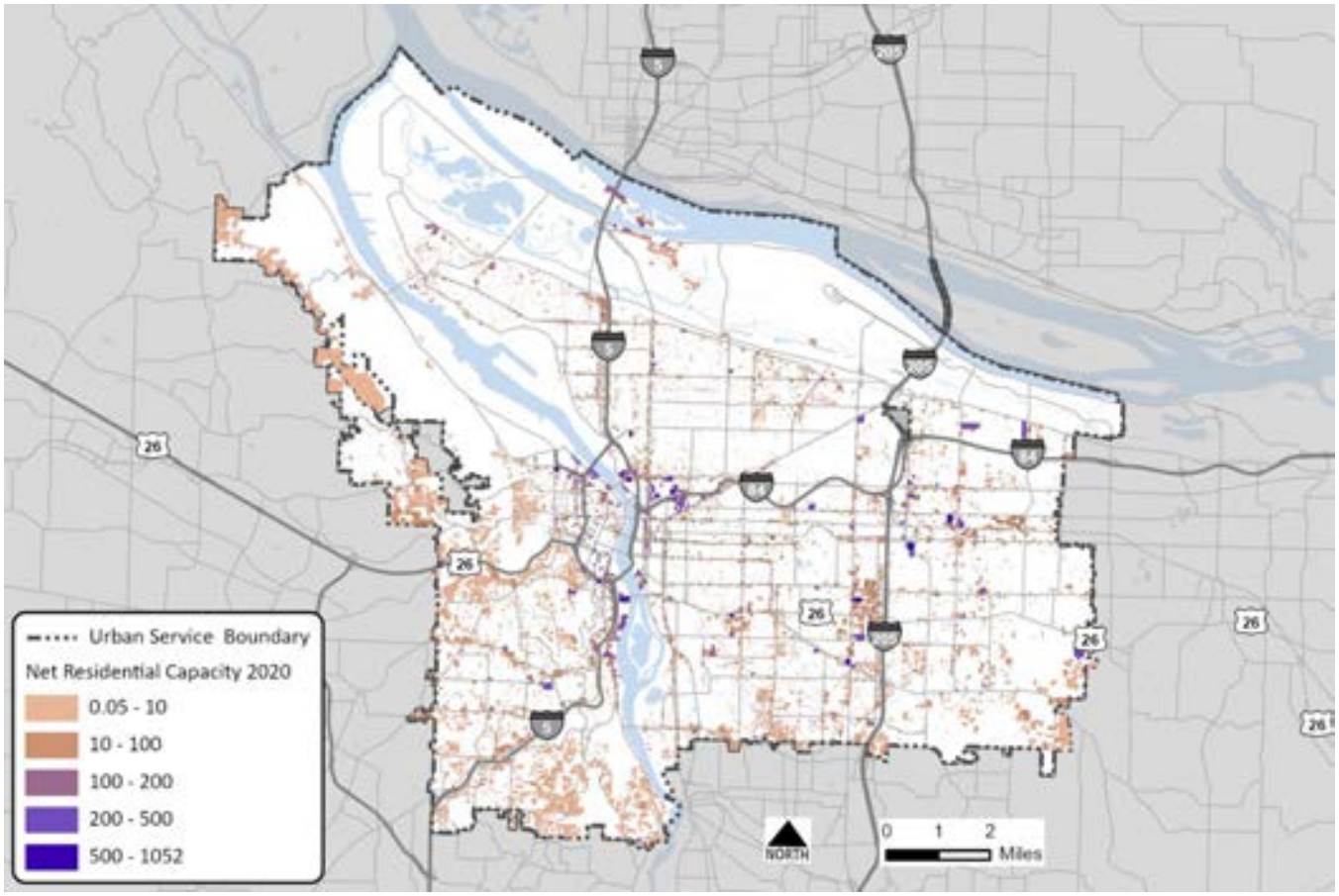
The results of the Buildable Lands Inventory show an estimated capacity for an additional 236,977 housing units in the City of Portland.

Table 8. Residential Capacity by District

District	Capacity (Dwelling Units)
Central City	67,052
East	38,527
North	22,621
Northeast	27,400
Southeast	47,785
West	33,593
Total	**236,977**

Source: BPS analysis

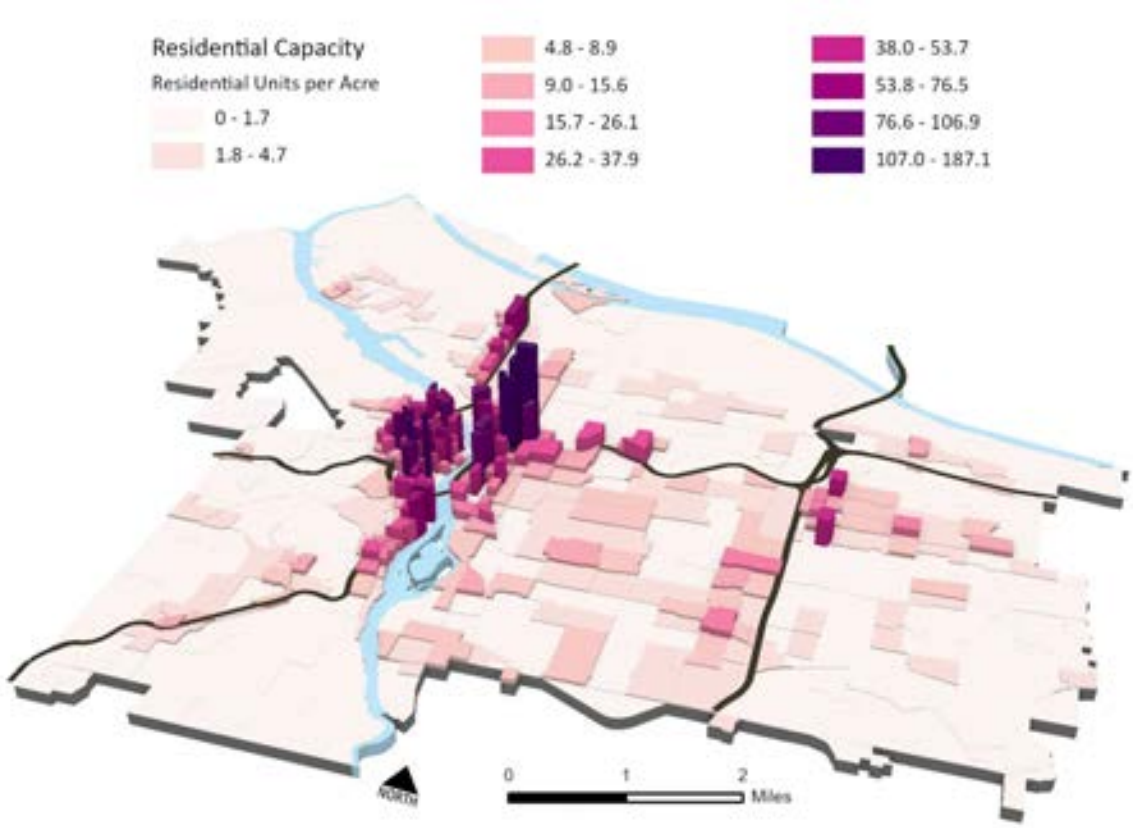
Figure 4. Housing Unit Capacity



Source: BPS

The Residential Capacity Map below illustrates residential capacity by Transportation Analysis Zone (TAZ), shown as housing units per acre (density). Areas of high-density residential capacity tend to be in Portland's centers and corridors where most of the City's mixed-use and multi-dwelling zoning currently exist. Central City accounts for 29 percent of new housing unit capacity citywide, but just five percent of Portland's vacant and underutilized lots, reflecting a concentration of high-density development capacity. At the opposite end of the spectrum, West Portland accounts for just seven percent of new housing unit capacity but 26 percent of Portland's vacant and underutilized lots, reflecting both the presence of development constraints and the concentration of lower-density zoning.

Figure 5. Residential Capacity, Units per Acre by TAZ



Source: BPS

Appendices

Appendix 1. Pro Forma Feasibility Analysis Model Inputs and Assumptions
Appendix 2. BLI Model Inputs: 'Zoning Capacity' Matrix
Appendix 3. Summary of Prototypes in Pro Forma Analysis
Appendix 4. Constraint Maps
Appendix 5. Constraint Rates
Appendix 6. Vacant Industrial Land, Base Inventory in 2020

Appendix 1. Pro Forma Feasibility Analysis Model Inputs and Assumptions

- Sales price per square foot of residential
- Rent per square foot of residential
- Sales commission (percent of sales)
- Sales yield (spread on price)
- Vacancy rate
- Operating cost per square foot
- Rent return on cost required (rental apartments)
- Debt service coverage ratio (middle rental housing)
- Loan-to-cost (middle rental housing)
- Interest rate (middle rental housing)
- Lot size
- Number of units
- Number of surface and structured parking stalls
- Unit size
- Inclusionary housing policy set-aside (10 or 20 percent)
- Affordable rent per unit
- Hard cost per square foot ($)
- Parking cost per stall
- Soft cost
- Contingency (percent of hard and soft costs)
- Developer fee (percent of total costs)

Appendix 2. BLI Model Inputs: 'Zoning Capacity' Matrix

MARKET AREA	COMP_ZONE	GEN_ZONE	GEN_ZONE_CC	REG_ZONE	FAR	IH_FAR	FAR_UTIL	IH_FAR_UTIL	HEIGHT	ZONE_SIZE	RES SPLIT	MFR_SPLIT	PRKG_SPLIT	COMM_SPLIT	AVG_UNIT
CENTRAL CITY	CX	Commercial	Commercial	MUR10	4:1	6:1	1.00	1.00	75	0	0.41	1.00	0.19	0.40	750
CENTRAL CITY	EX	Central Employment	Mixed Employment	MUR10	3:1	5:1	1.00	1.00	65	0	0.61	1.00	0.18	0.21	750
CENTRAL CITY	RX	Multi-Family Residential	Residential	MUR10	4:1	6:1	1.00	1.00	100	0	0.81	1.00	0.17	0.02	750
CENTRAL CITY	IG1	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0.15	0.85	0
CENTRAL CITY	IH	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	0
CENTRAL CITY	RM1	Multi-Family Residential	Residential	MFR2	1:1	1.5:1	1.00	1.00	35	0	0.88	0.67	0.11	0.01	1,000
CENTRAL CITY	RM2	Multi-Family Residential	Residential	MFR6	1.5:1	2.25:1	1.00	1.00	45	0	0.88	0.67	0.11	0.01	850
CENTRAL CITY	RM3	Multi-Family Residential	Residential	MUR9	2:1	3:1	1.00	1.00	65	0	0.82	1.00	0.15	0.03	750
CENTRAL CITY	RM4	Multi-Family Residential	Residential	MUR9	4:1	6:1	1.00	1.00	100	0	0.81	1.00	0.17	0.02	750
CENTRAL CITY	OS	Open Space	Open Space	POS	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
INNER	CE	Commercial	Commercial	MUR9	2.5:1	3.5:1	0.68	0.80	45	0	0.45	1.00	0.04	0.51	800
INNER	CI1	Institutional	Institutional	MUR10	.5:1	NA	0.60	0.00	65	0	0.1	1.00	0.05	0.85	1,000
INNER	CI2	Institutional	Institutional	MUR10	3:1	4:1	0.67	0.80	65	0	0.1	1.00	0.25	0.65	1,000
INNER	CM1	Commercial	Commercial	MUR8	1.5:1	2.5:1	1.00	1.00	35	0	0.8	1.00	0.11	0.09	750
INNER	CM2	Commercial	Commercial	MUR9	2.5:1	4:1	1.00	1.00	45	0	0.78	1.00	0.12	0.10	750
INNER	CM3	Commercial	Commercial	MUR10	3:1	5:1	1.00	1.00	65	0	0.65	1.00	0.21	0.14	800
INNER	CX	Commercial	Commercial	MUR10	4:1	6:1	1.00	1.00	75	0	0.42	1.00	0.17	0.41	800
INNER	EG1	General Employment	Mixed Employment	IND/IL	3:1	NA	0.23	0.00	45	0	0	0.00	0	1.00	0
INNER	EG2	General Employment	Mixed Employment	IND/IL	3:1	NA	0.20	0.00	0	0	0	0.00	0	1.00	0
INNER	EX	Central Employment	Mixed Employment	MUR10	3:1	5:1	1.00	1.00	65	0	0.61	1.00	0.17	0.22	800
INNER	IG1	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0.11	0.89	850
INNER	IG2	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
INNER	IH	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
INNER	IR	Multi-Family Residential	Residential	MUR7	2:1	NA	1.00	0.00	100	0	0.05	1.00	0	0.95	850
INNER	IS	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
INNER	OS	Open Space	Open Space	POS	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
INNER	R10	Single-Family Residential	Residential	SFR3	NA	NA	0.00	0.00	30	10,000	1	0.00	0	0.00	2,500
INNER	R2.5	Single-Family Residential	Residential	SFR14	NA	NA	0.00	0.00	35	2,500	1	0.00	0	0.00	2,000
INNER	R20	Single-Family Residential	Residential	SFR2	NA	NA	0.00	0.00	30	20,000	1	0.00	0	0.00	2,500
INNER	R5	Single-Family Residential	Residential	SFR7	NA	NA	0.00	0.00	30	5,000	1	0.00	0	0.00	2,000
INNER	R7	Single-Family Residential	Residential	SFR5	NA	NA	0.00	0.00	30	7,000	1	0.00	0	0.00	2,000
INNER	RF	Single-Family Residential	Residential	SFR1	NA	NA	0.00	0.00	30	86,920	1	0.00	0	0.00	3,000
INNER	RX	Multi-Family Residential	Residential	MUR10	4:1	6:1	1.00	1.00	100	0	0.81	1.00	0.17	0.02	750
INNER	RM1	Multi-Family Residential	Residential	MFR2	1:1	1.5:1	0.90	0.90	35	0	0.88	0.67	0.11	0.01	1,100
INNER	RM2	Multi-Family Residential	Residential	MFR6	1.5:1	2.25:1	0.83	0.83	45	0	0.88	0.67	0.11	0.01	900
INNER	RM3	Multi-Family Residential	Residential	MUR9	2:1	3:1	0.90	0.90	65	0	0.82	1.00	0.15	0.03	750
INNER	RM4	Multi-Family Residential	Residential	MUR9	4:1	6:1	0.90	0.90	100	0	0.81	1.00	0.17	0.02	750
INNER	RMP	Multi-Family Residential	Residential	MFR2	NA	NA	0.00	0.00	35	1,500	1	0.00	0	0.00	850
MIDDLE	CE	Commercial	Commercial	MUR9	2.5:1	3.5:1	0.54	0.54	45	0	0.3	1.00	0.05	0.65	950
MIDDLE	CI1	Institutional	Institutional	MUR10	.5:1	NA	0.60	0.00	65	0	0.2	1.00	0.02	0.78	1,000
MIDDLE	CI2	Institutional	Institutional	MUR10	3:1	4:1	0.38	0.38	65	0	0.1	1.00	0	0.90	1,000
MIDDLE	CM1	Commercial	Commercial	MUR8	1.5:1	2.5:1	0.80	0.80	35	0	0.6	1.00	0	0.40	750
MIDDLE	CM2	Commercial	Commercial	MUR9	2.5:1	4:1	0.64	0.64	45	0	0.6	1.00	0.13	0.27	750
MIDDLE	CM3	Commercial	Commercial	MUR10	3:1	5:1	0.83	0.83	65	0	0.6	1.00	0.13	0.27	800
MIDDLE	CX	Commercial	Commercial	MUR10	4:1	6:1	1.00	1.00	75	0	0.4	1.00	0	0.60	800
MIDDLE	EG1	General Employment	Mixed Employment	IND/IL	3:1	NA	0.17	0.00	45	0	0	0.00	0	1.00	0
MIDDLE	EG2	General Employment	Mixed Employment	IND/IL	3:1	NA	0.13	0.00	0	0	0	0.00	0	1.00	0
MIDDLE	EX	Central Employment	Mixed Employment	MUR10	3:1	5:1	1.00	1.00	65	0	0.6	1.00	0	0.40	800
MIDDLE	IG1	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
MIDDLE	IG2	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
MIDDLE	IH	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
MIDDLE	IR	Multi-Family Residential	Residential	MUR7	2:1	NA	1.00	0.00	100	0	0.05	1.00	0	0.95	850
MIDDLE	IS	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
MIDDLE	OS	Open Space	Open Space	POS	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
MIDDLE	R10	Single-Family Residential	Residential	SFR3	NA	NA	0.00	0.00	30	10,000	1	0.00	0	0.00	2,500
MIDDLE	R2.5	Single-Family Residential	Residential	SFR14	NA	NA	0.00	0.00	35	2,500	1	0.00	0	0.00	2,000
MIDDLE	R20	Single-Family Residential	Residential	SFR2	NA	NA	0.00	0.00	30	20,000	1	0.00	0	0.00	2,500
MIDDLE	R5	Single-Family Residential	Residential	SFR7	NA	NA	0.00	0.00	30	5,000	1	0.00	0	0.00	2,000
MIDDLE	R7	Single-Family Residential	Residential	SFR5	NA	NA	0.00	0.00	30	7,000	1	0.00	0	0.00	2,250
MIDDLE	RF	Single-Family Residential	Residential	SFR1	NA	NA	0.00	0.00	30	86,920	1	0.00	0	0.00	3,000
MIDDLE	RX	Multi-Family Residential	Residential	MUR10	4:1	6:1	0.75	0.75	100	0	1	1.00	0	0.00	800
MIDDLE	RM1	Multi-Family Residential	Residential	MFR2	1:1	1.5:1	0.90	0.90	35	0	0.9	0.67	0.1	0.00	1,100
MIDDLE	RM2	Multi-Family Residential	Residential	MFR6	1.5:1	2.25:1	0.70	0.70	45	0	0.9	0.67	0.1	0.00	900
MIDDLE	RM3	Multi-Family Residential	Residential	MUR9	2:1	3:1	0.80	0.80	65	0	0.9	1.00	0.07	0.03	800
MIDDLE	RM4	Multi-Family Residential	Residential	MUR9	4:1	6:1	0.75	0.75	100	0	0.9	1.00	0.07	0.03	800
MIDDLE	RMP	Multi-Family Residential	Residential	MFR2	NA	NA	0.00	0.00	35	1,500	1	0.00	0	0.00	850

MARKET AREA	COMP_ZONE	GEN_ZONE	GEN_ZONE_CC	REG_ZONE	FAR	IH_FAR	FAR_UTIL	IH_FAR_UTIL	HEIGHT	ZONE_SIZE	RES SPLIT	MFR_SPLIT	PRKG_SPLIT	COMM_SPLIT	AVG_UNIT
OUTER	CE	Commercial	Commercial	MUR9	2.5:1	3.5:1	0.20	0.20	45	0	0.27	1.00	0.02	0.71	950
OUTER	CI1	Institutional	Institutional	MUR10	.5:1	NA	0.60	0.00	65	0	0.1	1.00	0	0.90	1,000
OUTER	CI2	Institutional	Institutional	MUR10	3:1	4:1	0.38	0.38	65	0	0.1	1.00	0	0.90	1,000
OUTER	CM1	Commercial	Commercial	MUR8	1.5:1	2.5:1	0.60	0.60	35	0	0.64	1.00	0.12	0.24	750
OUTER	CM2	Commercial	Commercial	MUR9	2.5:1	4:1	0.48	0.48	45	0	0.59	1.00	0.19	0.22	750
OUTER	CM3	Commercial	Commercial	MUR10	3:1	5:1	0.67	0.67	65	0	0.57	1.00	0.21	0.22	800
OUTER	CX	Commercial	Commercial	MUR10	4:1	6:1	0.50	0.50	75	0	0.66	1.00	0.1	0.24	850
OUTER	EG1	General Employment	Mixed Employment	IND/IL	3:1	NA	0.17	0.00	45	0	0	0.00	0	1.00	0
OUTER	EG2	General Employment	Mixed Employment	IND/IL	3:1	NA	0.13	0.00	0	0	0	0.00	0	1.00	0
OUTER	EX	Central Employment	Mixed Employment	MUR10	3:1	5:1	1.00	1.00	65	0	0.75	1.00	0	0.25	850
OUTER	IG1	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
OUTER	IG2	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
OUTER	IH	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
OUTER	IR	Multi-Family Residential	Residential	MUR7	2:1	NA	1.00	0.00	100	0	0.05	1.00	0	0.95	850
OUTER	IS	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
OUTER	OS	Open Space	Open Space	POS	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
OUTER	R10	Single-Family Residential	Residential	SFR3	NA	NA	0.00	0.00	30	10,000	1	0.00	0	0.00	2,500
OUTER	R2.5	Single-Family Residential	Residential	SFR14	NA	NA	0.00	0.00	35	2,500	1	0.00	0	0.00	2,000
OUTER	R20	Single-Family Residential	Residential	SFR2	NA	NA	0.00	0.00	30	20,000	1	0.00	0	0.00	2,500
OUTER	R5	Single-Family Residential	Residential	SFR7	NA	NA	0.00	0.00	30	5,000	1	0.00	0	0.00	2,000
OUTER	R7	Single-Family Residential	Residential	SFR5	NA	NA	0.00	0.00	30	7,000	1	0.00	0	0.00	2,250
OUTER	RF	Single-Family Residential	Residential	SFR1	NA	NA	0.00	0.00	30	86,920	1	0.00	0	0.00	3,000
OUTER	RX	Multi-Family Residential	Residential	MUR10	4:1	6:1	0.65	0.65	100	0	0.9	1.00	0.06	0.04	800
OUTER	RM1	Multi-Family Residential	Residential	MFR2	1:1	1.5:1	0.80	0.80	35	0	1	0.67	0	0.00	1,100
OUTER	RM2	Multi-Family Residential	Residential	MFR6	1.5:1	2.25:1	0.57	0.57	45	0	1	0.67	0	0.00	900
OUTER	RM3	Multi-Family Residential	Residential	MUR9	2:1	3:1	0.68	0.68	65	0	0.95	1.00	0.03	0.02	800
OUTER	RM4	Multi-Family Residential	Residential	MUR9	NA	6:1	0.00	0.00	100	0	0.95	1.00	0.03	0.02	800
OUTER	RMP	Multi-Family Residential	Residential	MFR2	NA	NA	0.00	0.00	35	1,500	1	0.00	0	0.00	850
WEST	CE	Commercial	Commercial	MUR9	2.5:1	3.5:1	0.24	0.24	45	0	0.27	1.00	0.02	0.71	950
WEST	CI1	Institutional	Institutional	MUR10	.5:1	NA	0.60	0.00	65	0	0.2	1.00	0	0.80	1,000
WEST	CI2	Institutional	Institutional	MUR10	3:1	4:1	0.38	0.38	65	0	0.1	1.00	0	0.90	1,000
WEST	CM1	Commercial	Commercial	MUR8	1.5:1	2.5:1	0.60	0.60	35	0	0.64	1.00	0.12	0.24	750
WEST	CM2	Commercial	Commercial	MUR9	2.5:1	4:1	0.52	0.52	45	0	0.59	1.00	0.19	0.22	750
WEST	CM3	Commercial	Commercial	MUR10	NA	5:1	0.00	0.00	65	0	0.57	1.00	0.2	0.23	800
WEST	CX	Commercial	Commercial	MUR10	NA	6:1	0.00	0.00	75	0	0.66	1.00	0.1	0.24	850
WEST	EG1	General Employment	Mixed Employment	IND/IL	3:1	NA	0.17	0.00	45	0	0	0.00	0	1.00	0
WEST	EG2	General Employment	Mixed Employment	IND/IL	3:1	NA	0.13	0.00	0	0	0	0.00	0	1.00	0
WEST	EX	Central Employment	Mixed Employment	MUR10	NA	5:1	0.00	0.00	65	0	0.6	1.00	0	0.40	850
WEST	IG1	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
WEST	IG2	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
WEST	IH	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
WEST	IR	Multi-Family Residential	Residential	MUR7	2:1	NA	1.00	0.00	100	0	0.05	1.00	0	0.95	850
WEST	IS	Industrial	Industrial	IL	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
WEST	OS	Open Space	Open Space	POS	NA	NA	0.00	0.00	0	0	0	0.00	0	1.00	850
WEST	R10	Single-Family Residential	Residential	SFR3	NA	NA	0.00	0.00	30	10,000	1	0.00	0	0.00	3,000
WEST	R2.5	Single-Family Residential	Residential	SFR14	NA	NA	0.00	0.00	35	2,500	1	0.00	0	0.00	2,000
WEST	R20	Single-Family Residential	Residential	SFR2	NA	NA	0.00	0.00	30	20,000	1	0.00	0	0.00	3,000
WEST	R5	Single-Family Residential	Residential	SFR7	NA	NA	0.00	0.00	30	5,000	1	0.00	0	0.00	2,500
WEST	R7	Single-Family Residential	Residential	SFR5	NA	NA	0.00	0.00	30	7,000	1	0.00	0	0.00	2,500
WEST	RF	Single-Family Residential	Residential	SFR1	NA	NA	0.00	0.00	30	86,920	1	0.00	0	0.00	3,500
WEST	RX	Multi-Family Residential	Residential	MUR10	NA	6:1	0.00	0.00	100	0	0.9	1.00	0.06	0.04	800
WEST	RM1	Multi-Family Residential	Residential	MFR2	1:1	1.5:1	0.80	0.80	35	0	1	0.67	0	0.00	1,100
WEST	RM2	Multi-Family Residential	Residential	MFR6	1.5:1	2.25:1	0.57	0.57	45	0	1	0.67	0	0.00	900
WEST	RM3	Multi-Family Residential	Residential	MUR9	NA	3:1	0.00	0.00	65	0	0.95	1.00	0.03	0.02	800
WEST	RM4	Multi-Family Residential	Residential	MUR9	NA	6:1	0.00	0.00	100	0	0.95	1.00	0.03	0.02	800
WEST	RMP	Multi-Family Residential	Residential	MFR2	NA	NA	0.00	0.00	35	1,500	1	0.00	0	0.00	850

Appendix 3. Summary of Prototypes in Pro Forma Analysis

Prototype Name	Lot Size (sf)	Total Stories	Total Units	Parking Ratio (per unit)	Avg. Gross Unit Size (sf)	Zone(s) Used to Calibrate Prototypes
Reg. SF detached	5,000	2	1	2	1850	R5
Narrow lot SF detached	2,500	2	1	2	1500	R2.5
MM: duplex own R7	7,000	2	2	2	1750	R7
MM: duplex own	5,000	3	2	2	1450	R5
MM: triplex own	5,000	3	3	2	1165	R5
MM: fourplex own	5,000	2	4	0.5	875	R5
MM: fourplex own R2.5	5,000	2	4	0.5	1000	R2.5
MM: townhomes own	5,000	3	5	1	1500	RM2, RM3, all mixed-use zones
MM: duplex rent	5,000	3	2	2	1250	R5
MM: triplex rent	5,000	3	3	2	1165	R5
MM: fourplex rent	5,000	2	4	0.5	875	R5
MM: townhomes rent	5,000	3	5	0	1000	RM2, RM3, all mixed-use zones
Wood frame SF - inner	5,000	3	15	0	637	RM2 and RM3
Wood frame SF - outer	20,000	3	40	0.63	767	RM1, RM2, RM3, CM1, CM2, CM3
Podium MF 4-over-1	40,000	5	135	0.41	716	RM3, RM4, CM2
Podium MF 5-over-1	40,000	6	165	0.33	716	CM3
Tower MF	40,000	10	245	0.61	732	RM4 and Gateway Plan District

Source: ECONorthwest, "Development Capacity Feasibility Analysis Methodology Technical Memo," 2021

Appendix 4. Constraint Maps

All constraint maps are online in the 2023 BLI Documents folder at the following link: https://www.portland.gov/bps/planning/bli/2023-documents. Maps exist for each of the following constraints.

- Environmental Overlays
- Flight Limitations
- Flood Hazards
- Greenway Constraint
- Historic and Cultural Resources
- Institutional Properties
- ODOT Highway Interchanges
- Potentially Contaminated Sites
- Privately Owned Common Space
- Publicly Owned Land
- Scenic Views
- Sewer System
- Slope Landslide Hazards
- Stormwater System
- Transportation Capacity
- Unimproved and Substandard Streets
- Water System
- Wetlands

Category	Field	Description	Partial Lots	Housing	Central City Emp.	Industrial Emp.	Commercial Emp.	Institution Emp.
Brownfields	conECSI	DEQ, Environmental Cleanup Sites I (ECSI)	No	0.95	0.95	0.50	0.95	0.05
Brownfields	conLUST	DEQ, Underground Storage Tank Cleanup Sites (UST)	No	0.95	0.95	0.75	0.90	0.20
Cultural Resources	conHist	Historic and Conservation districts	No	0.90	0.90	0.90	0.90	0.90
Cultural Resources	conHistLdm	Historic and Conservation Landmarks	No	0.55	0.55	0.55	0.55	0.55
Cultural Resources	conNatAm	Parcels requiring archaeological scan or consultation with Native American tribal governments	No	1.00	0.85	0.85	0.85	0.85
Environmental Overlay Zones	conCovrly	Environmental Conservation Zones	Yes	0.95	0.75	0.50	0.25	0.25
Environmental Overlay Zones	conPovrly	Environmental Protection Zones	Yes	0.00	0.00	0.00	0.00	0.00
Flight Limitations	conAirHgt	Approach and departure cones	No	0.95	1.00	1.00	1.00	1.00
Flight Limitations	conHeliprt	Heliport Landing (impacts several buildings near Portland Heliport)	No	0.95	1.00	1.00	1.00	1.00
Flight Limitations	conNoise	Noise contours (areas above LDN 65 and 68 noise contours)	No	0.95	1.00	1.00	1.00	1.00
Greenway	conGW	All land with g/r/n overlays; land within i overlay where 10% or more of the parcel is within 125' of OHW	No	0.60	0.65	0.50	0.60	0.50
Hazards	conFld100	FEMA 100-Year Floodplain Map	Yes	0.80	0.50	0.40	0.35	0.35
Hazards	conFldway	FEMA Floodway Map	Yes	0.00	0.00	0.00	0.00	0.00
Hazards	conLSHA	Parcels within 50' of a mapped landslide hazard area	No	0.80	1.00	1.00	1.00	1.00
Hazards	conSlp25	Parcels where 25% or more of the parcel has a slope of greater than 25%	No	0.75	0.50	0.35	0.35	0.35
Infrastructure	conSewer	Infrastructure Constrained Areas: Sewer	No	0.85	0.75	0.75	0.75	0.75
Infrastructure	conStorm	Stormwater System	No	0.85	0.75	0.75	0.75	0.75
Infrastructure	conWater	Water System	No	0.85	0.75	0.75	0.75	0.75
Natural Resources	conWetland	Wetlands	Yes	0.55	0.75	0.50	0.35	0.35
Public Ownership	conInstit	Institutional Campuses	No	0.00	1.00	1.00	1.00	1.00
Public Ownership	conPrvCom	Private Common Open Space	No	0.00	0.00	0.00	0.00	0.00
Public Ownership	conPubOwn	Publicly owned or controlled lots that do not provide for residential uses	No	0.20	1.00	1.00	1.00	1.00
Scenic Areas	conView	Views	No	1.00	0.90	1.00	1.00	1.00
Transporation	conTranCap	2008 Volume to Capacity Ratios	No	0.90	0.90	0.65	0.80	0.80
Transporation	conTranInt	ODOT Highway Interchanges	No	0.90	0.90	0.75	0.75	0.75
Transporation	conTranSub	Substandard and Unimproved Streets	No	0.85	0.85	0.75	0.75	0.75

Contact

SAM BROOKHAM
Economic Planner | Bureau of Planning and Sustainability
sam.brookham@portlandoregon.gov

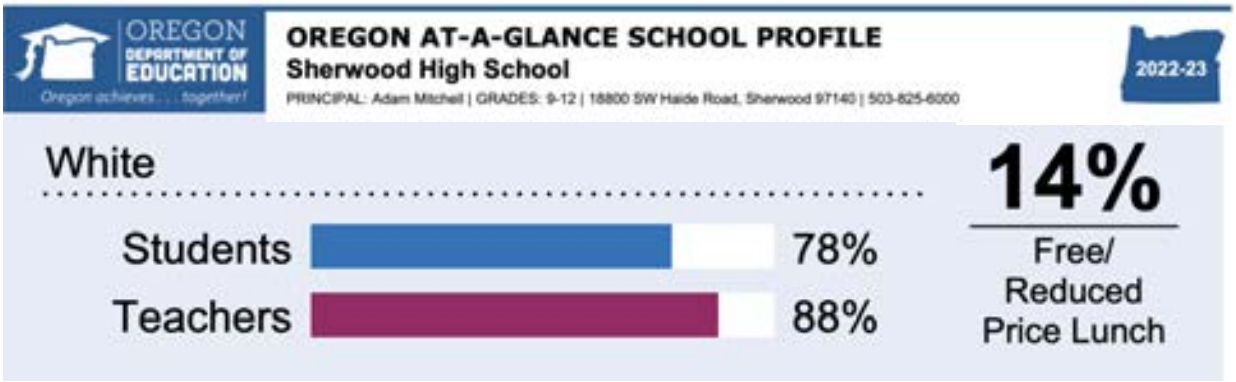
About City of Portland Bureau of Planning and Sustainability
The Bureau of Planning and Sustainability (BPS) develops creative and practical solutions to enhance Portland's livability, preserve distinctive places, and plan for a resilient future.

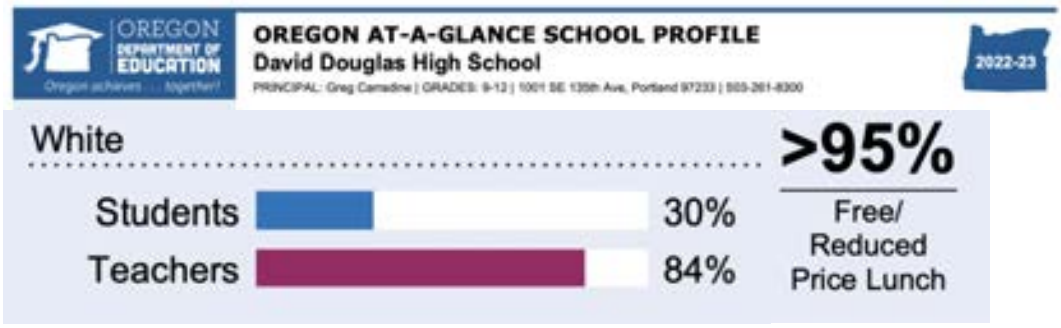
THE BUREAU OF PLANNING & SUSTAINABILITY

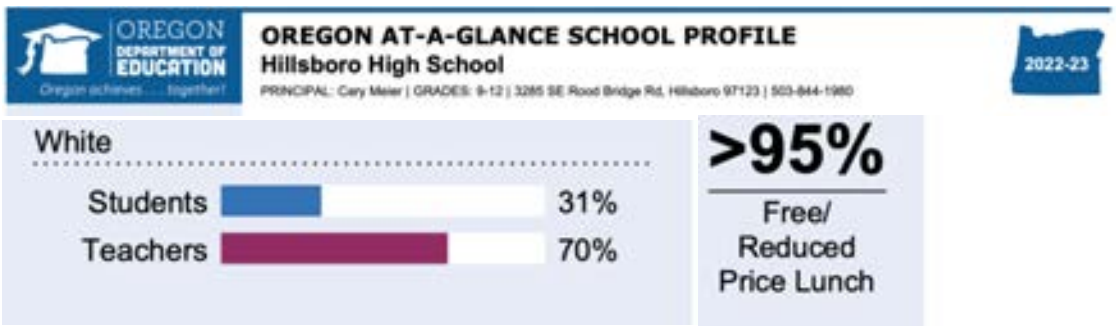
http://portland.gov/bps
503-823-7700
bps@portlandoregon.gov

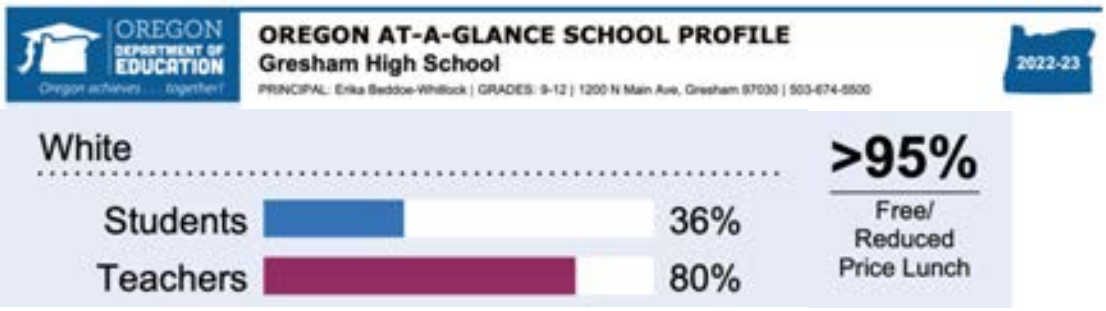
Sherwood High School

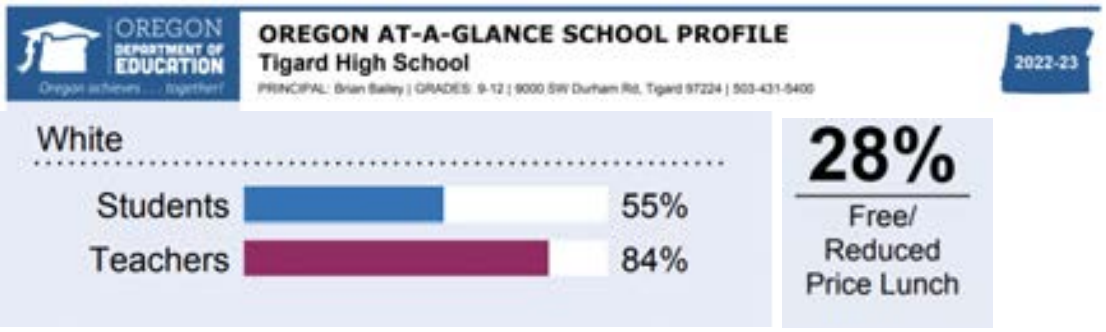
82 acres (=site added to the UGB by Metro in 2016)
350,000 square feet for school building (8 acres of interior space)
11 acres (approximately) of parking
Six ball fields
$250 million construction cost
Enrollment 1,636 (2022-23)
Built to accommodate 2,046 students by 2023 and 2,182 in 2025
2022 forecast for enrollment in 2032 is 1,530

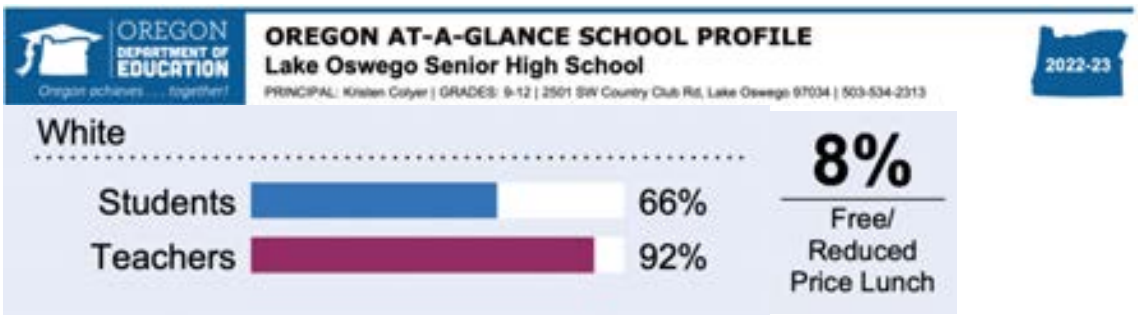



OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!
OREGON AT-A-GLANCE SCHOOL PROFILE
David Douglas High School
PRINCIPAL: Greg Camadine | GRADES: 9-12 | 1001 SE 135th Ave, Portland 97233 | 503-261-8300
2022-23
White
Students 30%
Teachers 84%
>95%
Free/ Reduced Price Lunch


OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!
OREGON AT-A-GLANCE SCHOOL PROFILE
Hillsboro High School
PRINCIPAL: Cary Meier | GRADES: 9-12 | 3285 SE Rood Bridge Rd, Hillsboro 97123 | 503-844-1980
2022-23
White
Students 31%
Teachers 70%
>95%
Free/ Reduced Price Lunch


OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!
OREGON AT-A-GLANCE SCHOOL PROFILE
Gresham High School
PRINCIPAL: Erika Beddoe-Whitlock | GRADES: 9-12 | 1200 N Main Ave, Gresham 97030 | 503-674-5500
2022-23
White
Students 36%
Teachers 80%
>95%
Free/ Reduced Price Lunch


OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!
OREGON AT-A-GLANCE SCHOOL PROFILE
Tigard High School
PRINCIPAL: Brian Bailey | GRADES: 9-12 | 9000 SW Durham Rd, Tigard 97224 | 503-431-5400
2022-23
White
Students 55%
Teachers 84%
28%
Free/ Reduced Price Lunch


OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!
OREGON AT-A-GLANCE SCHOOL PROFILE
Lake Oswego Senior High School
PRINCIPAL: Kristen Colyer | GRADES: 9-12 | 2501 SW Country Club Rd, Lake Oswego 97034 | 503-534-2313
2022-23
White
Students 66%
Teachers 92%
8%
Free/ Reduced Price Lunch

DRAFT

EFFECT OF WIDENING THE URBAN LINK SEGMENT OF ROY ROGERS ROAD ON FARM PRACTICES AND COST

Washington County, Oregon

June 24, 2016

Prepared By

OBEC Consulting Engineers
5000 Meadows Road, Suite 420
Lake Oswego, OR 97035
503.620.6103

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APPENDICES

Appendix A Memorandum, Application of Statewide Planning Program Laws to the Urban Link Segment of Roy Rogers Road

Appendix B Existing Section and Concepts for Widened Section, Urban Link Segment, Roy Rogers Road Improvements

Appendix C Effects of the Original Construction of Roy Rogers Road

Introduction

Washington County is considering an amendment to the County Transportation System Plan (TSP) to designate the Urban Link Segment (ULS) of Roy Rogers Road as having four to five lanes. The ULS extends from where the road leaves the Portland metro urban growth boundary (UGB) and Tigard city limits ½-mile south of Bull Mountain Road to where it re-enters the UGB and enters the Sherwood city limits about .8 mile from OR 99W. See Figure 1. The TSP now designates the ULS as an arterial and as having two lanes.[1] For the reasons contained in Appendix A, when the County adopts this amendment to the TSP, it must comply with ORS 215.296, which states:

> (1) A use allowed under ORS 215.213(2) . . . may be approved only where the local governing body or its designee finds that the use will not:
>
> (a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use or
>
> (b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.
>
> (2) An applicant for a use allowed under ORS 215.213(2) . . . may demonstrate that the standards for approval set forth in subsection (1) of this section will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective.
>
> * * *

The County will use the analysis in this report as a source when it prepares the findings required by ORS 215.296.

Roy Rogers Road is unusual in that it is one of only two single roads in Washington County that connect two parts of the Portland metro UGB.[2] This is why the segment of Roy Rogers Road between the UGB in Tigard and the UGB in Sherwood is called the ULS. The ULS serves urban travel demand through a rural agricultural area.

Background

History of Roy Rogers Road

Washington County built Roy Rogers Road in the late 1990s. Prior to its construction, there was no road connection between what are now the intersections of Roy Rogers Road with Bull Mountain Road and Elsner Road, as shown in Figure 2. The segment between Scholls Ferry Road and the intersection of Roy Rogers Road with Beef Bend Road existed prior to the construction of Roy Rogers Road and was called Beef Bend Road. There was a 90-degree turn at the location of the existing intersection. The road was called Beef Bend Road between Scholls Ferry Road and the turn, as well as east of the turn. Between the intersections of Roy Rogers Road with Elsner Road and Scholls-Sherwood Road, the road was called Elsner Road. There was a 90-degree turn in Elsner Road and it intersected with Scholls-Sherwood Road. What is now Roy Rogers Road between Scholls-Sherwood Road and OR 99W was called Scholls-Sherwood Road. Where Roy Rogers Road follows the prior alignments of Beef Bend, Elsner, and Scholls-Sherwood Roads, the

[1] Washington County, Transportation System Plan Users' Guide, Figure 3-10, Lane Numbers, p. 71.
[2] The other road is SW 175th Avenue immediately to the north of Roy Rogers Road at its intersection with Scholls Ferry Road.

Figure 1 Vicinity Map

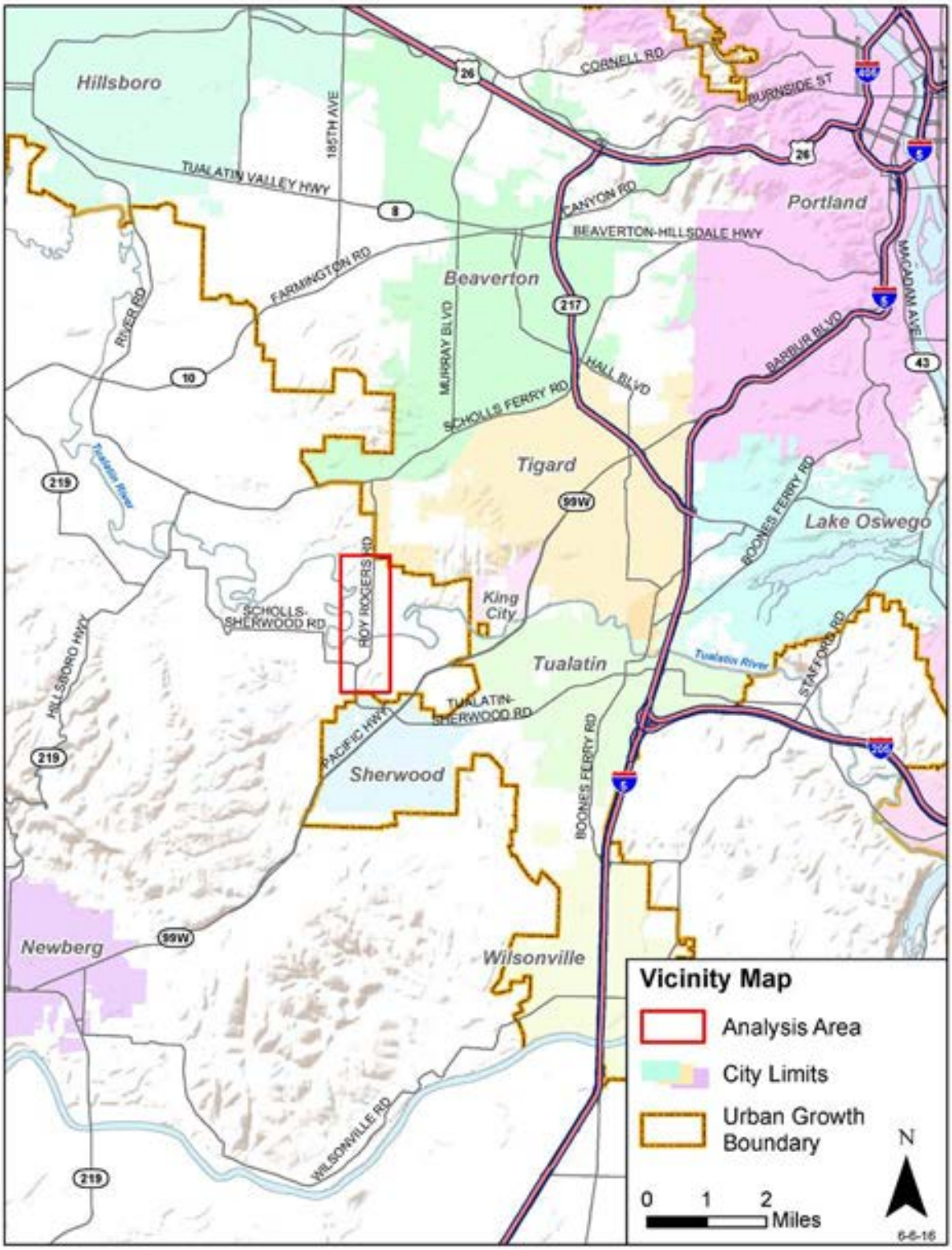
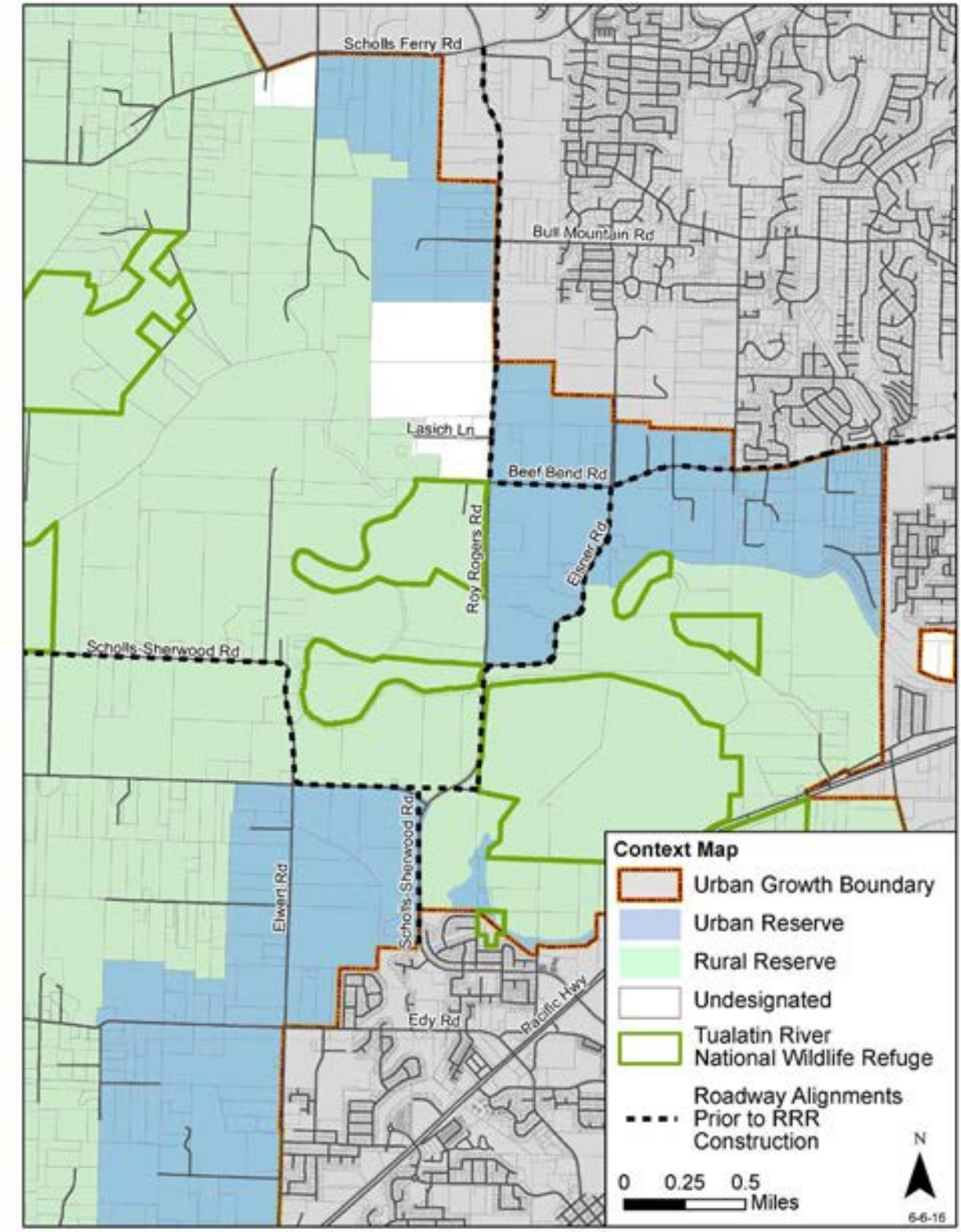


Figure 2 Urban and Rural Reserves and Road Alignments Before Construction of Roy Rogers Road



roadway was reconstructed and widened. As described below and shown in Figure 2, in the new segment of Roy Rogers Road, the roadway divided land parcels and farm fields. Roy Rogers Road was built as part of a transportation and land use strategy adopted by Metro in the 1990s as an alternative to a proposal that was called the Western Bypass. The proposal called for a freeway between I-5 south of Portland and U.S. 30 northwest of Portland.

The County is preparing to widen Roy Rogers Road from Scholls Ferry Road to the northern limits of the ULS segment, with construction scheduled to begin in 2018. The TSP already designates Roy Rogers Road in that segment, which is within the Portland metro UGB and the Tigard city limits, as having four to five lanes. Because of growing traffic volumes, the County would like to extend that widening project to approximately 1,000 feet south of Beef Bend Road. In the longer term, the County would like to widen Roy Rogers Road all the way to OR 99W, through the southern limit of the ULS, i.e., the UGB/Sherwood city limits. Roy Rogers Road has been selected as the route for the Willamette Water Supply pipeline to Hillsboro. Coordinating widening Roy Rogers Road with construction of the pipeline could result in a decision to widen Roy Rogers Road sooner than would otherwise be the case.

Plan Designations and Zoning

All of the land along the ULS is zoned Exclusive Farm Use (EFU). As Figure 2 shows, Washington County has designated some of the land Urban Reserve and some of the land Rural Reserve. While land within UGBs is designated to accommodate population and employment growth projected to occur within 20 years, land within Urban Reserves is designated to accommodate projected population and employment growth beyond 20 years in the future. Land within Rural Reserves is designated as being protected from urbanization for up to 50 years as a means "to provide long-term protection to the agricultural industry . . ."[3] As indicated above, the Portland metro UGB defines the north and south limits of the ULS. Figure 2 shows the distance between the land designated Urban Reserve and the UGB.

Proposed Widening

There is no design for how the ULS would be widened, but the County would apply and adapt its standard section for rural five-lane arterials. The top section in Appendix B shows the existing roadway. The left side of the lower section in Appendix B shows the County's standard for a rural five-lane arterial. In addition to a center turn lane/median, 12-foot travel lanes, 8-foot paved shoulder, 6-foot gravel shoulder, and clear zone, it includes a ditch to convey stormwater runoff. The right side of the lower section in Appendix B shows an alternative treatment for the improvements outside the paved shoulder. Under the alternative treatment, stormwater runoff would be contained within the roadway by mountable curbs. It would then be conveyed by storm sewer pipes located under the shoulder. With both alternatives, stormwater would be conveyed to detention and treatment ponds or swales.

Widening the ULS is expected to necessitate the acquisition of additional right-of-way and of permanent easements for slopes and drainage, but by how much and where will not be determined until the project design stage. The existing right-of-way boundary has not been surveyed, but is thought to be 90 feet wide for most of the ULS. At some locations, it may be possible to accommodate all of the improvements within the existing right-of-way. At other locations, improvements could result in right-of-way and easements that total 120 feet or more in total width. Factors affecting total width that will vary along the ULS are expected to include center turn lane locations, the slopes on each side of the roadway, stormwater treatment facilities,

[3] ORS 195.141(3).

and use of guard rails and retaining walls. If and where used, the alternative treatment for the improvements outside the paved shoulder, as shown on the right side of the lower section in Appendix B, may reduce total width. Generally, land would be acquired equally from each side of the road. However, at some locations, most or all of the acquisition could be from one side of the road. Where one side of the ULS borders land in the Tualatin River National Wildlife Refuge, it is expected that all of the widening will be on the other side of the roadway.[4]

Methodology and Terminology

The analysis in this report is based on information and judgements obtained from interviews with the owners and farmers of parcels along the ULS where farming is the principal use. These are the parcels that are "devoted to farm . . . use," in the language of ORS 215.296, and are referred to in this analysis as commercial farms. The analysis is also based on interviews with representatives of the Oregon Department of Agriculture, Oregon State University Extension Service, Washington County Farm Bureau, and Tualatin Valley Irrigation District. All of the interviews were conducted between May 6th and May 31st, 2016.

The analysis does not address the effect of widening the ULS on four uses in the analysis area, because the uses are not covered by ORS 215.296:

- parcels for which farming is incidental to the residential use of the parcel, because the parcels are not "devoted to farm . . . use."
- the parcel on the west side of Roy Rogers Road immediately north of its intersection with Beef Bend Road. This is because the City of Tigard has purchased the property for a park. Conversion of the existing farm and nursery operation to park use is expected to have occurred by or roughly at the same time as the widening of the ULS at the parcel's location.
- retail stores, because they are not farm uses within the meaning of ORS 215.296. Within the Analysis Area (AA), these are the Baggenstos Farm Store north of Beef Bend Road and Al's Garden Center south of Beef Bend Road. In the past, a farm stand has operated near the intersection of Roy Rogers Road with Scholls-Sherwood Road and operation of a farm stand there may resume in the future.
- the Tualatin River National Wildlife Refuge. Oregon law states, "'Farm use' also includes the propagation, cultivation, maintenance and harvesting of aquatic, bird and animal species that are under the jurisdiction of the State Fish and Wildlife Commission, to the extent allowed by the rules adopted by the commission."[5] While the Refuge propagates aquatic, bird, and animal species that are under the jurisdiction of the State Fish and Wildlife Commission, it is not covered by Oregon Fish and Wildlife Commission administrative rules and is outside the Commission's jurisdiction. Therefore, the Refuge is not a farm use for purposes of ORS 215.296.

The AA for this analysis comprises the lands abutting the ULS and the land abutting Scholls-Sherwood to Elwert Road, which is made up of parcels under the same ownership as lands abutting Roy Rogers Road.

[4] Section 4(f) of the Department of Transportation Act of 1966 makes it unlikely that the ULS could be widened into Refuge land.

[5] ORS 215.203(2)(a).

As used in this analysis:

- "ownership" refers to one or more contiguous parcels owned by the same person, members of the same family, or entity.
- "farmer" refers to either the owner or owners of a farm that produces products for human consumption or use or the person who actually farms or manages an "ownership."
- "tenant farmer" refers to the person or business that farms a parcel under either a contract or land lease.

Analysis

Existing Practices

What is Produced

Figure 3 shows what is produced by the commercial farm ownerships in the AA, as reported by the interviewed farmers. The MF Beef Bend, LLC, ownership, formerly operated as Fisher Farms, a wholesale nursery, is not currently in use. However, Metropolitan Land Group, LLC, which manages the parcel, is seeking tenants to operate there as wholesale nurseries.

Cultivation Practices

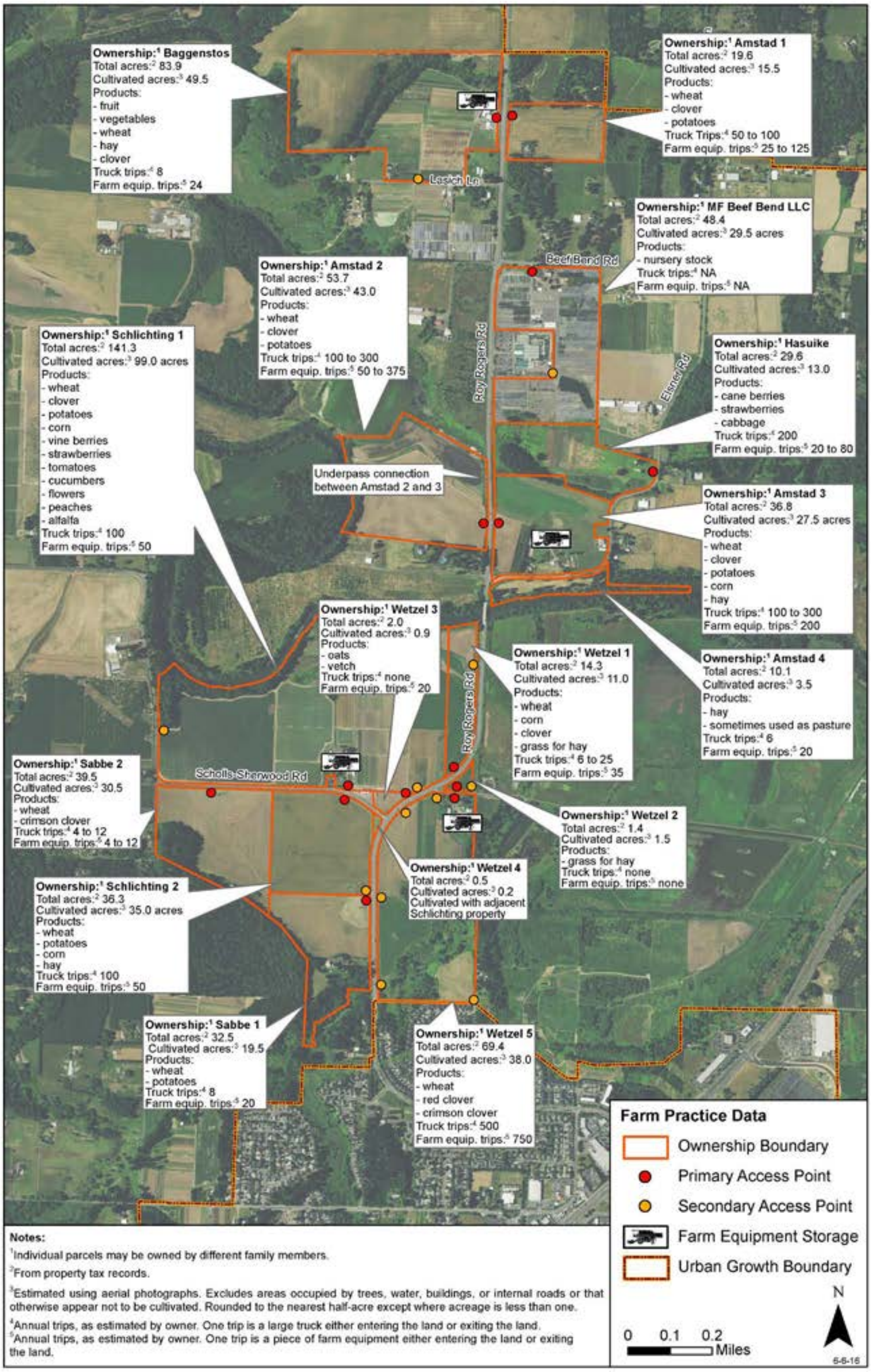
On most of the land, crops are rotated every one to three years, with some rotations extending up to five years. Conventional cultivation practices, including plowing and disking, are used. Herbicides and pesticides are applied multiple times per year at some ownerships and only once or not at all at others. Fertilizer use depends on the crop and, when used, is applied in most instances once per year. About one-half of the land in Figure 3 has irrigation rights and the other half does not. Whether irrigation is used depends on what crop is being produced, but, except for ownership Sabbe 2, irrigation pipes extend to all the ownerships. Some of the ownerships have private water rights and others have rights administered by the Tualatin Valley Irrigation District. Most of the water is pumped from the Tualatin River. In some cases, the tenant farmer uses water rights the tenant farmer owns. Irrigation methods include drip, overhead sprinkler, and traveler systems.[6] In most cases, only one crop is harvested per year. Harvest times depend on the crop, with strawberries in May or June, garden vegetables from July to as late as October, wheat in August, and potatoes in September. Cabbage is harvested in January. Grass for hay is grown from October to June. No products are certified organic or GMO-free.

Drainage

All of the ownerships have drain tiles. Because most drain tiles were installed many years ago, the exact location of drain tiles is mostly unknown.

[6] With a traveler irrigation system, a hose with a sprinkler head at the end of it is extended up to ¼-mile from a mobile base unit and the base unit slowly reels in the hose and sprinkler head.

Figure 3 Farm Practice Data



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Who Farms and Where

Farmers along Roy Rogers Road and in the area generally farm multiple, separate parcels. Referring to the ownerships shown on Figure 3, the following is known from the interviews. The referenced farmers may farm at additional locations.

- The Baggenstoses farm their ownership along Roy Rogers Road, as well as the Schlichting ownerships shown on Figure 3 and other parcels north of the AA;
- The Amstad family farms its three ownerships along Roy Rogers Road shown on Figure 3, other family property west of the AA, and parcels along Pacific Highway;The Hasuike family farms its ownership along Roy Rogers Road and other parcels outside the AA;
- The Wetzel family farms ownerships on both sides of Roy Rogers Road shown in Figure 3; and
- A tenant farmer farms the Sabbe family ownership on Roy Rogers Road and Scholls-Sherwood Road, as well as parcels elsewhere.

Movement of Farm Equipment and Products

Because farmers along Roy Rogers Road farm multiple parcels, farm equipment is moved between parcels within and outside of the AA. In addition, farm equipment is stored at some, but not all, of the farm properties. Figure 3 shows the locations in the AA where farm equipment is stored. With one exception, all farm products are transported offsite in trucks. The exception is that most fruits and vegetables grown at the Baggenstos ownership are sold to consumers onsite at the Baggenstos Farm Store. Figure 3 shows the annual number of large truck and farm equipment trips in and out of each ownership, as estimated by the owner or tenant farmer.

Effects of the Original Construction of Roy Rogers Road

According to interviews with the affected landowners, the original Roy Rogers Road had a range of effects on farming at the ownerships in Figure 3. These included loss of farmland;[7] the division of farm fields, which requires crossing the road for farm operations like irrigation and plowing; increases in travel time for farm equipment and trucks, resulting from delays in entering and exiting farms and fields; the removal of 90-degree field corners, which reduces the efficiency of plowing and other farm operations; the relocation of field access points away from corners, which has a similar effect; alterations in field drainage; damage to fields from overflows of roadway stormwater runoff into them; and use of replacement soil during construction that contained rock. Note that the effects described by the landowners have not been independently verified.

Potential Effects of Widening Roy Rogers Road

Potential Effects on Farm Practices

The principal *potential* effects of widening Roy Rogers Road are likely to be on the time it takes for farm equipment and large trucks to travel between storage locations and farm fields and between farm fields within the AA and elsewhere, and drainage. Potential effects follow.

1. A reduction in the farmland in the ownerships described above. The table below lists the ownerships and, for each, its total size, the estimated amount of land under cultivation, the

[7] According to records of the Statewide Planning Goal exceptions for the original Roy Rogers Road, right-of-way acquisition reduced the amount of agricultural land by 15 to 16 acres. See Beef Bend Extension Findings of Fact and Statement of Reasons in Support of Exceptions to Goals 3, 11, and 14, August 15, 1996, p. 4-25.

estimated acreage that could be converted to roadway use, and the percentage reduction in land under cultivation. Note that the estimates of cultivated acreages and reductions from widening in the table are rough approximations to indicate the relative magnitude of the potential reductions. Actual reductions will depend on project design.

Approximate Potential Reduction in Cultivated Area Due to Widening

Ownership	Total Acres[1]	Estimated Cultivated Acres[2]	Estimated Reduction from Widening (Acres)[2]	Percent Reduction of Estimated Cultivated Acres[3]
Baggenstos	83.9	49.5	0	0
Amstad 1	19.6	15.5	0	0
Amstad 2	53.7	43	.5	1
Amstad 3	36.8	27.5	.5	2
Amstad 4	10.1	3.5	0	0
MF Beef Bend, LLC	48.4	29.5	1	3
Hasuike	29.6	13	0	0
Wetzel 1	14.3	11	.5	5
Wetzel 2	1.4	1.5	.1	5
Wetzel 3	2.0	0.9	.05	3
Wetzel 4	0.5	0.2	.05	30
Wetzel 5	69.4	38	1	3
Schlichting 1	141.3	99	.1	.1
Schlichting 2	36.3	35	.2	1
Sabbe 1	32.5	19.5	.2	1
Sabbe 2	39.5	30.5	0.0	0
Total[4]	**619.3**	**417.0**	**4.5**	**1**

[1]From property tax records.
[2]Acreages rounded to the nearest ½-acre, except where under 1 acre.
[3]Rounded to the nearest percent, except where under .5 percent.
[4]Some totals do not add because of rounding.

2. Increases in travel times for farm equipment and large trucks. The potential for delay will be the net effect of several consequences of widening the ULS:

   a. Traffic volumes will continue to grow because of growth in population and employment, whether or not the ULS is widened, but traffic volumes will be even higher if the ULS is widened. In 2015, the estimated average daily traffic (ADT) was 20,500. With one travel lane in each direction, the forecasted 2035 ADT is 37,000, an increase of 80 percent. The 2035 ADT with two travel lanes in each direction has not been forecasted, but will likely be higher because the roadway's higher capacity may attract trips to the ULS from alternative routes. Higher traffic volumes may increase the amount of time required for large trucks and farm equipment to access and exit farms and fields and increase the

amount of time consumed for trucks and farm equipment to move between farming locations. The biggest potential for delay from higher traffic volumes may be for farm equipment making left turns out of farms and fields.

b. Widening Roy Rogers Road may increase traffic speeds because increased capacity and openness increases motorist speeds. This may increase the delays experienced by large trucks and farm equipment accessing and exiting farms and fields. Wide shoulders to accommodate farm equipment limits the use of landscaping and other measures to make a roadway convey less openness to motorists.

c. Adding a travel lane in each direction may help counteract the increase in the amount of time required for large trucks and farm equipment to access and exit from farm fields by increasing traffic "platooning." Platooning is the clustering of traffic after it has been stopped by a traffic signal. Platooning leaves gaps in the traffic flow, which can be used to make a left turn. The platooning effect dissipates with distance from a traffic signal. The existing traffic signals at the intersections of Roy Rogers Road with Beef Bend Road and Scholls-Sherwood Road help with platooning, but are 1.4 miles apart. Additional traffic signals in the ULS are not expected.

d. If a center turn lane is included in the widening of the ULS at the entrance to a farm or field, it could also help counteract the increase in the amount of time required for large trucks and farm equipment to exit a farm field. It would do this by providing a refuge for left turns, permitting a left-turning truck or piece of farm equipment to use a gap in the traffic flow from the left to enter the refuge, and a second gap in the traffic flow from the right to enter the travel lanes from the refuge.

3. Possible alterations in farm field drainage and damage to fields from overflows of stormwater runoff, if the drainage system is not correctly sized.

4. Increases in farm stand sales. By increasing pass-by traffic, widening the ULS could increase sales at the Baggenstos Farm Store, where, as stated above, most fruits and vegetables grown at the Baggenstos ownership are sold to consumers. This could positively affect the practice of the Baggenstos ownership of selling its products at the store. If farm stand operations at Schlichting ownership 1 resume, it could experience a similar benefit.

5. Reduced conflicts with motor vehicle traffic when farm equipment is traveling on the roadway. The addition of a travel lane in each direction and the wide shoulders in the County's standard section for a rural five-lane roadway will facilitate motor vehicle traffic passing farm equipment. This may reduce farmer reluctance to move farm equipment on the ULS caused by the stress of backing up traffic. It will benefit both the operators of the commercial farms along the ULS and other farmers who move farm equipment using the ULS.

Potential Effects on Cost

Item 1 in the list of potential effects above will impose a cost by reducing cultivated land. Items 2 and 3 in the list could increase the cost of farm practices in the AA. An increase in travel times for farm equipment and large trucks would increase costs by increasing the amount of time and fuel required for the movement of farm equipment and large trucks. An alteration in field drainage could impose a cost, if it necessitated the production of a crop with lower net revenue, and damage to a field could reduce its productivity and increase the cost of farming it. Item 4 in the list above may increase the revenue of the affected ownerships.

Conditions to Avoid Significant Changes in Farm Practices and Their Cost

Design

For the reasons stated below, when the County amends the TSP to designate the ULS as having four to five lanes, its findings should state that the amendment complies with ORS 215.296 because projects to widen the ULS will have to comply with Section 713-1 of the Community Development Code (CDC). Section 713-1 states:

> Category C projects located within the AF-20, EFU, and EFC Districts shall not:
>
> A. Force a significant change in accepted farm or forest practices on surrounding lands located in the AF-20, EFU and EFC Districts; nor
>
> B. Significantly increase the cost of accepted farm or forest practices on surrounding lands located in the AF-20, EFU and EFC Districts.
>
> An applicant may demonstrate that these standards for approval will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective.

The County included Section 713-1 in Article VII of the CDC to implement ORS 215.296. Section 713-1 will apply to all projects that widen the ULS, assuming the land is outside the UGB and zoned EFU at the time of the project. CDC Section 705-2.1.F makes a Category C project "construction of additional passing and travel lanes requiring the acquisition of right-of-way but not resulting in the creation of new land parcels, provided that the acquisition is no greater than the maximum specified for the road classification in the Transportation System Plan." Once the TSP has been amended to designate the ULS as having four to five lanes, projects to widen the ULS will fall within CDC Section 705-2.1.F and will therefore be subject to Section 713-1.

By taking this approach, the County establishes a clear and objective condition as required by ORS 215.296(2). For the following reasons, it is not feasible to determine project-level effects of the widening or to establish conditions that are clear and objective at the plan amendment stage:

- It is not known when the ULS (or possibly segments of it) will be widened. At the time of widening, the UGB may have been moved to include some of the land along the ULS and the land rezoned from EFU. In addition, the farm practices described above may have changed in ways that bear on both the effect on farm practices and how to avoid forcing significant changes to them. Also, forecasted traffic volumes may have changed.
- Widening the ULS at the same time the Willamette Water Supply pipeline to Hillsboro is constructed could influence the design of the widened roadway in ways that alter the effects of the widening on farm practices.
- The effects of widening the ULS on farm practices and their cost will depend on the exact footprint of the widened roadway and other aspects of the design of the widening, which will not be known until the project development process is underway.
- Similarly, clear and objective conditions that apply to the design and construction of projects to widen the roadway cannot be formulated until the project design stage.

The biggest *potential* effect of widening Roy Rogers Road appears to be an increase in travel times for farm equipment and large trucks. At the same time, the net change in travel times from widening the roadway is unknown, as described above. For this reason, when the County develops a project to widen the ULS, it should perform a simulation of traffic operations in the ULS with and without widening to compare travel times for farm equipment and large trucks to

and from the commercial farms along the ULS. Upon completing the traffic simulation and preliminary design, the County will be able to assess if the widening project will force a significant change in farm practices and their cost and, if so, to formulate conditions to avoid the significant change and/or cost.

If needed to avoid forcing significant changes in farm practices and/or their cost, the types of conditions the County considers in issuing approval of a project to widen the ULS under Section 713-1 of the CDC could include, where feasible:

1. Providing left-turn lanes and refuges at farm and field access points.
2. Reducing the posted speed to reduce the delays in entering and exiting farms and fields
3. Moving farm field access points from Roy Rogers Road to the corners of fields and providing wide paved aprons at access points to accommodate acceleration by farm equipment and vehicles turning right out of farms and fields.
4. Improving farm and field access and egress where possible. Areas of consideration could include the underpass connection between ownerships Amstad 2 and 3 and near Scholls-Sherwood Road, where there are issues of safe access to the Schlichting and Wetzel ownerships and the nearby Tualatin River National Wildlife Refuge visitor information facility.
5. To the extent feasible, widening into small farm parcels instead of larger ones, because the small parcels are already less efficient to farm.
6. Avoiding storm runoff from the roadway entering farm fields and avoiding roadway improvements altering field drainage.
7. Erecting signs on Roy Rogers Road alerting motorists that they are in an active agricultural area and may encounter farm equipment.
8. Supporting landowner retention of water rights, which may be reduced because of reductions in their land areas.

Construction

1. During construction, maintain access to and egress from farms and fields by large trucks and farm equipment, as well as by cars and light trucks.
2. When soil must be removed from farmland temporarily, retain and return the soil to the same location instead of introducing new soil.
3. If soil must be brought into farmland, ensure that it is clean fill or topsoil.
4. Avoid construction equipment bringing weeds to farm fields.
5. Avoid interruptions to irrigation.

APPENDIX A

Memorandum, Application of Statewide Planning Program Laws to the Urban Link Segment of Roy Rogers Road

OBEC CONSULTING ENGINEERS

EUGENE, OR
Corporate Office
541.683.6090

LAKE OSWEGO, OR
503.620.6103

SALEM, OR
503.589.4100

MEDFORD, OR
541.774.5590

VANCOUVER, WA
360.314.2391

www.obec.com

April 18, 2016

To: Charlie Stearns, P.E., Senior Project Manager
Washington County Capital Project Management

From: John Kelly, Principal Planner

Subject: Application of Statewide Planning Program Laws to the Urban Link Segment of Roy Rogers Road
OBEC Project No. 0165-0031.00

This memorandum describes how Oregon Administrative Rule (OAR) 660-012-0065(3)(b), Oregon Revised Statute (ORS) 215.213(2)(p), ORS 215.213(2), ORS 215.296, and OAR 660-027-0070 apply to amending the Washington County Transportation System Plan (TSP) to designate the "urban link segment" (ULS) of Roy Rogers Road (RRR) as having four to five lanes. The ULS is from where the road leaves the Metro urban growth boundary (UGB) and Tigard city limits ½-mile south of Bull Mountain Road to where it re-enters the UGB and enters the Sherwood city limits about .8 mile from OR 99W. For any portion of the ULS to qualify for approval under Article VII of the Washington County Community Development Code, it would be necessary to amend the TSP to designate it as having four to five lanes.

OAR 660-012-0065(3)(b) and ORS 215.213(2)

Washington County may amend the TSP without adopting exceptions to Statewide Planning Goals. OAR 660-012-0065(3), part of the Transportation Planning Rule, states:

> The following transportation improvements are consistent with Goals 3, 4, 11, and 14 subject to the requirements of this rule:
>
> * * *
>
> (b) Transportation improvements that are allowed or conditionally allowed by ORS 215.213 . . .

ORS 215.213(2) states:

> . . . the following uses may be established in any area zoned for exclusive farm use subject to ORS 215.296:
>
> * * *
>
> (p) Construction of additional passing and travel lanes requiring the acquisition of right of way but not resulting in the creation of new land parcels.
>
> * * *

The ULS traverses land zoned exclusive farm use (EFU). Right-of-way acquisition may or may not be necessary to widen the ULS. If it is required, it would not create new land parcels. Therefore, widening the ULS would fall within ORS 215.213(2)(p). Consequently, it falls within OAR 660-012-0065(3)(b). This means amending the TSP to include widening the ULS would not require

County adoption of exceptions to Statewide Planning Goals. The exceptions that otherwise would be required are to Goal 3, Agricultural Lands; Goal 11, Public Facilities and Services; and Goal 14, Urbanization. Goal 4, Forest Lands, would not apply here because the ULS does not traverse designated forest lands.

It is ORS 215.213(2), not ORS 215.213(1), that allows the County to amend its TSP to allow widening the ULS. ORS 215.213(1) lists land uses, activities, and public improvements allowed in lands zoned EFU without Statewide Planning Goal exceptions. The transportation improvements listed are:

> (j) Climbing and passing lanes within the right of way existing as of July 1, 1987.
>
> (k) Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right of way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new land parcels result.
>
> (L) Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.
>
> (m) Minor betterment of existing public road and highway related facilities, such as maintenance yards, weigh stations and rest areas, within right of way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways.

Amending the TSP to designate the ULS as having four to five lanes would not fall within any of these categories, because the added lanes would be travel lanes, not all of the right-of-way for the ULS existed as of July 1, 1987, and widening the ULS to four to five lanes would be a permanent transportation improvement.

ORS 215.296

ORS 215.296 would allow the County to amend the TSP to designate the ULS as having four to five lanes as long as the County makes the findings the statute requires. ORS 215.296 states:

> (1) A use allowed under ORS 215.213(2) . . . may be approved only where the local governing body or its designee finds that the use will not:
>
> (a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use or
>
> (b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.
>
> (2) An applicant for a use allowed under ORS 215.213(2) . . . may demonstrate that the standards for approval set forth in subsection (1) of this section will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective.

This means that the County could amend the TSP to allow additional lanes in the ULS by making the specified findings, if necessary applying conditions to ensure avoidance of significant changes in farm practices or significant increases in the cost of the practices.

OAR 660-027-0070

Because the ULS borders or traverses both urban reserves and rural reserves, OAR 660-027-0070, Planning of Urban and Rural Reserves, applies to it. Section 660-027-0070(4) states:

> . . . counties may adopt or amend comprehensive plan provisions or land use regulations as they apply to lands in urban reserves, rural reserves or both, unless an exception to Goals 3, 4, 11 or 14 is required, in order to allow:
>
> * * *
>
> (c) Roads, highways and other transportation and public facilities and improvements, as provided in ORS 215.213 and 215.283, OAR 660-012-0065, and 660-033-0130 (agricultural land) or OAR chapter 660, division 6 (forest lands);
>
> * * *

This provision would allow the County to amend the TSP to increase the number of lanes in the ULS. As described above, ORS 215.213 and OAR 660-012-0065 would allow widening the ULS without exceptions to Goals 3, 4, 11 or 14. OAR 215.283 does not apply to Washington County. OAR 660-033-0130 establishes standards applicable to uses on agricultural lands, but includes no standards applicable to the ULS. OAR chapter 660, division 6, does not apply because the ULS does not traverse designated forest lands.

On first reading, Section 660-027-0070(5) appears to more specifically apply to the ULS because it refers to:

> ". . . land in an urban or rural reserve that is subject to an exception to Goals 3 or 4, or both, acknowledged prior to designation of the subject property as urban or rural reserves, in order to authorize an alteration or expansion of uses or lot or parcel sizes allowed on the land under the exception . . ."

A portion of RRR was built pursuant to an exception to Goal 3, as well as exceptions to Statewide Planning Goals 11 and 14. However, the terms of Section 660-027-0070(5) indicate that it applies to exception areas, such as rural communities, not to transportation facilities.

cc: R. Goodrich

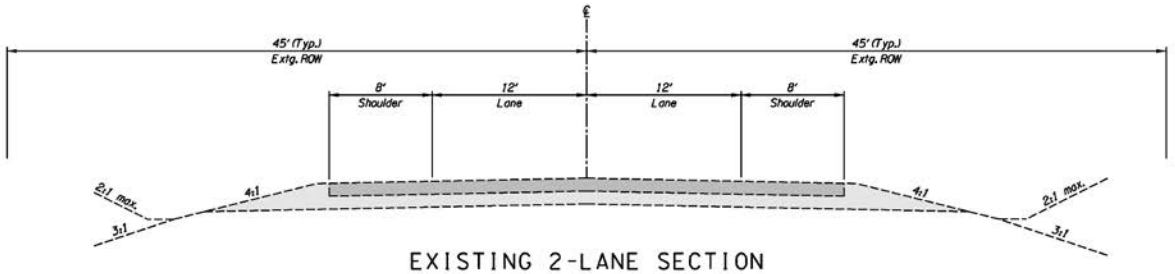
APPENDIX B

Existing Section and Concepts for Widened Section, Urban Link Segment, Roy Rogers Road Improvements

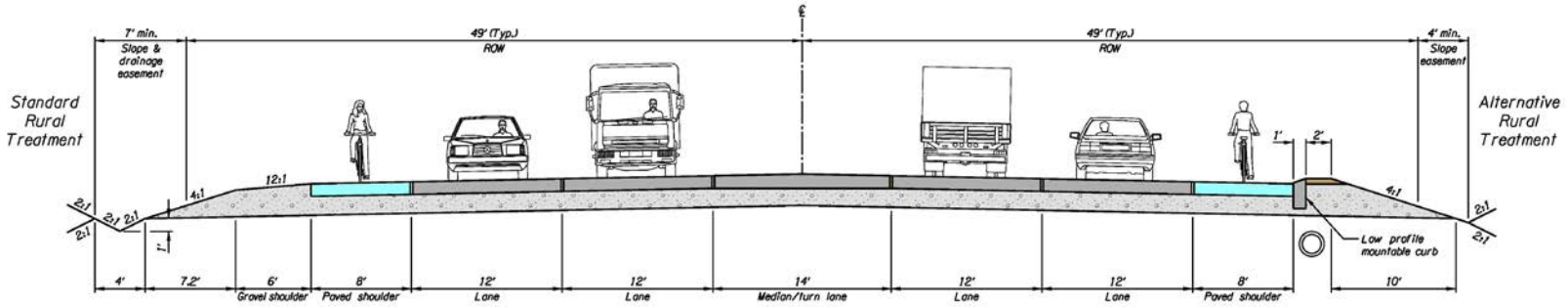
ROY ROGERS ROAD IMPROVEMENTS

EXISTING SECTION AND CONCEPTS FOR WIDENED SECTION

URBAN LINK SEGMENT



EXISTING 2-LANE SECTION



IMPROVED RURAL 5-LANE SECTION

05-31-2016

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE

Beaverton High School

PRINCIPAL: Andrew Kearl | GRADES: 9-12 | 13000 SW Second St, Beaverton 97005 | 503-356-2830

2022-23

Students We Serve

1,408
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	<1%
Teachers	2%
Asian	
Students	4%
Teachers	6%
Black/African American	
Students	2%
Teachers	0%
Hispanic/Latino	
Students	47%
Teachers	13%
Multiracial	
Students	5%
Teachers	2%
Native Hawaiian/Pacific Islander	
Students	1%
Teachers	0%
White	
Students	41%
Teachers	78%

44% Ever English Learners

33 Languages Spoken

15% Students with Disabilities

94% Required Childhood Vaccinations

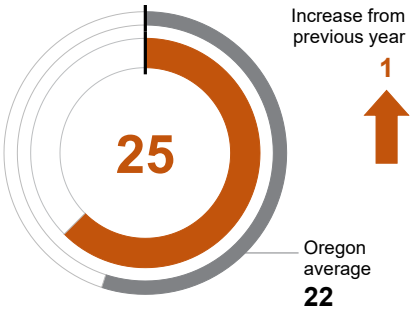
56% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

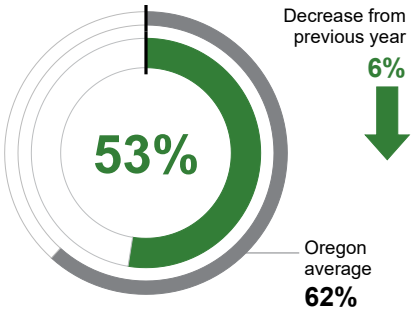
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

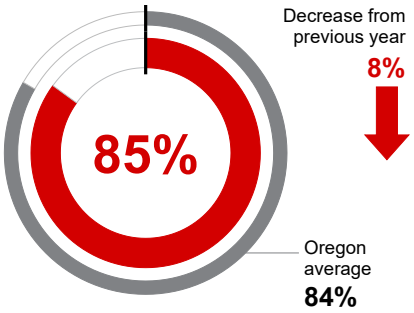
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

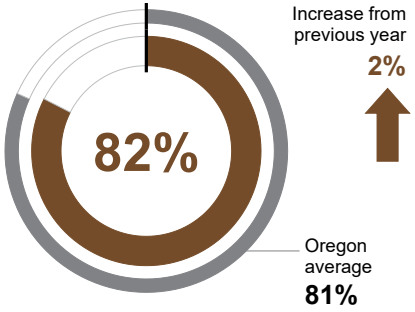
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

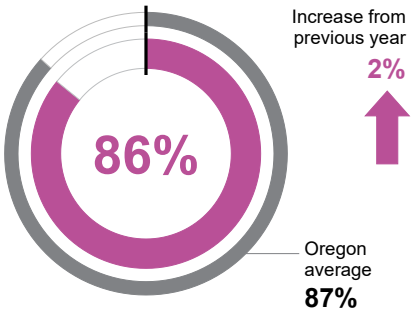
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



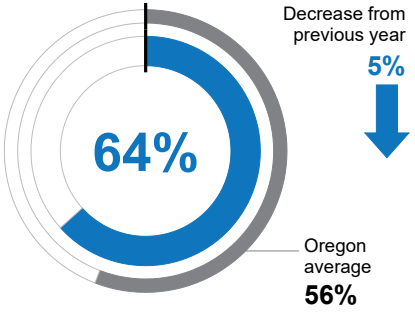
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

Beaverton School District promotes a deep sense of belonging while supporting, challenging and inspiring all students to explore their passions, achieve their goals and graduate ready to thrive in their learning and life after high school. To achieve this mission, the district and its schools will implement strategies and track outcomes in four areas: Student Safety and Well-being, Strong Start in Early Learning, Academic Achievement for All, and Supporting Post-High School Success.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

WE are committed to providing all of our students and families with safe, caring and inclusive learning environments, free from bullying, intimidation, and harassment. We will not tolerate any form of discrimination and we will take swift action to address concerns. We have a Board Policy (AC) on non-discrimination. We will serve all students and families.

Students in grades 9 - 12 reporting:

- Feeling safe, welcomed, and accepted at school: 77%
- At least one adult at school really cares about them: 86%
- Not being bullied at or on the way to or from school: 67%

School Website: bhs.beaverton.k12.or.us

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

OREGON DEPARTMENT OF EDUCATION

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Beaverton High School

2022-23

Our Staff (rounded FTE)

87 Teachers

20 Educational assistants

10 Counselors/ Psychologists/ Social Workers

94% Average teacher retention rate over the past three years

88% % of licensed teachers with more than 3 years of experience

No Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Asian	61%	91%	88%
Black/African American	49%	67%	<10 students or data unavailable
Hispanic/Latino	45%	78%	73%
Multiracial	57%	94%	89%
Native Hawaiian/Pacific Islander	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
White	60%	94%	90%
Free/Reduced Price Lunch	44%	80%	78%
Ever English Learner	46%	79%	74%
Students with Disabilities	46%	80%	69%
Migrant	48%	<10 students or data unavailable	<10 students or data unavailable
Homeless	32%	73%	55%
Students in Foster Care	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Military Connected	<10 students or data unavailable	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	72%	>95%	93%
Female	51%	89%	86%
Male	54%	82%	79%
Non-Binary	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable

About Our School

ADVANCED COURSEWORK

WORLD LANGUAGE COURSES
Spanish, French, Japanese

HONORS & DUAL -ENROLLMENT COURSES
· Spanish Dual Language Program
· 17 Advanced Placement (AP) courses

· Dual credit courses (contact school)

CAREER & TECHNICAL EDUCATION

Career Pathways in:
· Health Occupations

· Marketing
· Digital Media
· Education

In 2021-22,
96.8% of CTE Concentrators earned a diplo ma in four years.

EXTRACURRICULAR ACTIVITIES

Students in grades 9-12 reporting participating in at least one extracurricular activity: 70%

See school website for activities available to students.

PARENT & COMMUNITY ENGAGEMENT

Parents, community members, faith partners, businesses and non-profits are all committed to the success of all of our students.

87% of parents report they are valued as active participants in their child's education.

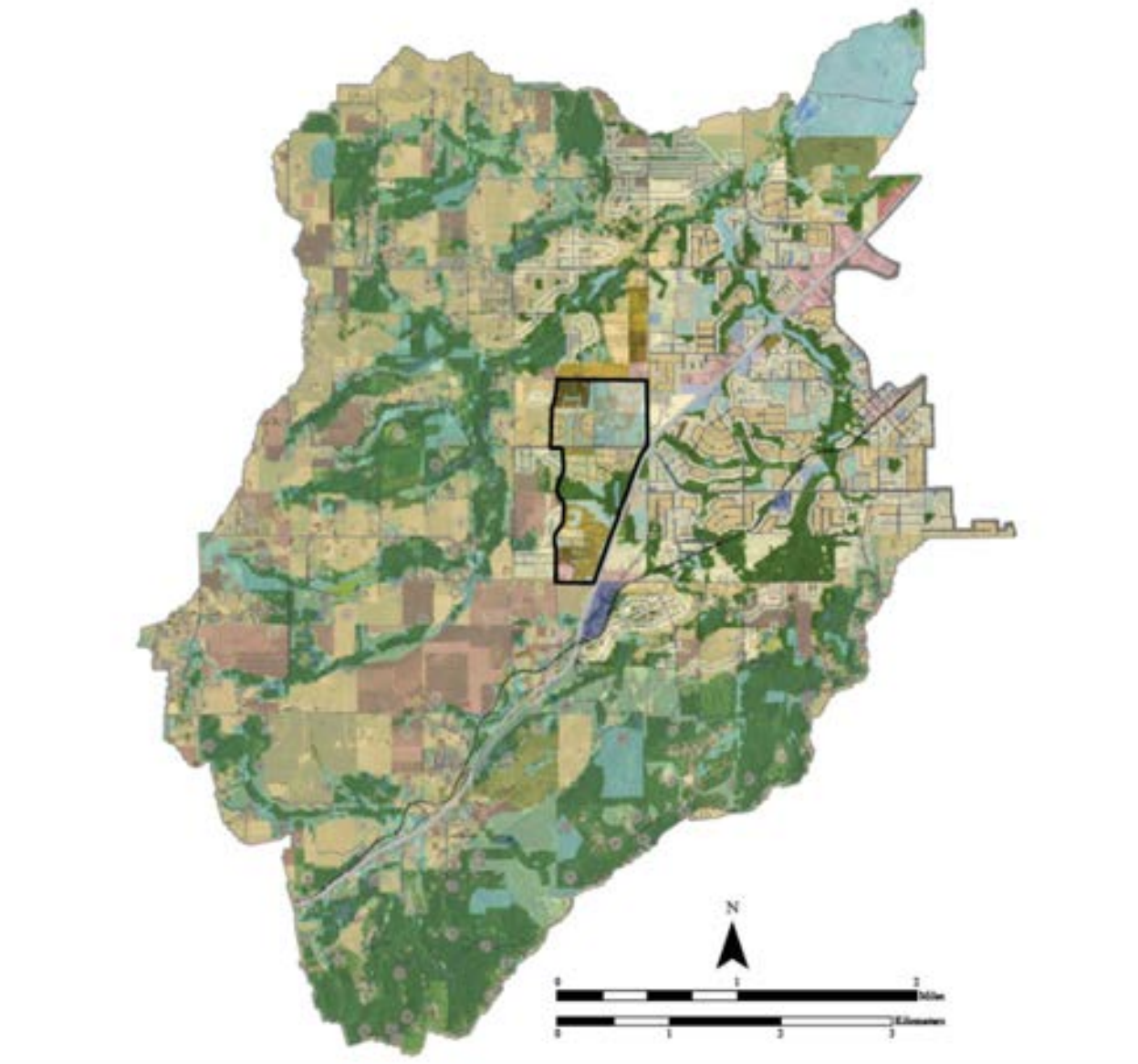
79% of parents report that the school encourages feedback from parents and the community.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

Background Information on Chicken Creek

Chicken Creek watershed approximately 4,000 hectares (10,000 acres) a major tributary to the Tualatin National Wildlife Refuge. (Image source ISE at University of Oregon.)



“CHICKEN CREEK borders the west and north edges of the fast-growing city of Sherwood, Oregon, flowing through agricultural lands and past suburban homes before emptying into the Tualatin River. Just beyond the city, Chicken Creek meanders for two and a half miles through the Tualatin River National Wildlife Refuge, one of very few urban refuges in the country, where surrounding wetlands provide a stopover sanctuary for migrating birds on the Pacific Flyway. This stretch of creek, located within a wildlife refuge yet so close to rapid urbanization, holds the promise of important benefits for our watershed.”

Source: Friends of Trees Chicken Creek Cas Study

Tualatin River National Wildlife Refuge Comprehensive Conservation Plan June 2013

Page: 3-11

In general, stream flow in the Tualatin River Basin reflects patterns of precipitation with high winter and low summer flows (Figure 3-6). . . . . Flooding in tributary streams is typically more prevalent during short-term heavy rainfall after the surrounding watershed is saturated by early season rainfall. In particular, the Chicken Creek watershed, which includes Cedar Creek, flows from the City of Sherwood and experiences heavy flooding. The population of Sherwood has increased from about 3,000 in 1990 to over 18,000 in 2010, and this has led to an increase in urban development (U.S. Census Bureau 2011). This change has created increased impervious surfaces (e.g., roads, rooftops) and has led to an increase in runoff and higher peak flows in Chicken Creek that flow into the refuge.

Page: 3-24

3.9.2 Refuge-specific Water Quality There are some data available on several creeks that enter the Tualatin River through the refuge. Chicken Creek, which supplies most of the water to the managed wetlands on the Atfálat’i Unit, enters the refuge through a diversion point from which water is then diverted to several different ponds using an irrigation canal. Over the years, as more urban development occurs upstream, the refuge has observed higher stream flows at the diversion. Higher flows have caused extra management responsibility and burden on the refuge to divert the water to the river to avoid flooding or damage to refuge infrastructure. In response to the increases in high flows, the refuge has installed some new infrastructure, including an emergency spillway to facilitate water reaching the river. In addition to high water flows, another concern of the refuge is the water quality of Chicken Creek, due to the runoff from urban development that occurs in the watershed. However, CWS has been monitoring the water quality for upper and lower Chicken Creek and as of date, all standards of temperature, dissolved oxygen, pH, and toxics are below applicable water quality criteria.

Sherwood Comprehensive Plan

Part 2 Chapter 5 Page 1

ENVIRONMENTAL RESOURCES A. INTRODUCTION

. . . . The Environmental Resources Element of the Plan includes a 1990 inventory of Sherwood's environmental resources and planning goals, policies and strategies for their management. It also includes the Regionally Significant Fish and Wildlife inventory completed by Metro in 2002 and adopted as Map V-2 of this Plan.

In 2002 Metro completed an inventory of regionally significant fish and wildlife habitats and in 2005, the Tualatin Basin Natural Resources Coordinating Committee, on which the City of Sherwood participated, forwarded a program to protect much of the inventoried resources after conducting a detailed ESEE analysis.

The program and supporting documents is adopted by reference and maintained by Washington County Department of Land Use and Transportation staff. The goals and policies of this plan provide the foundation for implementation of the Basin Program.

For the purposes of this element, environmental resource management shall be addressed under the categories of natural resources and hazards, environmental quality, recreational resources and energy resources. The following briefly describes the value of open spaces, and natural resources to the community of Sherwood. Goals and policies for the protection of designated historic resources are also included in this chapter.

Planning Goals: Environmental Quality

1. For the purpose of protecting the functions and values of water resources, protect the water quality of Rock Creek, Chicken Creek, Cedar Creek, and their tributaries through control of runoff water by the following means:

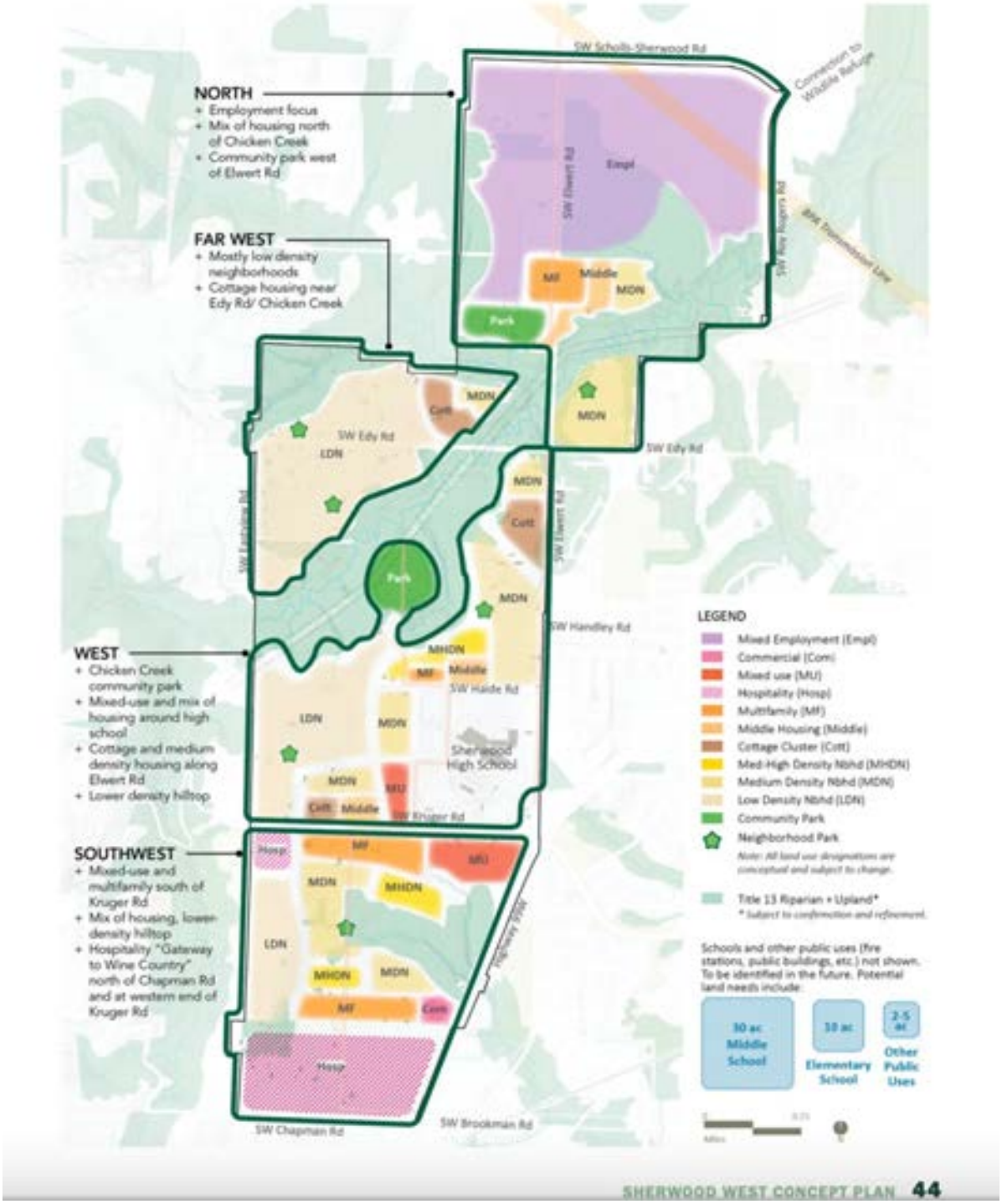
a. Construction site sediment control.
b. Storm sewer design and location.
c. Regulation of floodplain alterations.
d. Adoption of the regional Storm Water management plan.
e. Establish buffers between development and the designated wetlands.
f. Acquire through dedication at the time of development, or through purchase, all wetlands and floodplains.
g. Maintain or reduce stream temperatures.
h. Maintain natural stream corridors.
i. Minimize erosion, nutrient and pollutant loading into water.

Sherwood West Concept Plan (UGB expansion concept plan)

Excerpts related to Chicken Creek.

Figure 4. Natural Resources Existing Conditions

Figure 13. Land Use Plan Map



Comments: The plan seems to include the destruction of a chunk of the upland forest in the North District. What will be the effects of the development of light industrial and residential development on Chicken Creek?

Page 61:

Chicken Creek Greenway

Chicken Creek forms a natural greenway through the area, flowing southwest to northeast and eventually draining into the Tualatin River. It is fed by several other waterways: Cedar Creek, Goose Creek, and West Fork Chicken Creek. The future Chicken Creek Greenway preserves and enhances these natural corridors by providing wildlife crossings, incorporating stormwater management practices,and providing access to nature through a network of connected walking trails. As conceptualized, the Chicken Creek Greenway will incorporate the creek corridor as well as the surrounding riparian and upland habitat areas (as shown in Figure 23).

Figure 23. Elements of a Greenway

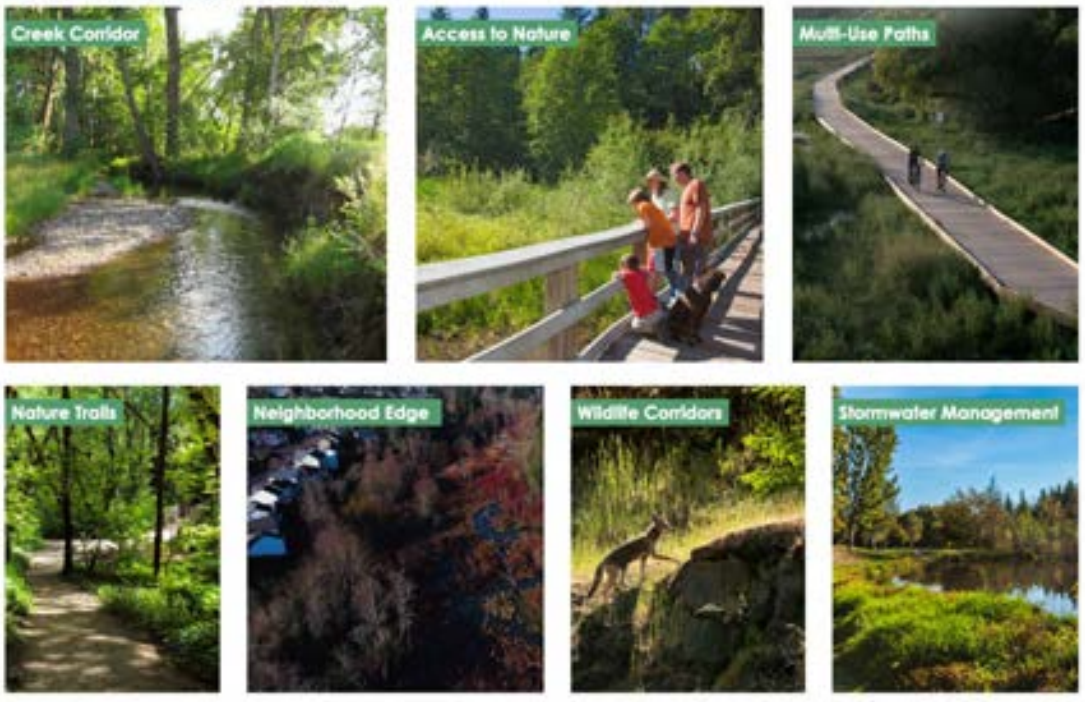
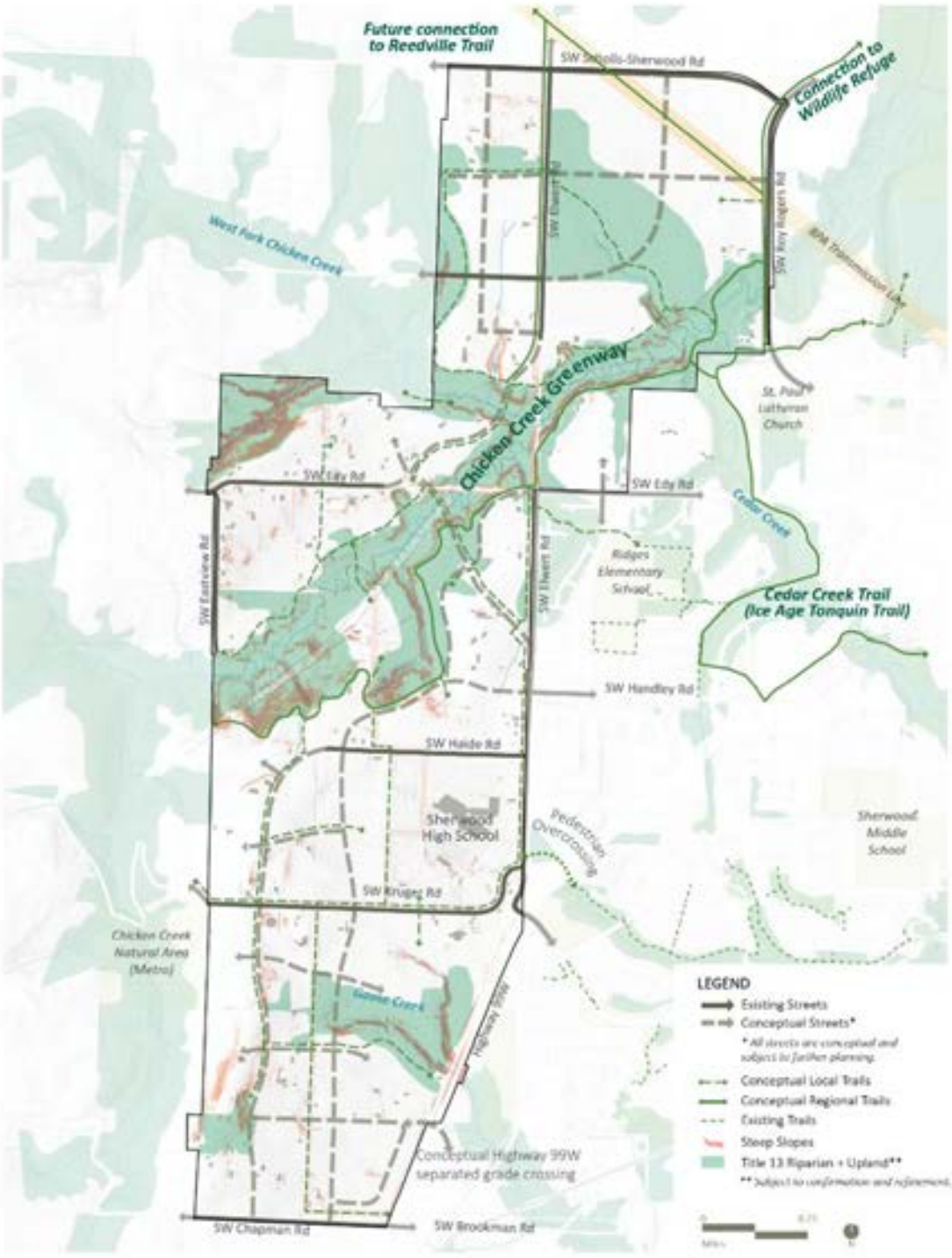


Figure 22. Overall Transportation Framework for Sherwood West



City of Portland
2024 Housing Production Strategy

As-Adopted

Resolution No. 37673
August 2024

THE BUREAU OF
PLANNING &
SUSTAINABILITY

LANGUAGE ACCESS

The City of Portland is committed to providing meaningful access.
To request translation, interpretation, modifications, accommodations, or other auxiliary aids or services, contact 311, Relay: 711.

Traducción e Interpretación | Biên Dịch và Thông Dịch | अनुवादन तथा व्याख्या | 口笔译服务 | Устный и письменный перевод | Turjumaad iyo Fasiraad | Письмовий і усний переклад | Traducere și interpretariat | Chiaku me Awewen Kapas | 翻訳または通訳 | ການແປພາສາ ຫຼື ການອະທິບາຍ | الترجمة التحريرية أو الشفهية

www.portland.gov/bps/accommodation

Acknowledgments

This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon. This report was written by the City of Portland Bureau of Planning and Sustainability with immense contributions from the following agency and advisory group partners:

Project Team
Ariel Kane, Economic City Planner II
Tom Armstrong, Supervising Planner
Sam Brookham, Economic City Planner II
Julia Michel, Economic City Planner II
Patricia Diefenderfer, Chief Planner

Contributors
Neil Loehlein, GIS Supervisor
Anamaría Pérez, Analyst
Lauren McKinney-Wise, GIS Technician
Elizabeth Hilt, Financial Analyst
Richard Eisenhauer, SDC/Fixed Rail Supervisor
Adrienne Aiona, Engineering Supervisor
Daniel Ramirez-Cornejo, SDC Analyst
Mary Leung, Financial Analyst
April Bertelsen, Transit Modal Coordinator

Citywide Housing Production Working Group
Jill Chen, Housing Bureau *(former staff)*
Jessica Conner, Housing Bureau
Dory Hellyer, Housing Bureau
Danell Norby, Housing Bureau
Antoinette Pietka, Housing Bureau
Tanya Wolfersperger, Housing Bureau
Lisa Abuaf, Prosper Portland
Justin Douglas, Prosper Portland
Sarah Harpole, Prosper Portland
Kimberly Tallant, Permitting and Development
Terri Theisen, Permit Improvement Project
Ellen Weeks, Permit Improvement Project
Mathew Berkow, Bureau of Transportation

Technical Advisory Committee
Kyle Diesner, Bureau of Planning and Sustainability
Ludwig Salzmann, Bureau of Planning and Sustainability
Alan De La Torre, Portland State University
Abe Moland, Multnomah County
Max Nonnamaker, Multnomah County
Claudia Sharygin, Multnomah County
Lori Kelley, Multnomah County
Jenna Kivanc, Multnomah County
Ted Reid, Metro
Clint Chiavarini, Metro
Dennis Yee, Metro
Emily Lieb, Metro

Department of Land Conservation and Development
Kelly Reid, Regional Representative for Multnomah and Clackamas Counties
Sean Edging, Housing Planner
Celestina Teva, Housing Planner

Contact

Ariel Kane
Economic Planner | Bureau of Planning and Sustainability
ariel.kane@portlandoregon.gov

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Overview

In 2023, the City of Portland adopted a Housing Needs Analysis (HNA) to understand current and future housing needs in Portland. The Housing Production Strategy (HPS) identifies specific actions (policies, programs, development regulations, financial incentives, etc.) that the City will implement over the next six years to meet those identified needs. The state requires the City to complete an HNA and HPS every six years.[1]

Why Is This Important?

A place to live is a basic human need, and ensuring access to fair and equitable housing is essential for providing Portlanders with the opportunities and security they need to lead healthy and successful lives. Unfortunately, Portland, like many other cities in the US, is facing an unprecedented housing crisis, making housing increasingly unaffordable for most residents. Escalating rents and home prices consistently outpace incomes, widening the gap between household earnings and housing costs. Affordable housing, defined as spending no more than 30 percent of income on housing costs, remains elusive for many. More than a third of Portland households spend more than 30 percent of their income on housing costs, and around 50 percent of renters in the city are cost burdened

In 2015 the City passed the Emergency Ordinance Declaring a State of Emergency for Housing and Houselessness, enshrining the urgency and great need faced by Portlanders to have access to more affordable and stable housing. The purpose of the Housing Production Strategy is to continue to implement policies and programs that will help Portland meet its need for quality, affordable homes for a growing and socioeconomically diverse population, and ensure equitable housing access in a time of increased urgency. The City of Portland's 2035 Comprehensive Plan serves as policy guidance to provide adequate access to housing for a socially- and economically diverse population; support fair, equitable, healthy, and physically accessible housing; and maintain and expand a supply of permanently affordable housing for Portland's most vulnerable residents.

In 2020, the City passed the Climate Emergency Declaration, acknowledging that Portland's policies, planning, and infrastructure investment practices has contributed to communities of color and low-income neighbors experiencing high temperatures, high utility bills, poor air quality, and greater risk to health. With this in mind, the Climate Emergency Workplan and Climate Investment Plan describes the actions the City and its partners will take to make Portland more resilient and explore ways to reduce the climate impact of new housing units on Portland's households.

---

[1] As provided in ORS 197A.100 a city with a population of more than 10,000 people must adopt a Housing Production Strategy Report that includes a list of specific actions that the City will undertake to promote development to address housing needs identified for the most recent period described in the Housing Need Analysis. The requirements are further documented in Oregon Secretary of State Administrative Rules.

Portland's Housing Need

Portland faces an increasingly wide range of housing needs and growing challenges in meeting those needs. Below is a summary of key findings from the HNA as well as the additional housing needs assessment prepared as part of the HPS process. These analyses emphasize equitable outcomes for Portland's current and future residents and recognize that some communities face bigger challenges to meeting their housing needs—especially low-income households, communities of color, elders, people with disabilities, and people experiencing houselessness.

In 2023, approximately 41 percent of home sales were affordable to households earning Portland's median income. In addition, renter households earning the renter median income could only afford the average rent in six out of Portland's twenty-four neighborhoods. This level of mismatch between incomes and home costs exacerbates the prevalence of cost-burdened households. In 2021, over 50 percent of renter households were cost-burdened. The housing affordability gap widens significantly when considering median income by race and ethnicity, particularly for Black, Indigenous, and Latine households. According to Portland's Housing Bureau's 2023 State of Housing report, these households earning the average income could not afford the average home sale price in any Portland neighborhood. Notably, the average Black household is also unable to afford the average rent in all but one any neighborhood.

How Much Growth Is Portland Planning For?

Metro's 2019 regional population forecast allocated 97,471 new households to Portland, about 35 percent of the region's growth, which is the basis for determining future needs. Adjustments are made

279,797 HOUSEHOLDS IN 2021

296,479 UNITS IN 2021

97,471 NEW HOUSEHOLDS FORECASTED

97,471 TO 120,560 NEW UNITS NEEDED

377,268 HOUSEHOLDS IN 2045
35% INCREASE

417,039 UNITS IN 2045
41% INCREASE

to account for a vacancy rate, housing for those facing houselessness and for underproduction since 2010. These adjustments bring the estimated demand to 120,560 dwelling units by 2045.[2]

At a basic level, Portland has an estimated overall development capacity for 236,977 housing units, which is sufficient to meet the estimated demand of 120,560 units. However, the needs analysis goes further to address specific housing types.[3] Portland needs to support the development of 120,560 new units of housing by 2045 - an average of 5,200 units per year. Additionally, to align with Governor Kotek's statewide housing production strategy, the City should "catch-up" the units from underproduction and for households experiencing houselessness and build 55,000 units by 2032, roughly, 6,000 units per year.

What Does the Need Look Like?

The City must plan to accommodate Portlanders with a diverse range of needs in terms of unit types and prices in locations that help meet the needs of all, including low-income populations, communities of color, and people of all ages and abilities. Portland's future housing needs are not evenly distributed among the population in the city. There are households facing historic and ongoing disadvantages, especially those impacted by limited housing choice and access. The housing needs of these populations are briefly summarized below.[4]

The City has made significant strides in addressing housing affordability over the last decade. Since declaring a housing emergency in 2015, the City has successfully opened and preserved more than 4,800 units of regulated affordable housing, one-third of which were deeply affordable to households earning 0 – 30 percent of the Area Median Income (AMI).[5] This achievement was primarily made possible with significant funding from local revenue sources and further supported by the City's implementation of an inclusionary housing program and code amendments expediting the permitting process. The housing emergency has also helped increase shelters and services for people experiencing homelessness.

However, despite these efforts, the urgency of the situation persists and demands continued action by the City to address housing affordability.

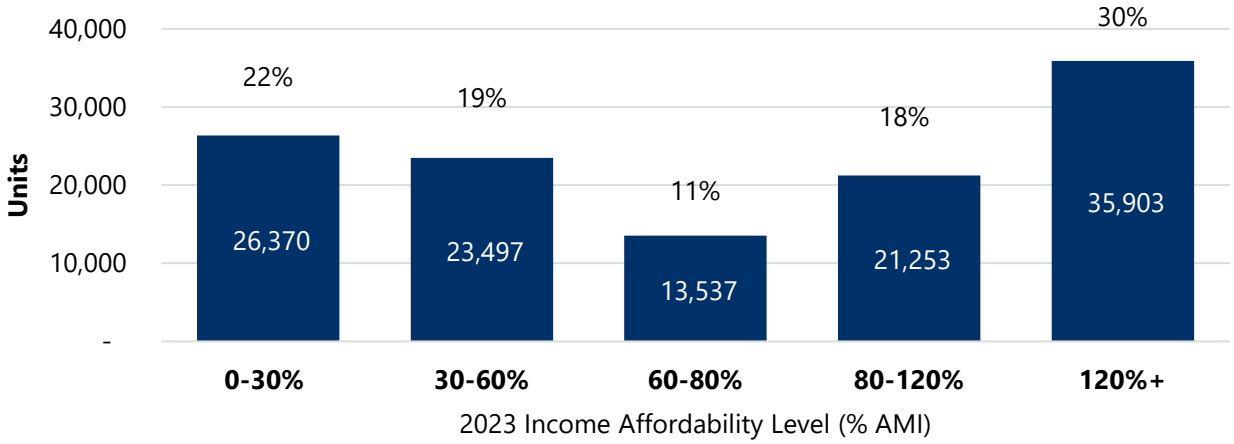
---

[2] This analysis is documented in the 2045 Housing Needs Analysis.
[3]The Buildable Land Inventory (BLI) considers vacant land, redevelopment feasibility, and constraints on development to estimate the future development capacity under current planning and zoning designations
[4] Additional context is provided in Additional Housing Need Context
[5] PHB State of Housing Report 2022 (using ACS 2022 5-Year Estimates), in this document, area median income and median family income are used interchangeably, it refers to the household income for the median/'middle' household in the region.

Housing Need by Income Affordability

In 2023, the Portland-Vancouver-Hillsboro regional 100% Area Median Income (AMI) ranged from $80,000 for a single-person household to $114,000 for a four-person family. If Portland is to maintain its income diversity, 53 percent, or more than 63,000 units, will need to be affordable to lower income (0-80% AMI) households. Development of new housing affordable to lower income households generally requires subsidy or other financial support.

Figure 1. Total Units Needed By Income Affordability



Source: BPS analysis

Extremely Low-Income Households (0 to 30% AMI)

Existing Households: 48,179
New Units: 18,211 to 26,370

In 2023, a single-person household could earn at most $23,700 and a household of four, $33,900. Monthly affordable housing costs would be between $700 and $900. Meeting the housing needs of these households will require a combination of preserving existing income-restricted affordable housing and the development of new income-restricted affordable housing.

Very Low-Income Households (30 to 60% AMI)

Existing Households: 51,408
New Units: 19,431 to 23,497

In 2023, a single-person household could earn at most $48,000 and a household of four, $68,600. Monthly affordable housing costs would be between $1,300 and $1,900. Meeting the needs of these households will require preserving existing affordable housing and development of new income-restricted affordable housing.

Low-Income Households (60 to 80% AMI)

Existing Households: 32,751
New Units: 12,379 to 13,537

In 2023, a single-person household would earn at most $63,200 and a household of four, $90,200. Monthly affordable housing costs would be between $1,800 and $2,500.

Middle-Income Households (80 to 120% AMI)

Existing Households: 53,579
New Units: 20,697 to 21,253

In 2023, a single-person household could earn at most $96,100 and a household of four would earn $137,300, with monthly affordable housing costs between $2,700 and $3,800.

High-Income Households (> 120% AMI)

Existing Households: 93,880
New Units: 35,853 to 35,903

In 2023, a single-person household would earn more than $96,100, and a household of four $137,300. Monthly affordable housing costs would be greater than $2,700.

Housing needs for high-earning households are likely to be met through private development. The development of housing that is affordable to high-income households is important in freeing up existing housing stock where households are renting or buying down, when it may be affordable to lower-income households.

Housing Needs of Specific Populations

Black, Indigenous, and People of Color (BIPOC) Households

Existing Households: 81,526
New Units: 26,582 to 30,071

In 2021, just 19 percent of Black householders earned more than 120 percent AMI, compared to 45 percent of white householders and 30 percent of BIPOC households overall. The impacts of a constrained housing supply are more starkly felt by Black, Indigenous and Households of Color.

In a challenging housing market, income disparities further impede the ability of households to enter the market, build wealth through ownership, and further burden renters. The share of BIPOC householders in Portland has increased from 20 percent in 2010 to 25 percent in 2021. Meeting the needs of these households will require addressing the affordability issues as well as ensuring that people of color have access to housing without discrimination.

Households Experiencing Houselessness

Existing Households: 2,516
New Units: 4,604

Many households currently experiencing houselessness have some income, but still cannot find an available, affordable home. To house households currently experiencing houselessness;

- 4,098 units are needed for households earning less than 30 percent AMI;
- 368 units are needed for households earning less than 60 percent but more than 30 percent AMI;
- 138 units are needed for households earning less than 80 percent but more than 60 percent AMI.

Meeting the housing needs of people experiencing houselessness ranges from emergency assistance to prevent houselessness, permanent supportive housing, and improved access to an affordable unit.

Households With Members Who Have Disabilities

Existing Households: 65,279
New Units: 21,277 to 26,318

Overall, an estimated 22 to 27 percent of all households in Portland have at least one household member with disabilities (CHAS 2019, ACS 2021). Households earning less than 50 percent AMI are more likely to have members with disabilities. Adults with disabilities are more likely to rely on supplemental security income (SSI), which is insufficient to meet most basic needs.

Meeting the housing needs of these households will require addressing affordability issues, considering the characteristics of housing design as accessible and/or visitable, as well as ensuring access to housing without discrimination.

Households With Older Adults

Existing Households: 63,514
New Units: 22,126 to 27,367

People over 65 years old are more likely to report a disability, and in Portland, 33 percent of people over 65 report having at least one disability, increasing the need for accessible units. As the proportion of older adults increases, the importance of establishing "aging in community" housing practices becomes increasingly significant and will drive demand for older adults. Meeting the housing needs of these households will require addressing affordability issues, as well as ensuring access to housing without discrimination, and promoting the development of a variety of housing types, such as intergenerational housing, small easy-to-maintain dwellings, or assisted-living facilities.

Large Households, Multigenerational Households, or Households with Children

Existing Households: 83,293

New Units: 22,694 and 35,890

If the trend for households from the 2017-2021 American Community Survey continues, 30 percent of new housing units will need to be able to accommodate three or more persons. Meeting the housing needs of these households in order to ensure there is not overcrowding will require providing larger units with a greater number of bedrooms and consideration of a variety of housing types in order to support intergenerational housing.

Figure 2. Summary of Total Units Needed by Affordability and Household Characteristic

	Existing Households	New Units
Extremely Low income (0 to 30%)	48,179	18,211 to 26,370
Very Low income (30 to 60%)	51,408	19,431 to 23,497
Low income (60 to 80%)	32,751	12,379 to 13,537
Middle income (80 to 120%)	72,244	20,697 to 21,253
High income (> 120%)	126,585	35,853 to 35,903
Black, Indigenous, and People of Color (BIPOC) Households	81,526	26,582 to 30,071
Households Experiencing Houselessness	2,516	4,604
Households with Members who Have Disabilities	65,279	21,277 to 26,318
Households with Older Adults	63,514	22,126 to 27,367
Households with Children	65,146	29,016 to 35,890

Where Is Housing Demand Located?

For the most part, the housing location analysis reveals a concentration of housing demand in key growth areas that are consistent with Portland's Comprehensive Plan policies such as focusing growth in complete neighborhoods, centers and corridors, and high-opportunity areas with access to services and amenities. However, when housing demand location is examined through an equity and resilience lens, the city's expected patterns of growth unveil additional considerations. The racially and ethnically concentrated areas of affluence and poverty analysis underscores the importance of addressing past exclusionary zoning practices to promote fair housing. These zoning patterns not only exclude low-income and protected-class households from accessing high-opportunity areas but also concentrate housing demand pressures in other neighborhoods, potentially driving up housing costs, which can be particularly harmful in economically vulnerable neighborhoods. Redressing these past practices can help distribute housing demand more evenly, increase housing opportunities in key growth areas, and thereby alleviate pressures in vulnerable neighborhoods. Furthermore, recognizing the overlap between climate risk areas, particularly urban heat islands, and high-risk liquefaction zones, and Portland's key growth areas are crucial for sustainable growth. Implementing policies to mitigate climate risk impacts will enhance the resilience of vulnerable residents living in regulated affordable housing units located in these areas.

What are the Barriers to Producing Needed Housing?

The barriers to the development of housing in Portland include issues that range across local, state, and federal issues, these are described in more detail in Appendix A. Additional Housing Need Context, Existing And Expected Barriers To The Development Of Needed Housing

- **Development and construction costs.** Nationally, development costs have significantly increased over the past few years. At the same time, rental rates and sale prices slowed, resulting in feasibility gaps for many residential projects.
- **Workforce availability.** Nationally and locally, limited availability of labor, particularly in the construction workforce, has also contributed to setbacks and challenges in the construction of needed housing.
- **Financing and investment funding and resources.** With banks and other lenders now less willing to lend, developers must seek other sources of funding. For some, that means reducing their capacity for other projects; for others, that means taking on less favorable loan conditions. For affordable housing developers, the pool of possible funders is small, and compliance can be challenging.
- **Regulatory burden.** The City continues to streamline the development review process to decrease the time it takes to obtain a permit. As well, the City will continue to review and amend development code regulations to consider how the cost of compliance affects development feasibility and housing affordability.
- **Mortgage and loan interest rates.** Interest rate increases have been consequential to development feasibility and housing affordability. For example; the monthly payment on a median-priced house has increased by more than 50 percent due to higher loan rates.
- **Resident ability to pay or compete.** Mismatches in the market, or underproduction of units at needed affordability levels, presents demand-side barriers, so even if housing gets built, it does not match the incomes or needs of current households, both renters and owners.

New Strategies to Meet Future Housing Need

Portlanders need access to high-quality affordable housing that accommodates their needs, preferences, and financial capabilities. Accordingly, future housing supply should accommodate different types, tenures, density, sizes, costs, and locations. The Housing Production Strategy identifies strategies and actions the City can take to promote housing development that meets the community's current and future needs, with a focus on more equitable and affordable housing options for a wider range of incomes, needs, and preferences.

There are several key themes that run through the strategies:

- **Produce more housing –** the overall goal is to produce more housing of all types to meet Portland's housing production targets that are assigned by the State of Oregon.
- **Additional funding for affordable housing** – the City has been successful in fully distributing the funds and exceeding development targets for the recent City and Metro affordable housing bonds. The City also has relied on tax increment financing along with state and federal funding. All of the funding sources will need to be sustained and increased to meet our affordable housing goals.
- **Increase capacity in high opportunity neighborhoods** – While overall the City has an adequate zoning capacity to meet future growth, that capacity needs to be better distributed to minimize displacement; increase capacity in high opportunity, complete neighborhoods through area planning and zone changes; breakdown exclusivity; and reduce carbon emissions.
- **Continuous improvement** – since the 2015 Housing Emergency Declaration, the City has adopted a number of changes to the zoning code and development review permitting. This work will continue to streamline the review process and remove code barriers to development.
- **Implement catalytic developments** – there are a number of large development projects in and around the Central City that represent the potential for thousands of housing units, including affordable housing. The City has an important role, both directly and supportive, to ensure these developments come to fruition.

This action plan and subsequent strategies aim to address the wide range of housing types and affordability levels in addition to overall net new housing production. Strategies are organized into the following eight initiatives:

A. **Promote Affordable Housing (0-80% AMI):** Increase the supply of regulated and unregulated affordable housing units.

B. **Increase Middle Income Housing and Homeownership**: Improve access to middle income housing and homeownership opportunity, by improving retention, and choice for people of color and others who have been historically underserved and under-represented.

C. **Increase Access to Opportunity**: Ensure equitable access to housing in safe, healthy neighborhoods with convenient access to jobs, goods and services.

D. **Reduce Barriers to Development and Improve Processes:** Address known regulatory impediments to building needed housing.

E. **Stabilize Current and Future Households:** Support current and future households to reduce housing insecurity and prevent houselessness.

F. **Promote Age and Disability Friendly Housing:** Ensure equitable access to housing for people with disabilities and older adults.

G. **Promote Climate Friendly and Healthy Homes:** Increase access to high-performance and climate resilient housing for Portlanders of all abilities and income levels.

H. **Advocate at the State and Federal Level:** To fully address housing needs locally, the City will need policy changes or funding at the state and federal level.

Each strategy includes the following information:

- **Description**: What is the strategy? How can the strategy work to address identified housing needs in Portland? What are potential outcomes?
- **Affordability target**: What income levels are served by the strategy?
- **Tenure target:** Are renters or owners served by the strategy?
- **Populations served:** What specific populations are served by the strategy?
- **Magnitude of Impact:** What is the anticipated impact for producing new and needed units? *(Low: Indirect or low impact on actual production, Medium: Likely to have some direct impact on the production of units, High: likely to directly produce or facilitate the production of units)*
- **Time Frame:** When does the City expect the action to be adopted and implemented? *(Near Term (1-2 years), Medium Term (within 3-5 years), and Longer Term (>5 years)).*
- **Priority:** How important is it for the City to adopt and implement this action in the next 6 years? *(Generally, High priority (1-2 years); Medium (3-5 years); Low (>5 years)).*
- **Lead:** The city department most likely to take the lead in implementing a strategy
- **Partners:** Likely collaborators in implementing a strategy

New Strategies By Initiative

A. Promote Affordable Housing (0-80% AMI)

1. Replace Housing Bonds Revenue Source
2. Create New Tax Increment Financing (TIF) Districts
3. Leverage Other State and Federal Funding Sources
4. Establish a Comprehensive Citywide Land Banking Strategy
5. Rezone Sites For Affordable Housing
6. Review and Update Inclusionary Housing (IH) Program
7. Update Short Term Rental Nightly Fee

B. Increase Middle Income Housing and Homeownership

1. Create New Middle-Income Financial Incentives
2. Update Land Division Code
3. Expand Homeownership Programs
4. Improve Middle Housing Permit Process

C. Increase Access To Opportunity

1. Implement and Support Catalytic Investments
2. Increase Housing Capacity in Inner Centers & Corridors
3. Revise Zoning Bonuses and Incentives
4. Kickstart Housing Demand in Central City
5. Increase Housing Capacity in the Central City
6. Identify Housing Opportunity Along 82nd Avenue
7. Promote Increased Transit Service
8. Incorporate Affirmatively Furthering Fair Housing

D. Reduce Barriers to Development and Improve Processes

1. Implement Regulatory Reform Project
2. Improve User Experience within Permitting Systems
3. Reform Development Services Funding Model
4. Explore Infrastructure Investments and Strategies
5. Revise System Development Charges (SDC)

E. Stabilize Current and Future Households

1. Preserve Existing Affordable Housing
2. Launch Affordable Housing Listing Service

F. Promote Age and Disability Friendly Housing

1. Implement Accessible Housing Production Strategies
2. Educate on Opportunities for Aging in Place & Community

G. Promote Climate Friendly and Healthy Homes

1. Support Mass Timber and Modular Innovations
2. Develop Low Carbon Building Policies
3. Promote Commercial to Residential Conversion / Adaptive Reuse
4. Implement Heat Adaptation Recommendations

H. Advocate at State and Federal Level

1. Advocate for Funding for Production and Preservation
2. Advocate for Regulatory and Code Changes to Meet Housing Need
3. Advocate for Policy that Supports the Building of Resilient Homes

New Strategies by Lead Bureau

Many of these actions and strategies will be collaborative efforts between multiple bureaus, in this table, lead bureau is simplified to one bureau, even where strong lead or collaboration is expected.

Portland Housing Bureau (PHB)

- Replace Housing Bonds Revenue Source
- Create New Tax Increment Financing (TIF) Districts
- Leverage Other State and Federal Funding Sources
- Establish a Comprehensive Citywide Land Banking Strategy
- Rezone Sites For Affordable Housing
- Review and Update Inclusionary Housing (IH) Program
- Update Short Term Rental Nightly Fee
- Expand Homeownership Programs
- Preserve Existing Affordable Housing
- Launch Affordable Housing Listing Service

Bureau of Planning and Sustainability (BPS)

- Rezone Sites for Affordable Housing
- Increase Housing Capacity in Inner Centers & Corridors
- Revise Zoning Bonuses and Incentives
- Increase Housing Capacity in the Central City
- Identify Housing Opportunity Along 82nd Avenue
- Incorporate Affirmatively Furthering Fair Housing
- Implement Accessible Housing Production Strategies
- Educate on Opportunities for Aging in Place & Community
- Support Mass Timber and Modular Innovations
- Develop Low Carbon Building Policies
- Implement Heat Adaptation Recommendations

Prosper Portland

- Create New Tax Increment Financing (TIF) Districts
- Create New Middle-Income Financial Incentives
- Implement and Support Catalytic Investments
- Kickstart Housing Demand in Central City
- Promote Commercial to Residential Conversion / Adaptive Reuse
- Explore Infrastructure Investments and Strategies

Infrastructure Bureaus:
Portland Bureau of Transportation (PBOT) / Portland Water Bureau (PWB) / Bureau of Environmental Services (BES) / Portland Parks and Recreation (PPR)

- Revise System Development Charges (SDC)
- Promote Increased Transit Service

Permitting and Development (PP&D)

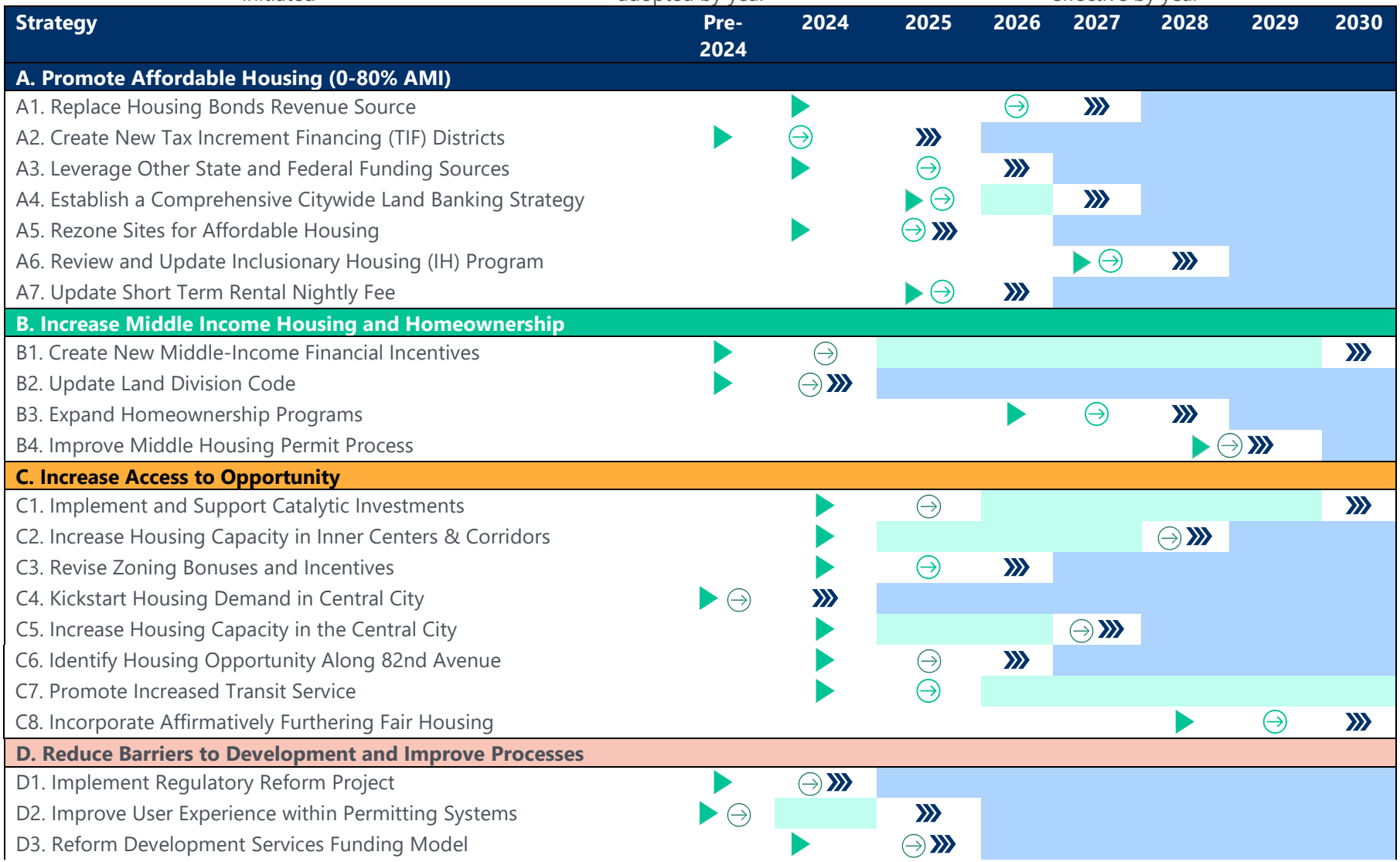
- Improve Middle Housing Permit Process
- Implement Regulatory Reform Project
- Improve User Experience within Permitting Systems
- Reform Development Services Funding Model

Office of Government Relations (OGR)

- Advocate for Funding for Production and Preservation
- Advocate for Regulatory and Code Changes to Meet Housing Need
- Advocate for Policy that Supports the Building of Resilient Homes

New Strategies by Adoption And Implementation Timeline

Legend: ▶ **Project Start:** When the project was/will likely be initiated ⟶ **Adoption:** When a new policy/program is expected to be adopted by year ⋙ **Implementation**: When a new policy/program is expected to be effective by year



Legend: ▶ **Project Start:** When the project was/will likely be initiated ⟶ **Adoption:** When a new policy/program is expected to be adopted by year ⋙ **Implementation**: When a new policy/program is expected to be effective by year

Strategy	Pre-2024	2024	2025	2026	2027	2028	2029	2030
D4. Explore Infrastructure Investments and Strategies						▶	⟶ ⋙	
D5. Revise System Development Charges (SDC)		▶ ⟶			⋙			
E. Stabilize Current and Future Households								
E1. Preserve Existing Affordable Housing		▶ ⟶				⋙		
E2. Launch Affordable Housing Listing Service		▶	⟶		⋙			
F. Promote Age And Disability Friendly Housing								
F1. Implement Accessible Housing Production Strategies					▶	⟶ ⋙		
F2. Educate on Opportunities for Aging in Place & Community						▶	⟶ ⋙	
G. Promote Climate Friendly and Healthy Homes								
G1. Support Mass Timber and Modular Innovations						▶	⟶ ⋙	
G2. Develop Low Carbon Building Policies				▶			⟶ ⋙	
G3. Promote Commercial to Residential Conversion / Adaptive Reuse	▶	⋙						
G4. Implement Heat Adaptation Recommendations		▶				⟶		
H. Advocate at State and Federal Level								
H1. Advocate for Funding for Production and Preservation		▶ ⟶	⋙					
H2. Advocate for Regulatory and Code Changes to Meet Housing Need		▶ ⟶	⋙					
H3. Advocate for Policy that Supports the Building of Resilient Homes		▶ ⟶	⋙					

A. Promote Affordable Housing (0-80% AMI)

Portland has an adequate supply of land to meet its future housing needs. The challenge is to provide housing with a diverse range of unit types and prices in locations that help meet the needs of all. Without these strategies, access to quality, affordable homes will continue to be out of reach to those whom the market does not adequately serve, including low-income populations, communities of color and people of all ages and abilities.

The greatest need identified during HPS engagement, through the Black, Indigenous and other People of Color (BIPOC) focus groups, community meetings, survey responses, draft public comment and stakeholder meetings, was the need for more affordable housing, especially for lower-income households, including renters who are concerned about rent increases and people on the brink of or already experiencing houselessness. With a demonstrated need for 53 percent of Portland's future housing needing to be affordable at 80 percent AMI or below, and an existing shortage of affordable housing for current Portlanders, this initiative and the subsequent strategies are necessary to help meet those needs.

While the City works with partners at JOHS, Multnomah County, Metro and with community partners to implement the Homelessness Response Action Plan, this initiative, in combination with initiative E. Stabilize Current and Future Households, aim to increase access to housing choice and prioritize extremely low-income households who may be at risk of becoming houseless.

These strategies aim to increase the supply of regulated and unregulated affordable housing units in Portland to address the city's pressing need for quality, affordable homes for a growing and socioeconomically diverse population, and to help ensure equitable access to housing. The ability to produce substantial amounts of affordable housing is heavily dependent on funding availability to support affordable housing development. Past housing bonds have played a pivotal role in this effort. Therefore, replacing those bonds with alternative revenue sources is instrumental in significantly increasing Portland's inventory of affordable housing units.

Implementing these strategies requires coordinated action and strong public-private partnerships. A wide variety of stakeholders have a role, including agencies such as the Portland Housing Bureau and Home Forward, community development corporations and other nonprofit community organizations, and private sector real estate and development partners. Staff time will be required to develop and maintain these partnerships as well as review and revise existing programs and code regulations to better facilitate affordable housing development.

Figure 3. Existing and Ongoing Programs and Actions That Promote Affordable Housing

Existing and Ongoing Programs Promoting Affordable Housing	
Inclusionary Housing (IH) Program	Land Acquisition and Banking
Mixed Use Zoning	Public Land Inventory

Existing and Ongoing Programs Promoting Affordable Housing	
Manufactured Dwelling Park (MDP) Zoning	Expanding Opportunities for Affordable Housing
Deeper Housing Affordability (DHA) bonus	Construction Excise Tax
Tax Increment Financing (TIF) • Regulated Affordable Rental Housing • Property Acquisition and Rehabilitation • Gap Financing For Middle Income Housing	Short Term Rental Lodging Tax American Rescue Plan Act Funds Portland Clean Energy Fund (PCEF) Metro Supportive Housing Services Fund
Metro Housing Bond	Portland Housing Bond
Multiple-Unit Limited Tax Exemption (MULTE) & Extension	Non-Profit Low Income Housing Limited Tax Exemption
Affordable Housing Construction Excise Tax Exemption	Homebuyer Opportunity Limited Tax Exemption (HOLTE)
Fair Housing Policy Audits	Fair Housing Testing
Federal Funding • Community Development Block Grant (CDBG) • HOME Investment Partnerships (HOME) • Emergency Solutions Grants (ESG) • Housing Opportunities for Persons with AIDS (HOPWA)	State Funding • Permanent Supportive Housing (PSH) • LIFT and Housing Trust Funds (HTF) • 9% Low-Income Housing Tax Credit (LIHTC) • 4% Low-Income Housing Tax Credit (LIHTC)
Other Federal and State Funding	Affirmative marketing for City Incentives

NEW STRATEGIES

1. Replace Housing Bonds Revenue Source

The City has been successful in fully distributing the funds and exceeding development targets for the two recent affordable housing bonds ($258.4M (Portland) and $211M (Metro)). The City will continue to be responsible stewards of public funds and maintain the systems and processes put in place to quickly and effectively use bond funding to create new affordable housing. The City will use lessons learned from the bonds and establish a per unit funding level that assures the long-term affordability and viability of affordable housing projects. The City will identify a long-term sustainable funding source for affordable housing development that aligns resources with the Housing Needs Analysis' identified housing production needs. Essential to this production strategy will be to identify resources for continued long-term operational support for affordable housing as well as resources for a risk mitigation pool.

Impact

Affordability: 0-80%

Tenure: Both

Populations Served: Low-income communities

Magnitude: High

DLCD Category: Resources and Incentives

Priority: High

Lead: PHB

Partners: State, Metro, Multnomah County

Project Start: Jan 2024

Adoption: July 2026

Implementation: July 2027

2. Create New Tax Increment Financing (TIF) Districts

Prosper Portland and Portland Housing Bureau are exploring establishing up to six new TIF districts in East Portland (including along 82nd Avenue) and the Central City. The creation of new TIF districts will increase investment in those areas and provide funding, through the 45% set-aside policy, to support affordable housing development, as well as resources available to support middle income housing (B1) and the creation of quality jobs. The goal is for City Council to vote on the first set of TIF districts in October 2024. Should City Council approve new tax increment finance district(s), Prosper Portland and Portland Housing Bureau will support and staff community action planning processes that identify spending priorities for the first five years of each TIF district, which will include both the 45% Set Aside Policy resources for 0 – 60% AMI rental and 0-80% AMI ownership as well as middle income and market rate housing above those thresholds.

Impact

Affordability: 0-120%

Tenure: Both

Populations Served: Low-income communities + general

Magnitude: High (~5 years post-adoption)

DLCD Category: Resources and Incentives

Priority: High

Lead: Prosper, PHB

Partners: BPS, OMF, Multnomah County

Project Start: August 2023

Adoption: October 2024

Implementation: July 2025

3. Leverage Other State and Federal Funding Sources

There are additional resources or programs at the state and federal level that may offer funding for housing projects, especially affordable housing projects. Many of these programs are administered by the federal Department of Housing and Urban Development (HUD) or the state Oregon Department of Housing and Community Services (OHCS)

A. Build PHB's resource development capacity to increase participation in state and federal funding programs for affordable housing.
B. Identify and pursue grant opportunities to diversify funding sources for affordable housing.
C. Coordinate with OHCS to align local and state funding opportunities for affordable housing projects.
D. Explore new/expanded funding sources including a Private Activity Bond Recycling Program, 501c3 Bonds, PSH funding for capital and operating costs, and HUD/Fannie/Freddie sources.

Impact

Affordability: 0-120%

Tenure: Both

Populations Served: Low-income communities

Magnitude: High

DLCD Category: Resources and Incentives

Priority: Medium

Lead: PHB

Partners: OHCS, HUD, Prosper, BPS

Project Start: 2024

Adoption: July 2025

Implementation: July 2026

4. Establish a Comprehensive Citywide Land Banking Strategy

Impact

The City will create a comprehensive citywide land banking strategy for affordable residential and mixed-use development. The strategy will utilize information from the 2023 Public Land Inventory and integrate insights from market analyses, enhanced financial planning, land acquisition and tender procedures, and community engagement, and explore partnerships with other agencies.

- The City will initiate new formal coordination and processes among all local area land banking entities, organizations, and agencies in an effort to increase communication, advocacy, and support of land banking practices.
- The City will pursue a variety of local, regional, state, and federal funding sources for land acquisition, holding land, site clearance, land swapping, and land entitlement for affordable and middle-income housing development.

Affordability: 0-120%

Tenure: Both

Populations Served: Low-income communities

Magnitude: Medium

DLCD Category: Land and Infrastructure

Priority: High

Lead: PHB/Prosper

Partners: Metro, Multnomah County, local, state and federal agencies

Project Start: 2025

Adoption: July 2025

Implementation: July 2027

5. Rezone Sites for Affordable Housing

The City will conduct a project based on the Expanding Opportunities for Affordable Housing project to rezone additional sites.

The initiative aims to collaborate with affordable housing providers and faith-based organizations that own properties and are working on plans to develop or preserve affordable housing, but face zoning restrictions. The project strategically upzone land to increase housing unit capacity. BPS will coordinate with infrastructure bureaus to review proposed sites and identify any potential infrastructure capacity deficiencies.

Impact

Affordability: 0-80%

Tenure: Both

Populations Served: Low-income communities

Magnitude: Medium

DLCD Category: Zoning and Code

Priority: High

Lead: BPS

Partners: PHB, PP&D, Infrastructure Bureaus, Institutions, affordable developers

Project Start: July 2024

Adoption: June 2025

Implementation: July 2025

6. Review and Update Inclusionary Housing (IH) Program

Portland's IH program requires that buildings with 20 or more new units provide a percentage of the new units at rents or sale prices affordable to households making up to 80% AMI for a period of 99 years. The program offers incentives (such as property tax exemptions and development fee exemptions) to help offset the compliance costs to maintain the financial feasibility of new residential buildings. The program options and incentives promote affordable family-sized units and deeper affordability levels up to 60% AMI. In 2023, the City undertook a comprehensive review of the IH program, which resulted in changes to the regulations and financial incentives to account for the cost of compliance.

- Conduct IH Program Periodic Review - City Council committed to periodically reviewing the regulations and incentives of Portland's IH program and making necessary revisions based on policy intent, market conditions, and program goals. (Ordinance No. 191610).

Impact

Affordability: 0-80%

Tenure: Both

Populations Served: Low- and moderate-income communities

Magnitude: High

DLCD Category: Zoning and Code

Priority: High

Lead: PHB

Partners: BPS

Project Start: Jan 2027

Adoption: Dec 2027

Implementation: Spring 2028

7. Update Short Term Rental Nightly Fee

Portland charges a $4 nightly fee on short-term rentals, on Booking Agents and short-term rental hosts for each night a guest rents a room. The funds generated from this fee fund affordable housing and houselessness initiatives in the Portland area.

This project would update the existing transient occupancy tax policy to tie the City's current nightly rate to the consumer price index, or similar market metric, for increases tied to market conditions.

Impact

Affordability: 0-80%

Tenure: Rent

Populations Served: Low-income communities

Magnitude: High

DLCD Category: Resources and Incentives

Priority: Medium

Lead: PHB

Partners: State, Metro, Multnomah County

Project Start: Jan 2025

Adoption: July 2025

Implementation: July 2026

B. Increase Middle Income Housing and Homeownership

The high cost of housing is challenging for middle-income households, or those earning between 60 percent and 120 percent of the area median income (AMI). Only 46 percent of the for-sale housing stock in Portland was affordable to households earning the Median Household Income (MHI) in 2023. As a consequence of the uniformly high housing costs, middle-income households are still largely priced out of homeownership. Uniformly high housing costs are similarly pervasive in the rental housing market, which serves many middle-income households in Portland.

These strategies aim to increase housing availability and access across a broader range of incomes and to improve homeownership rates, homeownership and renter retention, and locational choice for historically under-served and under-represented groups, including communities of color. They also aim to encourage a variety of rental and ownership opportunities and choices that help address gaps in middle income housing.

Expanding homeownership opportunities increases opportunities to accumulate wealth and live in more stable and secure housing. This is particularly impactful for marginalized communities historically excluded from the housing market, who have had few opportunities to build generational wealth through property ownership. These efforts contribute to both individual and generational prosperity.

Proposed strategies that offer financial incentives to fund homeownership programs can come at the expense of forgoing tax revenue. Creating these programs, assessing the implications of reduced city revenue, and identifying alternative funding sources to expand existing programs will require significant staff time.

Figure 4. Existing and Ongoing Programs and Actions That Promote Middle Income Housing and Ownership

Existing and Ongoing Programs Promoting Ownership	
Tax Increment Financing (TIF) • Middle Income & Market Rate Housing • Large Scale Site Preparation for Significant, Multiphase Housing Production • Property Acquisition and Rehabilitation • Gap Financing For Middle Income Housing and to Attract Private Capital	Homebuyer Opportunity Limited Tax Exemption (HOLTE)
Down Payment Assistance Loan Program	N/NE Preference Policy

NEW STRATEGIES

1. Create New Middle-Income Financial Incentives

The City will create new programs for grants, loans, tax exemptions and charge/fee exemptions to support middle-income (80-120% AMI) housing development and strategically attract private investment to generate market rate housing. In 2024, Prosper Portland created new guidelines for loans targeting middle income and market rate housing development and to leverage and attract partner capital. Approved through Prosper Portland Board Resolution No. 7525, new Prosper Portland lending products include:

- Predevelopment loans for attached and/or multi-dwelling residential projects;
- Property acquisition and construction financing loans for attached and/or multi-dwelling residential projects;
- Property acquisition and permanent financing for middle-income and market-rate multi-dwelling rental and mixed-use projects;
- Leverage loan resources, including via new Tax Increment Finance districts, via partnership with community lenders to scale funding.

Prosper Portland will periodically review lending performance and consider updates to loan program guidelines to increase unit production; ensure consistent financial returns that sustains a revolving program; and establish regulatory affordability agreements.

Prosper Portland and Portland Housing Bureau are exploring establishing up to six new TIF districts in East Portland and the Central City to increase resources available to support middle income housing and spur new housing production at significant opportunity sites in the Central City (including Broadway Corridor, OMSI, and the Lloyd Mall areas) and along key corridors in East Portland (including along 82nd Avenue). The goal is for City Council to vote on the first set of TIF districts in October 2024 (A2).

Impact

Affordability: 80-120%

Tenure: Rent

Populations Served: General

Magnitude: Medium

DLCD Category: Resources and Incentives

Priority: High

Lead: Prosper

Partners: PHB

Project Start: October 2023

Adoption: March 2024

Implementation: March 2030

2. Update Land Division Code

Dividing land into smaller parcels can help increase housing development opportunities in areas with limited available land. This project aims to simplify the land division process for smaller, less complex properties by streamlining application requirements and creating clear and objective standards as alternatives to the existing discretionary criteria.

Impact

Affordability: All

Tenure: Own

Populations Served: General

Magnitude: Low

DLCD Category: Zoning and Code

Priority: High

Lead: BPS

Partners: PP&D, Infrastructure Bureaus

Project start: July 2022

Adoption: August 2024

Implementation: October 2024

3. Expand Homeownership Programs

The City will expand existing programs and develop new programs that create housing for low to moderate income homebuyers such as:

- Expand land availability, tax incentives, grants, density bonuses, and fee waivers or expedited permitting to develop new housing.
- Increase funding for downpayment assistance, homebuyer education, and matched savings programs.
- Implement new programs that support alternative homeownership models. For example, limited equity, cooperatives, limited profit housing models, and non-market housing.

Impact

Affordability: up to 120%

Tenure: Own

Populations Served: Low- and moderate-income households

Magnitude: Medium

DLCD Category: Resources and Incentives

Priority: High

Lead: PHB

Partners: BPS, Prosper

Project Start: 2026

Adoption: July 2027

Implementation: July 2028

4. Improve Middle Housing Permit Process

Middle housing, such as ADUs, duplexes and fourplexes, can provide a greater range of housing options, and allow for lower-cost homeownership. Middle housing development permitting could be more navigable for residents and developers.

- Review middle housing development projects to assess and improve permitting process and development standards.
- Evaluate opportunity to accelerate the review times for projects that use previously approved plans.
- Evaluate capacity for dedicated inspections for middle housing projects, similar to the Field Issuance Remodel program.
- Identify challenges associated with providing public infrastructure to serve middle housing developments and create strategies to overcome them.
- Initiate a zoning code project to simplify middle housing types and offer greater flexibility in site design.

Impact

Affordability: 80%+

Tenure: Own

Populations Served: General

Magnitude: Low

DLCD Category: Regulation and Process

Priority: Medium

Lead: Portland Permitting & Development

Partners: BPS, Infrastructure Bureaus

Project Start: January 2027

Adoption: January 2028

Implementation: January 2028

C. Increase Access to Opportunity

This initiative works to help ensure equitable access to housing and aims to increase the number of Portlanders of all income levels living in safe, healthy housing that provides convenient access to jobs, goods and services that meet daily needs. These strategies also aim to connect more households to the rest of the city and region by way of safe, convenient, and affordable multimodal transportation. Given that these strategies aim to increase the supply of housing in areas of high opportunity, it's important to consider how some of these strategies may have an impact on existing infrastructure, including transportation and utility systems.

There is a concentration of areas of high opportunity, complete neighborhoods, low carbon neighborhoods and areas with lower risk of natural and climate hazards in and around Portland's Inner Centers and Corridors. Many of the city's historic districts and landmarks, which are also located in the Central City and inner neighborhoods, have historically provided many different housing types and opportunities exist to expand on these typologies in the future both through adaptive reuse and new development. These strategies work to increase fair housing access by developing housing in compact, mixed-use neighborhoods and by supporting more neighborhoods to become more complete neighborhoods.

Through public comment and community meetings, staff heard about community desire to increase opportunity for households to be able to choose to live in these inner neighborhoods. Many of which are areas of racially concentrated affluence, with evidence of historic exclusion. The HPS aims to address these concerns through strategies like C1. Implement and Support Catalytic Investments, C2. Increase Housing Capacity in Inner Centers and Corridors and C4. Kickstart Housing Demand in Central City.

Additionally, through focus groups and community meetings, staff heard more about community desire to have greater access to transit service, to neighborhoods that feel safe and housing in their current neighborhoods that meets household needs. The HPS aims to address these community desires through strategies such as C5. Increase Housing Capacity in the Central City, C6. Identify Housing Opportunity Along 82nd Avenue, and C7. Promote Increased Transit Service.

Figure 5. Existing and Ongoing Programs and Actions That Increase Access to Opportunity

Existing and Ongoing Programs Supporting Increased Access to Opportunity	
Design Overlay Zone Assessment (DOZA)	Three-Bedroom Unit Bonus
Residential Infill Project (RIP)	Shelter 2 Housing Continuum (S2HC)
West Portland Town Center	Central City 2035
Lower Southeast Rising	Better Housing by Design (BHD)
Montgomery Park to Hollywood	N/NE Preference Policy
N/NE Community Development Initiative	N/NE Housing Strategy
PBOT New Mover Transportation Wallet	Advance Portland

NEW STRATEGIES

1. Implement and Support Catalytic Investments

There are a number of major signature projects across Portland that the City is playing a significant implementation role. Successful projects will result in a significant number of units developed by private and affordable developers.

- **Albina Vision Trust** – The City will coordinate with the Albina Vision Trust (AVT) on the preparation of a Central City Master Plan for the Portland Public Schools (PPS) Mathew Prophet Education Center site. The City is providing early technical feedback that will help to shape the redevelopment of this site into 1,000 new housing units and community space. At the same time AVT and the City have been awarded a $800,000 Reconnecting Communities Grant to create a framework plan for a 94+ acre area that includes the PPS site, the Rose Quarter, new highway cover, waterfront, and other portions of historic Albina. The framework plan will create a roadmap for restorative development efforts in Albina.
- **Broadway Corridor** – The City will implement infrastructure investments that will support the development of mixed-income residential development including at least 720 new affordable units along with small business and anchor employment opportunities, new parks and the green loop in a high-density mixed-use development across 14 acres and up to 4 million square feet of development potential. The City will extend NW Johnson Street and associated water and sewer utilities to support the construction of new affordable housing units with $6 million dollars from the State of Oregon, along with additional public investment in necessary infrastructure.
- **Lloyd Mall Redevelopment** – The current owner is preparing an application for a Central City Master Plan (CCMP), and a Technical Advisory Group made up of City bureaus has been meeting with the owner and consultant team to provide expertise on the city regulations including the zoning code, infrastructure requirements and design guidelines and other requirements that affect future site redevelopment.
- **Montgomery Park Area Plan** – The City is in the process of adopting an area plan that will create a new mixed-use, transit-oriented neighborhood in this high opportunity area. The City will change the zoning, including creating a new plan district, to facilitate the development of more than 2,000 units, including affordable housing that exceed inclusionary housing

Impact

Affordability: All

Tenure: Both

Populations Served: General, Low-income communities, communities of color

Magnitude: High

requirements. The City will adopt a public benefits agreement with the owners of the two largest opportunity sites in the area to increase the amount of affordable housing, public parks/plazas, and affordable commercial space. In addition, the City will proceed with work to extend the Portland Streetcar line to this area.

- **Oregon Museum of Science and Industry Redevelopment (OMSI) –** The City will make public infrastructure and affordable housing in alignment with the OMSI District Central City Master Plan. PBOT will construct New Water Avenue using $10.9 million in Tax Increment Finance, $6 million Site Infrastructure award from the State of Oregon and $5 million of additional State funding awarded to OMSI. Additional private investment will support the development of a 24-acres mixed-use transit-oriented development, with up to 1,200 housing units of which at least 20% will be affordable through the City's Inclusionary Housing Policy with the potential for additional affordable units to be delivered by investment by the Portland Housing Bureau.
- **South Waterfront –** The South Waterfront area of Portland's Central City offers significant opportunity for new affordable and market-rate housing together with job growth via the Oregon Health & Science University 20-Year Facilities Plan. Private and public investments in SW Bond Avenue, South Portal, the greenway, and open space will be critical to delivering on new development and serving current and new residents in the district.

DLCD Category: Zoning and Code **Priority**: High **Lead**: Prosper, PHB, BPS

Partners: PP&D, City bureaus, Albina Vision Trust, Go Lloyd, Property owners, Developers, Portland Public Schools (PPS), Metro, Multnomah County

Project Start: 2024 **Adoption:** 2025 **Implementation:** 2030

2. Increase Housing Capacity in Inner Centers & Corridors

As identified in the BPS Strategic Plan, the City will increase housing capacity in high-opportunity neighborhoods to promote fair housing, address racial segregation, and expand affordable housing options. These changes may involve increasing and expanding commercial mixed-use and multi-dwelling zoning in centers and corridors in the inner neighborhoods.

- Conduct Infrastructure Capacity Analysis, funded in part by a DLCD grant, to determine the extent to which the existing infrastructure can support increased housing densities and identify investments needed to support increased capacity.
- Initiate an area plan project to increase mixed use and multi-dwelling zoning based on the results of the infrastructure capacity analysis.

Impact

Affordability: All
Tenure: Rent
Populations Served: Low-income communities; Communities of Color, Older adults, People with disabilities
Magnitude: High

DLCD Category: Zoning and Code

Priority: High

Lead: BPS

Partners: PP&D, Infrastructure bureaus

Project Start: July 2024 **Adoption:** July 2028 **Implementation:** August 2028

3. Revise Zoning Bonuses and Incentives

This strategy aims to address the wide range of floor area ratio (FAR) density and building height bonuses in the zoning code. The goal is to restructure the development incentives to support needed housing types, such as larger units, accessible units and affordable housing to serve all household types, incomes and needs.

- Funded in part by a DLCD grant, this code project will audit Portland's mixed use and multi-dwelling zoning regulations to identify barriers to housing production. These zones have 60% of Portland's residential growth capacity. The project will analyze FAR, maximum building height and bonuses to further increase capacity and facilitate production.

Impact

Affordability: All
Tenure: Both
Populations Served: General
Magnitude: Medium

DLCD Category: Zoning and Code

Priority: High

Lead: BPS

Partners: PHB, PP&D

Project Start: September 2024 **Adoption:** June 2025 **Implementation:** March 2026

4. Kickstart Housing Demand in Central City

This strategy aims to encourage housing production in the Central City by improving the livability of the area and making it an attractive place for developers to invest and residents to live. Like all other major cities on the West Coast, Portland is responding to issues of houselessness, lack of affordability, and behavioral health crises. Economic activity and vibrancy across Central City's ten neighborhoods has weakened, despite many having higher access to services, transit options and density. The Central City Task Force and Prosper Portland's Advance Portland strategic action plan include actions for the City to retain and recruit businesses and investment; to support office to residential conversions; and to activate and enhance the Central City so that community members once again view it as a safe and attractive place to live, work, and play:

- Establish and expand incentives for office-to-residential conversion, including direct financial incentives such as tax increment financing or other new financial tools, together with regulatory streamlining.
- Activate public rights-of-way in partnership with business and community partners, including maintaining opportunities for outdoor dining; expanding the public street plaza program; and investing in the programming of pedestrian plaza spaces held by the City or other public partners to serve residents and visitors.
- Enhance the Central City as a regional gathering spot by investing in renovation and activation of public open spaces and anchors to make them active and desirable places to attract additional investment in new residential development, and to enliven adjacent districts.
- Encourage temporary and permanent tenanting of vacant ground floor commercial spaces into active uses that supports local community and adjacent resident needs.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: low

DLCD Category: Stabilization

Priority: High

Lead: Prosper, BPS, PP&D

Partners: PBOT, PPR, PHB

Project Start: April 2023

Adoption: April 2023

Implementation: Ongoing through 2028

5. Increase Housing Capacity in the Central City

While Central City covers only three percent of the land base in Portland, it allows for the densest development in the region. But given the dire need for more housing in Portland, BPS and partner bureaus will explore ways the City can do more to create more housing in the city core.

BPS will update Central City zoning regulations to remove barriers to housing production, such as analyzing current densities (FAR) and heights and current utilization of allowable densities and heights.

Impact
Affordability: All
Tenure: Both
Populations Served: General
Magnitude: Medium

DLCD Category: Zoning and Code
Priority: High
Lead: BPS
Partners: PHB, PP&D
Project Start: October 2024
Adoption: July 2026
Implementation: October 2026

6. Identify Housing Opportunity Along 82nd Avenue

In conjunction with the 82nd Avenue Transit Project, the City will evaluate housing opportunities along 82nd Avenue, which includes:

- Analyze development feasibility along different segments of the corridor to identify gaps between development costs and achievable rents/prices;
- Identify developable sites per the Buildable Lands Inventory that can be developed in the near term as development interest and funding opportunities align;-and
- Consider zoning bonuses and incentives to encourage needed housing types, such as affordable housing, larger units, and accessible units.

Impact
Affordability: All
Tenure: Both
Populations Served: Low-income communities; older adults, People with disabilities
Magnitude: low

DLCD Category: Zoning and Code
Priority: Medium
Lead: BPS
Partners: PBOT, PHB, PP&D, Prosper
Project Start: August 2024
Adoption: December 2025
Implementation: March 2026

7. Promote Increased Transit Service

Access to transit service has been identified as a key factor in housing choice. The City will work with TriMet and Metro to promote increased transit service and improved transit speed and reliability in centers and corridors with higher levels of existing housing units and future development capacity. Actions include:

- Work with TriMet to implement its Forward Together 1.0 bus service concept to increase and expand bus and light rail service, including several bus service improvements in East Portland. Work with TriMet to develop Forward Together 2.0, a long-range service concept plan.
- Work with Metro and TriMet's Better Bus program and other programs to implement transit priority projects to improve transit speed and reliability, especially along the City's Rose Lane Transit Network.
- Work with Metro, TriMet and other partner agencies to plan, fund and build the 82nd Ave Transit Project, to implement the next Frequent Express (FX) bus line in Portland.
- Work with TriMet on the development of their Frequent Express (FX) System Plan, including seeking additional funding and federal matching funds to implement additional FX bus lines and other regional High-Capacity Transit lines in Portland.

Impact

Affordability: All
Tenure: Both
Populations Served: Low-income communities; older adults, People with disabilities
Magnitude: low

DLCD Category: Infrastructure
Priority: Medium
Lead: PBOT
Partners: BPS, TriMet, Metro, Streetcar
Project Start: August 2024
Adoption: August 2025
Implementation: December 2030

8. Incorporate Affirmatively Furthering Fair Housing

Fair housing means ensuring distribution of housing at all affordability levels in all neighborhoods in the city. Fair housing does not concentrate poverty in a single area, neighborhood, or geography. Fair housing is addressed by Comprehensive Plan Goal 5.B: Equitable access to housing; stating that Portland ensures equitable access to housing, making a special effort to remove disparities in housing access for people with disabilities, people of color, low-income households, diverse household types, and older adults.

The City will further explore how to incorporate an analysis and strategy for addressing fair housing in Zoning Map, Comprehensive Plan Map and City Code changes. The strategy has two parts:

- PHB will conduct a fair housing analysis of zoning and housing codes as part of federally required analysis for Consolidated Plan and Affirmatively Furthering Fair Housing reports.
- PHB will prepare a map where affordable housing currently exists and identify communities where affordable housing is not available and develop plans or code changes to encourage affordable housing development.
- BPS will explore enhanced fair housing requirements that are consistent with Statewide Land Use Planning Goals. For example, as part of voluntary quasi-judicial map amendments, developers could be required to have a fair housing strategy.

Impact

Affordability: All

Tenure: Both

Populations Served: Low-income communities; Communities of color; Older adults, People with disabilities

Magnitude: Low

DLCD Category: Zoning and Code

Priority: Low

Lead: BPS, PHB

Partners: PP&D

Project Start: July 2028

Adoption: June 2029

Implementation: July 2030

D. Reduce Barriers to Development and Improve Processes

The City has been actively adopting solutions for known regulatory impediments identified through the Permit Improvement Task Force, the housing production survey conducted by Commissioner Rubio's office, developer interviews and engagement with stakeholders such as Housing Oregon, Oregon Smart Growth and the Homebuilders Association.

These actions and programs are ones that the City has implemented or will implement. These proposed strategies aim to review and revise city services, development code regulations and the way the City processes development permits.

While many of these strategies are crucial for housing production, it's important to recognize that they may primarily benefit market-rate development and may not necessarily incentivize other types of needed housing. Implementing additional strategies to incentivize the production of housing that serves the specific needs of underserved populations in tandem with actions that reduce barriers to development is necessary.

Figure 6**. Existing/Ongoing Programs and Actions that Reduce Barriers and Improve Processes**

Existing and Ongoing Programs Reducing Barriers and Improving Processes	
Permit Improvement Task Force	Early Assistance Options for Middle Housing Pilot
Residential Permitting Single Point of Contact	Team Business Process Analysis Review
Multi-Dwelling Housing Pilot	Local Transportation Infrastructure Charge Exemption
Regulatory Work Group	Temporary Early Assistance Fee Reduction
Unification of Development Review Teams	Historic Resources Code Project
Housing Regulatory Relief Project	Parking Compliance Amendments Project
RICAP 10	Prosper Portland Construction Business And Workforce Equity
System Development Charges • Exemption • Freeze • Deferral Sanitary and Stormwater Rate Updates	Pre-approved Detached ADU Plans

NEW STRATEGIES

1. Implement Regulatory Reform Project

This project aims to establish a new code and policy process that streamlines when code and fee changes are brought to Council. The new process aims to enhance collaboration among bureaus responsible for implementing development regulations (BES, PBOT, PWB, PP&D, PPR/Urban Forestry), ensure cross-code regulatory alignment, establish frequent updates with City Council, reduce code conflicts, identify development impacts, establish a feedback loop with both customers and staff to inform code revisions, and document barriers identified by review teams and customer-facing staff to be considered for review.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Medium

DLCD Category: Regulation and Process

Priority: High

Lead: Portland Permitting & Development

Partners: BPS, BES, PBOT, PWB, PPR/Urban Forestry

Project Start: February 2022

Adoption: January 2024

Implementation: July 2024

2. Improve User Experience within Permitting Systems

These projects aim to make the permitting process more user-friendly by streamlining and simplifying the process, removing any inefficiencies that unnecessarily slow down projects and contribute to increased development costs.

A. Implement Portland Permitting & Development- Improve permitting process through a single permitting authority structure.

B. Set up Public Infrastructure Prescreen - Include infrastructure teams in the permit prescreen process.

C. Standardize Data and Reporting - Provide timely data on permitting, providing managers with early alerts regarding timeline problems.

D. Create a Customer Focused Website - Redesign permitting websites to better align content and improve customer wayfinding.

E. Establish Intake Success: New Single-Family Residence (NSFR) -Create digital conditional logic to guide the customer through the application process, resulting in more accurate and efficient NSFR permit applications.

F. Create A More Accurate Pre-Issuance List - The new report will provide transparency to both customers and Permitting Services on the pre-issuance permitting queue.

G. Establish Single Point of Contact - Each project is assigned one person to work with as evaluation occurs. This will be expanded to all building types.

H. Continue annual customer survey to gather feedback and determine what improvements are effective and where additional improvements are needed.

I. Build and implement a streamlined and transparent Public Works Permit review solution, including metrics to assist with the management and resolution of future inefficiencies.

Impact

Affordability: All
Tenure: Both
Populations Served: General
Magnitude: Medium

DLCD Category: Regulation and Process

Priority: High

Lead: CAO, PP&D, BTS

Partners: BES, PBOT, PWB, PPR/Urban Forestry

Project Start: 2021

Adoption: July 2022

Implementation: July 2025

3. Reform Development Services Funding Model

The funding and staffing model for development permitting needs to be reformed to build a mechanism that is not completely reliant on fees and can provide sustained funding. Best practices from other jurisdictions point to a need for funding that avoids the vulnerability of development cycles, which creates volatile staffing model and makes retaining/recruiting a skilled and technical workforce difficult.

Impact

Affordability: All
Tenure: Both
Populations Served: General
Magnitude: Medium

DLCD Category: Regulation and Process

Priority: High

Lead: PP&D

Partners: BES, PBOT, PWB, PPR/Urban Forestry

Project Start: August 2024

Adoption: June 2025

Implementation: July 2025

4. Explore Infrastructure Investments and Strategies

The City will ensure that capital improvement plans, public facility plans, transportation plans, and other infrastructure plans are up-to-date and prioritize areas that need investment. In order to coordinate housing development and infrastructure improvements, the City will integrate growth management, asset management and capital improvement planning to prevent infrastructure deficiencies from hindering housing development.

Also, the City will explore strategies that enhance infrastructure investment to support housing production:

- Significant Catalytic Sites – Provide funding, including through tax increment financing, System Development Charges or another dedicated fund, to unlock significant housing production on large scale sites lacking existing transportation and utility infrastructure.
- Publicly Funded Infrastructure Improvements – Create a fund to quickly deploy resources to help fund off-site improvements triggered by individual developments.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Medium

DLCD Category: Land and Infrastructure

Priority: Low

Lead: Prosper, BPS

Partners: PBOT, BES, PWB

Project Start: July 2028

Adoption: June 2029

Implementation: July 2029

5. Revise System Development Charges (SDC)

The City will comprehensively study how SDCs, and other fees affect development feasibility, and adjust accordingly to find the right balance between adequately serving new growth and minimizing adverse impacts on housing feasibility. Recent studies and engagement show that SDCs may impact the feasibility of certain types of development. However, SDCs are crucial for meeting infrastructure needs. The City has a complex fee structure across multiple bureaus with differing timelines. Upcoming studies and revisions include:

- BES will implement rule changes related to the user, development, and connection charges study in FY 24-25.
- PPR will review and update their methodology in 2026.
- PBOT will study fees and charges and their impact on development by 2027. PBOT currently scales its SDCs by dwelling size, with two single dwelling size categories and one for multi-dwelling projects. As part of the next program update in 2027, PBOT may further stratify the residential dwelling size categories to match those used in the Parks SDC program.
- During these revision periods, bureaus will evaluate SDC fee structures and exemptions to incentivize development types, affordability levels and locations that better serve housing needs and equity goals.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Resources and Incentives

Priority: Medium

Lead: BES, PBOT, PWB, PPR/Urban Forestry

Partners: PP&D, BPS, PHB

Project Start: 2022

Adoption: July 2024

Implementation: July 2027

E. Stabilize Current and Future Households

The HNA identified an underproduction of units in Portland over the last ten years, particularly for units affordable to households earning less than 80 percent AMI, adding pressure to the existing affordable housing. With more than a third of Portland households spend more than 30 percent of their income on housing costs, and around 50 percent of renters in the city are cost burdened, housing costs continue to increase at a rate that is hard for incomes to keep up with. Throughout engagement, we heard from households and advocates the continuing need to preserve programs that help to stabilize households, including utility and financial assistance for Portland's current households.

Advocates across the city, through community meetings, public comment and at the BIPOC focus groups/community meetings indicated the increasing need for stabilized housing, through strategies such as acquisition, funding, and easing access to existing affordable housing. Increasing housing costs in Portland are imposing significant financial strain on residents, particularly those already on the verge of housing instability. Finding ways to help vulnerable households remain in their homes and communities is fundamental to their stability and well-being as well as the City's goals around equitable access to quality and affordable housing.

As noted in the assessment of Areas of Economic Vulnerability, about 35 percent of Portland's households reside in areas of economic vulnerability. These areas also have over 50 percent of regulated affordable housing units with a roughly proportional share of the development capacity and new housing demand. While the City continues to invest in and incentivize the development of housing across the City, these households in particular will benefit from stabilizing measures that help mitigate the involuntary displacement of vulnerable households and preserve affordability.

The City continues to invest in ongoing and existing policies and programs that provide funding or manage programs that aid households in maintaining their housing (Figure 7). New strategies focus on building out policy and programs that will preserve the supply of regulated and unregulated affordable housing units and help ensure equitable access to housing. These strategies support the stabilization of current and future households, to prevent houselessness, and reduce housing insecurity.

The City will continue to work with nonprofit agencies and developers in conjunction with the Continuum of Care to identify additional resources that the City may be able to provide support for, such as supportive housing, services to people experiencing houselessness and houselessness prevention. While the City works with partners at JOHS, Multnomah County, Metro and with community partners to implement the Homelessness Response Action Plan, this initiative, in combination with initiative A. Promote Affordable Housing (0-80% AMI), aims to reduce risk of displacement, support vulnerable community members and extremely low-income households who may be at risk of becoming houseless.

Figure 7. Existing and Ongoing Programs Addressing Stabilization, Anti-Displacement and More

Existing and Ongoing Stabilization and Anti-Displacement Programs	
Joint Office of Homeless Services Programs	0% Home Repair Loans
• Homelessness Response Action Plan	Mandatory Relocation Assistance
Tax increment Financing (TIF)	Lead Hazard Control Grant Program
• Single Dwelling Home Repair	Excess to Access
• Homeownership	Safety Net Low Income Loans
• Rehabilitation & Preservation of Regulated	Sewer, Stormwater And Water Financial Assistance
• Acquisition & Rehabilitation of Market-Rate	• RAMP
Anti-Displacement Action Plan	• Bill discount
Action Plan for An Age-Friendly Portland	• Crisis voucher
Age- & Disability-Inclusive Neighborhood Project (ADIN)	• Water Leak Repair Assistance
N/NE Preference Policy	N/NE Community Development Initiative Action Plan
Fair Housing Policy Audits	Fair Housing Testing
Affirmative Marketing for City Incentives	Workforce Development
Down Payment Assistance Loan Program	Empowered Neighborhood Program
Affordable Housing Green Building Policy	Affordable Housing Air Conditioning Requirements
Landlord-Tenant Mediation Pilot Program	Short Term Rental Ordinance
Rental Services Office (RSO)	Fair Access in Renting (FAIR)
Eviction Legal Support	

NEW STRATEGIES

1. Preserve Existing Affordable Housing

The City will preserve affordable housing through the following actions

A. Develop a preservation portfolio by preparing an inventory of regulated and unregulated affordable housing to support proactive policies to preserve the affordable housing stock.

B. Acquire properties using low-interest loans/revolving loan fund for preservation.

C. Coordinate with Portland Clean Energy Fund on energy efficiency improvements to work in conjunction with the rehabilitation of affordable housing.

D. Identify unreinforced masonry buildings and seismic retrofit funding and code changes to stabilize existing affordable housing.

E. Working with the State/OHCS to identify dedicated funding and explore legislative or programmatic updates to foster preservation, including potential changes to state statute for property tax exemptions.

F. Include preservation as an allowed use for all new affordable housing funding streams within all potential new TIF districts and housing bonds.

G. Support loan restructures and modifications for existing regulated projects to ensure they can continue to be operated as affordable housing.

H. Coordinate with Joint Office of Homeless Services and OHCS to ensure Permanent Supportive Housing (PSH) units have adequate funding. Align funding sources with actual costs for property management, service delivery, and other operating needs.

Impact

Affordability: 0-80%

Tenure: Rent

Populations Served: Low-income communities,

Magnitude: High

DLCD Category: Stabilization and Other

Priority: High

Lead: PHB

Partners: BPS, PP&D, State, JOHS, Multnomah County, Home Forward

Project Start: 2024

Adoption: July 2024

Implementation: July 2028

2. Launch Affordable Housing Listing Service

In partnership with local housing providers and other jurisdictions, the City will establish an affordable housing listing service to help low-income households better access affordable housing opportunities. The City will be conducting a request for professional services for an affordable housing listing service to kick-off these efforts. The service would allow households to search for opportunities by geography and accessibility needs.

Impact

Affordability: 0-30%

Tenure: Both

Populations Served: Low-income communities

Magnitude: low

DLCD Category: Stabilization and Other

Priority: Medium

Lead: PHB

Partners: Home Forward, Metro, local providers of affordable housing.

Project Start: Summer 2024

Adoption: December 2025

Implementation: July 2027

F. Promote Age and Disability Friendly Housing

Approximately a quarter of all households in Portland have at least one family member with a disability and over 13 percent of the population is over the age of 65, and these numbers are forecast to increase. Because of the ageing population and the acute need to meet the needs of community members living with disabilities, BPS conducted extensive engagement for the Age- and Disability-Inclusive Neighborhood action plan, which has been incorporated into these strategies.

The HPS community engagement also identified a need for specific actions such as updating incentives in the zoning code and developing a comprehensive source of information for developing housing that allows ageing households to age in community. Some recommendations from advocates and community members are beyond the scope of local regulation and are therefore included in other initiatives.

These strategies promote age and disability friendly housing and increase Portland's ability to ensure equitable access to housing, making a special effort to remove disparities in housing access for people with disabilities and older adults. These strategies build on the recommendations in the draft action plan for Age- & Disability-Inclusive Neighborhoods (ADIN).

These strategies will require staff time to revise the regulatory barriers and incentives to help produce more accessible units as well as create programs specifically focused on supporting the development of accessible units.

Figure 8. Existing and Ongoing Policies Addressing Age and Disability Friendly Housing

Existing and Ongoing Programs Addressing Age and Disability Friendly Housing	
Action Plan for An Age-Friendly Portland (2014)	Fair Access in Renting (FAIR)
Visitable Units Bonus	Empowered Neighborhood Program
Age- & Disability-Inclusive Neighborhoods (ADIN) Action Plan (2023)	

NEW STRATEGIES

1. Implement Accessible Housing Production Strategies

The City aims to reduce the financial, regulatory, and institutional barriers to developing needed accessible housing in the aging city.

- Review and revise Chapter 33.229 Elderly and Disabled High Density Housing to consider relevancy and use as well as the opportunity to target middle housing.
- Revise visitable units bonus (33.120.211.C.4) to incentivize the increased development of visitable and accessible units that meet Universal Design, Oregon Lifelong Housing Certification, and other similar standards.
- Create an accessible housing inventory – BPS, PHB and PP&D will work together to identify opportunities to fund and support the work of creating an accessible housing inventory in order to better understand the gap in accessible housing. The City will explore programmatic opportunities to connect households to units (D3).

Impact

Affordability: All

Tenure: Both

Populations Served: Low-income communities; Older adults, People with disabilities

Magnitude: Low

DLCD Category: Zoning and Code

Priority: Medium

Lead: BPS, PHB

Partners: PP&D, Multnomah County; DLCD, BCD, OHCS, SPD, ADVSD, Developers

Project start: July 2027

Adoption: June 2028

Implementation: Oct. 2028

2. Educate on Opportunities for Aging in Place & Community

Provide technical assistance on incremental housing development guidelines to enhance aging in place/community (e.g., zero-step entrances, universal design, adaptable housing, affordable neighborhood-based housing models). Create programs to support two types of development:

- Retrofits to allow households to age in community/place.
- Middle housing opportunities for aging in community

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Stabilization and Other

Priority: Low

Lead: BPS

Partners: PP&D, PHB

Project start: July 2028

Adoption: June 2029

Implementation: July 2029

G. Promote Climate Friendly and Healthy Homes

These strategies promote the development of climate friendly and healthy homes so that people of all abilities and income levels have access to high-performance and climate resilient housing. A critical connection exists between the quality of the housing unit and the health of its occupants. Access to open spaces, opportunities for social interactions, green features, low-carbon building and adaptability also influence the health of a community.

New housing production will result in development that lasts for generations, and therein lies the opportunity to ensure the provision of affordable, quality housing that prioritizes equitable access to safe and healthy living environments and supports community resiliency. In community engagement we heard residents support policies that address not only net housing production but housing that will be resilient to the changing climate. The analysis shows that close to half of all regulated affordable units are situated in Portland's hottest neighborhoods, along with 39 percent of new demand and 38 percent of current housing capacity.

These strategies focus on building and maintaining Portland's housing stock in ways that foster environmental and community health and builds on actions in the Climate Emergency Work Plan and the Climate Investment Plan. Eliminating and reducing carbon from buildings, vehicles, and businesses is one part of addressing the climate emergency. The other part is helping residents become resilient to day-to-day impacts of climate change like excessive heat, wildfire smoke, power outages, flooding and more.

Figure 9. Existing and Ongoing Policies Addressing Climate Friendly and Healthy Homes

Existing and Ongoing Programs	
Tax increment Financing (TIF) • Single Dwelling Home Repair • Rehabilitation & Preservation of Regulated • Acquisition, Disposition& Development of Market-Rate within Prosper Portland's Green Building Policy	BES & PWB Financial Assistance • RAMP • Water Leak Repair Assistance RV Pollution Prevention Program
Affordable Housing Green Building Policy	Home Repair
Affordable Housing Air Conditioning	Lead Hazard Control Grant Program
Empowered Neighborhood Program	Excess to Access
Portland Clean Energy Fund (PCEF)	EV Ready Requirement
SDC Waiver for Office to Residential Conversion	

NEW STRATEGIES

1. Support Mass Timber and Modular Innovations

As modular and mass timber innovations and developments increase in Portland, the City can support these innovations by updating zoning and development codes to facilitate the construction of mass timber and modular housing. The widespread use of modular construction not only lowers construction costs and timelines, but it also aligns with the goals outlined in Advance Portland and promotes Portland's emergence as an innovator in the housing market.

- In addition, the City will study the economic opportunity to invest in the necessary infrastructure and workforce development to support the growth of modular and mass timber construction.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Zoning and Code

Priority: Medium

Lead: BPS, Prosper

Partners: Port, PP&D, PHB, Mass Timber Coalition

Project start: July 2028

Adoption: June 2029

Implementation: July 2029

2. Develop Low Carbon Building Policies

The City will continue to develop policies that reduce both operational and embodied carbon, as well as the carbon content of building materials and construction emissions. Carbon can be lowered in development through project design, engineering, and material selection before construction. Embodied carbon can be reduced through the use of low-carbon alternatives, adaptive reuse and whole-building life-cycle assessments, etc. Operational carbon reduction strategies include onsite and community-owned solar, renewable electric grid, electric new construction homes, advanced building energy codes, and electric vehicle (EV) readiness.

The Portland Clean Energy Community Benefits Fund (PCEF) invests in community-led and informed projects to reduce carbon emissions and make Portland more resilient. PCEF's Climate Investment Plan (CIP) for 2023-28 identifies key programs that will reduce carbon emissions and address the needs of Portland residents most impacted by a rapidly changing climate. The CIP will invest over $300 million in energy efficiency and renewable energy programs to support housing that will be built to high-efficiency, low-carbon, resilient standards. PCEF will also invest over $100 million in planting and maintaining Portland's urban tree canopy and $41 million in workforce and contractor development. Specifically, these

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

collective investments will support clean energy upgrades in over 5,000 affordable multifamily units and over 3,000 moderate- and low- income single family homes; and planting and establishment of over 15,000 street trees, and maintaining over 240,000 street trees.

DLCD Category: Stabilization and Other

Priority: Low

Lead: BPS

Partners: DEQ, PP&D, Prosper, Metro, Mass Timber Coalition

Project start: July 2026

Adoption: June 2029

Implementation: July 2029

3. Promote Commercial to Residential Conversion / Adaptive Reuse

As cities face the reality of vacant commercial buildings in a changing economy, there is an opportunity to repurpose these buildings into much needed housing. The City will explore additional policies to support adaptive reuse:

A. Identify high opportunity underutilized assets in centers and corridors for conversion.

B. Establish financial and regulatory tools to incentivize office-to-residential conversion; including use of direct financial incentives (tax increment financing, expanded system development charge waivers, and tax abatement) and regulatory streamlining.

C. Review existing codes and zoning policies and establish ones that encourage the reuse of existing buildings.

D. Expand historic resource incentives to allow a wider variety of uses not otherwise allowed.

E. Evaluate code flexibility for adaptation and efficient energy systems for livability and affordability.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Zoning and Code

Priority: Medium

Lead: Prosper, BPS, PP&D

Partners: Port, PHB

Project start: 2023

Adoption: ongoing

Implementation: ongoing

4. Implement Heat Adaptation Recommendations

Given the rising urban heat risks associated with increased density, growth and the changing climate, BPS has developed recommendations for addressing urban heat, including nature based, engineered, and policy solutions. Adopting these solutions will ensure healthy and safe housing Portlanders. The recommendations most pertinent to housing development include:

- Cool Roof Regulations – Explore adopting cool roof regulations for new multi-dwelling buildings and retrofits. Cool roof requirements lower local outside air temperature which decreases the urban heat island effect, slow smog formation, reduce energy demand, decrease roof temperature, help older inefficient air conditioners provide sufficient cooling and improve indoor comfort and safety for spaces that are not air conditioned, reducing preventable heat-related illness and death.
- Other heat adaptation recommendations related to new development include shade tree planting and built shade structures in common outdoor areas, Cool Corridors Planning, planting manual updates and Environmental Justice Spatial analysis and mapping.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Stabilization and Other

Priority: Low

Lead: BPS

Partners: PCEF, PBOT, PPR, UF, Other experts and topic area partners

Project Start: 2023

Adoption: 2028

Implementation: 2029

H. Advocate at the State and Federal Level

The City faces limitations in its role at the local level. Through the engagement done with community coalitions, the survey and public comment received, it was clear that many changes that would promote housing production, and the type of housing needed in communities in Portland, require the City to advocate for funding and policy changes at the State and Federal level. The following strategies identify state and federal action that would advance Portland's housing production strategies and goals. This list is meant to highlight various advocacy efforts that would help the City overcome some of the financial and regulatory barriers to housing production.

1. Advocate for Funding for Production and Preservation

The state legislature has recently recognized the importance of helping cities with funding for housing production. Continued state funding for affordable housing is critical to meeting our targets for lower income households. There is a need for additional funding to preserve existing affordable housing, especially those units with expiring 10-year agreements. Expanded support for middle income housing for households making between 60-120% AMI. Recently, the state legislature provided funding for public infrastructure projects that support housing. More investments like those are needed to support infrastructure for individual developments and larger catalytic projects.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Stabilization and Other

Priority: Low

Lead: OGR, PHB

Partners: PP&D, Prosper, BPS

Project Start: 2024

Adoption: 2025

Implementation: 2025

2. Advocate for Regulatory and Code Changes to Meet Housing Need

Many state policy changes could be made at both the statutory and regulatory level to accelerate housing production including updating condominium laws; increasing visitability and accessible units; allowing for midsize multi-dwelling buildings with a single (staircase) exit; and reducing burdens on affordable housing. Other ideas include changing the Low-Income Housing Tax Credit program to focus on affordable housing; creating a State Rehabilitation Tax Credit to support seismic upgrades, energy retrofits, and conversion of non-residential buildings to housing; reforming the Mortgage Interest Deduction to generate revenue for affordable housing funding and creating pilot projects using a limited profit, non-market, or other alternative housing development models.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Stabilization and Other

Priority: Low

Lead: OGR

Partners: PP&D, PHB, BPS, Prosper

Project Start: 2024

Adoption: 2025

Implementation: 2025

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3. Advocate for Policy that Supports the Building of Resilient Homes

As the City of Portland continues to work to produce more resilient and environmentally friendly homes, there are opportunities for the state and federal governments to do more to reduce embodied carbon in construction and incentivize shifts to all-electric standards.

Impact

Affordability: All

Tenure: Both

Populations Served: General

Magnitude: Low

DLCD Category: Stabilization and Other

Priority: Low

Lead: OGR

Partners: BPS, PP&D, PHB, Prosper

Project Start: 2024

Adoption: 2025

Implementation: 2025

Monitoring Progress

As Portland's first Housing Production Strategy, the City is establishing performance measures to track strategy implementation and progress. In three years (2027), the City will submit to the State a progress report that reports on actual housing production as well as a summary of the actions taken by the City to implement the strategies and an assessment of the circumstances or factors that posed a barrier to implementation with a plan for addressing the identified need that the strategy addressed. The City must also include a reflection of the relative efficacy of implemented strategies. In addition to the annual monitoring the City does on the total number of units produced and units produced by type the performance metrics for monitoring progress are:

Figure 10. Proposed Metrics for Monitoring Progress

A. Promote Affordable Housing (0-80% AMI)	B. Increase Middle Income Housing and Homeownership
• # of units by affordability (ACS/PUMS) • # of affordable units (0-80% AMI) produced • Average $ investment per rental housing unit • Average $ State and Federal funds invested per local $	• Change in # of ownership units (ACS) • # of ownership units built using TIF • Amount of $ awarded for Middle-Income development • $ used for homeownership programs
C. Increase Access To Opportunity / G. Promote Climate Friendly and Healthy Homes	**D. Reduce Barriers to Development and Improve Processes**
• % of new housing in complete neighborhoods • % of new housing in high opportunity areas • # of units produced within RCAA/RECAP • # of units produced within centers and corridors • % of new housing in low carbon neighborhoods	• # of days from application submittal to approved to issue • # of review cycles • Increased customer satisfaction via survey • % of teams meeting 1st and 2nd review goals
E. Stabilize Current and Future Households	**F. Promote Age and Disability Friendly Housing**
• # of PSH units built • # of HHs provided legal services for housing access and stabilization • # of HHs supported in HH level programs • % of BIPOC HHs provided legal services • $ Amount of supportive services funding aligned with actual costs for property management, service delivery, and other operating needs • $ Amount of funding for preservation and rehabilitation • # and distribution of severely cost burdened households • # of units produced within economically vulnerable tracts • # of regulated affordable units preserved through rehabilitation and/or new regulatory agreements	• # of accessible units permitted and produced • # of middle housing units permitted and produced

Engagement Summary

The Housing Production Strategy involved stakeholder engagement through a number of different avenues, including relying on the engagement of several projects that took place in recent years, including the Portland Insights Survey, Housing Regulatory Relief Project, 2045 Housing Needs Analysis and the Age and Disability Inclusive Neighborhood Discussion draft, all of which are described in more detail in Summary of Engagement from Recent Projects at the end of this report. These engagement efforts resulted in a revised draft of the Housing Production Strategy.

Broad and targeted engagement included outreach with both residents and developers of housing including discussions with individuals, coalitions, community groups and developers as well opportunities for general public comments via the web. This resulted in the following engagement, which is outlined and summarized in more detail in Appendix C. Engagement Plan and Activities:

- 256 individuals while at 25 organization/coalition meetings and open houses
- 66 individuals at six Black, Indigenous and People of Color (BIPOC) specific focus groups
- 42 individuals at in-person East Portland BIPOC community meeting
- 350 individuals via Citywide Housing Needs Survey
- 107 comments on the Discussion Draft of the HPS Action Plan
- 16 developers/producers of housing interviewed
- 4 Cross-Jurisdictional Technical Advisory Committee Meetings
- 28 Multi-Bureau Internal Working Group Meetings

Residents

Across focus groups, community and stakeholder meetings, a citywide survey and public comment opportunities, the key issues identified by Portland residents included:

- **Affordability.** The greatest need identified was for more affordable housing, especially for lower-income households, including renters who are concerned about rent increases and people experiencing houselessness. Even with restricted rent, some housing is still out of reach and multiple types of services need to be stacked. There was a greater desire to better understand how to get on lists for access to affordable housing that comes online. Advocates suggested a more targeted focus on lower affordability levels for both rent and own strategies (<50 percent Area Median Income (AMI)) and at the 0-30 percent level there is a need for permanent supportive housing and rental assistance in addition to an affordable unit.

- **Access to opportunity.** Infrastructure and the expansion of transit opportunities were identified as key investments needed to support the construction of housing and to provide mobility and access to key services, such as grocery stores in neighborhoods.
- **Access to outdoor or green space.** Households value housing that has access to green space on the property but also within their neighborhoods.
- **Access to programs to gain or maintain homeownership.** Greater access to homeownership is desired (esp. for lower-income households). Greater access to stabilization or repair programs for middle-income households.
    - Targeting lower income levels of affordability for ownership is more likely to uplift BIPOC households given the current disparities in wealth and income distribution in Portland.
- **Safety.** Safe neighborhoods are desirable but feel unaffordable, some multi-dwelling properties themselves feel unsafe despite the presence of property management.
- **Accessibility.** The most critically needed specific needs housing types were identified as housing for households experiencing houselessness, mental health support, aging individuals and households, and persons with disabilities.
- **Commitment to action.** Advocates expressed a desire for bureaus to articulate a higher level of commitment to action within the strategies (i.e., "study" vs "do").
- **Community Education.** Educate to increase access to opportunity for BIPOC homeowners specifically and homeowners generally, promote education on how to better utilize properties – around using code and doing small-scale development for middle housing and additional ownership opportunity
- **Adaptive reuse**. Residents are concerned with underutilization of existing commercial and residential buildings and the impacts of new development on old stock and on climate.
- **Increased housing preservation and production advocacy.** Staff heard a variety of items that should be supported in the City's legislative work; consideration of single stair building, embodied carbon strategies for new housing, all electric housing production, additional infrastructure resources, educed burdens on affordable housing, Mortgage Interest Deduction Reform, and for a one-to-four-unit residential building code.

Developers

City staff presented to and interviewed many different housing developers and coalitions, including Housing Oregon, Oregon Smart Growth, Portland Homebuilders Association, and individual market-rate, affordable, and middle housing developers. Summaries of each engagement effort are provided in the following sections.

Some of the primary feedback on barriers to development included:

- **High financing and development costs.** Material costs have stabilized but high interest rates have increased borrowing costs, constrained the debt market, and increased project costs. Additional high costs include labor as well as city requirements for system development charges. Smaller and affordable housing developers are especially impacted.
- **Permitting and inspection delays and uncertainty.** Uncertainty around the permitting and inspection process and timeline add cost and risk to development projects and can lead to developer hesitation to embark on new projects.
- **Land supply issues**. It is difficult to find sites appropriately zoned, especially for higher density affordable development. Affordable housing providers are unable to compete with market-rate developers because of the longer timelines associated with public financing. Many sites have stormwater, sewer, and transportation infrastructure limitations, which adds significant cost.
- **Low rent growth.** Rent growth has slowed down but costs (and capital) have continued to increase. Rent is too low in East Portland for market-rate projects to financially feasible.
- **Challenging regulatory environment.** There is a perception of large sections of outdated, irrelevant, or complicated code, especially for multi-dwelling developments.

Some of the primary feedback on draft production strategies included:

- **Be aggressive with meaningful incentives.** Remove or increase height and FAR limits, simplify the Zoning Code, and revise SDCs.
- **Simplify and improve the permitting process.** Streamline permitting for previously approved plans; improve transparency, predictability, and timing; identify and eliminate unnecessary steps and common issues in adjustments; improve inter-bureau coordination.
- **Advocate for State legislative changes**. Allow single-staircase buildings and use of the single-dwelling residential code for middle housing (up to four units).
- **Explore financial opportunities to support housing development.** Utilize state revolving loan funds; expand incentives for affordable housing to 100-120 percent AMI; and explore opportunities to support private development.
- **Explore ways to support housing innovation.** Expand the use of mass timber, modular, and adaptive re-use/conversions.
- **Explore opportunities for development partnerships.**
- **Create a specific East Portland production strategy.** Increase density in areas where there is existing or future planning and investments, e.g., Powell, 82nd, 122nd, and TIF districts.

Assessment of Engagement

Even though this project implemented a robust engagement effort starting in January 2024, there are opportunities for improvement in future engagement practices including:

- Time engagement to align with advocates availability. Because this project engagement took place before, during and shortly after the State legislative session we acknowledge that some organizations and community groups were not able to fully engage with the initial review of the draft strategies.
- Continue to improve relations with community organizations in ways that are more culturally responsive, trauma informed and respect the time, resources and capacity of communities without tokenization.
- Consider the impacts of hosting events during major religious holidays, e.g., Ramadan.
- Reflect on the languages that materials are shared in by default. Materials were translated into Spanish, Vietnamese, Chinese and Russian, however it was noted through engagement that translating into French might increase engagement with African communities in Portland.
- When attending community events, staff brought information on how to connect to current programs and resources. However, while the focus of the project is long-range, given the immediacy and sensitive nature of some individual household needs when engaging on the topic of housing, additional staff or partners who are experts in navigating these resources or who are able to directly connect community members to resources should participate in the meetings.

Achieving Fair and Equitable Housing Outcomes

The City acknowledges land use and other policy has impacted fair and equitable housing outcomes in the Historical Context of Racist Planning: A History Of How Planning Segregated Portland report and Anti-Displacement Action Plan; Foundation Report and A Dream Rezoned: Navigating Possibilities within Portland's Long History of Racist Planning. Additionally, through the Consolidated Plan/Action Plan, Consolidated Annual Performance and Evaluation Report (CAPER) and Analysis Of Impediments To Fair Housing Choice, the City conducts audits and analyses of existing policies to identify potentially discriminatory effects and opportunities to affirmatively further fair housing.

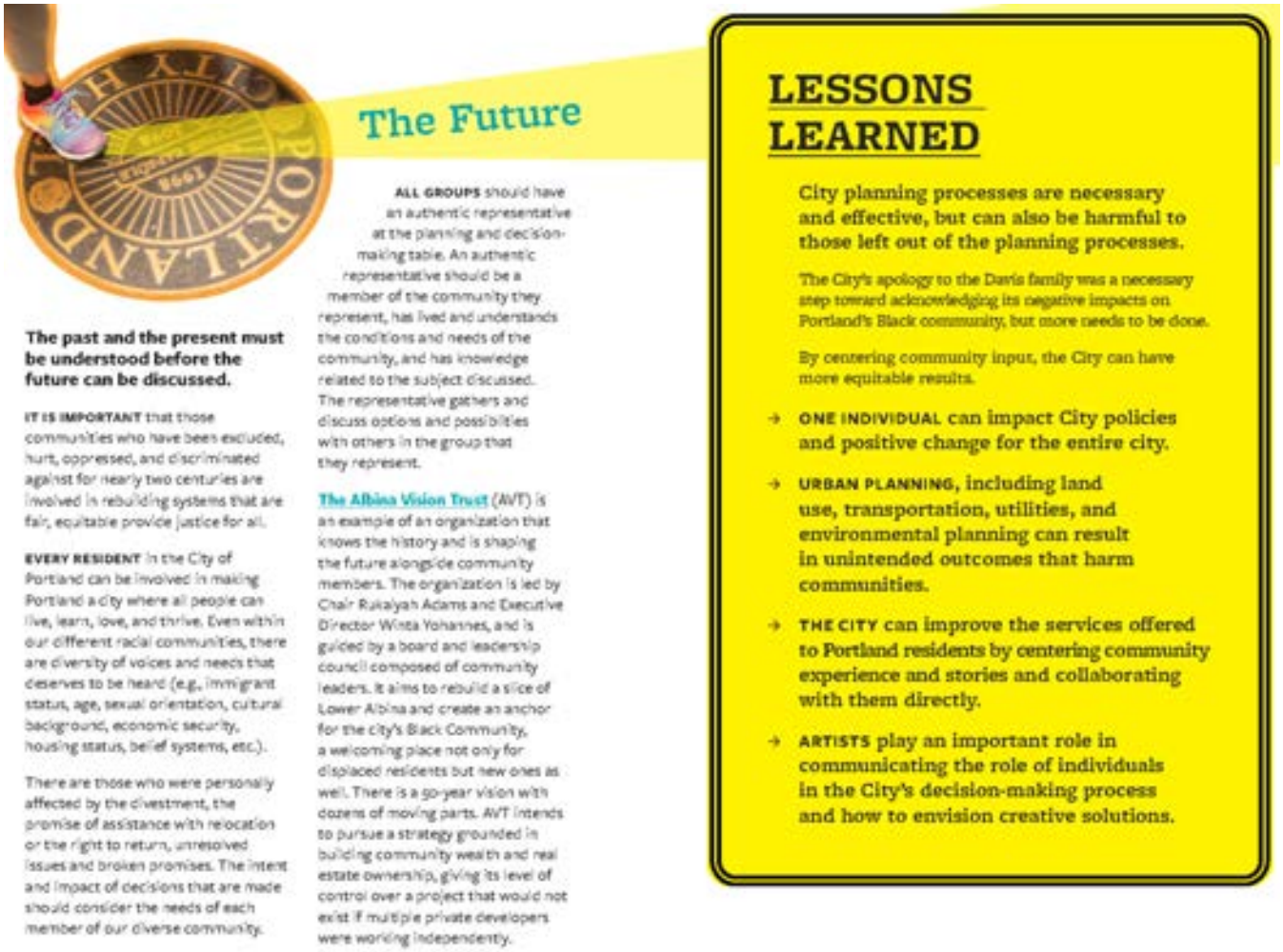
The City of Portland has a responsibility to affirmatively further fair housing by changing policies that have disparate impacts and instead intentionally create equitable outcomes. Federal protected classes are race, color, national origin, religion, gender, familial status, and disability. Oregon's additional protected classes are marital status, source of income, sexual orientation, gender identity, and status as a domestic violence survivor. In addition, Portland and Multnomah County's protected classes include occupation and age, if over 18. Under Fair Housing laws, it is illegal to deny access to housing in based on the characteristics of people within these protected classes.

The actions included in Portland's Housing Production Strategy aim to work together to achieve equitable outcomes for all residents. This evaluation summarizes the HPS strategies, in combination with other city actions, will achieve equitable outcomes. This is not intended to be an exhaustive evaluation of how each action addresses these outcomes but a high-level overview of the HPS as a whole. As outlined in OAR 660-008-0050 the factors the City must consider are:

- **Location of Housing in Compact, Mixed-Use Neighborhoods**. Is the City creating compact, mixed-use neighborhoods available to all people who belong to protected classes?
- **Fair Housing**. Is the City affirmatively furthering fair housing for all protected classes?
- **Housing Choice for Protected Classes**. Is the City facilitating access to housing choice for communities of color, low- income communities, people with disabilities, and other protected classes?
- **Housing Options for People Experiencing Houselessness**. Is the City enabling housing options for residents experiencing houselessness and promoting services that are needed to create permanent supportive housing and other options?
- **Affordable Homeownership and Affordable Rental Housing**. Is the City supporting and creating opportunities to encourage the production of affordable rental housing and the opportunity for wealth creation via homeownership?

- **Gentrification, Displacement, and Housing Stability**. Is the City increasing housing stability and mitigating the impacts of gentrification, as well as the economic and physical displacement of residents resulting from investment or redevelopment?

Figure 11. The Future: A Dream Rezoned



The Future

The past and the present must be understood before the future can be discussed.

IT IS IMPORTANT that those communities who have been excluded, hurt, oppressed, and discriminated against for nearly two centuries are involved in rebuilding systems that are fair, equitable provide justice for all.

EVERY RESIDENT in the City of Portland can be involved in making Portland a city where all people can live, learn, love, and thrive. Even within our different racial communities, there are diversity of voices and needs that deserves to be heard (e.g., immigrant status, age, sexual orientation, cultural background, economic security, housing status, belief systems, etc.).

There are those who were personally affected by the divestment, the promise of assistance with relocation or the right to return, unresolved issues and broken promises. The intent and impact of decisions that are made should consider the needs of each member of our diverse community.

ALL GROUPS should have an authentic representative at the planning and decision-making table. An authentic representative should be a member of the community they represent, has lived and understands the conditions and needs of the community, and has knowledge related to the subject discussed. The representative gathers and discuss options and possibilities with others in the group that they represent.

The Albina Vision Trust (AVT) is an example of an organization that knows the history and is shaping the future alongside community members. The organization is led by Chair Rukaiyah Adams and Executive Director Winta Yohannes, and is guided by a board and leadership council composed of community leaders. It aims to rebuild a slice of Lower Albina and create an anchor for the city's Black Community, a welcoming place not only for displaced residents but new ones as well. There is a 50-year vision with dozens of moving parts. AVT intends to pursue a strategy grounded in building community wealth and real estate ownership, giving its level of control over a project that would not exist if multiple private developers were working independently.

LESSONS LEARNED

City planning processes are necessary and effective, but can also be harmful to those left out of the planning processes.

The City's apology to the Davis family was a necessary step toward acknowledging its negative impacts on Portland's Black community, but more needs to be done.

By centering community input, the City can have more equitable results.

- → **ONE INDIVIDUAL** can impact City policies and positive change for the entire city.
- → **URBAN PLANNING**, including land use, transportation, utilities, and environmental planning can result in unintended outcomes that harm communities.
- → **THE CITY** can improve the services offered to Portland residents by centering community experience and stories and collaborating with them directly.
- → **ARTISTS** play an important role in communicating the role of individuals in the City's decision-making process and how to envision creative solutions.

Source: A Dream Rezoned: Navigating Possibilities within Portland's Long History of Racist Planning[6]

[6] https://www.portland.gov/civic/dream-rezoned

Location of Housing in Compact, Mixed-Use Neighborhoods

These actions and strategies illustrate how the City is striving to meet statewide greenhouse gas emission reduction goals by creating compact, mixed-use neighborhoods available to people who are members of protected classes. Within Metro, cities subject to this rule shall describe actions taken by the City to promote housing within Region 2040 centers and climate-friendly areas, the production of regulated affordable and accessible dwelling units; to mitigate or avoid the displacement of; and to remove barriers and increase housing choice for members of protected classes.[7]

Existing Actions

The City has adopted actions that aim to allow for higher density housing in residential and mixed-use areas that are located near transit and that are within walking/rolling distance of a variety of services and amenities. This is a particular benefit to low-income households, older adults and people with disabilities, who may rely on transit and other modes to get around. These actions are further detailed in Housing Policy in Portland.

- **Mixed Use Zoning**. Developed new mixed-use planning and zoning designations to implement the "Centers and Corridors" concepts.
- **Central City 2035.** Increased capacity for high-density, mixed-use and multi-dwelling housing, streamlined bonus and transfer system, increased FAR/density and height and minimum density.
- **Better Housing by Design (BHD).** Re-wrote the Multi-Dwelling Residential Zones Chapter (33.120) to better implement policies for increased opportunities around centers and corridors.
- **Residential Infill Project (RIP)**. Added flexibility to the R2.5, R5, R7, R10 and R20 zones to allow for middle housing types, which will increase the number of units and allowable configurations; and removal of minimum off-street parking requirement.
- **Historic Resource Code Project (HRCP)**. Allowed small detached ADUs in historic districts without a land use review, removed minimum off-street parking for historic landmarks and districts, some density limits, and enabled two ADUs to be built with a house, duplex to fourplex or multi-dwelling.
- **Parking Compliance Amendments Project (PCAP).** Removed minimum parking requirements and other adjustments to standards to align with CFEC rulemaking.
- **West Portland Town Center Plan.** included incentives and regulations to prioritize housing affordability and community benefits and proposed Zoning Map changes.

[7] Executive Order No. 20-04, ORS 456.586(1)(b); OAR 660-012-0310(2)

- **Lower SE Rising Area Plan**. addresses land use and transportation challenges faced in the Brentwood-Darlington neighborhood and nearby areas.
- **EV Ready Requirement.** requires 50% of parking in new buildings with five+ units, to include EV-ready infrastructure, when more than six spaces are provided; or 100% when six or fewer provided.
- **Inclusionary Housing (IH) Program.** requires new medium and large (20 or more units) market-rate multi-dwelling development to provide affordable housing.
- **Tax Increment Financing (TIF).** An updated Affordable Housing Set-Aside Policy requires that forty five percent of TIF funding across urban renewal areas to go to affordable housing.
- **Portland Clean Energy Community Benefits Fund (PCEF)**. Invest in energy efficiency and renewable energy upgrades in housing for low-income households.
- **Affordable Housing Green Building Policy.** Ensures construction funded by PHB advances environmental, social, and economic goals.
- **Portland Housing Bureau Investment Framework.** Guides how PHB identifies, purchases, builds and renovates homes. Priority areas with little or no affordable housing, at high risk of gentrification, with concentrations of communities of color, are in consideration of infrastructure projects and have access to education, transportation, services, economic opportunities and green spaces.
- **PBOT Transportation Wallet.** Three programs are available for new movers into some new multi-dwelling buildings, those living or working in Northwest and Central Eastside Parking Districts, and people living on low incomes; provides discounts on transportation services.

New Strategies

In addition to existing actions, several strategies within the HPS encourage housing in compact, mixed-use neighborhoods, thereby encouraging reduced greenhouse gas emissions and creating more opportunities to live within climate-friendly areas:

- Review and Update Inclusionary Housing (IH) Program
- Create New Tax Increment Financing Districts
- Rezone Sites For Affordable Housing
- Incorporate Affirmatively Furthering Fair Housing Into City Code
- Establish a Comprehensive Citywide Land Banking Strategy
- Update Land Division Code
- Improve Middle Housing Permit Process
- Increase Housing Capacity in Inner Centers & Corridors

- Kickstart Housing Demand in Central City
- Increase Housing Capacity in the Central City
- Identify Housing Opportunity Along 82nd Avenue
- Promote Increased Transit Service
- Preserve Existing Affordable Housing
- Implement Accessible Housing Production Strategies
- Educate on Opportunities for Aging in Place & Community
- Develop Low Carbon Building Policies
- Promote Commercial to Residential Conversion / Adaptive Reuse
- Advocate for Funding for Production and Preservation
- Advocate for Regulatory and Code Changes to Meet Housing Need
- Advocate for Policy that Supports the Building of Resilient Homes

Fair Housing

Fair housing is embedded in the Comprehensive Plan with Goal 5.B: Equitable access to housing. Stating that Portland ensures equitable access to housing, making a special effort to remove disparities in housing access for people with disabilities, people of color, low-income households, diverse household types, and older adults. This goal is directly implemented through the following policies:

- Policy 5.10 Coordinate with fair housing programs. Foster inclusive communities, overcome disparities in access to community assets, and enhance housing choice for people in protected classes throughout the city by coordinating plans and investments to affirmatively further fair housing.
- Policy 5.11 Remove barriers. Remove potential regulatory barriers to housing choice for people in protected classes to ensure freedom of choice in housing type, tenure, and location.
- Policy 5.12 Impact analysis. Evaluate plans and investments, significant new infrastructure, and significant new development to identify potential disparate impacts on housing choice, access, and affordability for protected classes and low-income households. Identify and implement strategies to mitigate the anticipated impacts.

In addition to these policies, the following actions and strategies illustrate how the how the City is affirmatively furthering fair housing for all protected classes.

Existing Actions

These actions are further detailed in Appendix B. Housing Policy in Portland.

- **Fair Housing Policy Audits.** Through the Consolidated Plan/Action Plan, Consolidated Annual Performance and Evaluation Report (CAPER) and Analysis Of Impediments To Fair Housing Choice, the City conducts audits and analysis of existing policies to identify potentially discriminatory effects and opportunities to affirmatively further fair housing.
- **Fair Housing Testing.** City conducts fair housing testing to determine whether discriminatory patterns and practices pertaining to renting a place to live likely exist, the form that they take, and which protected class groups are most likely to experience them.
- **Affirmative Marketing For City Incentives.** As a requirement of City funding, via PHB, for affordable housing projects, the developer/owner must complete and submit an affirmative marketing plan before PHB will submit financial close.
- **Landlord-Tenant Mediation Pilot Program.** In partnership with Resolutions Northwest, provides free mediation services to landlords and tenants with rental housing disputes.
- **Rental Services Office (RSO)**. A helpline for technical assistance and information on landlord-tenant laws and policy as well as provides trainings for landlords. RSO staff can provide referrals and information, they cannot offer legal advice.
- **Fair Access in Renting (FAIR).** City adopted policy that regulates security deposits, move in fees, and screening criteria that may be used to select tenants.
- **Eviction Legal Support.** Tenants can seek these free legal services as soon as they receive a Notice of Termination and do not need to wait until an eviction case is filed.
- **Oregon Worker Relief. Household Relief and Legal Defense.** Oregon Worker Relief and its partners support immigrant and refugee Portlanders with help to keep small businesses open, stay stably housed, and navigate the immigration legal system.

New Strategies

Several of the strategies further fair housing goals by addressing disparities in housing needs and increasing housing opportunity in areas of high opportunity, and by creating housing opportunities in racially and ethnically concentrated areas of poverty. Strategies that further fair housing goals include:

- Review and Update Inclusionary Housing (IH) Program
- Rezone Sites for Affordable Housing
- Incorporate Affirmatively Furthering Fair Housing into City Code
- Develop A Comprehensive Citywide Land Banking Practice

- Preserve Existing Affordable Housing
- Launch Affordable Housing Listing Service
- Implement Accessible Housing Production Strategies
- Educate on Opportunities for Aging in Place & Community
- Advocate for Funding for Production and Preservation
- Advocate for Regulatory and Code Changes to Meet Housing Need
- Advocate for Policy that Supports the Building of Resilient Homes

Housing Choice for Protected Classes

These actions and strategies illustrate how the City is facilitating access to housing choice for communities of color, low- income communities, people with disabilities, and other protected classes.

Existing actions

These actions are further detailed in Housing Policy in Portland. Actions described in the above categories are kept by name here for brevity.

- **Land Banking for Affordable Housing.**
- **Action Plan for An Age-Friendly Portland.** The action steps comprising the 2013 plan intend to move Portland toward future development and activities that foster not only physical environments but also social and service environments that meet these criteria, making Portland a community for all ages. Several actions in the plan relate directly to housing.
- **Age- and Disability-Inclusive Neighborhood Project (ADIN)**. Members of a working group focused on advancing neighborhood "centers" by building on polices in Portland's 2035 Comprehensive Plan and the Action Plan for an Age-friendly Portland.
- **North/Northeast Preference Policy and Housing Strategy.** The N/NE Preference Policy waitlist for rental/homeownership housing is open on a rolling basis. Priority status is given to applicants, and/or their descendants, who previously owned property that was taken by the Portland City government through eminent domain.
- **Visitable Unit Bonus.** zoning code changes to create a floor area bonus for visitable units. It provides bonus FAR allowed up to the maximum with visitable units' bonus when at least 25 percent of all the dwelling units on the site meet the visitability standards.

New strategies

The following strategies are intended to facilitate access to housing choice for communities of color, low-income communities, people with disabilities, and other state and federal protected classes:

- Review and Update Inclusionary Housing (IH) Program
- Rezone Sites For Affordable Housing
- Incorporate Affirmatively Furthering Fair Housing Into City Code
- Establish a Comprehensive Citywide Land Banking Strategy
- Expand Homeownership Programs
- Increase Housing Capacity in Inner Centers & Corridors
- Revise Zoning Bonuses and Incentives
- Preserve Existing Affordable Housing
- Implement Accessible Housing Production Strategies
- Educate on Opportunities for Aging in Place & Community
- Advocate for Funding for Production and Preservation
- Advocate for Regulatory and Code Changes to Meet Housing Need
- Advocate for Policy that Supports the Building of Resilient Homes

Housing Options for People Experiencing Houselessness

These actions and strategies illustrate how the City is advocating for and enabling the provision of housing options for residents experiencing houselessness and how the City is partnering with other organizations to promote services that are needed to create permanent supportive housing and other options for residents experiencing houselessness.

Existing actions

These actions are further detailed in Housing Policy in Portland. Actions described in the above categories are kept by name here for brevity.

- **Joint Office of Houseless Services (JOHS)**. Services funded include rapid rehousing, permanent supportive housing, outreach/navigation, shelter/survival support, hygiene, and employment. The Houselessness Response Action Plan outlines actions and outcomes that the City and County are aiming to produce.
- **Safe Rest Villages**. The City's Safe Rest Village team is adding to the mix of alternative shelters throughout Portland. The project team manages the largest portion of the City grant funds from ARPA, which includes the seven designated Safe Rest Villages, as well as two alternative shelters.

- **Shelter 2 Housing Continuum (S2HC).** Adopted code to expand housing and shelter options; made it easier to site shelters, increased range of group living, including single room occupancy (SRO); and allows a recreational vehicle or tiny house on wheels on a residential property.
- **Short-Term Rental Lodging Tax and Fee.** A nightly fee on short-term rentals is due from short-term rental hosts. This fee is in addition to the Transient Lodgings Tax. The funds generated from this fee are used to fund affordable housing and houselessness.
- **Metro Supportive Housing Services (SHS) Fund.** These fund supportive services required for PSH under the Portland and Metro Housing Bonds as well as housing that becomes supportive housing. Funds have been used to provide Regional Long-term Rent Assistance (RLRA) to support houseless households or those at risk of becoming houseless.

New strategies

The City can also prioritize extremely low-income households who may be at risk of becoming houseless by targeting its affordable housing strategies to those populations. Supporting housing with deep affordability and wraparound services requires additional resources and partnerships with organizations that specialize in that form of housing. The City can make that a priority for HPS implementation.

These strategies are about increasing resources for prevention of houselessness. Part of decreasing houselessness will be preservation of existing housing, rehabilitation of housing, development of more affordable ownership and rental housing, and increasing housing stability to prevent houselessness.

- Rezone Sites For Affordable Housing
- Incorporate Affirmatively Furthering Fair Housing Into City Code
- Establish a Comprehensive Citywide Land Banking Strategy
- Update Short Term Rental Nightly Fee
- Launch Affordable Housing Listing Service
- Preserve Existing Affordable Housing
- Explore Accessible Housing Production Strategies
- Educate on Opportunities for Aging in Place & Community
- Advocate for Funding for Production and Preservation
- Advocate for Regulatory and Code Changes to Meet Housing Need

Affordable Homeownership and Affordable Rental Housing

These actions and strategies illustrate how the City is supporting and creating opportunities to encourage the production of affordable rental housing and the opportunity for wealth creation via homeownership, primarily for state and federal protected classes that have been disproportionately impacted by past housing policies.

Existing actions

These actions are further detailed in Housing Policy in Portland. Actions described in above categories are kept by name here for brevity.

- **N/NE Housing Strategy and Preference Policy.**
- **Fair Access in Renting (FAIR).**
- **Metro Supportive Housing Services (SHS) Fund.**
- **Regulated Affordable Rental Housing.** Regulated rental housing is provided for households earning 80 percent AMI and below**,** largely funded multi-dwelling, regulated rental housing through the Tax Increment Financing Set Aside resources.
- **Acquisition and Rehabilitation of Existing Properties.** Tax Increment Financing (TIF) supports programs that purchase existing market-rate housing and/or sites, to convert into regulated, multi-dwelling affordable housing. PHB has used this to acquire properties for future redevelopment, to protect residents from displacement and/or secure affordable homes.
- **0% Home Repair Loans**. offers no-interest loan up to $40,000 to fund repairs to residents earning up to 120 percent of AMI in the Interstate Corridor Urban Renewal Area (ICURA).
- **Down Payment Assistance Loan Program.** A second mortgage loan funded by PHB, and it is used in conjunction with a first mortgage loan from a participating lender. DPAL is designed with favorable terms to help first-time homebuyers purchase a home within the city limits of Portland.
- **Expanding Opportunities for Affordable Housing.** Changes to zoning code that streamlined affordable housing in residential zones review process for community and faith-based organizations. Allowed them to develop affordable housing on their land without a conditional use (CU) review if at least 50 percent are affordable, Repurpose up to 50 percent of parking for affordable project and Add up to 2,000 sq ft of nonresidential use without CU review.
- **Multiple-Unit Limited Tax Exemption (MULTE).** A ten-year property tax exemption supports the creation of affordable housing units through the Inclusionary Housing Program; leverages market activities to advance prosperity goals by aligning activities with Portland Plan and PHB's Strategic Plan; and provide transparent and accountable stewardship of public investments.

    - **MULTE Extension Down Payment Assistance Loan Program.** Updates rules to allow projects with expiring MULTE units an opportunity to extend tax exemption for a limited amount of time in order to extend the affordability of the MULTE units.

- **Homebuyer Opportunity Limited Tax Exemption (HOLTE).** single-unit homes receive a ten-year property tax exemption on structural improvements to the home as long as the property and owner remain eligible per program requirements. The property is reassessed when the exemption is terminated or expires after the ten years, and owners begin paying full taxes.
- **Manufactured Dwelling Parks (MDP) Zoning.** established a new residential multi-dwelling base zone specifically for manufactured dwelling parks with a density of up to 29 units per acre. It has an affordable housing bonus option in which the maximum density can be increased up to 43 units per acre when at 50 percent of all the dwelling units on the site are affordable to those earning up to 60 percent area median family income.
- **Construction Excise Tax**. For residential improvements, 15 percent of net revenue remitted to OHCS; 50 percent transferred to Inclusionary Housing Fund to fund finance-based incentives for programs that require affordable housing; and 35 percent to the Inclusionary Housing Fund for production and preservation of affordable housing units below 60 percent median family income.
- **Portland Housing Bond**. To implement this Measure, PHB wove in rental support in the form of Project Based Section 8 vouchers from the housing authority of Multnomah County, Home Forward, and supportive services funding from JOHS. The Bond has exceeded all goals and committed all funds to 15 projects throughout the City in high opportunity location, representing 1,859 affordable units, a 43 percent increase over the goal, to provide homes to over 4,000 low-income Portlanders.
- **Metro Housing Bond.** Using funds from this bond, PHB has committed approximately $160 million to fund over 1700 units throughout the City in high opportunity area in over 20 projects, that are open or in development, to house another 4,000+ low-income Portlanders.

New Strategies

Several of the strategies included in the HPS support production of affordable rental housing and the opportunity for wealth creation via homeownership. By benefitting low-income households more broadly, these strategies are anticipated to benefit populations with lower median household incomes than Portland as a whole—including certain racial and ethnic groups. Strategies that address these needs (in addition to the City's existing measures) include:

- Review and Update Inclusionary Housing (IH) Program
- Create New Tax Increment Financing Districts
- Explore Replacing Housing Bonds Revenue Source
- Rezone Sites For Affordable Housing

- Update Short Term Rental Nightly Fee
- Incorporate Affirmatively Furthering Fair Housing Into City Code
- Establish a Comprehensive Citywide Land Banking Strategy
- Create New Middle-Income Financial Incentives
- Update Land Division Code
- Expand Homeownership Programs
- Increase Housing Capacity in Inner Centers & Corridors
- Revise Zoning Bonuses and Incentives
- Kickstart Housing Demand in Central City
- Increase Housing Capacity in the Central City
- Identify Housing Opportunity Along 82nd Avenue
- Revise System Development Charges (SDC)
- Preserve Existing Affordable Housing
- Implement Accessible Housing Production Strategies
- Promote Commercial to Residential Conversion / Adaptive Reuse
- Advocate for Funding for Production and Preservation
- Advocate for Regulatory and Code Changes to Meet Housing Need
- Advocate for Policy that Supports the Building of Resilient Homes

Gentrification, Displacement, and Housing Stability

In addition to many of the actions in prior sections, these actions and strategies illustrate how the City is increasing housing stability for residents and mitigating the impacts of gentrification, as well as the economic and physical displacement of existing residents resulting from investment or redevelopment.

Existing Actions

These actions are further detailed in Housing Policy in Portland. Some actions are described in above categories and are kept by name here for brevity.

- **Rental Services Office (RSO)**
- **Fair Access in Renting (FAIR)**

- **North/Northeast Preference Policy**
- **Landlord-Tenant Mediation Pilot Program**
- **N/NE Neighborhood Housing Strategy**
- **Eviction Legal Support**
- **Mandatory Relocation Assistance**
- **0% Home Repair Loans**
- **Rehabilitation and Preservation of Existing Regulated Housing**
- **Acquisition and Rehabilitation of Existing Market-Rate Housing**
- **RV Pollution Prevention Program.** Portland residents living in recreational vehicles (RVs) parked on the street are eligible for the pump out program.
- **Regulated Affordable Multifamily Assistance Program (RAMP).** provides a discount to Nonprofit Low-Income Housing Limited Tax Exemption (NPLTE) properties, will reach 12 percent of units, or 15,000 households annually, an estimated average benefit of $325 per unit.
- **Homeowner Foreclosure Prevention.** works through partner organizations to provide foreclosure prevention counseling and, where needed, financial assistance to homeowners facing foreclosure.
- **Utility Assistance Programs.** Bureau of Environmental Services and Water Bureau Financial Assistance programs including, Safety Net Low Income Loans, Bill discount, Crisis voucher and Water Leak Repair Assistance.
- **Empowered Neighborhood Program**. assists vulnerable residents from communities of color and/or those with disabilities, who have code enforcement issues.
- **Lead Hazard Control Grant Program.** provides lead-based paint hazards evaluation and financial assistance to reduce hazards in pre-1978 housing occupied by qualified households.
- **N/NE Community Development Initiative Action Plan.** guides the $32 million TIF investment and is focused on 5 goals: property ownership, business ownership, home ownership, community livability and cultural hubs.
- **American Rescue Plan Act Funds.** Funding has or had supported the following projects, some of which have contributed to the stabilization of households, while others have directly worked to house households, in temporary shelter such as safe rest villages, or in permanent housing:
    - Safe Rest Villages
    - COVID-19 Houseless Services
    - Flexible household assistance
    - Rapid Workforce Training & Employment
    - JOHS Motel Shelter Strategy
    - Affordable Housing Preservation

    - Afloat: Utility Debt Relief
- Eviction Legal Defense
- Homeowner Foreclosure Prevention
- Housing Stabilization Contingency
- Household Relief and Legal Defense
- RV Pollution Prevention Program
- Match2: Utility Debt Relief
- 82nd Avenue Anti-Displacement Housing Stabilization

New Strategies

Several strategies included in the HPS aim to increase housing stability for residents and mitigate the impacts of gentrification. Strategies that address these needs (in addition to the City's existing measures) include:

- Review and Update Inclusionary Housing (IH) Program
- Create New Tax Increment Financing Districts
- Update Short Term Rental Nightly Fee
- Leverage Other State and Federal Funding Sources
- Promote Commercial to Residential Conversion / Adaptive Reuse
- Preserve Existing Affordable Housing
- Educate on Opportunities for Aging in Place & Community
- Advocate for Funding for Production and Preservation

Assessment of Benefits and Burdens

The City is required to consider the anticipated benefit and burden from each action for the following groups of people who have been historically marginalized: low-income communities, communities of color, people with disabilities, and other state and federal protected classes.

Figure 12. Assessment of Benefits and Burdens by Strategy

Strategy	Benefit	Burden
A1. Replace Housing Bonds Revenue Source	• Will benefit extremely low, very low, low, and middle-income households, depending on how the City prioritizes funding • The groups more likely to benefit from this action are disproportionately marginalized communities, including communities of color, people with disabilities, and older adults	• Unlikely to increase burdens
A2. Create New Tax Increment Financing (TIF) Districts	• Will benefit extremely low, very low, low, and middle-income households, depending on how the City prioritizes funding • The groups more likely to benefit from this action are disproportionately marginalized communities, including communities of color, people with disabilities, and older adults	• As property values increase, there is a potential for displacing existing residents. The City sets aside at least 45 percent of new TIF revenue for affordable housing to mitigate this risk • Could have less positive impact for communities of color, people with disabilities, or older adults if these communities are not recruited for participation in the planning and resulting development
A3. Leverage Other State and Federal Funding Sources	• Depending on the funding priorities, will benefit extremely-low, very-low, low-, middle- and high-income residents and communities of color, and all local, state and federal protected classes	• Unlikely to increase burdens
A4. Establish a Comprehensive Citywide Land Banking Strategy	• Planning for areas of public investment with land banking can support affordable housing development. In already developed, exclusive areas, using public land may be the only cost-effective strategy for building new affordable units	• Unlikely to increase burdens

Strategy	Benefit	Burden
	• Will benefit households at extremely low income, very low-income, low-income, and limited moderate-income households • The groups more likely to benefit from this action are disproportionately marginalized communities, including communities of color, people with disabilities, and older adults • To increase benefits to people in local, state and federal protected classes, the City may want to consider focus on working with organizations that prioritize working with these groups of people.	
A5. Rezone Sites For Affordable Housing	• Depending on the structure, will benefit extremely-low, very-low, low-, middle- and high-income residents and communities of color, and all protected classes • To increase benefits to people in local, state and federal protected classes, the City may want to consider focus on working with organizations that prioritize working with these groups of people.	• Unlikely to increase burdens
A6. Review and Update Inclusionary Housing (IH) Program	• Will benefit extremely low, very low-, and low-income households. • The groups more likely to benefit from this action are disproportionately marginalized communities, including communities of color, people with disabilities, and older adults	• Unlikely to increase burdens
A7. Update Short Term Rental Nightly Fee	• Depending on the funding priorities, will benefit extremely-low, very-low, low-, middle- and high-income residents and communities of	• Unlikely to increase burdens

Strategy	Benefit	Burden
	color, and all local, state and federal protected classes	
B1. Create New Middle-Income Financial Incentives	• Will benefit middle-income households.	• Unlikely to increase burdens
B2. Update Land Division Code	• Will benefit middle-income households.	• Unlikely to increase burdens
B3. Expand Homeownership Programs	• Will benefit middle-income households.	• Unlikely to increase burdens unless funding is diverted from other affordable housing programs to support homeownership for higher-income households.
B4. Improve Middle Housing Permit Process	• Will benefit households at all income levels.	• Unlikely to increase burdens
C1. Implement and Support Catalytic Investments	• Will benefit households at all income levels. Could benefit lower income households by increasing housing opportunities in high opportunity neighborhoods • Could benefit lower income households, communities of color, people with disabilities, and older adults by incentivizing specific types of housing that meet their needs	• Unlikely to increase burdens
C2. Increase Housing Capacity in Inner Centers & Corridors	• Will benefit households at all income levels. Could benefit lower income households by increasing housing opportunities in high opportunity neighborhoods	• Unlikely to increase burdens on communities of color, people with disabilities, and older adults
C3. Revise Zoning Bonuses and Incentives	• Will benefit households at all income levels. Could benefit lower income households, communities of color, people with disabilities, and older adults by incentivizing specific types of housing that meet their needs	• Unlikely to increase burdens
C4. Kickstart Housing Demand in Central City	• Will benefit households at all income levels.	• If property values increase as a result of investment, there is a potential for displacing existing residents. The City could incorporate anti-displacement strategies into the investment framework.

Strategy	Benefit	Burden
C5. Increase Housing Capacity in the Central City	• Will benefit households at all income levels	• Unlikely to increase burdens
C6. Identify Housing Opportunity Along 82nd Avenue	• The groups more likely to be impacted by this action are disproportionately marginalized communities, including communities of color, people with disabilities, and older adults	• If property values increase as a result of investment, there is a potential for displacing existing residents. The City could incorporate anti-displacement strategies into the investment framework or plan to mitigate this risk
C7. Promote Increased Transit Service	• Will benefit these households. The City may want to incorporate specific criteria into its policies to ensure that the policies benefit these groups	• If property values increase as a result of investment, there is a potential for displacing existing residents. The City could incorporate anti-displacement strategies into the investment framework or plan to mitigate this risk
C8. Incorporate Affirmatively Furthering Fair Housing	• Will benefit extremely low, very-low, low-, middle- and high-income residents and communities of color, and all local, state and federal protected classes	• Unlikely to increase burdens
D1. Implement Regulatory Reform Project	• Will benefit all households by reducing development costs due to increased process efficiencies	• Unlikely to increase burdens
D2. Improve User Experience within Permitting Systems	• Will benefit all households by reducing development costs due to increased process efficiencies	• Unlikely to increase burdens
D3. Reform Development Services Funding Model	• No direct impact on these communities	• Unlikely to increase burdens
D4. Explore Infrastructure Investments and Strategies	• Will benefit all households by reducing development costs due to increased process efficiencies	• If property values increase as a result of investment, there is a potential for displacing existing residents. The City could incorporate anti-displacement strategies into the investment framework or plan to mitigate this risk. • Could have less positive impact for communities of color, people with disabilities, or older adults if these communities do not directly benefit from the infrastructure development

Strategy	Benefit	Burden
D5. Revise System Development Charges (SDC)	• Will benefit all households by reducing development costs • Could benefit lower income households, with continued waivers. • The City may want to incorporate specific criteria into its policies about reducing SDCs or planning fees to ensure that the policies benefit these groups.	• Unlikely to increase burdens
E1. Preserve Existing Affordable Housing	• These actions will protect affordable housing, especially for communities of color and other protected class communities. They have strong impacts for anti-displacement that can be seen in the short-term. • Will benefit lower income households • The groups more likely to have incomes impacted by this action are disproportionately communities of color, people with disabilities, and older adults • The City may want to incorporate specific criteria into its policies to ensure that the policies benefit these groups	• Unlikely to increase burdens
E2. Launch Affordable Housing Listing Service	• Will benefit people with disabilities, older adults, lower income households and communities of color • To maximize benefit, these communities should be consulted in the development and implementation of the listing service	• Unlikely to increase burdens
F1. Implement Accessible Housing Production Strategies	• Will support older adults and lower income households aging in place	• Unlikely to increase burdens
F2. Educate on Opportunities for Aging in Place & Community	• Will support older adults and lower income households aging in place	• Unlikely to increase burdens

Strategy	Benefit	Burden
G1. Support Mass Timber and Modular Innovations	• Could benefit all households by reducing development costs • The City may want to incorporate specific criteria into its policies to ensure that the policies benefit these groups.	• Unlikely to increase burdens
G2. Develop Low Carbon Building Policies	• The City may want to incorporate specific criteria into its policies to ensure that the policies benefit these groups.	• Unlikely to increase burdens
G3. Promote Commercial to Residential Conversion / Adaptive Reuse	• The City may want to incorporate specific criteria into its policies to ensure that the policies benefit these groups.	• Unlikely to increase burdens
G4. Implement Heat Adaptation Recommendations	• The City may want to incorporate specific criteria into its policies to ensure that the policies benefit these groups.	• Unlikely to increase burdens
H1. Advocate for Funding for Production and Preservation	• Will benefit extremely low, very low-, and low-income households. • The groups more likely to benefit from this action are disproportionately marginalized communities, including communities of color, people with disabilities, and older adults • Depending on the funding priorities, will benefit extremely-low, very-low, low-, middle- income residents and communities of color, and all local, state and federal protected classes	• Unlikely to increase burdens
H2. Advocate for Regulatory and Code Changes to Meet Housing Need	• Could benefit all households by reducing development barriers for needed housing	• Unlikely to increase burdens
H3. Advocate for Policy that Supports the Building of Resilient Homes	• Could benefit all households	• Unlikely to increase burdens

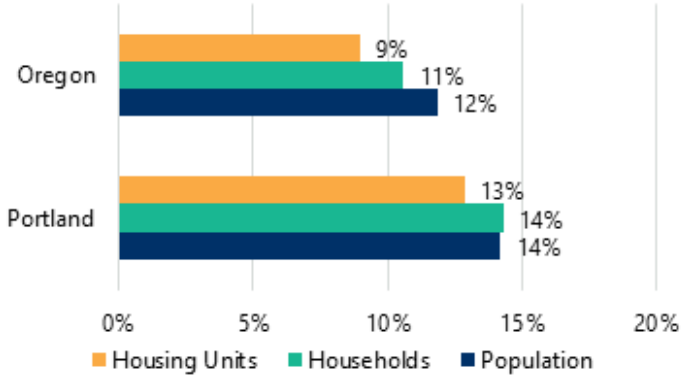
Appendix A. Additional Housing Need Context

Population and Household Characteristics

Population Change

The number of people in the city has been steadily increasing since 2000, making Portland the 24th largest city in the nation. However, over the last decade, there has been an expected slowing down in population and household growth across the Metro.[8] Estimates, including from the PSU Population Forecast Center, have estimated a slower year-over-year growth, or decline since the beginning of the COVID-19 pandemic (-0.7 percent decline in estimates from 2020 to 2022).[9] The Metro 2045 forecast still maintains that the city will see growth, albeit slower than it has been historically.[10]

Figure 13. Change in Population, Households and Housing units, Portland and Oregon, 2010 to 2021

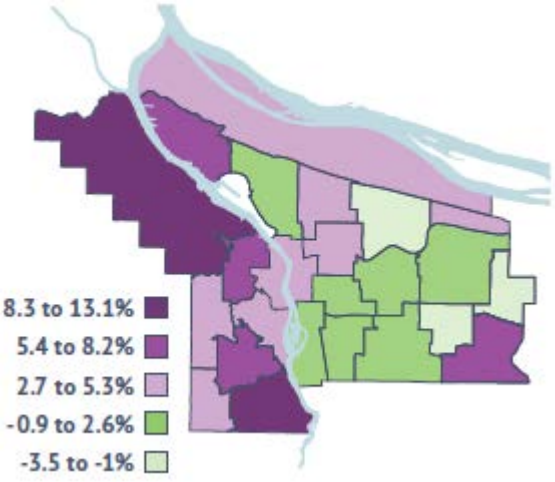


Source: ACS 2010 and 2021 5-year estimates, DP03, DP02

Racial and Ethnic Diversity

The largest racial group in Portland is white, non-Latine or Hispanic, accounting for 69 percent of total residents.[11] Overall, the proportion of Black, Indigenous, and People of Color (BIPOC) residents in the city continues to increase over time. The population identifying as Latine and Hispanic (of any race) makes up the next largest group at 11 percent, eight percent of residents identify as Asian, and six percent identify as Black or African American.

Figure 14. Increase In Racial Diversity By Neighborhood, 2017 To 2022, Portland



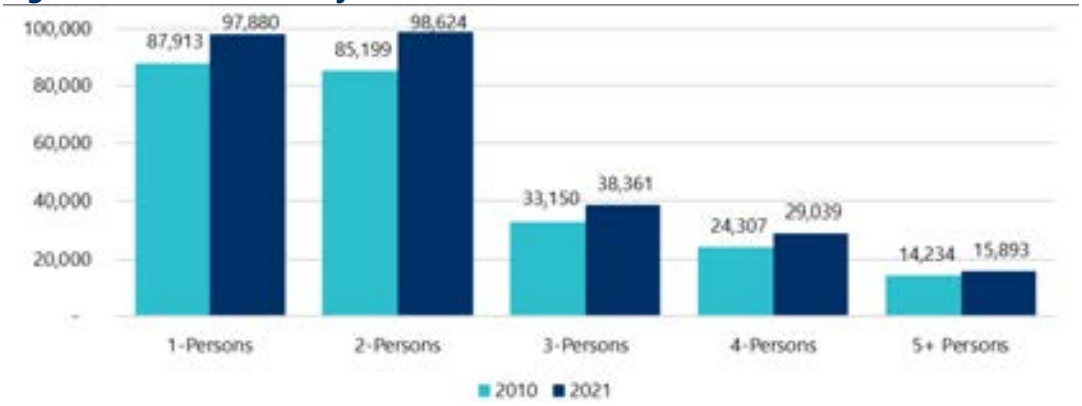
Source: Draft PHB Analysis of 2017 and 2022 ACS 5 year

[8] 2060 growth forecast | Metro (oregonmetro.gov), https://www.oregonmetro.gov/2060-growth-forecast
[9] Population Estimate Reports | Portland State University (pdx.edu), https://www.pdx.edu/population-research/population-estimate-reports
[10] 2040 Distributed Forecast | Metro (oregonmetro.gov), https://www.oregonmetro.gov/2040-distributed-forecast
[11] Latine is the gender-neutral noun or adjective for a person who is from or whose family origins are from a Latin American country.

Household Composition

One- and two-person households represent 70 percent of the city's households. Households with three or more persons represent 30 percent of all households. (ACS 2010 and 2021, Table S1101, B11016). The average household size in Portland is 2.26 persons in 2021, comparable to the household size in 2010 (2.25). The city has seen a greater increase in the number of one and two person households than households with three or more persons between that time period. Still, the number of larger households has continued to increase as well.

Figure 15. Households by Household Size, 2010 and 2021



Source: ACS 2010 and 2021, Table B11016

The proportion of households with children declined slightly from 2010 to 2021. In 2021, 77 percent of households did not have children, a slight increase from 2010 when 75 percent of households did not have children (ACS 2010 and 2021, Table B11005). About seven percent of all households were single parent households in 2021, or about 31 percent of all households with children – a decrease from 2010.

Family households make up half of all households, a slightly decreasing share of all total households from 2010 in the 2021 survey period. The share of nonfamily households not living alone (living with roommates) increased by 11,340 households.

Figure 16. Household Composition, Family and Non-Family, 2010 to 2021

	2010		2021		Change	
	#	Share	#	Share	#	Share
Family Households:	125,703	51%	139,390	50%	13,687	11%
Married-Couple Family	90,660	37%	105,455	38%	14,795	16%
Other Family, No Spouse Present	35,043	14%	33,935	12%	-1,108	-3%
Nonfamily Households:	119,100	49%	140,407	50%	21,307	18%
Householder Living Alone	87,913	36%	97,880	35%	9,967	11%
Householder Not Living Alone	31,187	13%	42,527	15%	11,340	36%
Total:	244,803	100%	279,797	100%	34,994	14%

Source: ACS 2010 and 2021, Table B11001

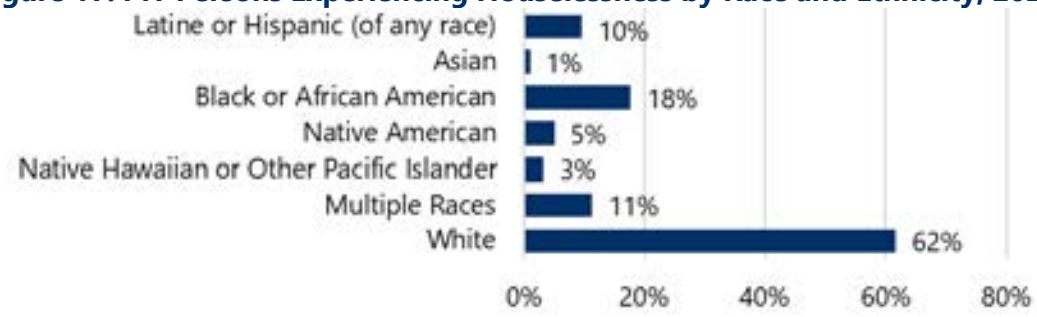
Historically Underserved Communities

People Experiencing Houselessness

Beyond immediate needs for safe shelter options, people who are unhoused or precariously housed need access to transitional housing, supportive services, and deeply affordable housing in the long term In 2023, 6,297 people were counted as experiencing both sheltered and unsheltered houselessness—a 27 percent increase since 2022, with unsheltered houselessness seeing the highest increase. In 2023, several racial groups were disproportionately experiencing houselessness in Portland.

Black or African American residents were over-represented in the houseless population compared to the overall population (18 percent compared to seven percent), American Indian or Alaska Native (five percent compared to three percent), Native Hawaiian or Other Pacific Islander (three percent compared to one percent), and Multiple Races (11 percent compared to less than three percent).

Figure 17. PIT Persons Experiencing Houselessness by Race and Ethnicity, 2023, Multnomah



Source: Multnomah County PIT, 2023

The facilities available to houseless persons and households in Multnomah County range from seasonal emergency housing to permanent supportive housing. In 2023, the number of year-round beds increased to 11,863, an increase of 1,732 permanent and 544 emergency beds from 2022.

Figure 18. Facilities and Housing for Households Experiencing Houselessness, Multnomah County

Housing Type	Family Units	Beds				Bed Subset		
		Family	Adult Only	Child Only	Year-Round	Chronic	Veteran	Youth
Emergency, Safe Haven & Transitional	138	411	2,228	9	2,648	-	255	54
Permanent	1,300	4,234	4,981	-	3,655	1,342	1,120	300
Grand Total	1,438	4,645	7,209	9	6,303	1,342	1,375	354

Source: HUD 2023 Continuum of Care Houseless Assistance Programs Housing Inventory Count Report

From the 2021-2022 school year to the 2022-2023 school year, the number of students who were in shelters, doubled up, in motels/hotels, and unsheltered increased by 43 percent (550 students) to 1,819 students, and 286 were unaccompanied in Parkrose, Portland and David Douglas Districts.

Figure 19. PK – 12 Students Experiencing Houselessness by Living Situation, 2018 and 2021

Source: McKinney Vento, Student Data, *Parkrose, Portland and David Douglas Districts

Older Adults

Since 2000, the share of Portland residents who are older adults (65+) has increased from around 12 percent to 13 percent of the population. In the greater Portland region, this population has increased to almost 15 percent. Metro population forecasts estimate that this trend will continue to increase, in keeping with state and national trends. In 2021, the highest share of the population over the age of 65 lived in Gateway (10 percent of all Portlander's aged 65+), Central City (seven percent), and Hollywood, Interstate Corridor, Lents-Foster and Montavilla (each six percent respectively) (ACS 2021, B101001).

People Living with Disabilities

It is estimated that 12 percent of Portland's noninstitutionalized population has a disability (ACS 2021, Table S1810). Fourteen percent of the over 18 population is estimated to have a disability, using local estimates from 2014-2016, the estimate increases to nearly 24 percent.[12] Overall, 22 percent of all households in Portland have at least one household member with disabilities (CHAS 2019), though less detail is provided in the ACS, the estimate increases to nearly 27 percent.

- Of those who reported a disability, three percent live with a hearing difficulty, two percent with a vision difficulty, six percent with cognitive difficulty, five percent with an ambulatory difficulty, two percent with a self-care difficulty, and five percent with an independent living difficulty.
- People over 65 years old are more likely to report a disability, and in Portland, 33 percent of people over 65 reports having at least one disability.
- Households earning less than 50 percent AMI are more likely to have members with disabilities.
- Adults with disabilities are more likely to rely on supplemental security income (SSI) as a source of income, which would be insufficient to meet most basic needs, including housing costs.[13]

[12] https://www.oregon.gov/oha/PH/BIRTHDEATHCERTIFICATES/SURVEYS/ADULTBEHAVIORRISK/COUNTY/Documents/1417/DisabilityLact_1417.pdf

[13] The Technical Assistance Collaborative's 2022 Priced Out

- Nationally, disability continues to be the top basis of alleged discrimination under the Fair Housing Act, with 4,791 complaints filed in FY 2021, 57 percent of all complaints.[14]

Students

Portland has over a dozen public and private colleges and universities, including two public institutions, Portland Community College (PCC) and Portland State University (PSU). Enrollment for both peaked in the '17-18 academic year and has since declined by 24 percent and 28 percent respectively. Presently, there are an estimated 6,218 student units in the City of Portland. For 2021, PSU reported that 50 percent of first year students and just nine percent of undergraduates live in college-owned, operated, or affiliated housing. According to the Urban Land Institute's (ULI) 2023 Emerging Trends report, new student housing production has significantly decreased since the start of the COVID-19 pandemic.

Housing Tenure

Although the share of owner-occupied units declined (Figure 20), the number of owner-occupied units increased by 14,165 from 2010 to 2021 and the number of renter-occupied housing units increased by 20,829. Since 2010, homeownership rates have decreased overall, which is largely due to most new housing development in multi-dwelling buildings, which are mostly rental units. Despite those trends, Native Hawaiian, Native American, and Black or African American householders have experienced an increase in ownership rates across the city. Only householders who identified as some other race (or another race) saw a decrease in both the rate and number of owner-occupied households.

Figure 20. Change in Tenure from 2010 to 2021, Portland

Source: ACS 2010 and 2021 5 Year Table B25003

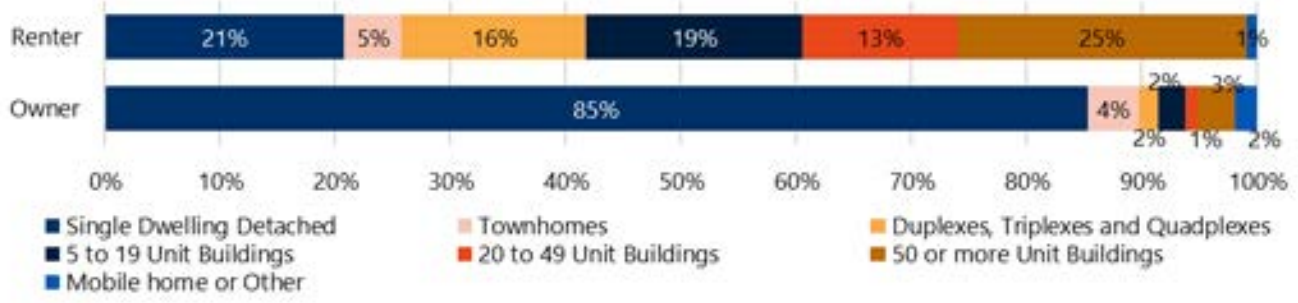
Most of Portland's homeowners (85 percent) lived in single-dwelling detached housing (Figure 21). In comparison, only 21 percent of Portland's households that rent lived in single-dwelling detached housing. Twenty-one percent of renters lived in a middle housing unit (townhome, duplex, triplex, or quadplex housing), and about a quarter of renters lived in large multi-dwelling buildings (50+ units).

Seventy percent of householders over 65 own their home, compared to just fifty-three percent of all Portland householders. Most homeowners over 65 own a single-dwelling unit home, detached, or

[14] https://www.hud.gov/sites/dfiles/FHEO/documents/FHEO Annual Report FY 2021.pdf

attached. Just 14 percent live in other types of housing structures. Elder householders who rent, are more likely to live in multi-unit structures with 50 or more units (over 43 percent).

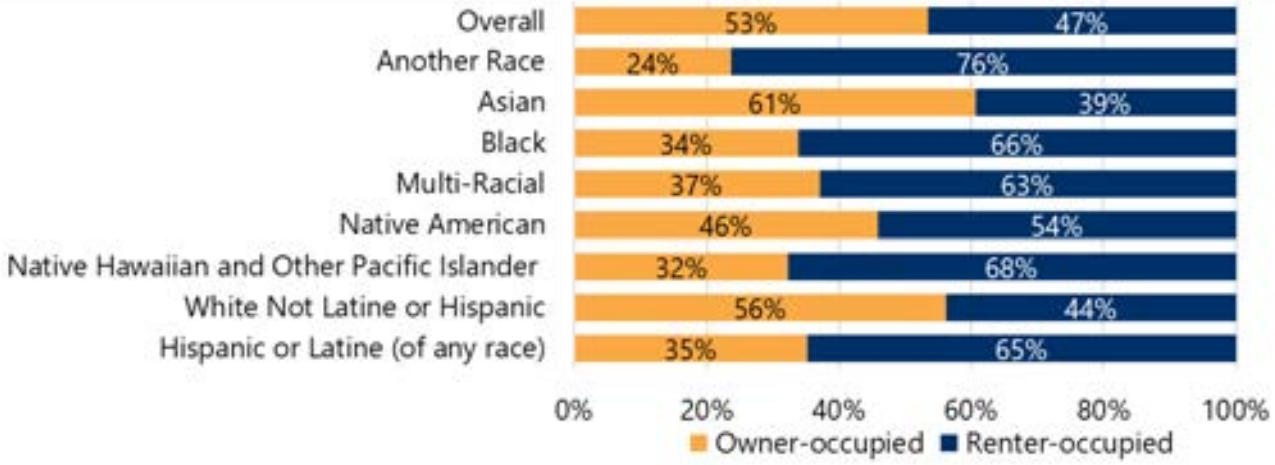
Figure 21. Tenure By Housing Type 2021, Portland



Source: ACS 2010 and 2021 5 Year Table B25032

White and Asian households have the highest rate of homeownership (56 and 61 percent, respectively). Native Hawaiian and Other Pacific Islander (32 percent) and Black or African American (34 percent) households, and households identifying as another race (24 percent), have the lowest ownership rates (Figure 22).

Figure 22. Tenure by Race and Ethnicity, Portland, 2021



Source: 2021 ACS 5-year Table B25003

Income and Affordability

Housing preference is usually shaped by the size and needs of a household. However, the actual choice and eventual place of residence for a household are significantly influenced by household income. While data shows that Portland is becoming a wealthier city overall, with 39 percent of households making $100,000 or more annually in 2021 (ACS), about 13 percent of the city's residents are experiencing poverty, compared to 12 percent statewide (ACS). Families who own the homes they live in only account for three percent of households below the federal poverty level, and 16 percent of all renter families are under the poverty level (ACS 2021, S1702). About 10 percent of householders making less than 50 percent of the poverty level identify as having a disability (ACS 2021, S1703).

The area median income (AMI) determines the amount of rent that can be charged to households making below a certain income level living in deed-restricted affordable units. Households making below 80 percent AMI also may be eligible to live in regulated affordable units or apply for specific programs such as down payment assistance loans or rental assistance programs.

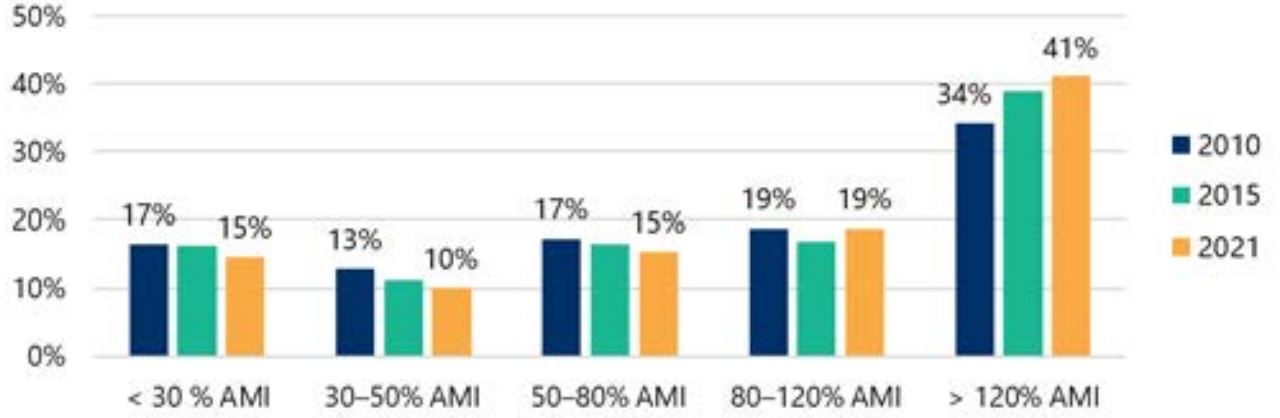
Figure 23. 2023 Area Median Income (AMI) by Household Size, and Affordable Monthly Cost at 30% of Monthly Income, Portland Metro Region

AMI %		Household Size				
		1-Person	2-People	4-People	6-People	8-People
30%	Income	$23,700	$27,100	$33,850	$40,280	$50,560
	Affordable Monthly Housing Cost	$658	$753	$940	$1,119	$1,404
60%	Income	$48,048	$54,912	$68,640	$79,622	$90,605
	Affordable Monthly Housing Cost	$1,335	$1,525	$1,907	$2,212	$2,517
80%	Income	$63,150	$72,200	$90,200	$104,650	$119,100
	Affordable Monthly Housing Cost	$1,754	$2,006	$2,506	$2,907	$3,308
100%	Income	$80,080	$91,520	**$114,400**	$132,704	$151,008
	Affordable Monthly Housing Cost	$2,224	$2,542	**$3,178**	$3,686	$4,195

Source: HUD, 2023

The proportion of households making less than 80 percent of the area median income (AMI) has been decreasing since 2010, from 47 percent of households to 40 percent in 2021. Similarly, the total number of households decreased slightly from 93,000 in 2010 to 91,000 in 2021. The 2023 AMI for a household of four in the Portland metropolitan area is $114,400.

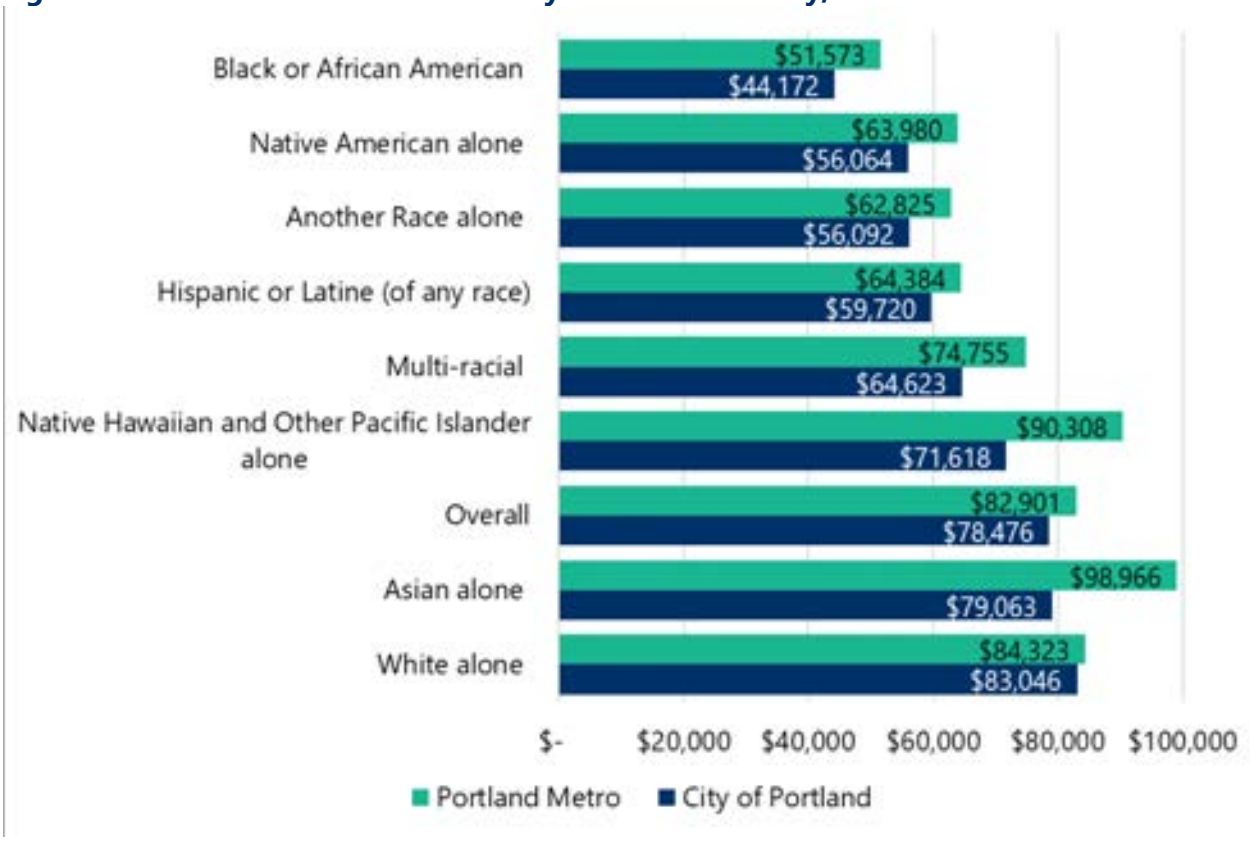
Figure 24. Percentage of Households by Area Median Income Levels, 2010-2021



Source: PUMS, 5-year, 2010, 2015 and 2021

Despite Portland becoming a wealthier city overall, there are large disparities in income among racial groups (Figure 25). Median household income for Black or African American households in Portland was the lowest out of all the race/ethnicity categories in Portland and the region ($44,172 and $51,573, respectively). Native American households had the second lowest median income in Portland ($56,064). White households had the highest median income in Portland ($83,046), and Asian households had the highest median income for the region ($98,966).

Figure 25. Median Household Income by Race and Ethnicity, 2021

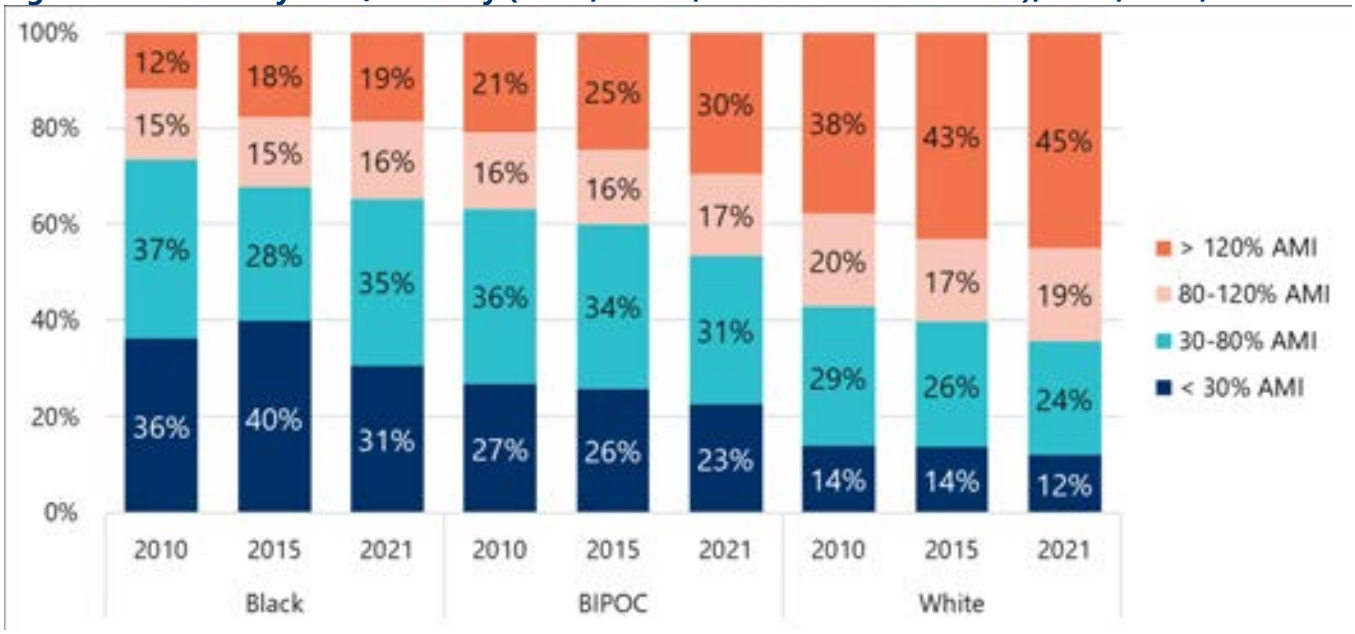


Source: ACS 5-year, 2021, Table B19013A-I

As a share of the overall median income, just Asian alone households and White alone households are earning higher than the median, at 101 percent and 106 percent respectively. In general, incomes increased for all racial and ethnic groups from 2010 to 2021, with household income levels rising most significantly for BIPOC households (Figure 26). The percentage of head of households identifying as Black, Indigenous, or people of color and making more than 120 percent AMI increased by nine percent since 2010 but totaled only 30 percent of BIPOC households combined. When disaggregated by race, the proportion of Black heads of households making more than 120 percent AMI increased by seven percent, totaling 19 percent of Black households.

In a challenging housing market, income disparities further impede the opportunity for households to enter the market, build wealth through ownership, and further burdens renters. Because of this, the impacts of a constrained supply are more starkly felt by BIPOC households. In 2021, 19 percent of all Black householders earned greater than 120 percent AMI, compared to 45 percent of white householders and 30 percent of BIPOC households overall.

Figure 26. Income by Race/Ethnicity (Black, BIPOC, and White Households), 2010, 2015, and 2021



Source: PUMS, 5-year, 2010, 2015 and 2021

In 2021, 13 percent of the overall population was below the poverty level. This includes 28 percent of the city's Black or African American population, 22 percent of the Native American population, 19 percent of the population identifying as "some other race," and 18 percent of Latine or Hispanic populations of any race (ACS 2021 S1701).

Over time, renters and owners in Portland have become wealthier, however, a higher proportion of owners (greater than 54 percent) earn over $100,000.

Figure 27. Tenure by Income, 2010 and 2021

Source: 2010 and 2021 5-year ACS Table B25118

Cost Burden

Overall, more than a third of Portland households spend more than 30 percent of their income on housing costs, which means that they are cost burdened. About 50 percent of renters in the city are cost burdened. As housing costs continue to increase at a rate that is hard for incomes to keep up with, more and more households become cost-burdened and may have to potentially move to more affordable areas or even out of state.

Rental costs have increased at roughly the same rate as renter income but have remained above 30 percent of renter-occupied household income for more than a decade. Meanwhile, ownership costs have remained below 30 percent of the average owner-occupied household income and continued to decline through 2021. Average costs for renters have increased at a faster rate than owners with a mortgage, largely because renters are more likely to be subject to annual rent increases whereas mortgages tend to be fixed. However, the attainability of homes – particularly for prospective first-time homebuyers – is at an all-time low.

While households at all income levels may experience cost burden, higher-income households have more income left over after paying for housing costs while lower-income households have fewer funds left over to pay for the cost of living or have disposable income. In 2021, 19 percent of all households were cost-burdened, and 17 percent were severely cost-burdened. Portland's cost burden rate (36 percent) is higher than the state overall (33 percent) and higher than two comparable cities, Denver and Seattle (34 percent), and below Sacramento's cost burden rate (Figure 28).

Figure 28. Cost Burden in Oregon, Portland, and Comparative Cities, 2021

Level of Cost Burden	Oregon	Portland	Seattle	Sacramento	Denver
Not Cost Burdened	67%	64%	66%	61%	66%
Total Cost Burdened (30+%)	33%	36%	34%	39%	34%
Cost Burdened (30-50%)	*18%*	*19%*	*19%*	*21%*	*19%*
Severely Cost Burdened (50%+)	*15%*	*17%*	*15%*	*19%*	*15%*
Total	100%	100%	100%	100%	100%

Source: ACS 2021, B25091 and B25070

Renters were more likely to be cost-burdened and severely cost-burdened than owners, compared to just 26 percent of homeowners, nearly 50 percent of renters were cost-burdened.

Figure 29. Cost Burden by Tenure, 2021

Source: ACS 2021, B25091 and B25070

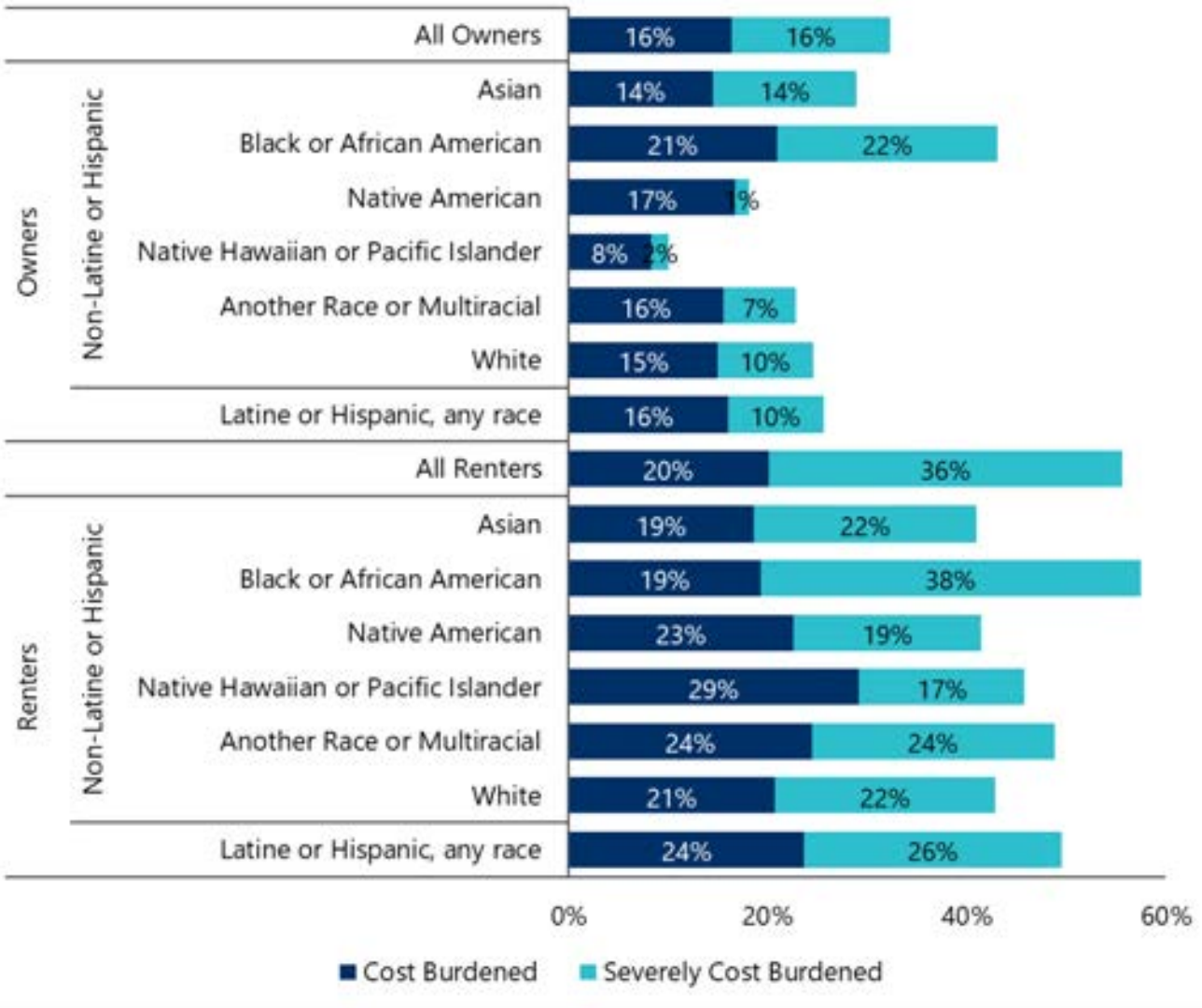
While nearly 50 percent of all renters in Portland are cost-burdened, the variance among renters based on income is significant. Renters with household incomes below $35,000 are more severely cost-burdened than cost-burdened, with 66 percent of renters with household incomes below $20,000 being severely cost-burdened. Severe cost burden declines as incomes increase above the $35,000 to $49,999 household income level.

Figure 30. Renter Cost Burden by Income, 2021, Portland

Source: ACS 2021, B25074

Disaggregating by race and ethnicity shows disparities among racial groups. Black or African American residents are the most cost-burdened as renters and as owners, having the largest proportions of the cost-burden total. They also have the highest percentage of severely cost-burdened residents by tenure, 22 percent of Black homeowners and 38 percent of Black renters (Figure 31).

Figure 31. Cost Burden by Tenure and Race and Ethnicity, 2019



Source: 2015-2019 CHAS Table 9

Housing Location Analysis

The Housing Needs Analysis and Buildable Lands Inventory demonstrate that, overall, there is sufficient development capacity for the expected housing demand of the next twenty years. This additional location analysis can understand where that capacity and expected development is located and help identify priority areas for focusing where development could better meet the City's policy goals.

This location analysis helps develop an understanding of the current housing distribution, including regulated affordable housing, alongside the 2045 expected demand for new units and the current residential development capacity. The analysis is based on different geographies that correlate to key policy goals. The following analyses include a look at:

- **Racially Concentrated Areas of Affluence (RCAA) and Poverty (RECAP)**. Areas of racialized affluence or poverty to determine whether the distribution of housing opportunity is equitable.
- **Areas of Economic Vulnerability.** Areas where residents are more vulnerable to changing economic conditions, making resisting displacement more difficult.
- **Complete Neighborhoods**. Areas where residents have safe and convenient access to goods and services they need on a daily or regular basis.
- **Centers and Corridors**. Areas of mixed-use and multi-dwelling housing within a quarter mile of Portland's centers and along transit streets and neighborhood business districts.
- **Areas of Opportunity**. High opportunity areas offering a mix of desirable services, opportunities, and amenities that promote healthy, active living.
- **Low Carbon Areas/Areas of Low Residential VMT**– Areas with the lowest average of vehicle miles traveled for home-based trips, defined as trips that originate or end at a residence, that represent lower carbon neighborhoods.
- **Hazard Risk Areas**. Areas where households are more at risk of different environmental hazards, some of which will continue to worsen due to climate change.

The housing location analysis reveals promising opportunities and critical challenges to Portland's growth pattern. Over the past decade, new development has primarily clustered in key growth areas outlined in the Comprehensive Plan. These include complete neighborhoods, areas near centers and corridors, and high-opportunity areas. This trend is expected to continue, with 60 to 80 percent of Portland's anticipated housing demand targeted in these key growth areas. This approach is essential for achieving Comprehensive Plan goals that aim to increase Portland's share of the population within complete neighborhoods from today's 47 to 80 percent and increase Portland's total housing units near centers and corridors from 72 to 80 percent. While results show that there is sufficient development capacity to accommodate future demand in these areas, the City must remain committed to

implementing proactive measures to unlock additional capacity and ensure anticipated growth in these areas is not hindered.

However, merely accommodating demand in key growth areas falls short of addressing broader issues around fair and equitable housing practices and climate resilience preparedness. The RECAP/RCAA analysis reveals that many of Portland's racially concentrated areas of affluence are located in complete neighborhoods and high-opportunity zones but have effectively excluded low-income households, many of which are members from the protected classes, from accessing these areas, thereby perpetuating historical patterns of racial and income segregation. RCAAs account for eight percent of existing households, but only accounted for three percent of all permitted units between 2003 – 2022 and are expected to capture only three percent of the new housing demand in the next 20 years. Notably, RCAAs hold less than one percent of Portland's total regulated affordable housing units. Addressing the exclusionary zoning policies that uphold this fundamental barrier to fair housing is essential to increasing equitable access and opportunity for all residents.

Redressing exclusionary zoning policies also plays a role in alleviating market pressures in other neighborhoods expected to absorb a significant portion of new housing demand. This can be especially impactful in neighborhoods with above-average rates of cost-burdened households known as areas of economic vulnerability. A third of Portland's new demand is projected for these areas. By enabling greater capacity and growth in exclusionary neighborhoods that are also high-opportunity, housing demand pressures can be more evenly distributed, easing mounting pressures in economically vulnerable neighborhoods that could be subject to rising housing costs. These efforts should be complemented by policies aimed at allowing residents to stay in place to effectively mitigate displacement impacts on the city's most economically vulnerable residents.

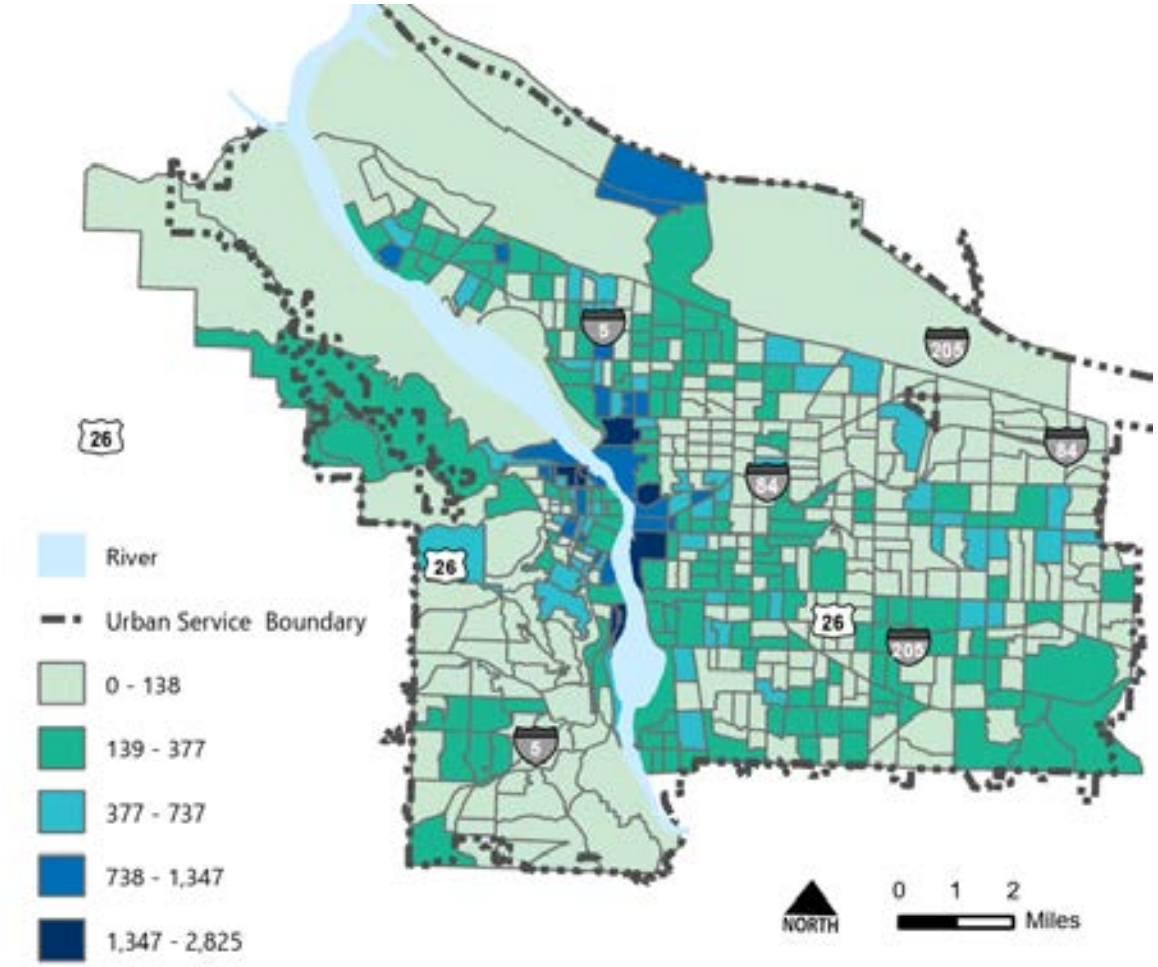
In addition, understanding the intersection between hazard risk areas, low residential VMT areas and key growth areas is essential for guiding the city towards resilient and sustainable growth. The Low residential VMT areas analysis shows that low VMT areas generally align with key growth areas, indicating that Portland's housing growth pattern is in line with the city's goals to reduce VMT and associated carbon emissions. The hazard risk analysis reveals that urban heat islands and high probability liquefaction zones are hazard areas most significantly affecting future growth. More than a third of the new demand is concentrated in urban heat islands and close to 20 percent in high-risk liquefaction areas. This analysis underscores the urgency of identifying and implementing policies to mitigate climate risk impacts on Portland residents. These policies can also enhance the resilience of Portland's most vulnerable residents residing in existing regulated affordable housing units, given that 44 percent of regulated affordable units are situated within urban heat islands and 20 percent within liquefaction-prone areas.

Housing Demand

Based on the 2045 HNA, the City should expect the demand of new housing units to be between 97,471 and 120,560. The 2045 HNA forecasted the potential demand of units based on the development trends from 2003-2022. If future housing growth follows the same pattern over the next twenty years as it did the last twenty years, then:

- Twenty six percent or 31,288 new units are expected to be in Central City Portland.
- Eleven percent or 12,731 new units are expected to be in East Portland.
- Sixteen percent or 19,844 new units are expected to be in North Portland.
- Twelve percent or 14,949 new units are expected to be in Northeast Portland.
- Nineteen percent or 23,141 new units are expected to be in Southeast Portland.
- Fifteen percent or 18,607 new units are expected to be in West Portland.

Figure 32. Expected Unit Demand Based on 20 Year Development Trends by Census Block Group



Source: BPS Analysis, 2045 Housing Needs Analysis

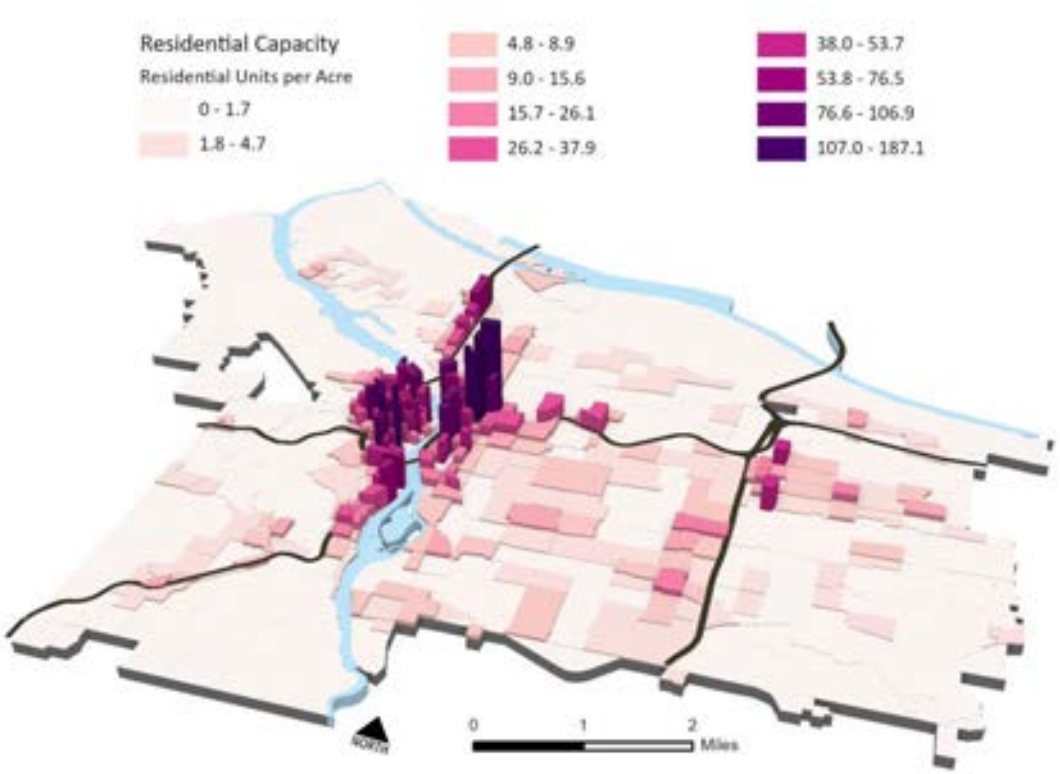
Housing Capacity

The Residential Capacity Map demonstrates the results of the Buildable Lands Inventory (BLI) and the residential capacity by Traffic Analysis Zone (TAZ), shown as housing units per acre (density). The BLI model applies a market-feasible development capacity lens that calculates the likelihood of development and at what scales. This methodology identifies capacity where development is financially feasible.

Areas of high-density residential capacity tend to be in Portland's centers (Central City, Hollywood, Gateway, etc.) and corridors (Interstate, 82nd Avenue) where most of the city's mixed-use and multi-dwelling zoning currently exists.

- Central City accounts for 29 percent of new housing capacity citywide, but five percent of Portland's vacant and underutilized lots, reflecting a high-density development capacity concentration.
- West Portland accounts for seven percent of new housing capacity, but 26 percent of the vacant and underutilized lots, reflecting the presence of both development constraints and lower-density zoning concentration.
- In the Outer market area (which is mostly East Portland), there are 16 percent of the city's vacant and underutilized lots and 16 percent of the total housing unit capacity.

Figure 33. Residential Capacity Map



Source: BPS Analysis, 2023, 2045 Housing Needs Analysis

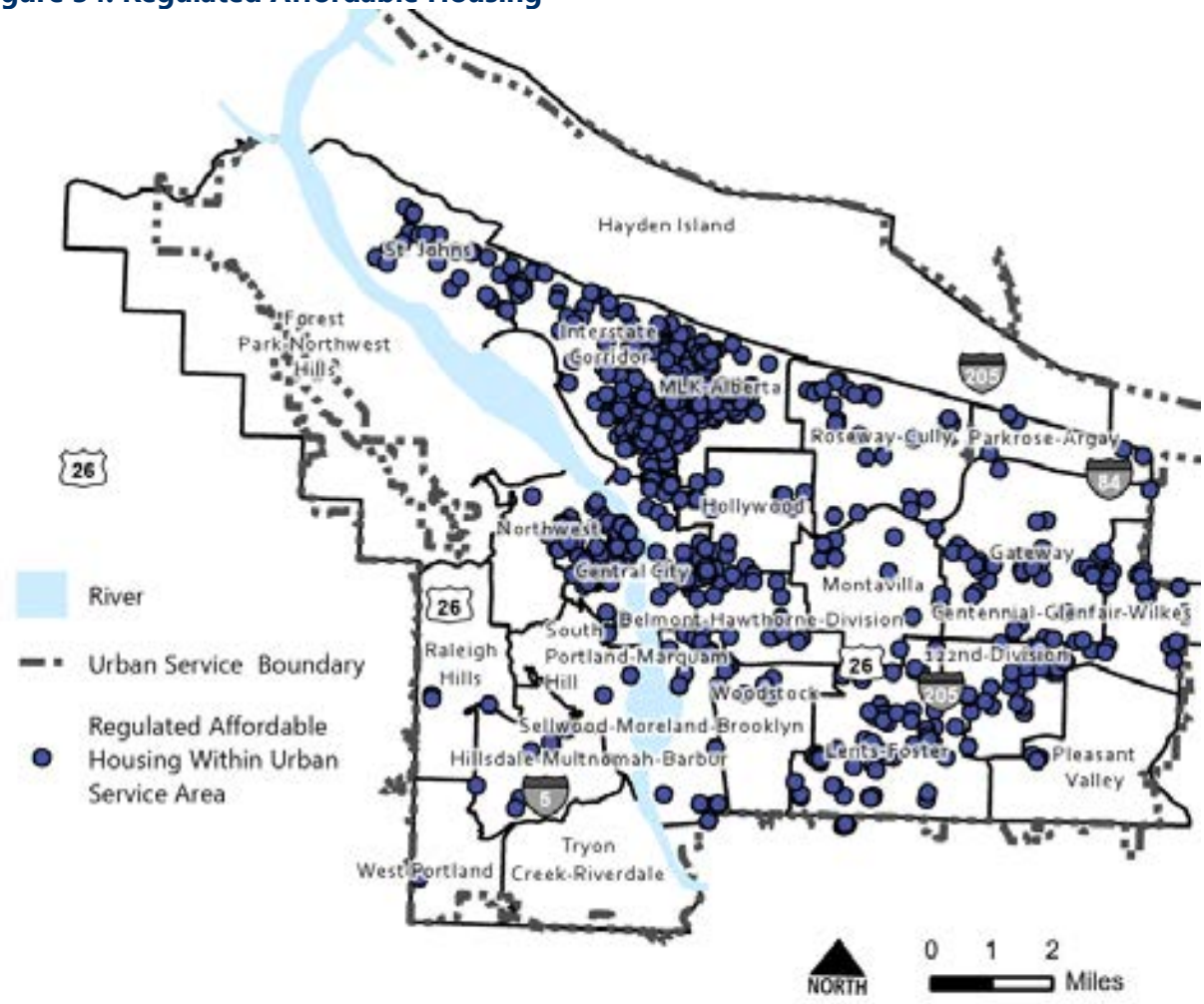
Distribution of Affordable Housing

Affordable housing that is located in a walkable neighborhood near active transportation, employment centers, open spaces, high-quality schools, and various services and amenities enhances the general quality of life for its residents. The City of Portland currently has 24,231 units of regulated affordable housing, making up roughly eight percent of the city's total housing stock.

Most of Portland's regulated affordable units are concentrated in Central City, North/Northeast, outer Southeast and East Portland. The loss of affordability of these units will result in a decrease in affordability in these areas. About 40 percent of Portland's affordable housing units were built between 2001 and 2021, however, analysis of OHCS data reports the number of projects and the associated number of units that have affordability restrictions expiring before 2032.

Nearly 15% of Portland's regulated affordable housing inventory is at risk of converting to market rate housing because of expiring affordability restrictions over the next 10 years.

Figure 34. Regulated Affordable Housing



Source: BPS Analysis, Metro Regulated Affordable Housing Inventory 2024

Racially Concentrated Areas of Affluence (RCAA) and Poverty (RECAP)

The segregation of households who are low-income and/or are members of protected classes can result in unequal access to opportunities such as education and employment. Just as problematic is the resulting exclusionary enclaves - areas of concentrated white households continue to be the most segregated of all racial groups, especially affluent white households. Recent studies show that while Portland Metro Area has a low prevalence of concentrated areas of poverty by federal standards, the Portland Metro Area has a high prevalence of concentrated areas of affluence.[15]

Racially Concentrated Areas of Affluence in this analysis, are census tracts that, utilizing ACS 2018-2022 five-year data have; [16]

- A higher than the regional average population of white residents[17] and
- A median income 1.5 times higher than the metro regional median household income.

Racially and Ethnically Concentrated Areas of Poverty (RECAP), in this analysis, are census tracts that, utilizing ACS 2018-2022 five-year date have;

- More than 40 percent of residents with incomes less than 200 percent of Federal poverty level and
- A higher than the regional average population of Black, Indigenous and Other Persons of Color (BIPOC) residents.[18]

Census tracts that have racially concentrated affluence are in Raleigh Hills, Northwest, West Portland, Tyron Creek-Riverdale, Belmont Hawthorne-Division, Hollywood, Woodstock and MLK-Alberta. Typically, these areas represent lower population density and highlight the continued impact of historic discriminatory land use and development practices. When comparing to redlining maps of the early twentieth century, two of these areas were green, three were yellow, one was redlined, and one unrated.

Census tracts that have racially concentrated poverty are located in Central City, St. Johns, Hayden Island, Gateway, Roseway-Cully, Lents-Foster, 122nd-Division, Centennial-Glenfair-Wilkes. Only two of the areas were once historically redlined. The other areas were largely rural or undeveloped in the 1930s when the redlined maps were created.

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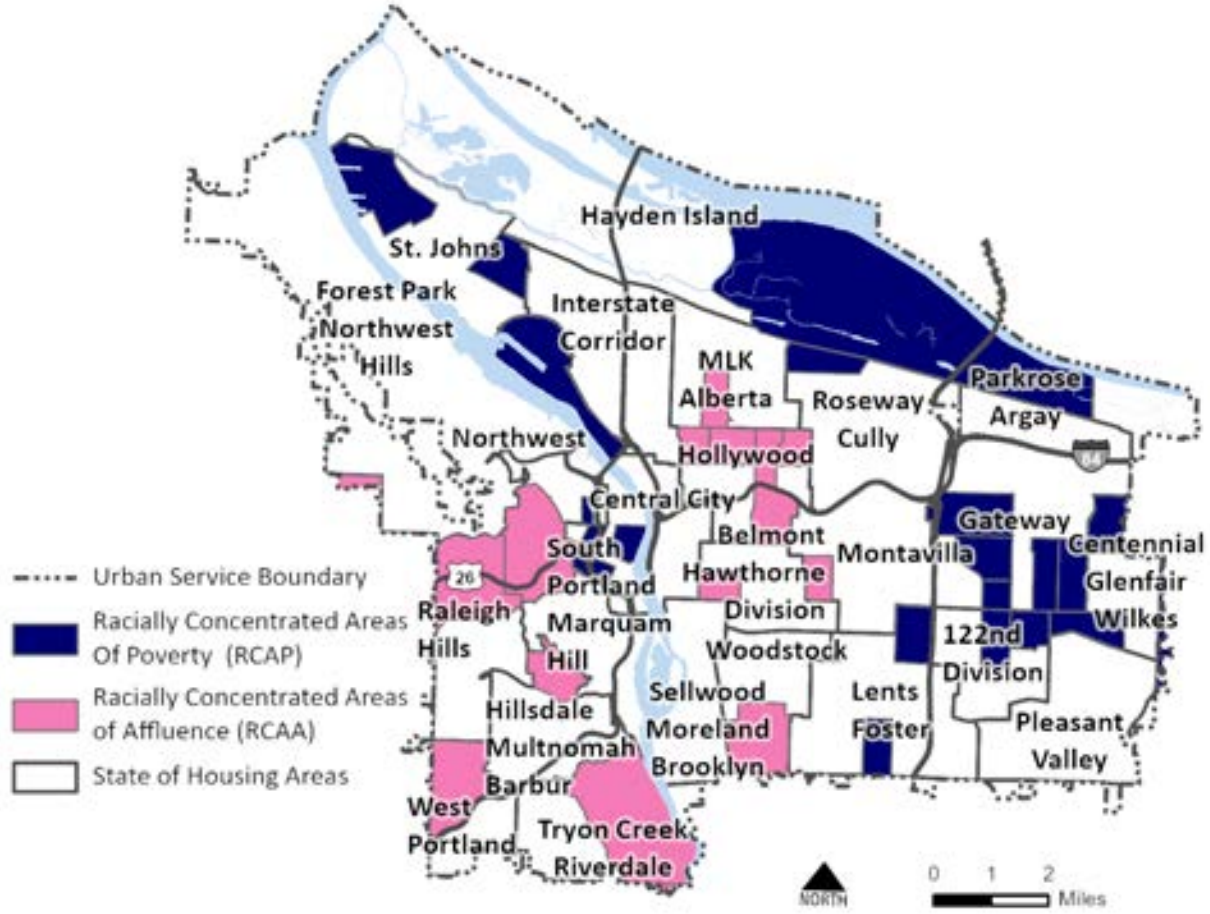
[15] https://www.huduser.gov/portal/periodicals/cityscpe/vol21num1/ch4.pdf
[16] https://cahcd.maps.arcgis.com/home/item.html?id=4100330678564ad699d139b1c193ef14
[17] This Location Quotient (LQ) represents the percentage of total white population (White Alone, Not Hispanic or Latine) for each census tract compared to the total white population for the region. For example, a census tract with a LQ of 1.5 has a share of total white population that is 1.5 times higher than in the region.
[18] This LQ represents the percentage of total POC population (Excluding all White Alone, Not Hispanic or Latine) for each census tract compared to the percentage of total POC population for the region. For example, a census tract with a LQ of 1.5 has a share of total POC population that is 1.5 times higher than the average in the region.

Figure 35. Racially Concentrated Areas of Affluence (RCAA) and Poverty (RECAP)



Source: BPS Analysis utilizing 2018-2022 ACS 5-year

Results

The RCAA account for eight percent of current Portland households, but only three percent of all permitted units between 2003-2022. The RCAA areas only have three percent of the residential development capacity with an expected future housing demand of three percent – well below the current share of households.

The RECAP make-up 12 percent of current Portland households and 12 percent of all permitted units between 2003-2022. Based on current zoning and market factors, the estimated residential development capacity is a similar proportion (12 percent) of the total citywide capacity.

The RECAP have 6,695 regulated affordable units (28 percent of all regulated units) compared to just 91 units (less than one percent) in the RCAA tracts. These results may not be surprising given the economic segregation prevalent in these tracts, however they indicate that income integration, especially in high-opportunity RCAA areas is an opportunity to further Portland's fair housing goals.

Figure 36. Racially Concentrated Areas of Affluence (RCAA) and Poverty (RECAP)

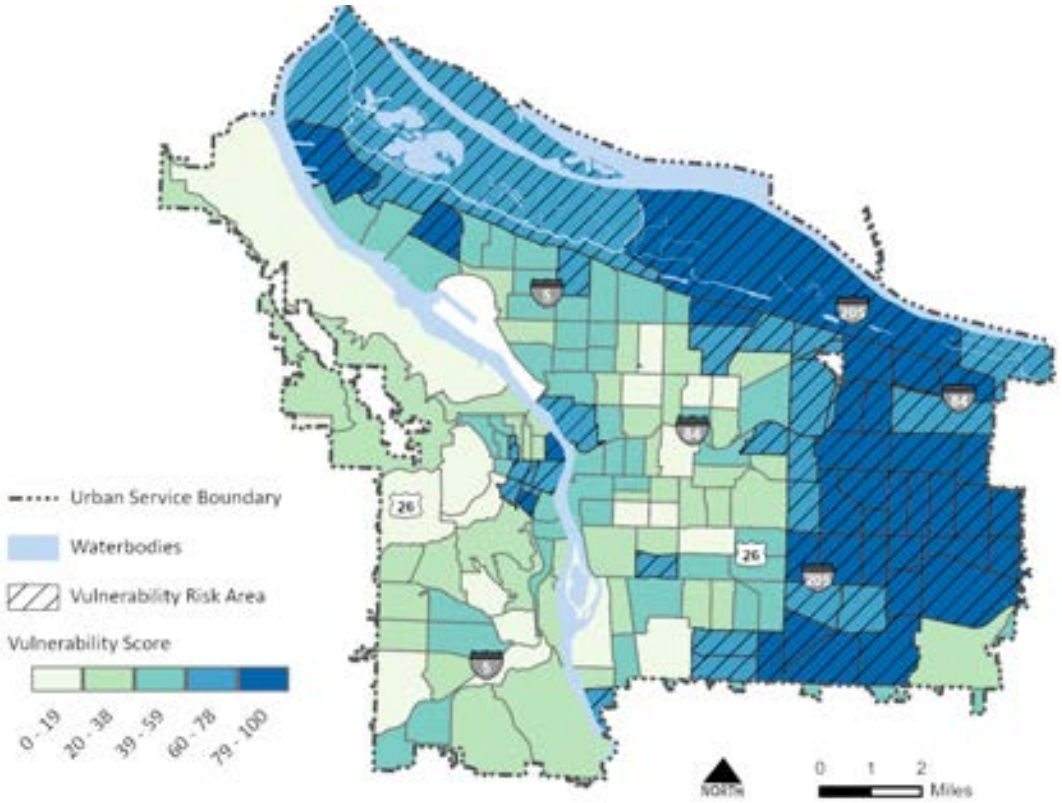
Share of…	Racially Concentrated Areas of Affluence (RCAA)	Racially Concentrated Areas of Poverty (RECAP)
Population	9%	13%
Households	8%	12%
Regulated Affordable Housing	<1%	28%
New Demand	3%	12%
Capacity	3%	12%

Source: BPS Analysis utilizing 2018-2022 ACS 5-year, 2023 Residential BLI and Metro Affordable Housing Inventory

Areas of Economic Vulnerability

The Economic Vulnerability Assessment conducted by BPS identifies census tracts in Portland where residents are more vulnerable to changing economic conditions and displacement. This analysis is based on previous vulnerability risk analysis work by Dr. Lisa Bates. These areas have residents who are more likely to be "housing cost-burdened," pay 30 percent or more of their income on housing costs, belong to communities of color, particularly black and indigenous communities, lack 4-year college degrees, and have lower incomes. Areas of economic vulnerability are primarily concentrated in East Portland beyond I-205, Roseway-Cully, St. Johns, Old Town and Downtown, and Brentwood-Darlington.

Figure 37. Areas of Economic Vulnerability, 2022



Source: BPS Areas of Economic Vulnerability, utilizing 2018-2022 ACS 5-year

Results

About 35 percent of Portland's households reside in areas of economic vulnerability. These areas also have over 50 percent of regulated affordable housing units. These areas have a roughly proportional share of the development capacity – 36 percent. Based on recent development trends, these areas are expected to see about 30 percent of new housing demand – slightly less than a proportional share. While not expected to experience heavy development pressures, it is essential to implement measures that stabilize housing and help mitigate the involuntary displacement of vulnerable households.

Figure 38. Areas of Economic Vulnerability

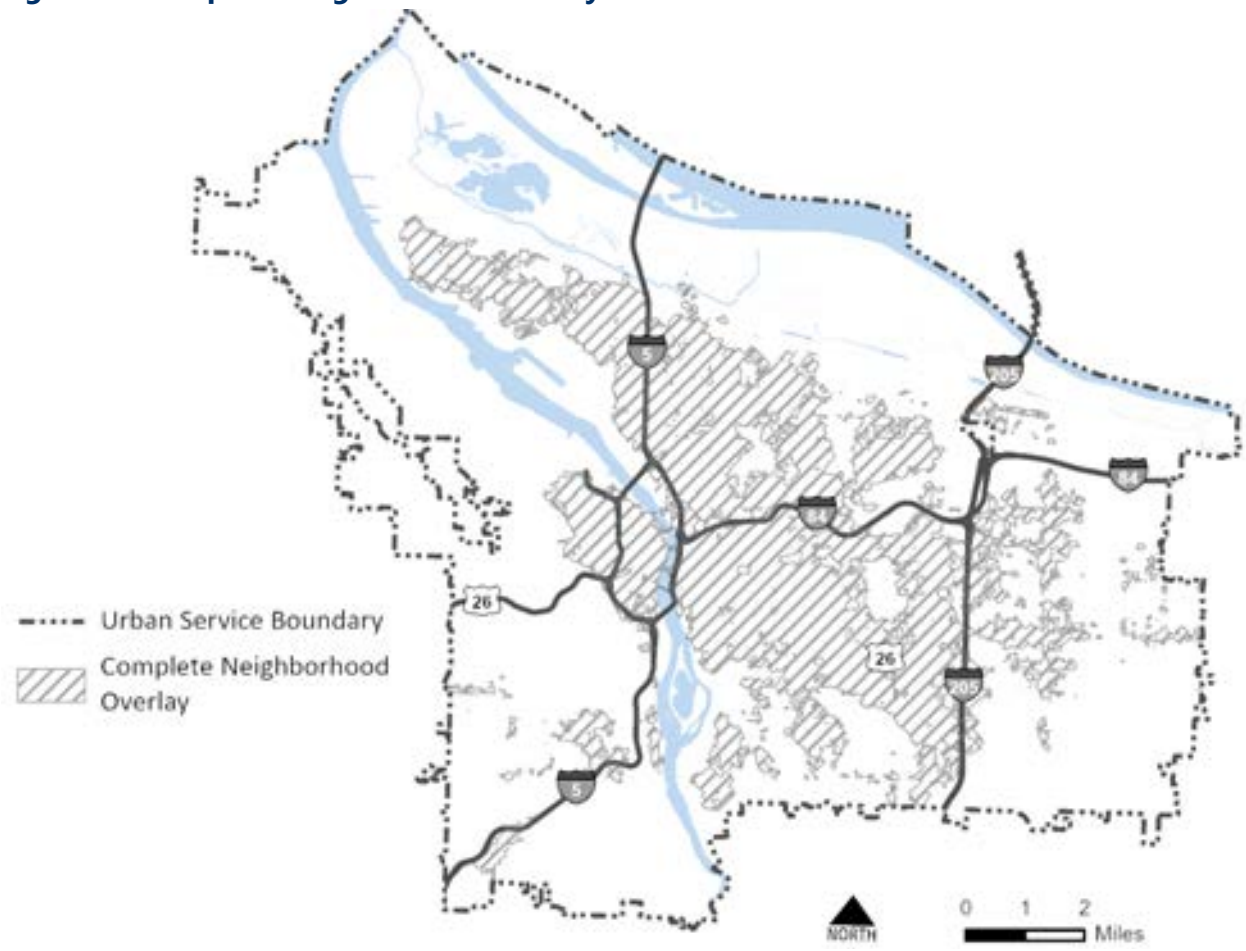
Share of…	Vulnerability Risk Areas
Population	38%
Households	35%
Regulated Affordable Housing	56%
New Demand	30%
Capacity	36%

Source: BPS Analysis utilizing 2018-2022 ACS 5-year, 2023 Residential BLI and Metro Affordable Housing Inventory

Complete Neighborhoods

A "complete neighborhood" is an area where residents have safe and convenient access to goods and services they need on a daily or regular basis. This includes access to healthy food, like grocery stores; Other neighborhood-serving commercial services; quality public schools; public open spaces and recreational facilities; and access to frequent transit. In a complete neighborhood, the network of streets and sidewalks is interconnected, which makes walking and bicycling to these places safe and relatively easy for people of all ages and abilities. A Portland Plan Goal is that by 2035, 80 percent of Portlanders live in a healthy complete neighborhood with safe and convenient access to the goods and services needed in daily life. Complete Neighborhoods are found primarily on the eastside of the Willamette River and in the Central City. Complete Neighborhoods are lacking in East and Southwest Portland.

Figure 39. Complete Neighborhood Overlay



Source: BPS Analysis

Results

About half of Portland's residents currently live in a Complete Neighborhood. However, about two-thirds of Portland's regulated affordable housing units are located in a Complete Neighborhood. Housing demand in Complete Neighborhoods is higher than the current proportion of residents, but there is ample capacity to accommodate it – with about 63 percent of the new housing demand and 61 percent of the future development capacity. Producing more units in Complete Neighborhoods will be important to meeting the Portland Plan Goal.

Figure 40. Complete Neighborhoods

Share of…	Complete Neighborhoods
Population	47%
Households	51%
Regulated Affordable Housing	66%
New Demand	63%
Capacity	61%

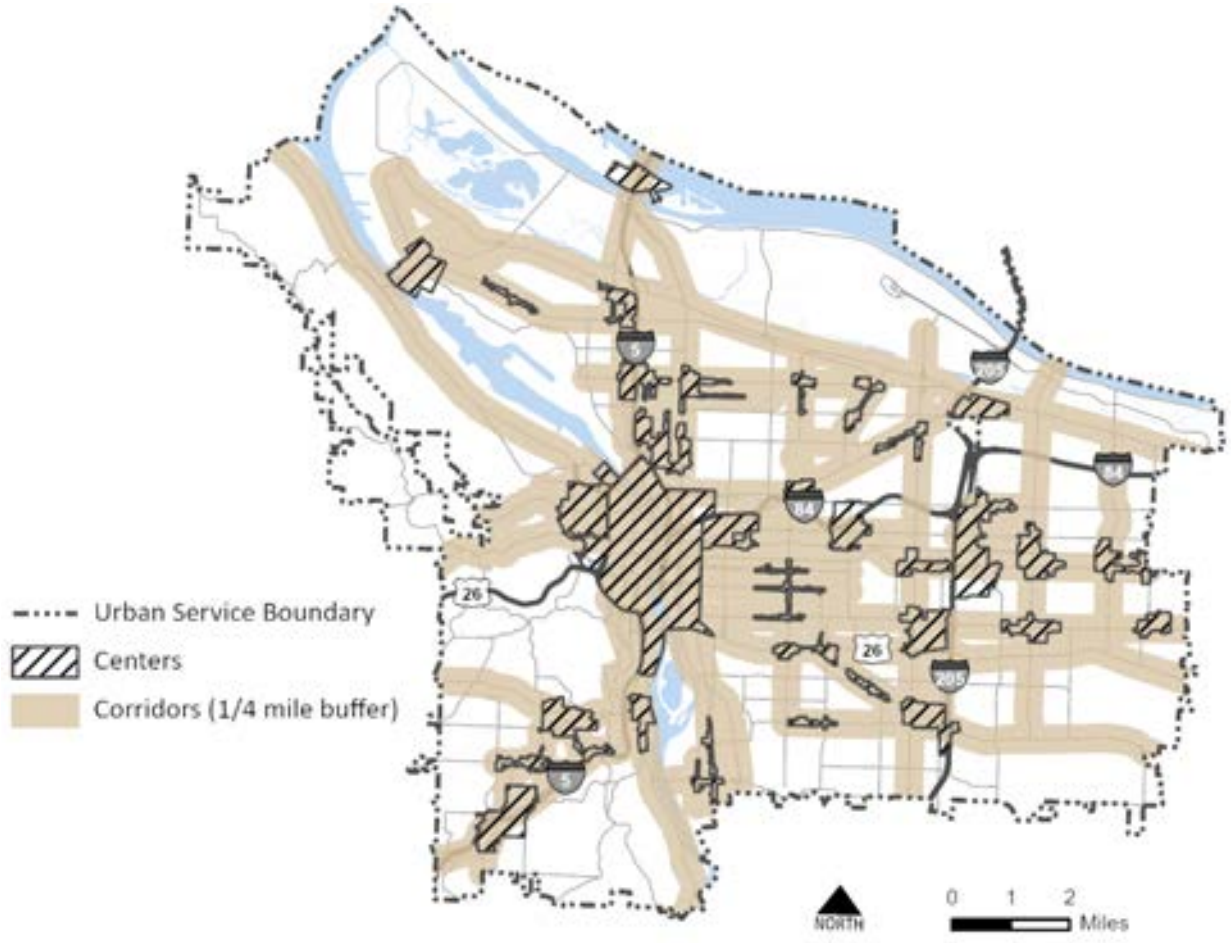
Source: BPS Analysis, 2018-2022 ACS 5-year, 2023 Residential BLI and Metro Aff. Housing Inventory

Centers and Corridors

As outlined in the 2035 Comprehensive Plan Urban Design Framework, the City's preferred growth scenario creates complete neighborhoods by locating new households and jobs in centers and corridors, maximizing investments in infrastructure, reducing redevelopment pressures on open spaces, employment districts and lower density residential areas and adding new people, businesses, and activities to the community.

Centers are expected to provide the primary areas for growth and change in Portland over the next 25 years. They are compact urban places that anchor complete neighborhoods, featuring retail stores and businesses, civic amenities, housing options, health clinics, employment centers and parks or other public gathering places. Focusing new growth in centers and the inner ring districts helps achieve goals of having more Portlanders live in complete neighborhoods, use more transit and active transportation, reduce their energy use and mitigate climate change.

Figure 41. Centers and Corridors (Quarter Mile Radius)



Source: BPS Analysis

Results

While 69 percent of Portland's residents currently live in Centers and Corridors, they are home to the vast majority (90 percent) of the city's regulated affordable housing units. Demand for units in Centers and Corridors is higher than the current proportion, but there is ample capacity to accommodate it. Centers and Corridors provide about 86 percent of the future development capacity in Portland.

Figure 42. Within A Quarter Mile Of Centers And Corridors

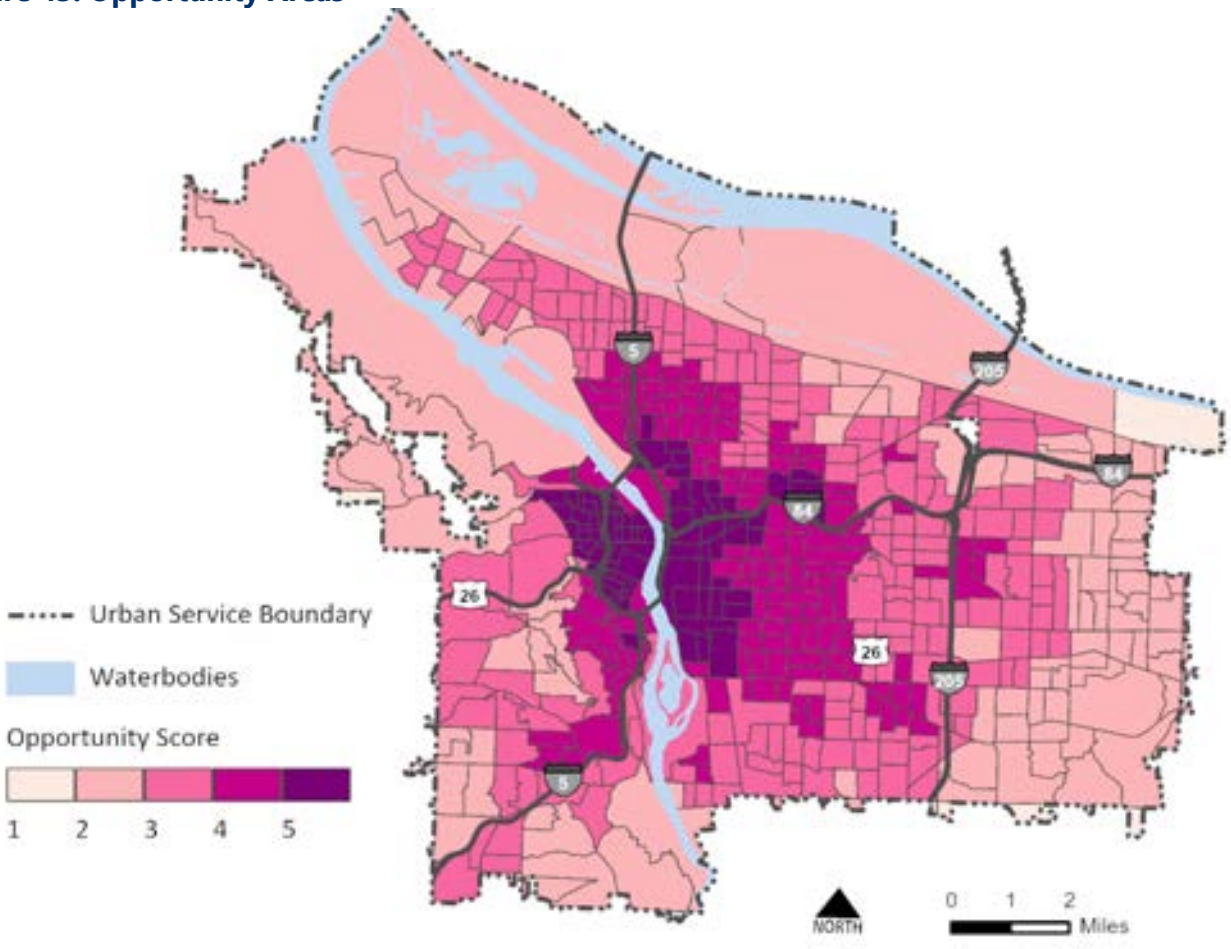
Share of…	Within a Quarter Mile of Centers and Corridors
Population	69%
Households	72%
Regulated Affordable Housing	90%
New Demand	84%
Capacity	86%

Source: BPS Analysis utilizing 2018-2022 ACS, 2023 Residential BLI and Metro Aff. Housing Inventory

Areas of Opportunity

The Portland Housing Bureau (PHB) Opportunity Map identifies levels of opportunity in Portland neighborhoods. Using a 5-point scale, the map is based on variables that include access to childhood education, employment, transportation, living/family wage jobs, and community amenities that promote healthy, active living. The 2035 Comprehensive Plan and the Portland Plan's Healthy Connected City provide guidance to expand opportunities for Portlanders to live in complete communities or areas of high opportunity by offering a mix of desirable services and opportunities.

Figure 43. Opportunity Areas



Source: BPS Analysis utilizing 2018-2022 ACS 5-year, PHB Areas of Opportunity[19]

Results

About 42 percent of Portland's current households are within a "high opportunity" area (rated as a score of 4 or 5 on PHB's Opportunity Map). Comparatively, 61 percent of all regulated affordable housing units are within a "high opportunity" area. About 21 percent of households are within an area considered low opportunity (rated as a score of 1or 2) and only 12 percent of regulated affordable housing units are within a low opportunity area, showing a greater propensity for affordable housing providers to locate units in areas of high opportunity. Development of new housing units over the past 20 years have mostly concentrated in areas of high opportunity. About 60 percent for future housing demand is expected in high opportunity areas and there is the capacity to accommodate this demand.

[19]For the purposes of this analysis, block groups are assigned an opportunity score where the source layer overlaps 50% or more with a block group area

Figure 44. Opportunity Score

Share of…	Opportunity Score		
	1 – 2	3	4 - 5
Population	24%	40%	36%
Households	21%	37%	42%
Regulated Affordable Housing	12%	27%	61%
New Demand	13%	27%	60%
Capacity	10%	31%	58%

Source: BPS Analysis utilizing 2018-2022 ACS 5-year, 2023 Residential BLI and Metro Affordable Housing Inventory, PHB Areas of Opportunity

Low Carbon Neighborhoods

As Portland boosts housing production, the City can leverage that production to help meet other goals and priorities, including reducing carbon emissions. The City of Portland has an adopted target to reach a 50 percent reduction in carbon emissions from 1990 levels by 2030 and net zero emissions by 2050. Any time new buildings are added to the city, carbon emissions increase, both in terms of the embodied carbon in the building materials, emissions from the construction process, and the operational carbon emissions from use of appliances, (HVAC, lighting, etc.) in those new units. Portland recognizes the tension between the urgent need to build more housing and the urgent need to halt and reverse carbon emissions. With this in mind, Portland seeks to explore ways to reduce the climate impact of new housing units.

To quantify the emissions impact of forecasted new housing units, more information would be required about the type of construction, the materials used, the size, and energy performance of those new units. Lacking this information, BPS assessed the carbon impacts of new housing units, by focusing on Vehicle Miles Traveled (VMT) as a proxy for building carbon emissions. According to a US EPA study[20], "the location of a home relative to transportation choices had a large impact on energy consumption. Choosing to live in an area with transportation options not only reduces energy consumption, it also can result in significant savings on home energy and transportation costs." All things being equal, the study found a 38 percent reduction in energy use between a suburban development single-dwelling detached home and a single-dwelling transit-oriented development, due to location efficiency. As is noted above, the type of housing was also a significant factor for energy consumption. Energy use between single-dwelling detached homes and multi-dwelling units in low VMT areas achieved a 60 percent reduction in energy use. More compact housing units also have lower embodied carbon due to fewer materials than a larger unit. Adding to the benefits of building typology and location efficiency, high performance energy codes reduce carbon emissions even further.

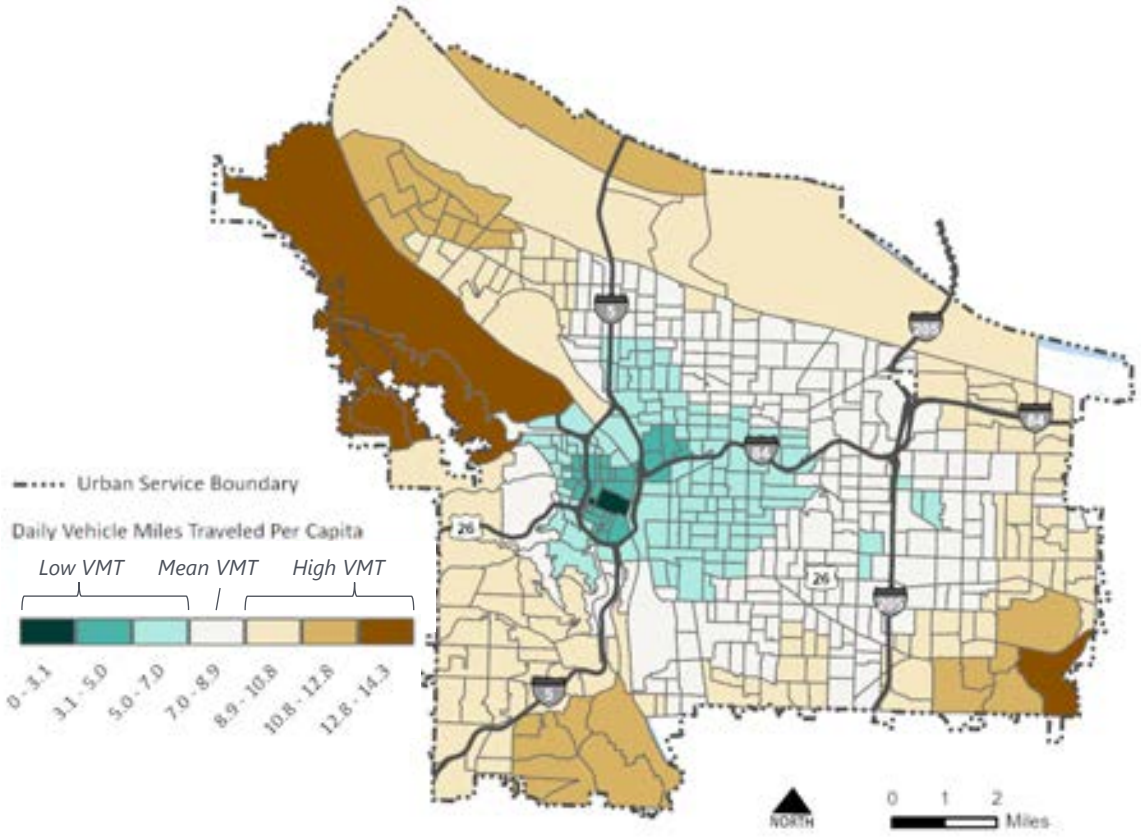
[20] https://www.epa.gov/sites/default/files/2014-03/documents/location_efficiency_btu.pdf

Areas of Low Residential Vehicle Miles Traveled (VMT)

Average vehicle miles traveled (VMT) of residents in various Portland neighborhoods offers important insights into reducing Portland's carbon emissions. Focusing growth in areas where residents, on average, rely less on cars to get around plays a vital role in mitigating the adverse effects of cars on climate change and public health. Portland's Comprehensive Plan and Climate Emergency Workplan emphasize the significance of growing in 'low VMT areas' to meet its transportation and climate goals. The climate benefits of focusing new housing units in low VMT areas are further supported by the fact that the zoning for inner-city centers and corridors are generally multi-dwelling/mixed use development. As the EPA study shows, the most efficient and lowest carbon housing units are compact multi-dwelling buildings in low VMT areas that have safe and reliable access to public transportation and generally shorter commute distances for residents. Given that Oregon adopted Clean Energy Targets (ORS 469A.410) requiring 100 percent renewable electricity by 2040, electrically heated multi-dwelling housing units in low VMT areas are the ideal development type to both meet our housing production needs and climate goals. Prioritizing growth in these areas underscores the city's commitment to building sustainable, healthier communities.

Figure 44 shows travel demand model estimates of average daily VMT per capita for home-based trips only by Census block group. Isolating for home-based trips is meant to specifically highlight how the location of housing has a significant influence on a household's driving habits. Classifications were created using standard deviation, which compares each block group's average daily VMT to the citywide average. Block groups with average daily VMT levels notably below what is typical in this VMT dataset were designated 'Low VMT areas'. Block groups with average daily VMT levels notably above the mean VMT areas are designated as 'High VMT Areas'.

Figure 45. Average Daily Residential Vehicle Miles Traveled (VMT) per Capita



Source: BPS Analysis utilizing 2018-2022 ACS 5-year and 2015 Metro Regional Travel Demand Model

Results

Low VMT areas, highlighted in the three different shades of green in Figure 44, are primarily located around the Central City and extends into the inner northeast and southeast neighborhoods such as MLK, Hollywood, Belmont, Hawthorne and Division.

Despite only a quarter of Portland's population and less than a third of its total households residing in Low VMT areas, nearly half of the future housing demand is expected in these areas, compared to 20 percent for High VMT areas (Figure 45). This suggests a notable shift towards promoting new residential development in low VMT areas. This trend not only increases the opportunity for more people to live in low VMT neighborhoods and access associated health and safety benefits but also has the potential to significantly reduce the city's overall average daily VMT, aligning with Portland's climate goals aimed at curbing transportation carbon emissions. In addition, over half of Portland's regulated affordable housing units are located in low VMT areas.

Figure 46. Levels of Average Daily Residential VMT

Share of…	Low VMT Areas (0 – 7 VMT)	Mean VMT Areas (7 – 8.9 VMT)	High VMT Areas (9 – 14.3 VMT)
Population	26%	40%	34%
Households	31%	38%	31%
Regulated Affordable Housing	55%	30%	15%
New Demand	49%	31%	20%
Capacity	50%	33%	17%

Source: BPS Analysis utilizing 2018-2022 ACS 5-year, 2023 Residential BLI and Metro Affordable Housing Inventory, 2015 Metro Regional Travel Demand Model

Hazard Risk Areas

Resilience is one of the guiding principles in Portland's 2035 Comprehensive Plan, guiding policies to mitigate risks from natural hazards, human-made disasters and climate change. The location of future housing plays a critical role in determining the ability for individuals and communities to withstand, recover from, and adapt to changes. Therefore, it's important to identify where future housing is anticipated to grow in relation to known environmental hazard areas in Portland. This analysis comprises five maps identifying block groups and census tracts that are at higher risk for landslides, wildfires, liquefaction during earthquakes, extreme heat, and flooding.

Results

Landslide and wildfire hazard areas are predominantly located in the West Hills of Portland, marked by steep slopes and denser urban forests (Figure 47, Figure 48). Additional wildfire hazard areas extend to East Portland, notably around Mt. Scott and Rocky Butte. Flood hazard areas primarily align with Portland's main waterways and sections of Johnson's Creek (Figure 50). Due to the inherently challenging terrain that these three areas pose to housing production, only a small fraction of Portland's expected demand for new units, estimated between 5 and 8 percent in these areas.

Conversely, the expected share of demand for new units in areas at high risk of liquefaction (Figure 49) and in areas designated as urban heat islands is relatively high given each area's existing share of population and households (Figure 51). This trend is particularly pronounced in areas prone to liquefaction that include neighborhoods likely to undergo continued growth such as Northwest Portland and Inner Southeast Portland. The expected demand for new units could double the number of households living in liquefaction areas by 2045. In addition, both hazard areas have a disproportionately high concentration of regulated affordable housing units compared to their shares of households. Notably, close to half of all regulated affordable units are situated in Portland's hottest block groups.

Figure 47. Hazard Risk Areas

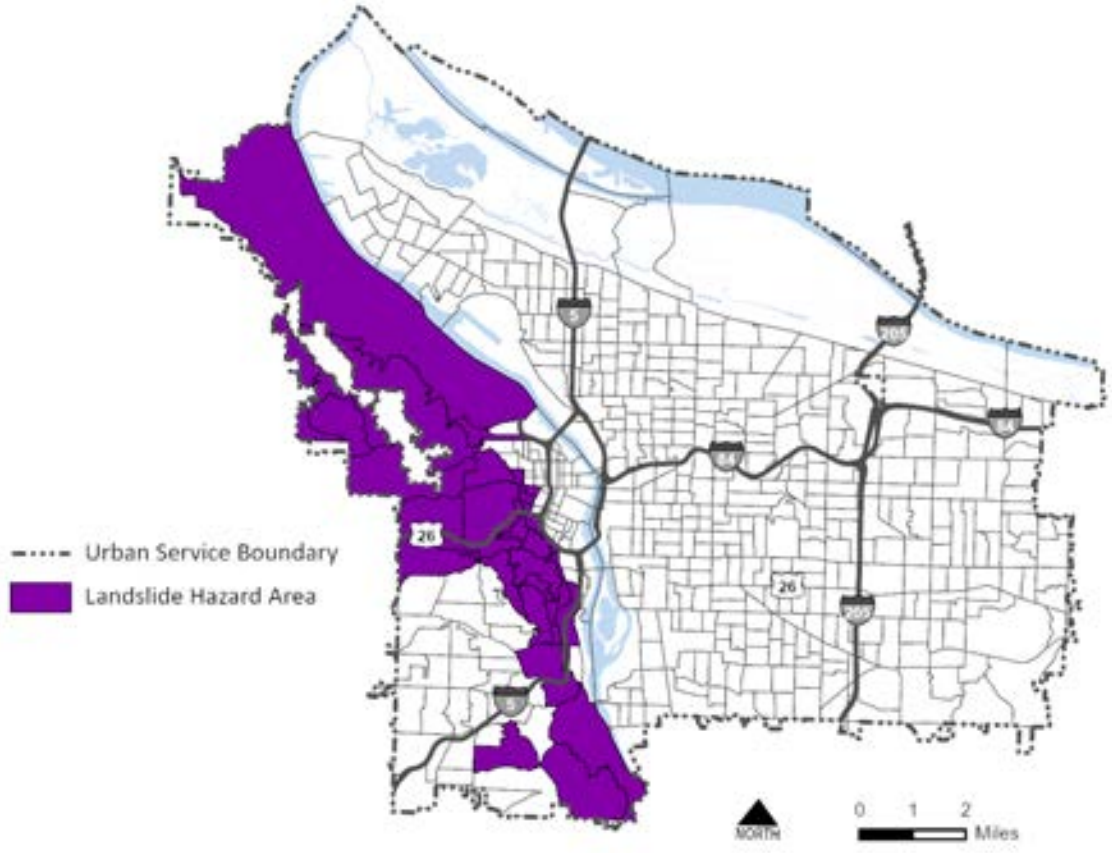
Share of…	Landslide Hazard Areas	Wildfire Hazard Areas	High Probability of Liquefaction Areas	Urban Heat Islands	Flood Risk Areas
Population	7%	6%	5%	21%	3%
Households	7%	6%	7%	24%	4%
Regulated Affordable Housing	2%	2%	20%	44%	5%
New Demand	5%	4%	17%	39%	8%
Capacity	6%	3%	16%	38%	8%

Source: BPS Analysis utilizing 2018-2022 ACS 5-year, 2023 Residential BLI and Metro Affordable Housing Inventory

Landslide hazard areas are census block groups characterized by geological or environmental conditions that increase the likelihood of landslides, including steep slopes, loose soil, heavy rainfall, or seismic activity.[21] Landslide hazard areas are only located in West Portland, along the steeper slopes in the West Hills and around OHSU.

[21] For the purposes of this analysis, block groups are flagged as landslide hazard areas if the landslide hazard source layer overlaps 50% or more with a block group area.

Figure 48. Landslide Hazard Areas

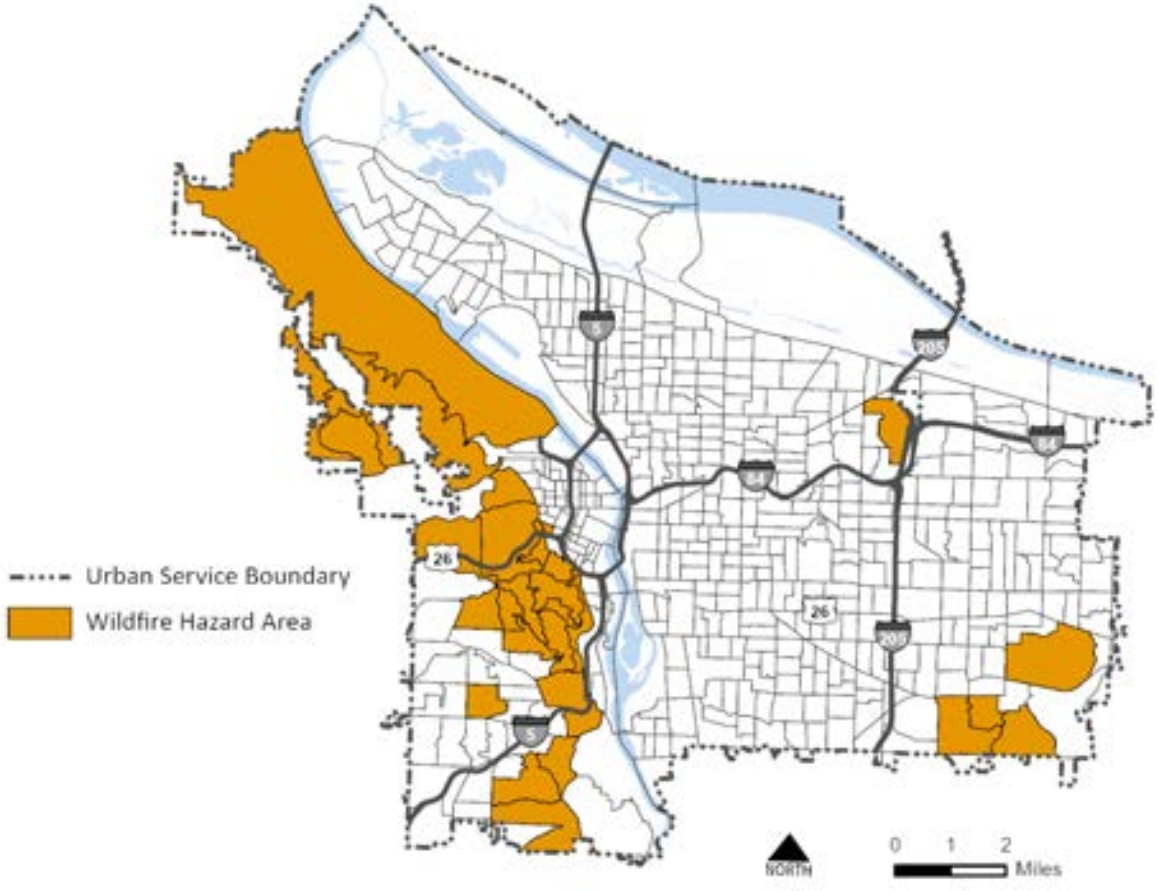


Source: BPS Analysis utilizing landslide inventory from IMS-57 for central and western Multnomah County, Oregon, DOGAMI.

Wildfire hazard areas are census block groups of elevated risk for wild land fires.[22] Vegetation, slope, and the ODF Fire Weather Hazard rating were the main factors used to determine wildfire hazard areas. Wildfire hazard areas in Portland are located in areas of the city that are less densely populated and include denser forests, such as the hills in Northwest and Southwest Portland as well as Mt Scott and Rocky Butte in East Portland.

[22] For the purposes of this analysis, block groups are flagged as wildfire hazard areas if the wildfire hazard source layer overlaps 50% or more with a block group area.

Figure 49. Wildfire Hazard Areas

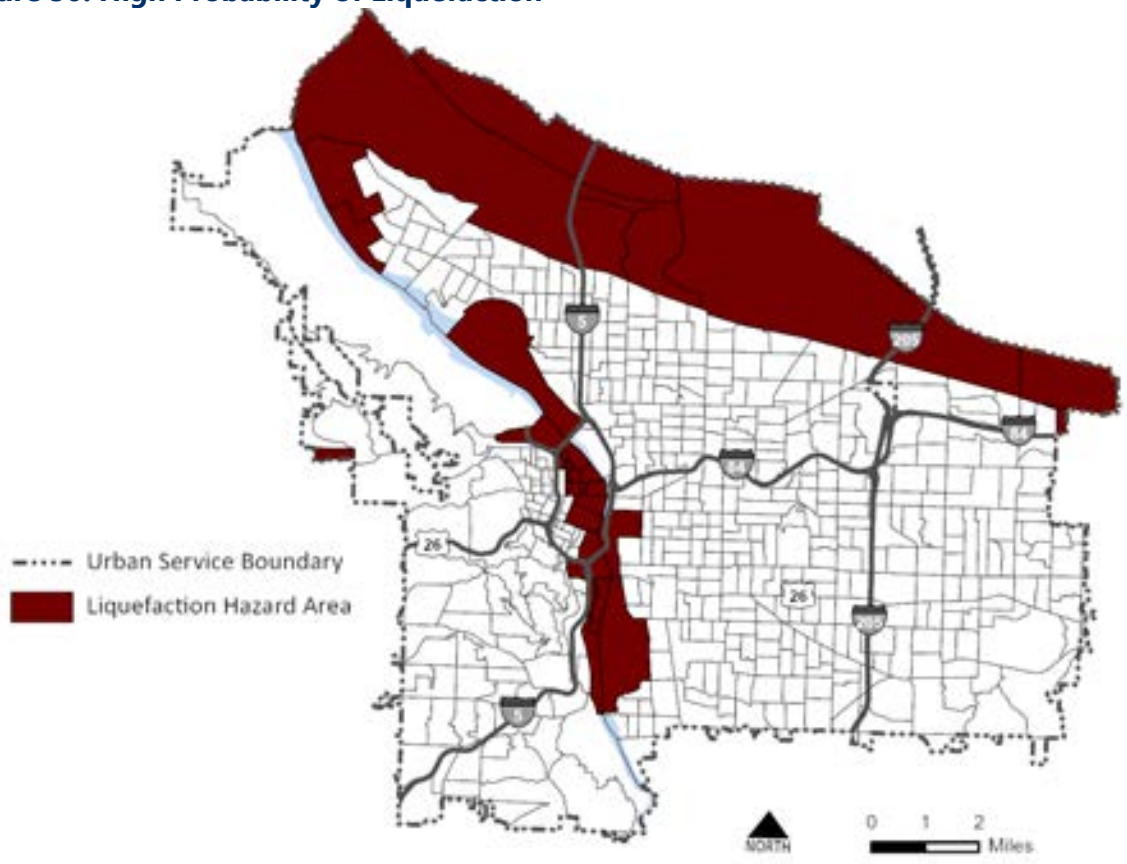


Source: BPS Analysis utilizing Metro's Wildfire Hazard Zones within the City of Portland from 2002.

Areas prone to liquefaction during earthquakes are census block groups where loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong seismic activity.[23] Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes. Areas with high probability of liquefaction in the event of a 9.0 earthquake are primarily located along Portland's waterways, notably in Downtown Portland and Portland's industrial districts in the Central City, North Portland and along the Columbia River.

[23] For the purposes of this analysis, block groups are flagged as high probability of liquefaction areas if the high probability liquefaction source layer overlaps 50% or more with a block group area.

Figure 50. High Probability of Liquefaction

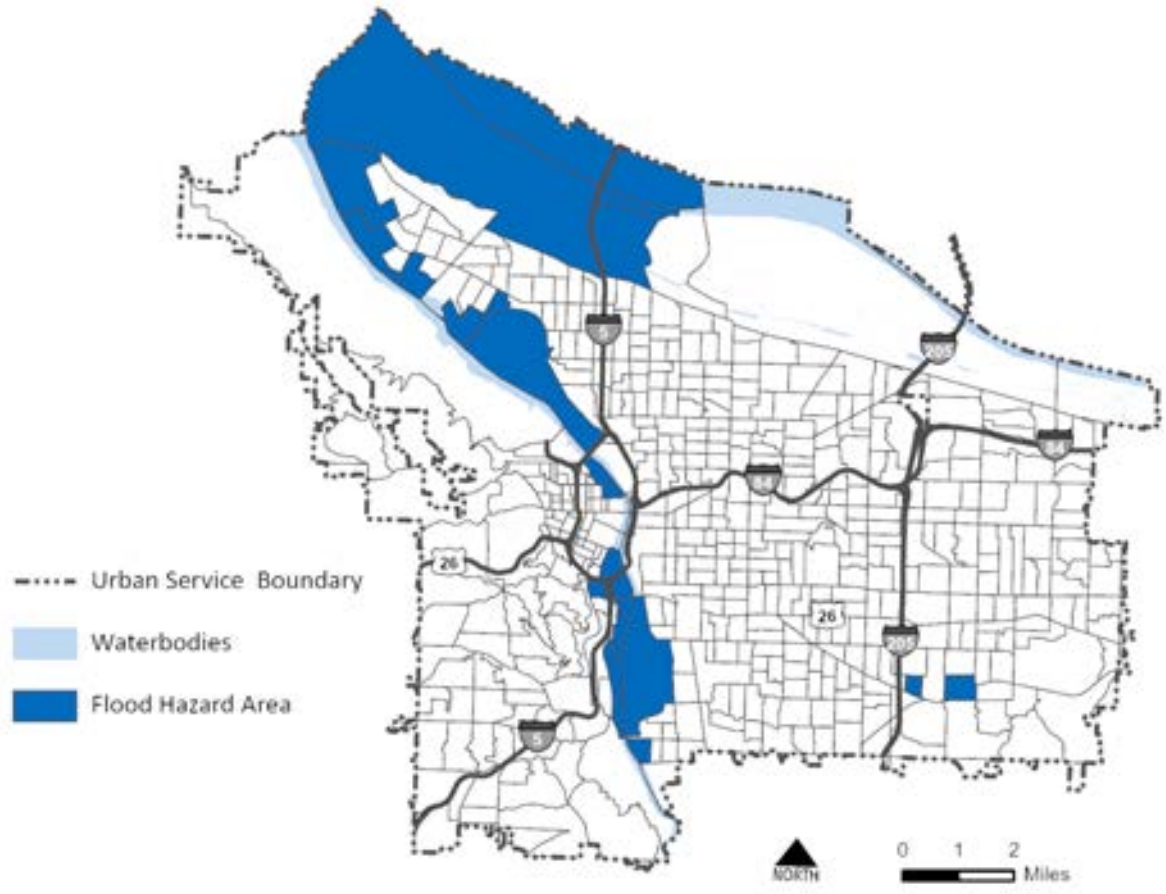


Source: BPS analysis utilizing the Cascadia Subduction Zone M 9.0 earthquake layer, DOGAMI O-18-02

Flood hazard areas are census block groups at an increased risk of experiencing flooding during periods of heavy rainfall, snowmelt, storm surges, or other hydrological events.[24] The flood hazard area highlighted in Figure 49 is comprised of the farthest landward extent of the FEMA 100-year Floodplain, the new Modeled Willamette River 1996 Flood Extent, and the 1996 Flood Inundation Area. Flood hazard areas are located along Portland's major waterways as well as Johnson Creek in Southeast Portland.

[24] For the purposes of this analysis, block groups are flagged as flood hazard areas if the flood hazard source layer overlaps 33% or more with a block group area.

Figure 51. Flood Hazard

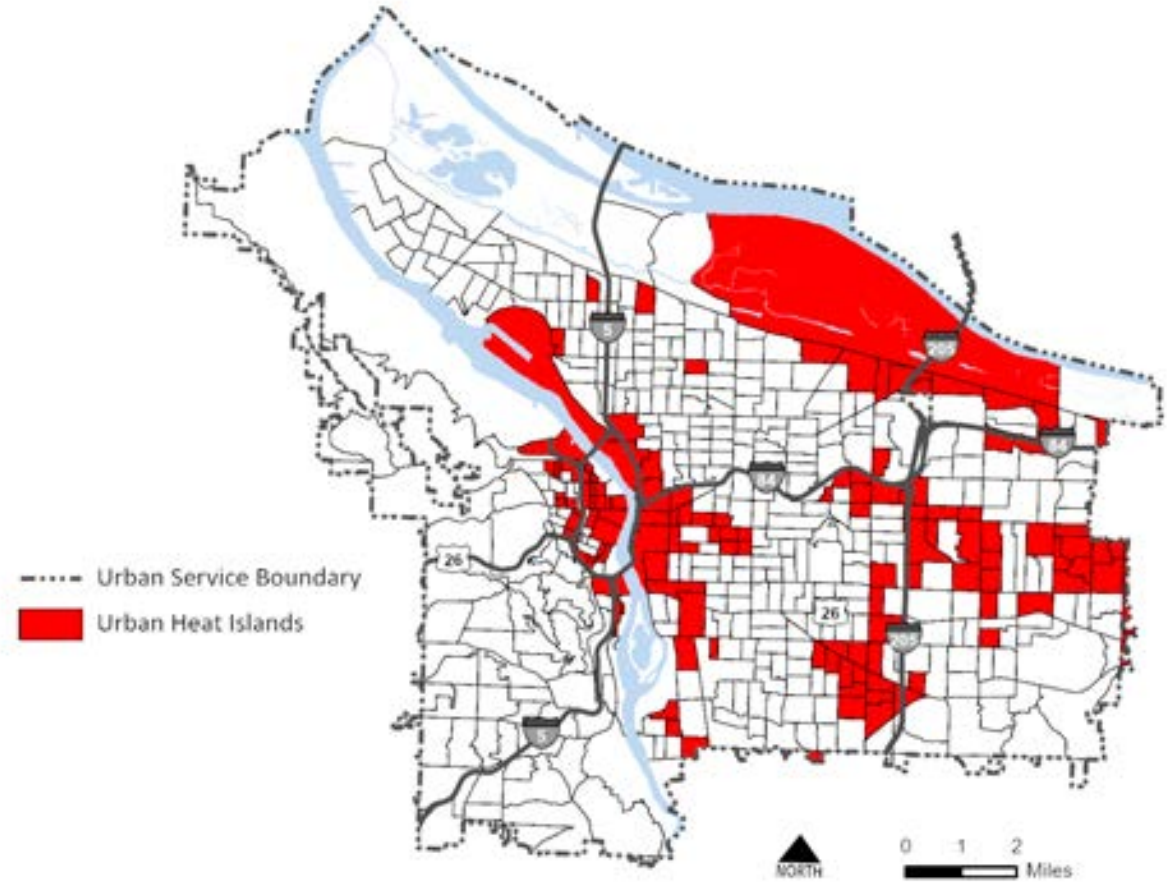


Source: BPS analysis utilizing the Title 33 Combined Flood Hazard Area

Block groups identified as 'Urban Heat Islands'[25] typically have high shares of impervious surfaces and fewer instances of green space/parks and street trees, all of which are factors known to contribute to higher surface temperatures. These characteristics are typical of very dense urban neighborhoods (such as Downtowns), industrial areas, auto-oriented commercial corridors or neighborhoods that have historically experienced disinvestment in green infrastructure. Block groups designated as urban heat islands are primarily clustered around Central City, industrial areas in inner southeast and Columbia Boulevard, Lents-Foster, Gateway, along 82nd, 102nd, and 122nd avenues and in Centennial.

[25] For the purposes of this analysis, block groups that recorded evening temperatures in the top quartile (82.6 degrees and over) are flagged as urban heat island block groups.

Figure 52. Urban Heat Islands, Multnomah County (CAPA Heat Watch)



Source: BPS analysis utilizing the evening temperatures reported in Multnomah County's 2023 Heat Watch Report, provided by the CAPA Heat Watch Program.

Market Conditions and Barriers Affecting Needed Housing

Existing Housing Stock

The 2021 estimate for housing units in the city shows that over half of the units are detached single-unit homes. Buildings with 20 or more units saw the largest increase and now account for 21 percent of all housing units (Figure 39).

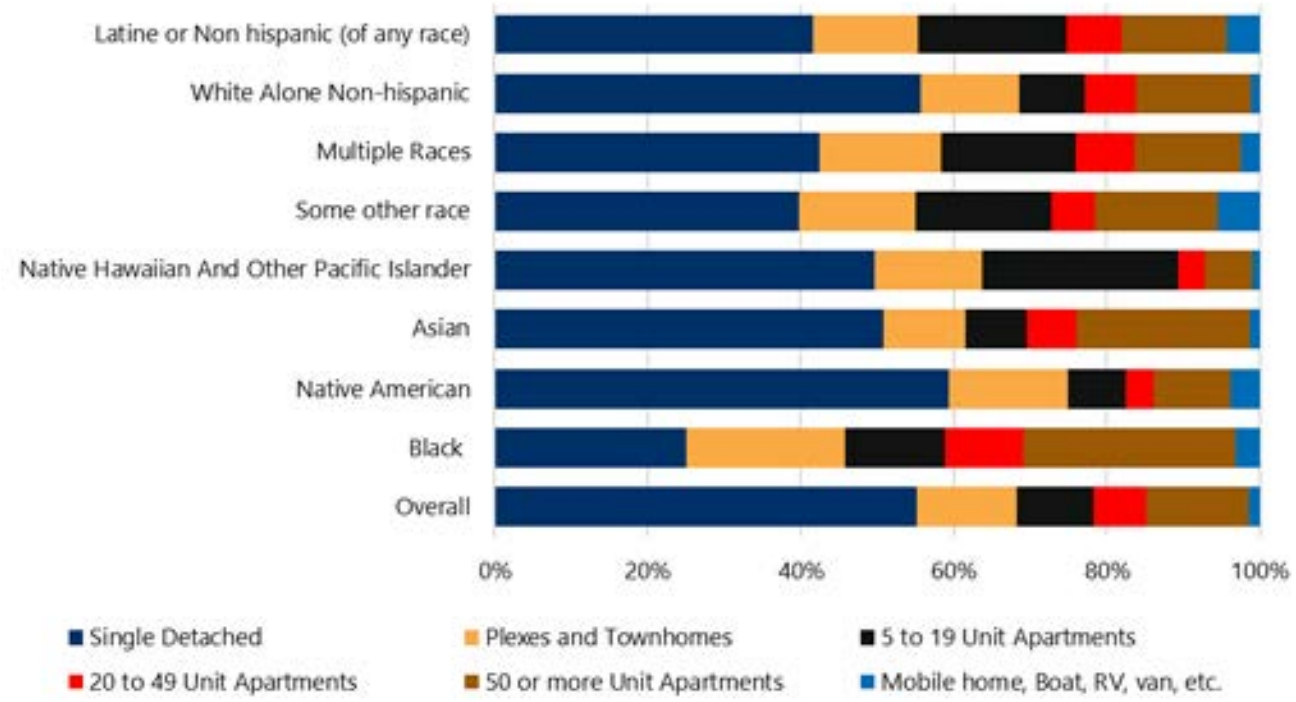
Figure 53. Units by Structure Type, 2010 and 2021

Structure Type	2021 Units *Estimate*	*Share*	2010-2021 Change (units) *%*
Single Detached	160,520	54%	6%
Townhouse/Rowhouse	13,578	5%	46%
Duplex	10,681	4%	-5%
Triplex or Quadplex	15,189	5%	3%
5-to-9-unit *apartments*	13,250	4%	-5%
10-to-19-unit *apartments*	15,946	5%	5%
20-to-49-unit *apartments*	20,567	7%	27%
50 or more-unit apartments	42,562	14%	60%
Mobile home, Boat, RV, van, etc.	4,186	1%	5%
Total:	296,479		13%

Source: ACS 2010 and 2021 5 Year Table B25024

Households living in existing occupied units, overall tend to live in single detached housing, given that it makes up 54 percent of the existing stock, though this varies by race and ethnicity of households. The majority of Black households live in large apartment buildings (50 or more units), plexes and townhomes or in small apartment buildings (5 to 19 units).

Figure 54. Existing Units by Structure Type and Race/Ethnicity of Householder, 2021



Source: ACS 2021 5 Year Table B25032 A-I

Between 2010 and 2021, the greatest increase of units by bedroom was studios, with an estimated increase of 11,711, or an increase of 86 percent. The smallest increase was in 2-bedroom units, increasing by just one percent. Overall, units that have three or more bedrooms, or would be considered family-sized units, account for about 45 percent of all units in the survey period.

Figure 55. Units by Number of Bedrooms, 2010 and 2021

Number of Bedrooms	2021 Units Estimate	Share	Change %
Studio	25,376	9%	86%
1	52,479	18%	16%
2	84,316	28%	1%
3	85,525	29%	5%
4	38,512	13%	23%
5 or more	10,271	3%	28%
Total:	296,479		13%

Source: ACS 2010 and 2021 5 Year Table B25024

Vacancy Rates

Approximately 17,000 housing units are counted as vacant, leading to a vacancy rate of 5.6 percent and down 1.2 percent from 2010. This vacancy rate is lower than that of the state of Oregon, which had a 7.5 percent vacancy rate in 2021 (ACS 5 year, 2010 and 2021 Table B25001). Fourteen percent of all vacant units were vacant for seasonal or recreational use (just 0.77 percent of all units), like the rate in 2010.

Figure 56. Vacancy Rate by Structure Type, Portland, 2021

Structure Type	Vacancy Rate	% Of Vacant Units
Single Dwelling Detached	4%	36%
Townhomes	3%	3%
Duplex	12%	8%
Triplex and Quadplex	7%	6%
5 To 9 Unit Apartment	4%	3%
10 To 19 Unit Apartment	5%	5%
20 To 49 Unit Apartment	7%	8%
50 Or More Unit Apartment	11%	29%
Mobile Home, Boat, RV, Van, etc.	5%	1%
Total	5.6%	100%

Source: ACS 2021 5 Year Table B25024, B25032

With strong demand from lower-income households (as shown in the 2045 HNA) but most new units affordable only to higher-income households, vacancy rates are highest (9.8 percent) for more expensive higher-quality buildings (rated four and five-star by Costar), 7.2 percent for three-star buildings, and 5.4 percent for less expensive one and two-star buildings. Market-rate rental units in buildings rated one, two, or three-stars tend to reflect unregulated affordable housing. Vacancy rates below or near 6.0 percent show continuing demand for new housing units.

Vacancy rates are slightly lower than Portland's averages at the regional level, with an overall vacancy rate of 6.7 percent, high vacancies in higher-quality buildings, moderate vacancies in three-star buildings, and a tighter supply of one and two-star buildings. The suburban inventory is more dispersed than similar products in Portland; Portland accounts for about 62 percent of the region's four- and five-star buildings and about half of its units.

Figure 57. Apartment Vacancy Rates, 2023 Q4

Rating	Portland	MSA
4-5 star	9.8%	8.5%
3 star	7.2%	6.4%
1-2 star	5.4%	5.0%
Overall	7.2%	6.7%

Source: Costar

Market Conditions

Rental Market Conditions

Rental Unit Affordability. The maps below show how rental affordability varies among different populations in Portland. On average, a household could afford a rental unit in green without becoming cost burdened and spending more than 30 percent of their monthly income on rent, not including utilities. Those in purple would be considered not affordable. Portland's neighborhoods are most affordable to white, Asian, and Pacific Islander households, and least affordable to Black, Latine, and Native American households.

Figure 58. 2-Bedroom Rental Affordability by Race and Ethnicity

White Household

Black Household

Latine Household

Native American Household

Pacific Islander Household

Asian Household

Source: Draft PHB State of Housing Report 2023 (using ACS 2022 5-Year Estimates)

Rental Housing Production. Portland has over one-third of the region's apartments, which primarily serve the local rental housing market. Over the past decade—a period of record-breaking apartment construction activity—Portland captured over half of the region's newly constructed apartments. These newly constructed buildings became increasingly larger, with most buildings built after 2014 averaging between 60 and 90 units, compared to under 50 units per project in the early 2000s. The average apartment building in Portland is now 28 units in size, up from 20 units in 2000.

Rent Growth. Portland's apartment construction activity in the 2010s was the result of prolonged pent-up demand for rental housing due to population growth over the past few decades (especially from upper-income households able to afford higher housing costs). With production trailing demand in the years prior to 2010, the tighter housing market combined with strong income growth to rapidly increase rents, especially for newly constructed buildings. While rent growth created a less affordable

rental market, it also increased the feasibility of higher-density projects, paving the way for the wave of new construction in the 2010s.

Since 2020, demand for rental housing decreased due to significantly lower levels of in-migration and the growing competitiveness of suburban submarkets, resulting in slightly elevated vacancy rates (relative to historical averages) and lower annual rent growth. However, underproduction has continued to contribute to a constrained housing market in which development activity has never 'caught up' to overall demand, especially not at the lower- and middle-income thresholds. With new market-rate construction generally targeting higher-income households, the average apartment rent in buildings constructed in the last five years is $1,700 per unit, versus an average rent across the entire multifamily inventory of $1,465 per unit.

Ownership Market Conditions

Portland's ownership housing market has been competitive for the past decade, with low vacancies and rapid home price growth the result of demand exceeding the supply of both new listings and new housing units. Higher interest rates in the latter half of 2022 and into 2024 have reduced average home values but exacerbated affordability concerns for prospective homebuyers pursuing traditional mortgages.

Historically, the ownership market has been dominated by single-dwelling homes and accounted for more than 80 percent of home sales between 2012 and 2020. Since the adoption of the Residential Infill Project (RIP) in 2020, and subsequently amended in 2021, attached units (housing such as middle housing, townhomes, and multiplexes) have accounted for 23 percent of sales. Attached units have also accounted for about half of all sales of newly constructed units since 2020, compared to 29 percent from 2012 to 2019. The Homebuyer Opportunity Limited Tax Exemption (HOLTE) Program has further supported the sale of new middle housing units, especially at lower prices.

According to American Community Survey 5-year estimates, Portland ended 2022 with an estimated sales vacancy rate of just 0.8 percent (down from 2.6 percent in 2010, but up from a historical low of 0.2 percent in the first quarter of 2021). A vacancy rate of less than 3.0 percent is typically considered an indicator of strong demand for ownership housing.

The Regional Multiple Listing Service (RMLS) provides details about housing unit transactions. An analysis of RMLS transaction data shows that for-sale home listings over the past six years have largely been unaffordable to the general population. About 60 percent of homes sold from 2018 to 2023 would be considered affordable to a household earning the median income the year the unit sold.

Figure 59. Homes Affordable by Median Household Income (MHI) and Year of Listing

	2018	2019	2020	2021	2022	2023
Homes Affordable at Median Income	39%	46%	42%	38%	41%	46%
Homes Not Affordable at Median Income	61%	54%	58%	62%	59%	54%

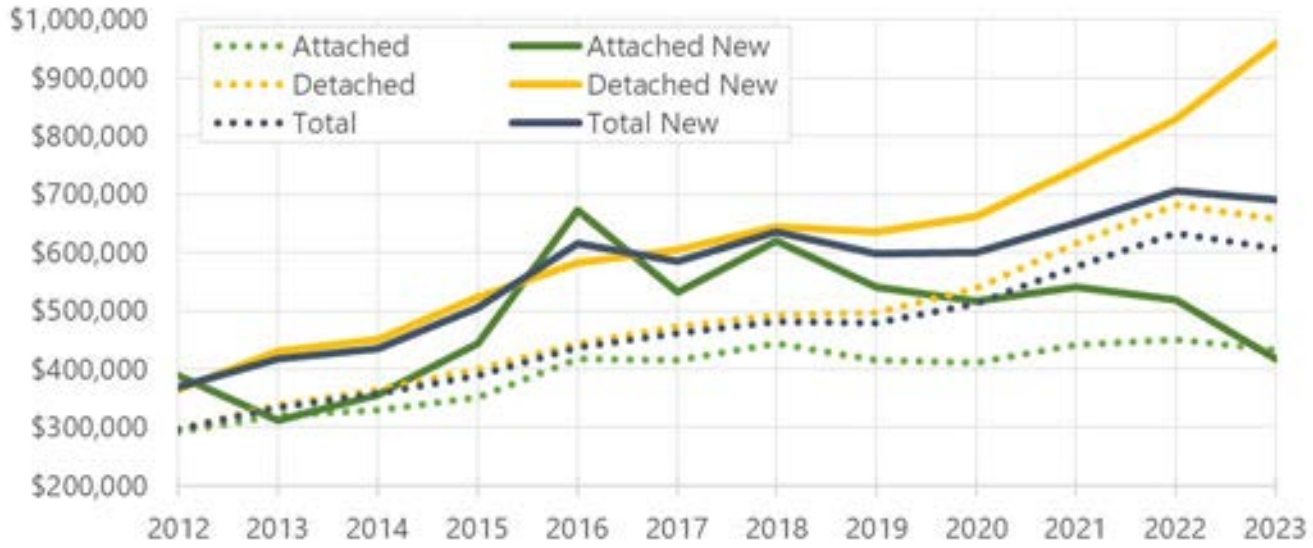
Source: RMLS, Homes Sold (Close Price), 2018-2023

The two main property types in the RMLS database are attached and detached housing (attached housing units include duplexes, triplexes, fourplexes, and townhouses). Citywide, the average home price for detached and attached homes increased by 31 percent from $500,000 in 2018 to a peak of nearly $650,000 in the second quarter of 2022. Average prices in 2023 were $606,000, an increase of $270,000 over 10 years.[26] Over this same period, detached housing sales closely followed the citywide average, while attached housing has stayed closer to $400,000. The average home sales price exceeded $400,000 in all 24 Portland Plan areas and was below $500,000 in only four areas—122nd, Centennial, Lents-Foster, and Gateway.

There continues to be a price difference between new attached and new detached housing units. The price of newly constructed detached housing has escalated in the last several years, increasing from $660,000 in 2020 to $960,000 in 2023. Meanwhile, the average price of newly constructed attached housing units has been decreasing since 2018 and in 2023, fell below the average price for all attached housing units, demonstrating the continuing potential of attached and middle housing units for meeting the City's affordability and homeownership goals.

[26] The decrease from 2022 to 2023 was due in part to lower attached housing sales prices. Note the median price for all housing types in 2023 was $505,000, highlighting the significant range at the upper end of the market.

Figure 60. Average Housing Unit Sale Prices by Year



Source: RMLS

Over the past decade, there was an average of about 10,000 real estate transactions for attached and detached units. Attached housing units have accounted for an increasing share of all transactions, going from about 19 percent in 2012 to 23 percent in 2023.

Figure 61. Number of Property Sales by Housing Type

Source: RMLS

When accounting only for newly constructed units, the market has seen a much greater proportion of attached housing units transacting. Newly constructed attached units have gone from capturing less than 20 percent of sales for new units in the early-to-mid-2010s to about half since 2020.

Figure 62. Attached Housing as a Proportion of New Home Sales

Source: RMLS

The maps below show how homeownership affordability varies among different populations in Portland. Areas in purple would be considered not affordable. Portland's neighborhoods are most affordable to white households, and least affordable to Black, Latine, Native American, Asian, and Pacific Islander households.

Figure 63. Average Homeownership Affordability by Race and Ethnicity

White Household

Black Household

Latine Household

Native American Household

Pacific Islander Household

Asian Household

Source: Draft PHB State of Housing Report 2023 (using ACS 2022 5-Year Estimates)

Existing And Expected Barriers To The Development Of Needed Housing

Development and Construction costs

Nationally, development costs have significantly increased over the past few years, especially early in the pandemic. Since 2020, several key construction materials have experienced rapid inflation. From 2020 to 2023, concrete costs increased by 15 percent, lumber by 16 percent and steel by 22 percent.[27] At the same time, rental rates and sale prices slowed, resulting in feasibility gaps for many residential projects. The escalation in pricing of construction materials has tested developers, and in certain instances forced them to utilize cost-effective alternatives that help projects stay within budget without compromising the quality of construction.

Since the Federal Reserve started raising interest rates in 2022, capital has become scarce and expensive, reducing sales transactions and undermining development feasibility.[28] Capital availability is critical for developers—most development costs, including acquisition, predevelopment, construction, and operations, are funded by debt. Interest rates are one of the most significant contributors to higher borrowing costs. Between 2019 and 2023, interest rates for residential development loans increased from five percent or lower to over eight and a half percent.[29]

Locally, System Development Charges (SDCs) are one-time impact fees charged on new development to help pay for infrastructure that serves or provides capacity for growth. Portland's SDCs are typically between $15,000 and $30,000 per unit. SDCs increase the cost of building new housing in ways that can skew housing development towards higher-cost homes and can impact buyers and renters.[30] Smaller and lower-cost housing units tend to be more affected by SDCs than larger and more expensive homes. SDCs typically account for a larger share of total costs for smaller homes, middle housing, and moderately priced apartments. These housing types are often targeted at moderate-income households who may not be able to absorb higher prices or rents, making them sensitive to small increases in development costs. As noted in the City's commissioned study, SDC waivers represent the largest potential cost savings for developers but may represent challenges associated with planned City capital improvements.[31]

Workforce Availability

The limited availability of labor, particularly in the construction workforce, is an acute pain point for developers that has also contributed to setbacks and challenges in construction. Projects are commonly delayed because of supply challenges and labor shortages. These delays sometimes increase costs to such an extent that developers cancel, postpone, or scale back projects. The general costs of trades

[27] https://blog.naiop.org/2023/12/how-rising-construction-costs-are-impacting-real-estate-development/
[28] https://knowledge.uli.org/-/media/files/emerging-trends/2024/2024-etre-us.pdf
[29] https://ternercenter.berkeley.edu/wp-content/uploads/2023/12/Development-Math-2023.pdf
[30] https://www.oregon.gov/ohcs/development/Documents/Oregon%20SDC%20Study_FinalReport_121422.pdf
[31] https://www.portland.gov/phb/documents/portland-development-cost-study-summary/download

have also increased, contributing to higher construction costs; as demand for these workers soars, there is little incentive for businesses to reduce costs. According to Associated Builders and Contractors, nationally, the construction industry needed to attract approximately 546,000 workers to meet the demand for labor in 2023.[32]

Financing and Investment Funding and Resources

Developers are currently facing funding availability challenges. Banks are willing to cover less of the overall project cost as lenders further hedge against risk. In 2019, a 65 to 70 percent Loan to Cost (LTC) metric was common, which refers to the amount a bank will finance of the total project cost. In 2023, that ratio dropped to roughly 55 percent.[33]

With banks and other lenders now less willing to lend as much, developers must seek other sources of funding. For some, that means putting in a greater proportion of their own equity, reducing their capacity for other projects; for others, that means taking on loans with less favorable conditions (higher interest rates, for example), reducing their ability to provide affordable units. For affordable housing developers, the pool of possible funders is small, and compliance can be challenging. Further, the Portland and Metro housing bonds passed by voters, which were effective funding sources, have largely been tapped.

Anecdotally, these national trends have been exacerbated by an extended wave of negative national media coverage of Portland since 2020, resulting in a diminished reputation amongst the development community—especially non-local developers who might otherwise invest in Portland.[34] Attracting those investment interests is critical to meeting future demand for housing units.

Competition for other funding and resources also reduces the ability of developers to meet the demand for non-market-rate and specialty housing units, e.g., units targeting the production of affordable or accessible units. Funding and resources tend to be tied up in complicated processes and distributed to providers with the expertise in navigating those processes. Further, compliance is criteria-based and promotes a 'bare minimum' development type to gain access to funding and tends not to reward developers that go above the basic requirements.

At the city level, funding is needed for staff time to implement the HPS but also to build units, preserve housing, support infrastructure development, and support redevelopment. Identifying funding sources will be necessary to achieve the outcomes of the HPS and increasing access to housing. Other funding sources may include the State of Oregon's Housing and Community Services Department and other

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[32] https://www.abc.org/News-Media/News-Releases/construction-workforce-shortage-tops-half-a-million-in-2023-says-abc
[33] https://ternercenter.berkeley.edu/wp-content/uploads/2023/12/Making-It-Pencil-December-2023.pdf
[34] https://www.opb.org/article/2023/12/12/portland-oregon-mayor-ted-wheeler-condemns-ads-criticizing-city/

State agencies that fund infrastructure and other programs necessary to support housing development; and other private and nonprofit organizations.

Regulatory Burdens

In 2023, the City surveyed development professionals to better understand constraints affecting the building of needed housing in Portland, and to identify changes that may address these constraints and achieve development more quickly. The City asked for the top five requirements (out of 22 items) that the City should consider modifying to support production. The survey received 611 total respondents and identified the following 10 items: bicycle parking requirements, system development charges (timing of payment), floor area ratio limits, first-floor active use requirements, reduced public infrastructure requirements, demolition delay requirements, non-conforming upgrade requirements, parking impacts analysis, maximum height limits, and bird safe glazing requirements.[35]

Research conducted by the University of Oregon Institute for Policy Research and Engagement (IPRE) for the Department of Land Conservation & Development (DLCD) summarized the perceived barriers to housing production in Oregon.[36] They identified several barriers rated as 'extreme' that range from labor, buildable land supply and demand, construction costs, industry structure, and process:

- High construction costs (materials)
- Limited ability for low and moderate-income to compete in the market
- High cost of land
- High cost/limited supply of skilled labor
- Insufficient workers in skilled trades (e.g., licensed tradesperson)
- High construction costs (labor)
- Lack of available vacant buildable lots (e.g., for sale or owned by builders)
- High costs/limited supply of construction workers, generally
- Development not keeping pace with population growth
- Lack of larger (5+acre) development-ready tracts
- Developers not building enough needed housing that is affordable
- Not enough workers for other jobs

Mortgage And Loan Interest Rates

Mortgage interest rates dropped below five percent for the first time in history following the 2008-2009 Great Recession and remained there until 2022, while also reaching a record low of 2.65 percent in January 2021. Mortgage rates quickly rose to a peak of 7.08 percent in 2022 as inflationary pressures caused the Federal Reserve to significantly raise rates. With the Federal Reserve maintaining higher

[35] www.portland.gov/bds/news/2023/3/15/rubio-development-services-release-results-housing-production-survey
[36] https://bpb-us-e1.wpmucdn.com/blogs.uoregon.edu/dist/3/17202/files/2022/11/UO-IPRE-Barriers-to-Housing-Production-Summary-Report_Oct-2022.pdf

rates, mortgage interest rates have remained above 6.0 percent, reaching a peak of 7.79 percent in October 2023. Rates have hovered between 6.6 and 6.9 percent in the first quarter of 2024.[37]

These interest rate increases have been most consequential to housing affordability; the monthly payment on a median-priced house has increased by more than 50 percent due to higher rates. A jump in interest rates from 2.75 percent to 7.5 percent results in a 71 percent increase in a monthly mortgage payment. A $300,000 mortgage would be around $873 higher per month with a 7.5 percent interest rate compared to a 2.75 percent rate, nearly $10,500 more per year for the same size mortgage. Over the past year, housing has become less affordable due to modest gains in home prices, slower wage gains, and the continued rise in interest rates.

Additionally, homeowners may now be reluctant to sell their homes in the current interest rate climate, especially those locked in historically low-interest rates from 2020 to 2021 (91 percent of Oregonians have a mortgage interest rate "far below" six percent (Redfin 2022). This could further exacerbate affordability concerns by limiting the homes for sale, increasing competition amongst a tight supply, and putting upward pressure on home prices.

Resident Ability to Pay or Compete for Housing as A Commodity

Further complicating the issue of production and affordability, demand-side barriers present as mismatches in the housing market or an undersupply of new units at needed affordability levels. As a result, new housing units rarely match the incomes or needs of current households—both for renters and owners.

As demonstrated in the 2045 Housing Needs Analysis, 47 percent of Portland residents earn less than 80 percent AMI and nearly 50 percent of all renters in Portland are cost burdened. Additionally, in the Inclusionary Housing Recalibration study conducted by Portland Housing Bureau and BAE Economics, Portland renter incomes are lowest across peer comparison cities and lower than in the Metro Area.[38]

The rising cost of construction paired with lower incomes creates a challenging production environment where low- and moderate-income households have difficulties attaining affordable units, but achievable rental rates may not be high enough to support the cost of new development for private developers. The affordability of units can be improved by lower interest rates, lower home prices, or higher wages.

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[37] https://fred.stlouisfed.org/series/MORTGAGE30US
[38] https://www.portland.gov/phb/documents/portland-development-cost-study-summary/download

Appendix B. Housing Policy in Portland

Over the last 9 years, since the City passed the 2015 Emergency Ordinance Declaring a State of Emergency for Housing and Houselessness, the City has implemented or continued the following actions to promote the development of needed housing (Figure 63).

Figure 64. Existing Housing Production Strategies

Zoning and Code Changes	
Inclusionary Zoning	Design Overlay Zone Assessment (DOZA)
Mixed Use Zoning	Residential Infill Project (RIP)
Manufactured Dwelling Parks (MDP) Zoning & Bonus	Historic Resources Code Project
Central City 2035	Parking Compliance Amendments Project
Better Housing by Design (BHD)	West Portland Town Center
Deeper Housing Affordability (DHA) bonus	Lower Southeast Rising
Visitable Unit bonus	Montgomery Park to Hollywood
Three-Bedroom Unit Bonus	Housing Regulatory Relief Project
Expanding Opportunities for Affordable Housing	2023 RICAP 10
Shelter 2 Housing Continuum (S2HC)	EV Ready Requirement
Tax Exemption and Abatement	
Non-Profit Low Income Housing Limited Tax Exemption	Homebuyer Opportunity Limited Tax Exemption (HOLTE)
Multiple-Unit Limited Tax Exemption (MULTE) & Extension	Affordable Housing Construction Excise Tax Exemption
Inclusionary Housing (IH) Program	
Financial Resources and Incentives	
Tax Increment Financing (TIF)	Portland Clean Energy Fund (PCEF)
Neighborhood Prosperity Initiatives	American Rescue Plan Act Funds
Short Term Rental Lodging Tax	System Development Charges: Exemption, Freeze, Deferral, Stormwater Rate Changes
Construction Excise Tax	Local Transportation Infrastructure Charge Exemption
Portland Housing Bond	State Funding
Metro Housing Bond	Federal Funding
Metro Supportive Housing Services Fund	
Reducing Regulatory Burden and Improving Processes	
Permit Improvement Task Force	Early Assistance Options for Middle Housing Projects
Regulatory Reform Project	Single Permitting Office
Residential Permitting Single Point of Contact	Customer Intake Success
Public Infrastructure Prescreen	Website Design and Alignment
Multi-Dwelling Housing Pilot	Team Business Process Analysis Review
Public Works Pilot	Housing Development GATR
Temporary Early Assistance Fee Reduction	Pre-approved Detached ADU Plans
Land	
Public Land Inventory	Land Acquisition ARPA Funds
Land Banking	

Additional polices have been adopted to stabilize households, prevent displacement or promote access to affordable homeownership, more detail on these policies and programs can be found in the section Other Policies and Programs; Stabilization, Anti-Displacement and More (Figure 64).

Figure 65. Existing Policies Addressing Stabilization, Anti-Displacement and More

Other Policies and Programs; Stabilization, Anti-Displacement and More	
Joint Office of Houseless Services	Sewer, Stormwater And Water Financial Assistance
• Houselessness Response Action Plan	• RAMP
Tax increment Financing (TIF)	• Bill discount
• Single Dwelling Home Repair	• Crisis voucher
• Homeownership	• Water Efficiency Rebates
• Rehabilitation & Preservation of Regulated	• Lead-In-Water Testing
• Acquisition & Rehabilitation of Market-Rate	• Water Leak Repair Assistance
Advance Portland	• Financial Assistance for Multi-family Sewer and Water Bills
Anti-Displacement Action Plan	• Clean River Rewards
Action Plan for An Age-Friendly Portland	• Treebate Program
Age- & Disability-Inclusive Neighborhood Project (ADIN)	• Native Plant Certificate
N/NE Preference Policy	• Financial Assistance for Tree Permit Fees
N/NE Community Development Initiative Action Plan	• Drainage Technical Assistance
Fair Housing Policy Audits	Free Extra Capacity Waste Container
Fair Housing Testing	Free Home Energy Assessment (Home Energy Score)
Affirmative marketing for City Incentives	PBOT New Mover Transportation Wallet
Workforce Development	RV Pollution Prevention Program
Affordable Housing Green Building Policy	American Rescue Plan Act Funds
Affordable Housing Air Conditioning Requirements	• Affordable Housing Land Banking
Down Payment Assistance Loan Program	• Affordable Housing Preservation
Landlord-Tenant Mediation Pilot Program	• 82nd Avenue Housing Anti-Displacement
Short Term Rental Ordinance	• JOHS Motel Shelter Strategy
Rental Services Office (RSO)	• PSR Expansion 24/7
Fair Access in Renting (FAIR)	• Utility Debt Relief
Eviction Legal Support	• Eviction Legal Defense
Mandatory Relocation Assistance	• Housing Stabilization Contingency
Empowered Neighborhood Program	• Household & Legal Relief
Homeowner Foreclosure Prevention	• Rent Assistance; Safe Rest Villages
0% Home Repair Loans	• COVID-19 Houseless Services
Lead Hazard Control Grant Program	• Flexible household assistance
Safety Net Low Income Loans	• Rapid Workforce Training & Employment

Existing and Ongoing Housing Production Policy

Zoning and Code Changes

Strategies that proactively encourage needed housing production through zoning, code and map modifications.

- **Inclusionary Zoning.** Adopted 2016 and effective 2017 by Ordinance No. 188162 and 188163[39], the policy requires new medium and large (20 or more units) market-rate multi-dwelling development to provide affordable housing. It is a mandatory program with units affordable at 80 percent Area Median Income (AMI). There are financial incentives for units affordable below 60 percent AMI. There is a priority for units on-site over fee-in-lieu revenue or units off-site. Units must be comparable in quality, size, bedroom composition, and distribution and must maintain affordability for 99 years.
    - **Inclusionary Housing (IH) Calibration and Construction Cost Driver Studies.** Adopted in 2024 by Ordinance No. 191610, City council amended the property tax exemption for multiple-unit housing development code and inclusionary housing code to make technical corrections and adjust the property tax exemption for multiple-unit housing developments based on the work commissioned in 2023. The City worked with a consultant team to better understand the impact of various local code regulations on the cost of building housing in Portland. Those included inclusionary housing requirements, bike parking, ground floor active use, right of way improvements, design review, and associated fees/charges. This also included a cost comparison to build multi-dwelling housing in peer cities: Seattle, Denver, and Sacramento.[40]
- **Mixed Use Zoning.** Adopted in 2016 and effective 2018 by Ordinance No. 188177.[41] The Mixed-Use Zoning Project was adopted as part of the Portland 2035 Comprehensive Plan Early Implementation Package and developed new mixed-use planning and zoning designations to implement the "Centers and Corridors" concepts that emerged from The Portland Plan and the 2035 Comprehensive Plan Update planning processes. Subsequent amendments included floor area and height bonuses for inclusionary housing.
- **Manufactured Dwelling Parks (MDP) Zoning.** Adopted and effective in 2018 by Ordinance No. 189137.[42] The Manufactured Dwelling Parks (MDP) zoning project established a new residential multi-dwelling base zone specifically for manufactured dwelling parks. This project created the RMP zone, which exclusively allows for manufactured home parks, with a density of up to 29 units per

[39] https://www.portland.gov/bps/documents/inclusionary-housing-zoning-project/download
[40] https://www.portland.gov/phb/inclusionary-housing/calibration-study
[41] www.portland.gov/bps/documents/2035-comprehensive-plan-early-implementation-zoning-code-changes/download
[42] https://efiles.portlandoregon.gov/Record/12185077/

acre. The RMP zone also has an affordable housing bonus option in which the maximum density can be increased up to 43 units per acre when at least 50 percent of all the dwelling units on the site are affordable to those earning no more than 60 percent of the area median family income.

    - **Manufactured Dwelling Park Affordable Housing Density Bonus.** Adopted in 2020 and effective 2021 by Ordinance No. 189783 and 190523.[43] The MDP Affordable Housing Density Bonus was adopted to support the preservation of lower-cost market rate housing in manufactured dwelling parks; and ensure there are a variety of housing types available to low income and otherwise vulnerable people.

- **Central City 2035.** Adopted and effective in 2018 by Ordinance 189000 and in 2020 by Ordinance 190023.[44] These ordinances amended the Central City Plan District (33.510) to increase capacity for high-density, mixed-use and multi-dwelling housing where the most services and amenities are, streamlined bonus and transfer system, focused on inclusionary housing bonus, increased FAR/density and height in areas and applied minimum density requirements across Central City.
- **Better Housing by Design (BHD).** Adopted 2019 and Effective 2020 by Ordinance No. 189805.[45] This project re-wrote the Multi-Dwelling Residential Zones Chapter (33.120). The objective was to revise City regulations to better implement Comprehensive Plan policies that call for: increased housing opportunities in and around centers and corridors; housing diversity, including affordable and accessible housing; design that supports residents' health and active living; pedestrian-oriented street environments; safe and convenient street and pedestrian connections; design that respects neighborhood context and the distinct characteristics of different parts of Portland; nature and green infrastructure that are integrated into the urban environment; low-impact development that helps limit climate change and urban heat island effects. This project removed density maximums that were previously based on units per site area, and instead applied floor area ratio (FAR) limits to regulate density. It also added FAR and height bonus options for inclusionary housing, three-bedroom units, more accessible (visitable) units, and voluntary affordable housing units.

    - **Deeper Housing Affordability (DHA).[46]** Deeper Housing Affordability FAR Density Program. Adopted 2019 and Effective 2020 by Ordinance No. 189805; Amended and effective in 2021 by Ordinance Nos. 190093 and 190523. In addition to bonuses for mandatory inclusionary housing, and additional voluntary affordable units, the City offers an affordable unit floor area and height bonus for projects where at least 50 percent of the units are affordable at 60 percent AMI.

[43] https://www.portland.gov/code/30/01/130
[44] https://www.portland.gov/bps/cc2035/documents/ordinance-190023-amended/download
[45] www.portland.gov/bps/better-housing/documents/volume-1-adopted-better-housing-design-staff-report/download
[46] https://www.portland.gov/code/30/01#toc--30-01-140-deeper-housing-affordability-far-density-program-

    - **Visitable Unit Bonus.** In 2020, the City adopted zoning code changes to create a floor area bonus for visitable units (33.120.211.C.4). The Visitable units bonus option provides bonus FAR allowed up to the maximum with visitable units' bonus when at least 25 percent of all the dwelling units on the site meet the visitability standards, including standards for Visitable entrance, bathroom, living area and doors. this bonus is not available for projects with buildings that are required by the Oregon Structural Specialty Code to include Type A or Type B accessible units.
    - **Three-Bedroom Unit FAR Density Bonus Option Program.**[47] Adopted and effective 2021 by Ordinance No. 190037; amended by Ordinance No. 190523 It aims to increase the number of family-sized dwelling units available for sale or for rent to moderate-income households. Developments approved for the Three-Bedroom Bonus Program must maintain dwelling units that shall remain affordable for a period of at least 10 years and be available to households' earning 100 percent or less of area median income.

- **Expanding Opportunities for Affordable Housing.** With support from a Metro funded grant, the City adopted and made effective in 2020 by Ordinance No. 190000,[48] changes to the zoning code that streamlined the review process for community and faith-based organizations that plan to develop affordable housing on their land. The zoning code changes allow organizations that are in residential zones to 1) develop affordable housing on their land without a conditional use (CU) review if at least 50 percent of the units are affordable; 2) repurpose up to 50 percent of their parking area for an affordable housing project; and 3) add up to 2,000 sq ft of nonresidential use without a conditional use review.
    - **Expanding Opportunities for Affordable Housing Zoning Map Changes.** In addition to zoning code changes, zoning map changes were made on 19 faith-based or community-owned sites, which provide flexibility and options for future development.
- **Shelter 2 Housing Continuum (S2HC).** Adopted and effective in 2021 by Ordinance No. 190380, additional amendments adopted and effective in 2023 by Ordinance No. 191171. [49] The City adopted code amendments to address the growing crisis of houseless Portlanders. The City adopted zoning code changes to expand the housing and shelter options for individuals and households with extremely low incomes. These changes make it easier to site shelters, including outdoor shelters; increased the range of group living situations, including single room occupancy (SRO) units; and allows a recreational vehicle or tiny house on wheels on a residential property. In 2023, City Council adopted additional amendments to address unintended technical issues, and further streamline shelter site reviews. The code changes remove barriers that presented a burden

[47] https://www.portland.gov/code/30/01/160
[48] https://efiles.portlandoregon.gov/Record/13780746/
[49] https://www.portland.gov/bps/s2hc/documents/adopted-zoning-ordinance-no-190380/download

to City-County efforts to open more shelters. The SH2C package also included changes that expanded housing choice and facilitated the production of affordable housing projects.

- **Design Overlay Zone Amendments (DOZA).** DOZA Adopted and effective 2021 by Ordinance No. 190477.[50] [51] DOZA made several changes to update the tools and processes used to review applications within the Design overlay zone. Changes include updating the thresholds that trigger Design overlay zones requirements, including exemptions for affordable housing, and the assignment of land use reviews; allowing a greater number of projects to use the objective design standards, including some projects within the Gateway plan district; creating a new set of objective standards that employs a flexible menu approach. It also created a new set of nine Citywide Design Guidelines to replace the Community Design Guidelines; creating a new Type I lower level of review for smaller façade, sign and rooftop alterations; formalizing the process for Design Advice Requests and removing the Design overlay from most single dwelling overlay zones.

- **Residential Infill Project (RIP).** Adopted 2020 and effective 2022 by Ordinance No. 190093,[52] RIP2, adopted and effective 2022 by Ordinance No. 190851.[53] The City adopted rules that allow more middle housing options in neighborhoods. This includes accessory dwelling units (ADUs), duplexes, triplexes and fourplexes, and cottage clusters. RIP also adopted limits on the size and scale of residential development. In the R2.5, R5, R7, R10 and R20 zones, RIP adds flexibility to build housing through an increase in the number of units can be built on each lot; an increase in the number of allowable configurations of units and structures on lots; and removal of the off-street parking requirement in single-dwelling zones. For new construction with three or more units on the site, including ADUs, one of the units must be visitable. Visitability standards include: a no-step, barrier-free main entrance; a bathroom and small living area accessible to the main entrance; and 32-inch-wide internal doors between entrance, bathroom and living area for wheelchair accessibility.[54]

- **Historic Resource Code Project** (**HRCP)**. Adopted and effective 2022 by Ordinance No. 190687,[55] this project streamlined reviews and created exemptions for some alterations to historic resources. It also allowed for small new detached accessory dwelling units to be created in historic districts without a land use review, removed off-street parking requirements for historic landmarks and districts, removed unit density limits from R.25, R5, R7 and CR zoned landmarks and historic districts, and enabled two ADUs to be built in conjunction with a house, duplex, triplex, fourplex or multi-dwelling structure.

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[50] https://www.portland.gov/bps/planning/doza/documents-and-resources#toc-council-approved-ordinance-documents-and-exhibits
[51] https://www.portland.gov/phb/certification-program
[52] https://www.portland.gov/bps/planning/rip/project-documents
[53] https://efiles.portlandoregon.gov/Record/15213935/
[54] https://www.portland.gov/bds/zoning-land-use/residential-infill-project/visitability
[55] https://www.portland.gov/council/documents/This project ordinance/passed/190687

- **Parking Compliance Amendments Project (PCAP).**[56] Adopted and effective in 2023 by Ordinance No. 191310, the Parking Compliance Amendments Project removed minimum parking requirements citywide and makes other adjustments to parking maximums and parking standards to align with the 2022 Climate Friendly and Equitable Communities (CFEC) rulemaking process. These changes remove mandatory costs associated with providing required off-street parking, as well as enabling more of the development site to be used to create housing for people, rather than storage for cars.
- **West Portland Town Center Plan.**[57] Adopted 2022 by Ordinance No. 191079, the Zoning Code amendments include additional Zoning Code incentives and regulations to prioritize housing affordability and community benefits and proposed Zoning Map changes. Housing related provisions include changes to preserve existing multi-dwelling housing by adjusting FAR limits to be similar in scale to existing multi-dwelling development; allowing the deeper affordability bonus to prioritize affordability; incentives for sites preserving existing affordable housing through FAR transfer; FAR linked increases in multi-dwelling zones to housing affordability; and requiring inclusionary housing in order for other bonuses to be used (exempt purely commercial or employment projects).
- **EV Ready Requirement.**[58] Effective 2023, by Ordinance No. 191164, this augments state rules and provides more people the option to drive electric vehicles (EV) by making it easier to install chargers at multi-dwelling and mixed-use buildings. This update requires 50% of parking spaces, in new buildings with five or more units, to include EV-ready infrastructure, when more than six spaces are provided; or 100% of spaces, when six or fewer are provided. This is important to support the current and future of renters and low-income Portlanders living in multi-dwelling buildings.
- **Housing Regulatory Relief Project.**[59] Adopted 2024 by Ordinance No. 191609, the project amends the Zoning Code, providing both temporary suspensions of some regulations and permanent clarifications to the rules. The amendments are mostly based on the development issues identified through the Housing Production Survey from early 2023, conducted by the Bureau of Development Services on behalf of Commissioner Rubio. The temporary suspensions generally apply to projects that include housing and are in effect until January 1, 2029.
    - Development and design standards that are reduced or suspended include rules for bicycle parking, ground floor use and design standards, façade articulation, nonconforming upgrades, security gates, and Central City ecoroof standards. Process improvement changes include neighborhood contact processes, design review procedure types for market rate and affordable housing, approval criteria related to on-

[56] https://www.portland.gov/bps/planning/pcap
[57] https://www.portland.gov/bps/planning/wpdx-town-center
[58] https://www.portland.gov/bps/planning/ev-ready/about
[59] https://www.portland.gov/bps/planning/housing-regulatory-relief

street parking impacts, and land use review expirations. In addition, through a Council amendment, the regulations for inclusionary housing were simplified as well as aligned with state requirements.

- **Lower SE Rising Area Plan.**[60] Adopted in Spring 2024, this plan addresses the land use and transportation challenges in the Brentwood-Darlington neighborhood and nearby areas, including parts of the Woodstock, Mt. Scott-Arleta, and Lents neighborhoods. It focuses on recommendations for three primary types of implementation tools: 1) land use changes to provide more commercial and housing opportunities; 2) projects/programs to enable people to safely and conveniently walk or roll; and 3) community stabilization approaches to support housing and economic stability so that the community can benefit from improvements, such as growth allowed by zone changes and transportation projects.
- **Montgomery Park Area Plan.**[61] MPAP is exploring opportunities to create an equitable development plan for transit-oriented districts in NW Portland (Montgomery Park), as well as NE Portland (Hollywood District). The MP2H study considers land use and urban design options, affordable housing and economic development opportunities, as well as possible public benefits with a transit-oriented development scenario and the extension of the Portland Streetcar into the area. The project will also consider how such opportunities could support the City's racial equity, climate justice, employment and housing goals. A proposed draft will head to planning commission in May 2024.
- **Regulatory Improvement Code Amendment Package (RICAP 10).**[62] RICAP is designed as a regular omnibus package of code amendments that generally address technical issues, provide greater clarity, or simplify burdensome rules in the zoning code. These amendments typically have minor policy implications but are intended to overall improve the functionality and efficiency of the code. In 2023, Council re-established funding of the RICAP program, managed by BPS. RICAP 10 considers more than 80 items for possible regulatory improvement, with an emphasis on three themes: housing production, economic development, and regulatory reduction. The dozens of items are bundled to align with those three themes:
    - Housing production related proposed changes include amendments to regulations for: ground floor and ground floor façades, the design overlay zone, and historic resources. Economic development related proposals update the rules for the Central City Plan District, home occupations, and temporary activities. Regulatory reduction proposed changes include updates to bring the City into compliance with state and local laws, land use review processes, and miscellaneous regulatory cleanup

[60] https://www.portland.gov/bps/planning/lower-se-rising
[61] https://www.portland.gov/bps/planning/mp2h/about
[62] https://www.portland.gov/bps/planning/ricap10

Tax Exemption and Abatement

Tax exemption and abatement programs intended to encourage developers to produce housing.

- **Non-Profit Low Income Housing Limited Tax Exemption (NPLTE).**[63] Authorized in 1985 by the Oregon legislature, the NPLTE is a property tax exemption for low-income housing owned and operated by charitable, non-profit organizations. The property must be located within the City of Portland and restrict the rents of the exempted units to be affordable to households earning no more than 60 percent of the area Median Family Income (MFI).
- **Multiple-Unit Limited Tax Exemption (MULTE).** Adopted and effective 2012 by Ordinance No. 185477, subsequently amended in 2018 by Ordinance No. 188869 and 189247.[64] With MULTE, multi-dwelling projects receive a ten-year property tax exemption on structural improvements to the property as long as program requirements are met. The program supports the creation of affordable housing units through the Inclusionary Housing Program; leverages market activities to advance housing and economic prosperity goals by aligning those activities with the goals of the Portland Plan and the PHB's Strategic Plan; and provide transparent and accountable stewardship of public investments.
    - **MULTE Extension.** Adopted and effective 2023 by Ordinance No. 191270.[65] Updates the City's Multiple-Unit Limited Tax Exemption (MULTE) rules to allow projects with expiring MULTE units a voluntary opportunity to extend their tax exemption for a limited amount of time in order to extend the affordability of the MULTE units. This change does not create new housing units but will help preserve the affordability of up to 279 units of existing affordable housing.
- **Homebuyer Opportunity Limited Tax Exemption (HOLTE).** First adopted and effective in 2012. Under the HOLTE Program, single-unit homes receive a ten-year property tax exemption on structural improvements to the home as long as the property and owner remain eligible per program requirements. Property owners are responsible for taxes on the assessed value of the land during the exemption. The property is reassessed when the exemption is terminated or expires after the ten years, and owners begin paying full property taxes.
    - **HOLTE Expansion.**[66] Adopted 2023 by Ordinance No. 191361, Portland City Council approved an increase to the annual HOLTE cap from 100 per year to 500. The program incentivizes private developers to build affordable homes by offering a property tax exemption if they are sold to an income-qualifying family.

[63] https://www.portland.gov/phb/nplte
[64] https://www.portland.gov/phb/multe
[65] https://www.portland.gov/council/documents/ordinance/passed/191270
[66] https://efiles.portlandoregon.gov/Record/16302674/

    - PHB took a temporary relief ordinance to Council on January 10, 2023, to increase the income threshold to 120%.

- **Affordable Housing Construction Excise Tax (AHCET) Exemption.** Effective 2016 by Ordinance No. 187855, construction permits for affordable housing for people at or below 80 percent AMI are exempt from the tax.

- **Inclusionary Housing (IH) Program.** To offset costs of compliance with the Inclusionary Housing (IH) program requirements and related zoning and code changes, the city offers financial and development incentives such as a property tax abatement, development bonus, and exemptions from other local taxes. As of 2023, over 1,000 units of affordable housing have been produced or are in development due to the Inclusionary Housing program (see above on Inclusionary Zoning for more details of program).

Financial Resources and Incentives

Financial incentives the City offers to encourage developers to produce needed housing. The City utilizes resources /programs at the local, state and federal level to provide funds for housing projects.

- **Tax Increment Financing (TIF).** Tax Increment Financing (TIF) supports regulated affordable housing and mixed-income, mixed-use projects within the City's Tax Increment Finance areas. A Tax Increment Financing (TIF) Set-Aside Policy was created in 2006 as a permanent resource to invest in meeting the City's housing needs by creating and preserving homes for the City's most vulnerable people and families. An updated Affordable Housing Set-Aside Policy was adopted in 2017 by Ordinance No. 180889, based on previous ordinances in 2011 and 2015 (Ordinance No. 185007, 187242 and Emergency Ordinance No. 187415). This policy now requires that 45 percent across urban renewal areas TIF funding to go to affordable housing**.** Existing TIF districts include Downtown Waterfront and River District (Old Town/ Broadway Corridor), Central Eastside, Gateway, Interstate, N Macadam, Lents Town Center and Cully. Past URA and TIF districts included Airport Way, Oregon Convention Center, South Park Blocks and the Willamette Industrial. A recent study regarding outcomes shows that while TIF districts make up a 11 percent of the City's land area, they contain 55 percent of the city's regulated affordable housing.

    - **Regulated Affordable Rental Housing.** Portland Housing Bureau has largely funded multi-dwelling, regulated rental housing through the Tax Increment Financing Set Aside resources. Regulated rental housing is provided for households earning 80 percent AMI and below. A 2019 TIF study indicated that between FY2015-18, a total of 1,886 units were created throughout the URAs, mostly for low (earning 60 percent AMI and below) and extremely low-income (earing 30 percent AMI and below) households.
    - **Acquisition and Rehabilitation of Existing Properties.** Tax Increment Financing (TIF) supports programs that purchase existing market-rate housing and/or sites, to convert into regulated, multi-dwelling affordable housing. PHB has used this mostly to acquire

properties for future redevelopment, to protect current residents from displacement and/or secure permanently affordable homes.

- **Gap Financing For Middle Income Housing.** Prosper Portland offers a Commercial Property Loan Program (CPRL) to assist with redevelopment, new development and **tenant** improvements that encourage business development and job growth within TIF districts and via a Strategic Investment Fund available citywide. Prosper Portland's commercial real estate TIF investments are largely guided by 5-year action plans outlining community priorities. Action Plans guide Prosper Portland's investments in Old Town, Gateway, Lents and Interstate via the N/NE Community Development Initiative Action Plan. CPRL investments have been instrumental to supporting middle income projects like The Nick Fish mixed-income, mixed-use project in Gateway and development of Oliver Station (complete), Lents Commons (complete), and 92nd and Harold (in permitting) in the Lents Town Center.
- **TIF Exploration.** After the adoption of Advance Portland strategy, Prosper Portland and PHB are working in partnership with community organizations to create new TIF districts in East Portland and Central City. If the exploration process created, these will capture increases in property taxes and redirect it to support local priorities related to housing and economic development. The TIF Exploration continues through 2024 with anticipated funding for housing development and production, for both affordable and middle income, coming in a number of years thereafter.
- **Neighborhood Prosperity Initiatives (NPI).**[67] The Neighborhood Prosperity Network are micro–Tax Increment Finance (TIF) districts designed to support social equity-based community economic development at the neighborhood level. Through grants, training, and support from Prosper Portland together with limited amounts of TIF, each Network organization is responsible for planning and implementing projects to improve the local commercial district, and depending on community priorities, has and can include the development of housing. Existing districts include Cully Boulevard Alliance, Division Midway Alliance, Historic Parkrose, Jade District, Our 42nd Avenue, Rosewood Initiative and St. Johns Center for Opportunity.

- **Short-Term Rental Lodging Tax.** Portland hotels, motels, Bed and Breakfasts, vacation rentals, and short-term rental operators who provide lodging on a non-permanent basis for eight or more days in a calendar year are subject to County and City Transient Lodgings Taxes. Portland's tax is 6 percent (5 percent to City general fund; 1 percent to Travel Portland).
    - A $4 nightly fee on short-term rentals, is due from Booking Agents and short-term rental hosts for each night a guest rents a room. This fee is in addition to the Transient

[67] https://prosperportland.us/neighborhood-prosperity-initiative/

Lodgings Tax being collected. The funds generated from this fee are used to fund affordable housing and houselessness initiatives in the Portland area.

- **Construction Excise Tax (CET)**. Effective 2016 by Ordinance No. 187855.[68] The tax, in the amount of 1 percent of the value of commercial and residential improvements, is imposed on new construction with a value greater than $100,000. For residential improvements, revenues are distributed as follows: 15 percent of net revenue remitted to the Oregon Department of Housing and Community Services to fund home ownership programs; 50 percent transferred to the PHB Inclusionary Housing Fund to fund finance-based incentives for programs that require affordable housing; and thirty-five percent transferred to the PHB Inclusionary Housing Fund for production and preservation of affordable housing units below 60 percent median family income.
    - For the tax imposed on commercial improvements, 100 percent of net revenue goes toward to the PHB Inclusionary Housing Fund for the production and preservation of affordable housing units at and below 60 percent median family income.
    - In addition, the CET funds have been used to support predevelopment loans to projects that are awarded Portland Housing Bonds and Metro Housing Bonds.

- **Portland Housing Bond**. In November 2016, Portland voters passed the city's first housing bond, dedicating $258.4 million under Measure 26-179 as proposed in Ordinance No. 187855.[69] Measure 26-179 was the first housing bond passed in the City of Portland with 62 percent of the vote with the stated aim to produce 1,300 permanently affordable homes for households earning under 60 percent AMI with a focus on families (goal of 650 family-sized units), very low income households (600 units at 30 percent AMI) and houseless (goal of 300 Permanent Supportive Housing or PSH units). To implement this measure, PHB included rental support in the form of Project Based Section 8 vouchers from Home Forward, the housing authority of Multnomah County, and supportive services funding from Joint Office of Houseless Services (JOHS). The Portland Housing Bond has exceeded all goals and committed all funds to 15 projects throughout the City in high opportunity location, representing 1,859 affordable units, a 43 percent increase over the original goal, to provide homes to over 4,000 low-income Portlanders.

    - Similar to all funding through PHB, the Portland Housing Bond had targets related to its Equity in Contracting policy with a targeted DMWESB-SDV of 30 percent contracting for hard costs and 20 percent for soft costs and targets under its Green Building Policy focused on sustainability. [70] [71]

[68] https://www.portland.gov/code/6/08
[69] https://portlandhousingbond.com/
[70] https://www.portland.gov/phb/about/equity-contracting
[71] https://www.portland.gov/phb/phb-affordable-housing-green-building-policy

    - The priorities and goals established by the bond's Policy Framework guide how PHB identifies, purchases, builds and renovates homes.[72]

- **Metro Housing Bond.** In November 2018, the Metro region voters passed Measure 26-199 dedicating $652.8 million for affordable housing. Portland's share is $211 million of the Metro Housing Bond by way of Ordinance No. 190095.[73] Similar to the Portland Housing Bonds, the Metro Housing Bond also has targets for production for a minimum of 1,475 new permanently affordable housing, 737 family sized units, 605 very low income, 30 percent AMI units and 300 PSH units. [74] Similar to the Portland Housing Bond, PHB is working with Home Forward for rental support and JOHS to provide supportive services to residents in these homes. As of 2024, PHB has committed approximately $160 million to fund over 1,700 units throughout Portland in high opportunity area in over 20 projects, that are open or in development, to house another 4,000+ low-income Portlanders. With the remaining Metro funds, PHB anticipates funding Phase 1 of the Broadway Corridor.

- **Metro Supportive Housing Services (SHS) Fund.** In 2020 voters in Multnomah, Washington, and Clackamas Counties took an unprecedented step toward meeting the rent assistance and supportive service's needs, with a particular focus on addressing the housing and support service needs of those extremely low-income individuals with disabilities who are experiencing long periods of street and shelter houselessness. By way of Ordinance 20-1442, Metro imposed an income tax on high-earning households and a regional business profit tax on businesses grossing over $5 million. SHS funds for Multnomah County are under the direction of the Joint Office of Houseless Services.[75]
    - These funds have been partially used to fund the supportive services required for PSH under the Portland Housing Bonds and the Metro Housing Bonds as well as any regulated affordable housing that becomes supportive housing. In addition, SHS funds have been used to provide Regional Long-term Rent Assistance (RLRA) which have been used to fund rental support to thousands of houseless households or those at risk of being houseless. [76]

- **Portland Clean Energy Community Benefits Fund (PCEF).**[77] Passed by ballot initiative in 2018, PCEF was charged with developing a Climate Investment Plan, which was approved in 2023. The plan outlines several strategic programs (SP) that will invest in energy efficiency and renewable energy upgrades in housing for low-income households over the next five years. These programs

[72]https://static1.squarespace.com/static/59d4128b80bd5e9928374e77/t/59de776090badeb45b424dd4/1507751778832/PHB+Bond+Policy+One+Pager+-+FINAL.pdf
[73] https://www.portland.gov/phb/metro-housing-bond
[74] https://www.portland.gov/phb/metro-housing-bond
[75] https://www.oregonmetro.gov/sites/default/files/2020/02/24/metro-council-ordinance-20-1442-exhibit-a-20200223.pdf
[76] https://www.johs.us/regional-long-term-rent-assistance/
[77] https://www.portland.gov/bps/cleanenergy/climate-investment/documents/regulated-multi-family-affordable-housing-clean-energy/download

will result in single dwelling homes and multi-dwelling housing that are highly efficient, have lower and more stable utility bills, improved air quality, and are more comfortable for residents. Improvements that would not take place without PCEF investment may include but are not limited to deep whole home energy retrofits, solar panels, higher value insulation, high efficiency hot water heating systems, variable frequency drives, and air source heat pumps that keep residents healthy and comfortable. Improvements that would not take place without PCEF investment may include, but are not limited to:

  - PCEF SP1: Clean energy in regulated multi-dwelling affordable housing $60,000,000. This initiative is already underway in collaboration with PHB supporting clean energy in over 1,000 newly, regulated affordable homes in nine PHB funded projects.
  - PCEF SP2: Clean energy in unregulated multi-dwelling housing $50,000,000
  - PCEF SP3: Clean energy improvements in single-dwelling homes $140,000,000.

- **American Rescue Plan Act Funds.**[78] In 2021, as a large city, Portland received an award of $208 million of Local Fiscal Recovery Funds (Multnomah County received $157 million). Funds have supported numerous housing projects, some of which have contributed to the stabilization of households, and helped to acquire land, others have directly worked to house households, in temporary shelter such as:
  - **Safe Rest Villages**.[79] The City's Safe Rest Village team is adding to the mix of alternative shelters throughout Portland. The project team manages the largest portion of the City grant funds from ARPA, which includes the seven designated Safe Rest Villages, as well as two alternative shelters. Additionally, the State of Oregon has provided funding for the Sunderland RV Safe Park. As of July 2023, 49 percent of those who have exited from Safe Rest Villages have moved onto permanent or other housing.[80]

- **System Development Charges.** These charges help to fund critical infrastructure improvements; however, the City has provided strategic relief from these charges to help aid in the development of affordable units. Parks SDC are currently scaled by unit size and the Parks SDC Program has two sub-areas (Central City and Non-Central City). SDCs can be waived as affordable housing units by meeting the criteria in the waiver program administered by PHB.
  - **Exemptions and Waivers**.[81] Starting in 2018, the City provided SDC waivers for ADUs with the requirement that they not be used as short-term rental units. The City also provides waivers for affordable housing developments and houseless (mass) shelters. Inclusionary housing units are also exempt from SDCs- exempted units must be rented to households earning no more than 60 percent AMI.

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[78] https://www.portland.gov/united/documents/2023-annual-arpa-report/download
[79] https://www.portland.gov/safe-rest-villages/safe-rest-villages-program-overview
[80] https://www.portland.gov/safe-rest-villages/documents/addressing-chronic-houselessness/download and https://arpa-data-reporting-pdx.hub.arcgis.com/pages/safe-rest-villages
[81] https://www.portland.gov/code/17/14/070

- **Freeze.**[82] In 2023, with the adoption of the City budget for FY 2023-24, the City has, for one fiscal year, froze SDCs for all development projects. Over the past several years, the City Council has chosen to charge lower SDCs than the legally allowable amount. In FY 2023-24, the City froze SDC rates and in FY 2024-25, Water and BES held their increases to 5 percent. Parks is increasing 6 percent and PBOT is increasing 8 percent.
- **Deferral.**[83] Adopted and effective in 2023, through Ordinance No. 191243, the City created a voluntary 24-month payment deferral program, without interest. This change means that housing developers do not have to carry the full financial burden of SDCs up front as they move through the construction process.
- **Office-to-Housing Conversion Fee Deferral.**[84] Adopted and effective in 2023, through Ordinance no 191202 and 191203, the City has waived SDCs to help offset the cost of required seismic improvements to facilitate the conversion of existing office space to residential.
- **Sanitary and Stormwater Rate Changes.**[85] [86] Code changes to PCC Chapter 17.36 were adopted and effective in 2023 by Ordinance No. 191537; the code changes along with updates to administrative rules will go into effect July 1, 2024. SDCs will now scale charges with size of development, including residential, and will simplify stormwater charges to be based only on impervious area. Other sanitary and stormwater changes include shifts to the rate structure; tiered stormwater charges for single dwelling accounts; Clean River Rewards program; retiring line and branch, and conversion charges; stopping active enforcement of the mandatory sewer connection program; and connections for non-conforming sewers will be less expensive going forward.

- Water SDC rate is also known as an impact fee, it provides revenue to utilities from new user hook ups to recover costs for building existing system capacity. It is based on the "cost per equivalent meter unit" times the size of the meter (in equivalent units) added to the water system. In FY 23-24, at the request of Council, the rate increase was 0% when it would have otherwise been 20.8%, in FY 24-25, a 5 percent increase was approved when it would have otherwise been 9.9%.

- **Local Transportation Infrastructure Charge (LTIC) Exemption.**[87] Adopted and effective in 2016 by Ordinance No. 187681, the city adopted a charge on new infill development occurring on specific streets in single-dwelling residential zones to fund improvements to the City's network of

[82] https://www.portland.gov/cbo/2023-2024-budget/adopted-budget
[83] https://www.portland.gov/council/documents/ordinance/passed/191243
[84] https://www.portland.gov/council/documents/ordinance/passed/191202 , https://www.portland.gov/council/documents/ordinance/passed/191203
[85] https://www.portland.gov/bes/news/2024/3/25/environmental-services-requests-public-comment-proposed-changes-administrative
[86] https://www.portland.gov/charter-code-policies/changes/2024/7/ordinance-191537
[87] https://www.portland.gov/transportation/permitting/ltic

unimproved local streets and adjacent or related transportation facilities. Accessory dwelling units, affordable housing, and low-income (less than 80 percent AMI) owner occupied units are exempt.

- **State Funding.** The Oregon Housing and Community Services (OHCS) provides competitive sources of funding including 9 percent Low-Income Housing Tax Credit (9% LIHTC), 4 percent Low-Income Housing Tax Credit (4% LIHTC), Local Innovation and Fast Track (LIFT) Program for Affordable Rental Housing Development, Local Innovation and Fast Track (LIFT) Homeownership, Preservation of Manufactured Dwelling Parks and Permanent Supportive Housing. Non-competitive sources of funding include the Affordable Housing Land Acquisition Revolving Loan Program, and Oregon Multifamily Energy Program.
    - **PHB** works with OHCS to align the State and City's strategic priorities, especially related to work with our communities of color and development of very low income, 30 percent AMI units and Permanent Supportive Housing (PSH) units. An example of collaboration occurred in 2022 when OHCS carved out of LIFT and Housing Trust Funds (HTF) totaling $35.28 million to local jurisdictions in the Metro region from which PHB was allocated over $20 million plus associated 9% and 4% LIHTC to advance PHB directed Metro Bond funded projects. Continued collaboration and alignment of State and local resources are critical to meeting the City and Governor Kotek's housing production strategy.
- **Federal Funding.** The Portland Consortium, consisting of the City of Gresham, City of Portland and Multnomah County, is required to produce a plan called the Consolidated Plan every five years. The Consolidated Plan is a five-year strategic plan that sets out a collaborative vision for community development in the Portland area. The Consolidated Plan also serves as the federal application for four federal programs run by the U.S. Department of Housing and Urban Development (HUD) , see below. [88] The Plan places an emphasis on how federal funds will be used to meet the local demand from low- and moderate-income households and emphasizes the formula block grant programs:
    - **Community Development Block Grant (CDBG).** CDBG funds aim to provide decent housing; create suitable living environments and expand economic opportunity. Funds are being used for rental housing development, administration, fair housing, workforce development, single dwelling assistance, and microenterprise and homeowner services.
    - **HOME Investment Partnerships (HOME).** HOME funds aim to expand decent, safe, sanitary, and affordable housing supply. Funds are used for acquisition, homebuyer assistance, homeowner rehabilitation, multi-dwelling rental new construction, multi-dwelling rental rehabilitation and new ownership construction.
    - **Emergency Solutions Grants (ESG).** ESG funds are utilized for programs that aim to reduce and prevent houselessness. Funds are used for conversion and rehabilitation of

[88] https://www.portland.gov/phb/consolidated-plan-and-action-plan

transitional housing, financial assistance, overnight shelter, rapid re-housing, rental assistance, services, and transitional housing.

- **Housing Opportunities for Persons with AIDS (HOPWA).** HOPWA funds are utilized to provide housing for persons with HIV/AIDS. Funds are used for permanent housing in facilities, permanent housing placement, short term or transitional housing facilities, short-term rent, mortgage, and utility (STRMU), supportive service and tenant-based rental assistance (TBRA).

- **Other Federal and Local Funding.** Other Federal funding opportunities are being explored and expanded in conjunction with the Office of Government Relations (OGR). Portland successfully accessed it first Congressional Directed Spending (CDS or earmarks) for housing production through a $2 million grant in The Fairfield, a 75-unit project, being develop by Home Forward and Urban League focused on the houseless with drug addiction and/or mental illness who need permanent supportive housing. CDS will continue to be a source of funding for other pipelined projects including one in N/NE Portland at the William + Russell site and one in SW Portland focused on the immigrant community. In addition, the City is working with Multnomah County in advancing projects in the predevelopment pipeline through its recent Last Gap solicitation and working with developers to explore strategies and options to expand affordable housing stock. [89]

Reducing Regulatory Burden and Improving Processes

These existing strategies, programs and projects address known impediments to providing needed housing. These include but are not limited to permitting and infrastructure impediments.

- **Permit Improvement Task Force and Permit Improvement Transition Team (PITT).** [90] [91] In 2021, Commissioner Ryan appointed a task force to develop recommendations to improve the City's permitting process. The Task Force consists of leaders from permitting bureaus and the development community. A number of improvement projects are being evaluated and undertaken by the task force. The Permit Metric Dashboard provides transparency for customers about the work to improve quality, timeliness, and efficiency of the permitting process.
    - **Regulatory Development Workgroup.** Comprised of staff from various bureaus participating in the Permit Improvement Task Force, the workgroup is developing further recommendations for changes necessary for a cohesive regulatory development and maintenance system. The recommended solution(s) provide direction to a) address problems with urgency; b) streamline the regulatory environment; c) monitor the effectiveness of adopted regulations; d) maintain feedback loop with code implementers and customers; e) evaluate proposed regulations holistically.

[89] https://www.portland.gov/phb/events/2023/8/25/metro-bond-solicitation-m-bos-last-gap-summer-2023
[90] https://www.portland.gov/permitimprovement/task-force
[91] https://www.portland.gov/permitimprovement/current-projects

    - **Code and Policy Coordination Team.**[92] This group is comprised of staff with policy development expertise. Their primary function is to evaluate proposed regulations in a holistic way, considering how they fit with other existing or proposed regulations. They are the stewards and keepers of the cumulative network of development-related codes and policies to which development needs to conform. A pilot of this process and group kicked off in September 2023.

- **Regulatory Reform Project.** First identified by the Permit Improvement Task Force in its first round of recommended process improvements building on the work of the Strategies for Accelerating Housing Development Report (2017) and in response to the Building Permit Review Audit (2021) it has been further reinforced by customers and staff via surveys as a leading cause for frustration and a barrier to moving permits through the process.
    - This project aims to streamline when code and fee changes are brought to Council and establish a new code and policy process that will: include the bureaus responsible for development regulations (BES, PBOT, Water, BDS, Parks/Urban Forestry, BES); ensure cross-code regulatory alignment; have frequent touch-points with Council to reduce code conflicts, identify development impacts, create a customer and staff feedback loop to codes writers; and collect and catalog barriers identified by review teams and customer-facing staff to be considered for review.
    - Development of a new right-of-way administrative rule utilized the new process prior to its adoption in early 2024. It defines thresholds for right-of-way dedications and frontage improvements, creating much needed predictability for both commercial and residential projects.

- **Residential Permitting Single Point of Contact.** Bureau of Development Services created a single point of contact for all housing projects, including New Single Dwelling Residential, Middle Housing Land Divisions, and Multi-Dwelling New Construction projects moving through the permitting process. In addition, there is now a manager in charge of overseeing assigned permit staff when building owners express an interest in office to housing conversion. Each project is assigned one person to work with as evaluation occurs.

- **Public Infrastructure Prescreen**.[93] Providing a public infrastructure prescreen is a process improvement in business process analyses led by the Permit Improvement Transition Team. PBOT is actively piloting a manual PBOT prescreen (for identifying primary PBOT permit approval requirements). Formalizing this prescreen step by adding technology, procedures and other infrastructure teams to the process will expand and solidify this solution and the benefits it will provide. Currently when a public works review is required as part of the permit review process, it

[92] https://www.portland.gov/permitimprovement/documents/regulatory-workgroup-recommendations-june-2023/download
[93] https://portlandoregongov.sharepoint.com/:w:/s/GT-Transportation-PWDevelopmentTeam/EeOFM5HiCL1NrqgYcO2G0rIB8TppjJPUwZCyJqtOIBIxZg?e=jZy1TH

does not happen until post-intake and an applicant has paid fees. If significant improvements are required in the public right of way, applicants may be surprised, and in some cases abandon the project. This can also lead to alternative request for variances, appeals, additional review processes, and increase the length of the overall permit review cycles and time. Providing a public works prescreen during the intake process will benefit both the customer and the public infrastructure reviewers, reducing conflict and time-consuming review lags.

- **Multi-Dwelling Housing Pilot.** Bureau of Development Services launched a Multi-dwelling Housing Pilot to proactively monitor and intervene to keep these projects moving through the permit process. The goal of this effort is to learn why projects are sitting in "approved to issue" status and projects that seem stuck in "under review" status.
- **Public Works Pilot**. A recommendation from the City's Permit Improvement Taskforce, the permitting teams in the City's four infrastructure bureaus are now being overseen by a shared manager. The new Infrastructure Team Manager launched a public works pilot project to make it easier to resolve conflicts that arise between various City codes as part of a permit review.
- **Temporary Early Assistance Fee Reduction.** From January to April 2023, through a resolution passed by Council, BDS made across the board cuts to early assistance fees for projects with 20 or more units.
- **Early Assistance Options for Middle Housing Projects.** With the range of housing options now available on single dwelling lots, it can be difficult to provide enough information during the 15-minute appointments, but other early assistance (EA) options are geared toward discussing specific proposals. BDS is launching a new EA option (with a fee) that would allow a planner and an interested party to discuss residential infill options on a site without specific site plans prior to any more formal analysis. The sessions would be 30 minutes, with a fee intended to be less than current zoning EAs. This new early assistance meeting option launched October 2023.
- **Single Permitting Authority Project**. [94] Adopted by Resolution No. 37628, City Council has directed the Chief Administrative Officer, with the cooperation of City bureaus, to prepare for consolidation of development review and permitting staff into one entity by July 2024. The intent is to develop a cohesive, effective permitting system essential in addressing housing crisis and economic recovery. Authority will be granted to the director to resolve conflicts, make decisions regarding development review and permitting services Effective, July 1, the permitting teams from the Environmental Services, Transportation and Water bureaus and the Urban Forestry Division of Portland Parks & Recreation, along with all Bureau of Development Services divisions, are now unified in a single bureau known as Portland Permitting & Development.

[94] https://www.portland.gov/council/documents/resolution/adopted/37628

- **Customer Intake Success.** This project will focus on the New Single Family Residential (NSFR) and new construction of detached ADU permit application submittal process, from application request to intake folder closed. In the 2022 customer survey, we learned that 93 percent of the surveyed permitting customers used the minimum submittal requirements documents provided online before submitting their permits. From July - September 2022, the average time from the Application Submittal to Under Review was 13 days and the goal is to reduce that timeline to 10 days.
- **Website Design and Alignment.** This endeavor is a collaborative effort to transition from uncertainty to clarity, prioritizing the end-user experience above all else. It necessitates deep collaboration and shared commitment. The Digital Service team and the bureau Product Managers will work together to update/create portions of the Portland.gov website. These updates will be made to solve the problems listed in this document and to achieve the objectives and key results. The scope focuses on helping users with wayfinding in four ways: Determining whether their project requires a permit or permits, defining all the different permits required, getting information on what they need to provide for a complete permit application specific to their project and location and who to contact for help.
- **Team Business Process Analysis Review.** The Permit Improvement Team provides Business Process Analysis (BPA) to plan review teams aimed at improving internal coordination and customer outcomes. These business operations projects work with staff to identify and implement improvements with the overarching goal of improving customer service and decreasing processing time. This is an ongoing activity. BPA work to date has been done with Life Safety, Water, Urban Forestry and Permitting Services.
- **Housing Development GATR (Government Accountability, Transparency, Results).**[95] In 2017 and 2018, a series of Housing Development GATR sessions were held to accelerate the development process and reduce costs to meet City goals for housing supply. A series of actions were assigned to development services bureaus. In 2018 this included, 1. Propose goals and clarify ownership roles for development; clearly identify accountability and responsibility within the development process. (Development Directors Group, OMF) 2. Provide a follow-up report on building permit review turnaround times. (BDS) 3. Develop a proposal to institute minimum sufficiency requirements for permit applications, to establish expectations and increase clarity. (BDS, infrastructure bureaus) 4. Utilize targeted recruitment strategies to close remaining vacancies for plans examiners. (BHR, BDS) 5. Provide a progress report on the Mayor's Fast Track Pilot. (BDS, IA bureaus) 6. Provide a progress report on technology improvements. (BDS, IA bureaus, BTS).
- **Pre-approved Detached ADU Plans.**[96] This is the first of many efforts that the Bureau of Development Services (BDS) will undertake to provide pre-approved plan sets to help homeowners

[95] https://www.portlandoregon.gov/cbo/72474
[96]https://www.portland.gov/bds/residential-permitting/news/2024/4/29/new-pre-approved-adu-plans-now-available

receive permits more efficiently. BDS and Portland Permitting and Development (PP&D) worked with the City of Eugene to provide pre-approved plans that can reduce the resources and time needed to receive a permit. There are four options to choose from that vary in roof and foundation type: An ADU with a gable roof and concrete slab on grade floor and foundations; An ADU with a shed roof and concrete slab on grade floor and foundations; An ADU with a gable roof and wood-framed floor and crawl space; and An ADU with a shed roof and wood-framed floor and crawl space.

Land

These strategies, programs and projects secure land for needed housing, unlock the value of land for housing, and/or catalyze housing developments.

- **Public Land Inventory.** In 2023, the City worked with a consultant team to identify City-owned and other publicly owned land in Portland that can be used for affordable housing development.
- **Land Banking.** PHB and Prosper Portland have previously independently acquired land and sites as funds are available for housing development throughout the City.
- **Land Banking for Affordable Housing.** PHB released nearly $5 million in ARPA Funds for grants to affordable housing developers to purchase land for future homeownership development. The project goal is to increase affordable housing developments in areas of Portland where Portlanders with lower incomes work and live and have access to transit, parks, and other community assets. This project will expend these funds by the end of calendar year 2024.

Other Policies and Programs; Stabilization, Anti-Displacement and More

Existing actions or programs the City has implemented related to stabilization, tenant or homeowner support, etcetera.

- **Joint Office of Houseless Services (JOHS).** Established in 2016, the office represents a shared commitment between the County and the City of Portland to address houselessness. JOHS works with community-based organizations and governments partners to provide services focused on people experiencing or at risk of houselessness. JOHS contracts with direct service organizations and monitors funds issued by the U.S. Department of Housing and Urban Development's Continuum of Care program.
    - **Services** funded through JOHS include rapid rehousing, permanent supportive housing, outreach/navigation, shelter/survival support, hygiene and employment.
    - **Funding** sources for the FY23 budget of $255.5 million include City of Portland: $45.4 million, Supportive Housing Services: $107.1 million, County General Fund: $59.8 million, American Rescue Plan: $27 million and Other federal/state/local funds: $13.3 million.
    - **Program** categories funding include; Behavioral health: $25 million, Shelter: $130 million (includes $53 million in capital), Housing: $106 million and Outreach: $12 million.
    - **Houselessness Response Action Plan.**[97] The draft plan lays out timelines and a concrete series of short-, medium- and long-term steps. Among the top objectives are: Sheltering or house an additional 2,699 people by Dec. 31, 2025, Adding 1,000 shelter beds in two years, and provide the housing and health resources , Adding hundreds more behavioral health beds and funding a drop-off sobering center, Increasing the

[97] https://www.multco.us/multnomah-county/houselessness-response-action-plan

number of adults leaving shelter for permanent housing by 15% by Dec. 31, 2025, and ensuring 75% of people housed in permanent supportive housing retain their housing 24 months after placement. Reducing houselessness among specific priority populations (including people of color and people identifying as LGBTQIA2S+). Ending discharges to the street from all behavioral health, health systems or hospitals by the end of 2025, and ending discharges to the street from corrections settings by the end of 2026. Ending houselessness for youth aging out of foster care in Multnomah County by 2027, Increasing the supply of affordable housing through regulatory changes, building conversions and new construction funding sources, among other strategies.

- **Tax increment Financing (TIF).** In addition to supporting the development of new housing, TIF has been utilized to support a number of stabilization, tenant and homeowner programs, including:
    - **Single Dwelling Home Repair**. TIF funds are used to support programs supporting low-income community members who own their homes through home repairs relating to life safety, code compliance, energy efficiency upgrades, and accessibility upgrades.
    - **Homeownership**. TIF funds are used to support programs that through the provision of down payment assistance and other types of financial assistance.
    - **Rehabilitation and Preservation of Existing Regulated Housing**. TIF funds are used to support programs that provide funding to rehabilitate and preserve the affordability of existing regulated affordable housing.
    - **Acquisition and Rehabilitation of Existing Market-Rate Housing**. TIF funds are used to support programs that purchase market-rate housing, including foreclosed and unoccupied properties, make needed repairs and renovations, and convert to regulated affordable housing (for individual ownership, cooperative ownership, and rental), in order to protect residents from displacement and secure permanently affordable homes.

- **Advance Portland.**[98] City Council adopted in 2023, by Resolution 37617, a new economic development strategic framework. The plan, Advance Portland: A Call to Action for Inclusive Economic Growth, acknowledges the need for expanded housing production in the central city and other areas. It includes actions such as increasing mixed income housing in subdistricts with a lack of residential uses and an imbalanced mix of uses, catalyzing public-private partnerships to unlock infill development of large scale mixed-use, mixed-income sites with high transit accessibility, addressing housing production across a continuum of affordability in vibrant commercial districts, and improving connections between residential and employment centers.

- **Anti-Displacement Action Plan**.[99] In 2021, BPS partnered with Anti-Displacement PDX (ADPDX) Coalition, to design community workshops to identify community priorities to reduce displacement

[98] https://www.advanceportland.com/
[99] https://www.portland.gov/bps/planning/adap

and achieve more equitable outcomes. BPS prepared a foundation report that provides an understanding of City's existing anti-displacement policies and programs. During the second phase of the project, City staff are working to create a shared framework to evaluate displacement risk related to City policy and investment decisions.

- **Action Plan for An Age-Friendly Portland.**[100] [101] Adopted in 2013 by Resolution No. 37039, the Age-Friendly Portland Advisory Council developed and provided City Council with an action plan to enhance Portland's, age friendliness and to be a city that has structures and services that are accessible and inclusive of older people with varying needs and capacities, emphasizes enablement rather than disablement, and is friendly for people of all ages and abilities. The action steps comprising the plan intend to move Portland toward future development and activities that foster not only physical environments but also social and service environments that meet these criteria, making Portland a community for all ages. Several actions in the plan relate directly to housing:
    - Action Item 1.1. Provide Education to Consumers, Planners and Developers
    - Action Item 1.2. Improve Accessibility: Policy efforts that lead to inclusive and accessible housing are critical for our city as we all continue to age.
    - Action Item 1.3. Encourage Innovative Approaches to Housing Older Adults: Advance planning and development of sustainable housing / communities for all ages.
    - Action Item 1.4. Advance Opportunities for Aging in Community.

- **Age- and Disability-Inclusive Neighborhood Project (ADIN).**[102] In 2019, City Council created the city's first age-friendly staff position at BPS. The position has coordinated an Age-friendly Executive Committee, collaborated with Age-friendly Multnomah County, and is part of the global and national networks of age-friendly cities and communities. In 2021, BPS formed a working group and explored strategies for creating age-friendly and disability-inclusive urban neighborhoods. Members of the group focused on advancing neighborhood "centers" by building on centers polices in Portland's 2035 Comprehensive Plan and the Action Plan for an Age-friendly Portland. In 2023, a draft Age- and Disability-Inclusive Neighborhood action plan was released.

- **North/Northeast Preference Policy.**[103] The North/Northeast (N/NE) Preference Policy aims to address harmful urban renewal impacts of by giving waitlist preference to applicants for affordable housing projects in the Interstate Corridor Urban Renewal Area with generational ties to North and/or Northeast Portland. The Housings Bureau's N/NE Preference Policy waitlist for rental housing is open on a rolling basis. Priority status is given to applicants, and/or their descendants, who previously owned property that was taken by Portland City government through eminent domain.

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[100] https://efiles.portlandoregon.gov/Record/6070950/
[101] https://agefriendlyportland.org/sites/agefriendlyportland.org/files/docs/AFP_ActionPlan_2013.pdf
[102] https://www.portland.gov/bps/planning/adin
[103] https://www.portland.gov/phb/nnehousing/preference-policy

- **N/NE Community Development Initiative Action Plan[104].** The Action Plan was developed in 2017 to guide the $32 million TIF investment and is focused on 5 goals: property ownership, business ownership, home ownership, community livability and cultural hubs.

- **Fair Housing Policy Audits.** Through, the Consolidated Plan/Action Plan, the Consolidated Annual Performance and Evaluation Report (CAPER) and the Analysis Of Impediments To Fair Housing Choice And The Strategies To Address Them, the City regularly conducts fair housing audits and analysis of existing policies to identify both potentially discriminatory effects and opportunities to affirmatively further fair housing through regulations that directly affect what housing can be built and where.

- **Fair Housing Testing.[105]** The City regularly conducts fair housing testing to determine whether discriminatory patterns and practices pertaining to renting a place to live likely exist, the form that they take, and which protected class groups are most likely to experience them.

- **Affirmative Marketing For City Incentives.** As a requirement of City funding, via PHB, for affordable housing projects, the developer/owner must complete and submit an affirmative marketing plan: https://www.hud.gov/sites/dfiles/OCHCO/documents/935-2A.pdf

- **Workforce Development.** Each year, PHB submits a federal budget request for Community Development Block Grant (CDBG) funds. The CDBG allocation is the largest and most flexible source of federal funding used for affordable housing by the City of Portland. The fund's flexibility allows for broad use to address Portland's increasing need for affordable rental housing and for the repair of single-dwelling homes of low-income homeowners. Additionally, CDBG dollars assist with business and job training assistance, and assist nonprofit organizations providing workforce development programs to Portland. The City of Portland uses CDBG to invest in workforce development services through the Economic Opportunity Initiative (EOI), which encompasses the Economic Opportunity Program (Adult), NextGen (Youth) and the Community Workforce Navigator Program. These programs improve connections between target industry employers and people in historically underserved communities to quality job opportunities. As of June 30, 2020, 2,325 individuals had received services through workforce development programs funded in fiscal year 2019-20; of these, 70 percent were very low income and 19 percent were houseless at entry.

- **Affordable Housing Green Building Policy.[106]** The objective of the PHB Green Building Policy is to ensure that construction funded by the Portland Housing Bureau (PHB) advances environmental, social, and economic goals to: improve tenant health; reduce operations and maintenance costs; provide equitable access to high performance buildings; maximize public investment benefits;

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[104] https://prosperportland.us/what-we-do/projects/nne-action-plan-update/
[105] https://www.portland.gov/phb/documents/city-portland-2022-2023-audit-testing-report/download
[106] https://www.portland.gov/phb/documents/appendix-e-phb-affordable-housing-green-building-policy-1/download

protect air, water, and other natural resources; and implement the Climate Action Plan of the City of Portland and Multnomah County.

- **Affordable Housing Air Conditioning Requirements.**[107] PHB is asking affordable housing developers to propose an in-unit air conditioning cooling strategy that best balances the needs of their project and populations while ensuring the project's efficient use of public resources. Acceptable cooling approaches may include central air conditioning, packaged terminal air conditioners (PTACs), ducted or ductless condenser or heat pump units, window A/C units, portable A/C units, hybrid, geothermal, or other emerging technologies.

- **Down Payment Assistance Loan Program.**[108] The Down Payment Assistance Loan (DPAL) is a second mortgage loan funded by the Portland Housing Bureau (PHB), and it is used in conjunction with a first mortgage loan from a participating lender. DPAL is designed with favorable terms to help first-time homebuyers purchase a home within the city limits of Portland. The funding source of the awarded DPAL will determine where in the city the home must be located.

- **Landlord-Tenant Mediation Pilot Program.**[109] In partnership with Resolutions Northwest, the Portland Housing Bureau has launched the Landlord-Tenant Mediation Pilot Program to provide free mediation services to landlords and tenants with rental housing disputes. The goal of the Landlord-Tenant Mediation Pilot Program is to increase housing stability for tenants, avoid court filings, and improve relationships between landlords and tenants.

- **Short Term Rental Ordinance.** [110] Short term rentals were legalized in the City of Portland in 2014, the City requires inspection and fee to obtain a short-term rental (STR) permit. In 2019, the City passed a new ordinance to get information from STR platforms. A property owner can get a permit for a short-term rental when the dwelling is mainly used for long-term occupancy. Only part of the dwelling unit can be used for short-term rental purposes. Bedrooms in legal detached accessory structures like guest houses can also be rented to overnight guests. The number of units in a multi-dwelling structure, triplex, fourplex or cottage cluster than can have an accessory short-term rental is limited to one unit, or 25 percent of the total number of units in the structure or on the site, whichever is greater, this is in an effort to preserve long term rentals.

- **Rental Services Office (RSO)**.[111] The office hosts a helpline for technical assistance and information on landlord-tenant laws and policy as well as provides trainings for landlords. RSO staff can provide referrals and information, however, they cannot offer legal advice.

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[107] https://www.portland.gov/phb/documents/appendix-f-phb-air-conditioning-requirements-0/download
[108] https://www.portland.gov/phb/down-payment-assistance-loan
[109] https://www.portland.gov/phb/rental-services/eviction-help-renters/landlord-tenant-mediation
[110] https://www.portland.gov/bds/astr-permits
[111] https://www.portland.gov/phb/rental-services

- **Fair Access in Renting (FAIR)**.[112] Effective in 2020, the City adopted policy that regulates security deposits, move in fees, and screening criteria that may be used to select tenants.
- **Eviction Legal Support.**[113] In partnership with the Oregon Law Center, Portland Community College's Clear Clinic, Metropolitan Public Defenders, and United Way of the Columbia-Willamette Portland Housing Bureau launched the Eviction Legal Defense Program to provide free legal support to tenants facing eviction. Tenants can seek these free legal services as soon as they receive a Notice of Termination and do not need to wait until an eviction case is filed.
- **Mandatory Relocation Assistance.** [114] Effective in 2018, the City requires landlords to pay relocation assistance to renters under certain conditions.
- **Empowered Neighborhood Program.**[115] This program assists vulnerable residents from communities of color and/or those with disabilities, who have code enforcement issues that require attention and aims to creates pathways to compliance and recourse.
- **Homeowner Foreclosure Prevention.**[116] The Homeowner Foreclosure Prevention program works through partner organizations to provide foreclosure prevention counseling and, where needed, financial assistance to homeowners facing foreclosure.
- **0% Home Repair Loans.** [117] PHB program offers a no-interest loan of up to $40,000 to fund repairs, like plumbing issues or a leaking roof. Funding is available to residents earning up to 120 percent of Portland AMI and additional funding available in certain TIF districts. This program additionally serves lower income homeowners who live in the Interstate Corridor Urban Renewal Area (ICURA).
    - **Home Repair Grants.** Portland Housing Bureau provides funding to community organizations to make home repair grants to low-income homeowners.
- **Lead Hazard Control Grant Program**.[118] The Lead Hazard Control Program provides an evaluation of lead-based paint hazards and financial assistance to reduce lead-based paint hazards in pre-1978 housing occupied by qualified low- and moderate-income households.
- **Bureau of Environmental Services Safety Net Low Income Loans.**[119] Property owners who qualify may use this low-interest loan to pay for the cost of putting in a sewer line when the City has required it. In some cases, loans are also available for repair or replacement of a sewer line that has

[112] https://www.portland.gov/phb/rental-services/application-and-screening
[113] https://www.portland.gov/phb/rental-services/eviction-help-renters/eviction-legal-support-tenants
[114] https://www.portland.gov/phb/rental-services/renter-relocation-assistance#toc-ordinance-code-and-administrative-rules
[115] https://www.portland.gov/bds/empowered-communities-programs/
[116] https://www.portland.gov/united/foreclosureprevention.
[117] https://www.portland.gov/phb/home-repair-loan
[118] https://www.portland.gov/phb/lead-grant
[119] https://www.portland.gov/bes/documents/safety-net-loan-application/download

broken and needs to be replaced. Borrowers aged 62 and older may defer making payments until the property is sold or transferred. Loans are due in full upon sale or transfer of property.

- **Bureau of Environmental Services and Water Bureau Financial Assistance**.[120] The bureaus provide several types of financial assistance.
    - **Regulated Affordable Multifamily Assistance Program (RAMP).**[121] The RAMP three-year pilot will provide a bill discount to multi-dwelling properties that are approved for the City's Nonprofit Low-Income Housing Limited Tax Exemption (NPLTE) program. Starting in July 2023, RAMP will reach 12 percent of multi-dwelling housing units in the City, or 15,000 households annually, an estimated average benefit of $325 per unit.
    - **Bill discount.** Bill discounts are eligible to certain income qualifying homeowners.
    - **Crisis voucher.** If Homeowners have a personal crisis and are enrolled in the bill discount program, they may be able to receive a voucher (a credit) of up to $500.
    - **Water Efficiency Rebates,**[122] Rebates for new water-efficient toilets, outdoor irrigation devices, and commercial ice machines.
    - **Lead-In-Water Testing,**[123] Free lead-in-water test kit for Portland residents and some surrounding water providers.
    - **Water Leak Repair Assistance.** Homeowners enrolled in the bill discount program, may be eligible to have the leak fixed for free.
    - **Clean River Rewards**[124] Discount on stormwater bill for safely managing stormwater (rain that runs off roof) on property, i.e., soaks into the ground.
    - **Treebate Program.**[125] One-time credit on your sewer/stormwater/water bill for planting a tree in your yard. City of Portland sewer, stormwater, water customer.
    - **Native Plant Certificate**.[126] Provides funding for native plants. Maximum $50 for individuals, $500 for community groups.
    - **Financial Assistance for Tree Permit Application Fees.**[127] Get a waiver for certain permit application fees. Enrollment in PWB Bill Discount program.
    - **Drainage Technical Assistance.**[128] Free technical assistance for residential drainage concerns and clean river rewards.
- **Free Extra Capacity Waste Container.**[129] Increase trash disposal capacity at no cost. Low-income (PWB bill discount, SNAP etc.) or health condition.

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[120] https://www.portland.gov/water/water-financial-assistance/apply-financial-assistance
[121] https://www.portland.gov/water/water-financial-assistance/ramp-0
[122] https://www.portland.gov/water/water-efficiency-programs/toilet-rebate
[123] https://www.portland.gov/water/water-quality/test-your-water-lead
[124] https://www.portland.gov/bes/register-clean-river-rewards
[125] https://www.portlandoregon.gov/bes/51399
[126] https://www.portland.gov/bes/native-plant-certificates
[127] https://www.portland.gov/trees/treepermits/financial-assistance-tree-permit-application-fees.
[128] https://www.portland.gov/bes/stormwater/drainage-issues
[129] www.portland.gov/bps/garbage-recycling/request-extra-capacity-waste-container

- **Free Home Energy Assessment (Home Energy Score).** [130] Exemption, waiver, and free assessments for new construction. Low-income (PWB bill discount, SNAP etc.) homeowners.
- **PBOT Transportation Wallet for New Movers.** [131] Program created for residents of certain new multi-unit buildings constructed in Portland. The program is funded by a fee developers pay when they get their building permit. Residents of these buildings will get funds on TriMet Hop card and BIKETOWN bike-share credit.
- **RV Pollution Prevention Program.** [132] Portland residents living in recreational vehicles (RVs) parked on the street are eligible for the pump out program.
- **American Rescue Plan Act Funds.** [133] In 2021, Portland received an award of $208 million of Local Fiscal Recovery Funds (Multnomah County received $157 million). The first half of the award was delivered in the spring of 2021, and the second half delivered in spring 2022. The City used these funds to invest in water, sewer, or broadband infrastructure; replace lost revenue; provide premium pay to eligible workers; and respond to negative public health or economic impacts of the pandemic. Funding has supported the following projects, some of which have contributed to the stabilization of households, while others have directly worked to house households, in temporary shelter such as safe rest villages, or in permanent housing:
  - Rent Assistance Streets to Stability; Safe Rest Villages
  - COVID-19 Houseless Services
  - Flexible household assistance
  - Rapid Workforce Training & Employment for Vulnerable Portlanders
  - JOHS Motel Shelter Strategy
  - Affordable Housing Preservation
  - PSR Expansion 24/7
  - Afloat: Utility Debt Relief
  - Eviction Legal Defense
  - Homeowner Foreclosure Prevention
  - Housing Stabilization Contingency
  - Household Relief and Legal Defense
  - RV Pollution Prevention Program
  - Match2: Utility Debt Relief
  - 82nd Avenue Anti-Displacement Housing Stabilization

[130] https://www.portland.gov/pdxhes/apply-home-energy-score-exception-or-free-assessment
[131] https://www.portland.gov/transportation/wallet
[132] https://www.portland.gov/united/rvpollutionprevention
[133] https://www.portland.gov/united/american-rescue-plan

Figure 66. Initiatives Timeline – Effective Dates

Pre-2015

- Homebuyer Opportunity Limited Tax Exemption (HOLTE)
- Non-Profit Low Income Housing Limited Tax Exemption (NPLTE)
- Multiple-Unit Limited Tax Exemption
- Tax Increment Financing (TIF)
- Use of State and Other Funding

2015

- N/NE Preference Policy

2016

- Portland Housing Bond
- Construction Excise Tax
- Local Transportation Infrastructure Charge (LTIC) Exemption

2017

- Inclusionary Zoning and Inclusionary Housing Program
- Housing Development GATR (Government Accountability, Transparency, Results)

2018

- Manufactured Dwelling Parks Zoning
- ADU, Shelters and short-term SDC Waiver
- Mixed Use Zoning
- Central City 2035
- Metro Housing Bond
- Affordable Housing Construction Excise Tax (AHCET) Exemption
- Portland Clean Energy Community Benefits Fund (PCEF)

2020

- Better Housing by Design
- Residential Infill
- Expanding Opportunities for Affordable Housing Zoning Code Changes
- Visitable Unit Bonus
- Deeper Housing Affordability (DHA)
- Metro Supportive Housing Services Fund

2021

- Manufactured Park Affordability Bonus
- Shelter to Housing Continuum
- Design Overlay Zone Assessment (DOZA)
- American Rescue Plan Act (ARPA)
- Permit Improvement Task Force and Permit Improvement Transition Team (PITT)
- 3-bedroom FAR Density Bonus

2022

- Historic Resource Code Project
- Residential Infill Pt 2
- West Portland Town Center Plan (WPTC)

2023

- Parking Compliance Amendments Project
- Shelter to Housing 2
- HOLTE Expansion
- Housing Regulatory Relief Project
- IH Calibration Study
- TIF Exploration
- Regulatory Improvement Code Amendment Package (RICAP) 10
- MULTE /HOLTE Extension
- SDC Freeze, SDC Deferral
- Office to Housing Conversion Fee Deferral
- Residential Permitting Single Contact Point
- Public Infrastructure Prescreen
- Multi-Dwelling Housing Pilot
- Temporary Early Assistance Fee Reduction
- Public Land Inventory
- Land Acquisition ARPA Funds
- Regulatory Reform Project
- Single Permitting Authority
- Team Business Process Analysis Review
- Website Design and Alignment
- Customer Intake Success
- Early Assistance Options for Middle Housing

2024

- Pre-approved ADU Plans
- Lower South East Rising
- Montgomery Park Area Plan

Appendix C. Engagement Plan and Activities

As the City of Portland developed the Housing Needs Analysis (HNA) and Housing Production Strategy (HPS), the City engaged with local government stakeholders, developers, residents and the broader community. The project team hosted several engagement opportunities throughout the course of the project to share information and gather feedback on the work conducted and the proposed housing production strategies. Outreach activities assisted the city in connecting with developers and residents of housing and in the development and adoption of the housing needs analysis and the housing production strategy in accordance with ORS 197.290 and OAR chapter 660, division 8.

Project information was shared and updated through the City's website and the website was used to gather feedback through a survey and online comment submittals (the MapApp) at key points during the project. Targeted outreach was also conducted with specific underrepresented communities to gather information on housing needs. The public had an opportunity to provide ideas and feedback at every stage of the project. Public engagement was split into three phases, each with a different engagement goal:

- **Phase 1 (January – October 2023)**: Introduce the project and seek feedback on housing needs; used to ground-truth the findings of the housing needs analysis (collaborate/involve).
- **Phase 2 (October 2023 – April 2024):** Share draft housing strategies with stakeholders and get feedback on the draft strategies; used to inform prioritization (involve/consult).
- **Adoption and Post-Adoption (April – August 2024)**: Make modifications as needed, share, and adopted housing strategies. Communicate results with stakeholders (inform).

Community Outreach

Staff prepared multiple outlets for in-person and online engagement activities to share and gather feedback on housing needs in Portland, potential housing policy options, and draft housing policies.

What We Have Already Heard from the Community

The Housing Needs Analysis and Housing Production Strategy is guided by existing community and city policy direction and builds on previous city engagement efforts. The community has long identified the need for housing, as described in the following community-led and Council-adopted documents. Some recent project engagement summaries are provided in the Summary of Engagement from Recent Projects section. Other recent projects that heard substantial comments regarding housing include:

- Housing Regulatory Relief Project
- Portland Insights Survey.
- Age- And Disability-Inclusive Neighborhoods (ADIN) Plan And Working Group
- Housing Regulatory Survey Response Code Change
- Lower SE Rising
- West Portland Town Center
- South West Corridor Equitable Housing Strategy
- Broadway Corridor

- N/NE Housing Strategy
- Cully TIF District
- Inclusionary Housing Calibration Study
- Building A Better 82nd Ave
- Residential Infill project
- Central City 2035
- Better Housing by Design (BHD)
- Permit Improvement Task Force
- Climate Emergency Workplan
- Portland Clean Energy Community Benefits Fund (PCEF)
- Homelessness Response Action Plan

Broad Community Outreach

Building on the community's longtime support for housing, staff tailored engagement to ask the community what housing needs exist and what other priorities should be considered. Community outreach involved presenting information and seeking feedback at in-person and online meetings and surveys with the broader Portland community. The comments and feedback helped staff prioritize draft housing production strategies and will help staff further revise the strategies for adoption.

Online Open House

An online open house was hosted in April 2024 presenting the results of the housing needs analysis, the draft housing production strategy, what are the policy choices and expected outcomes, what are the highest priorities and what are the next steps in the HPS legislative process. Outreach was done through BPS news and social media outlets, as well as organizations engaged throughout the HNA and HPS process were invited to share with their community and memberships.

SUMMARY

Attendees specifically expressed interest in family sized units, increasing transit service to high density development areas, advocating for the use funds to convert hotels into housing, greater emphasis on strategies that can provide opportunity specifically to the 0-30% AMI affordability range, identifying ways to increase access to opportunity for BIPOC homeowners and middle housing BIPOC contractors and developers and finally, support was expressed for the climate friendly nature of conversion and adaptive reuse goals.

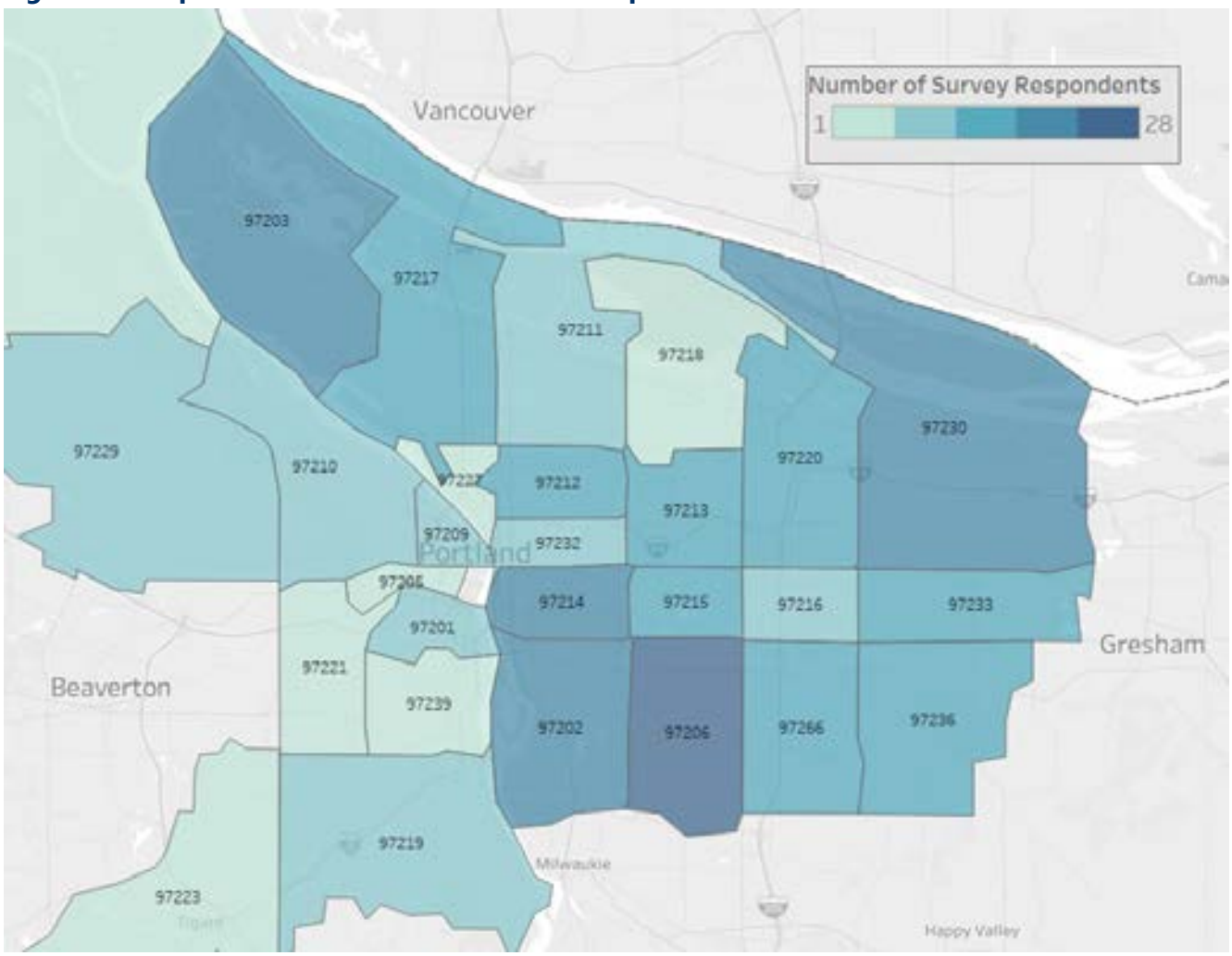
Survey

The survey was made available from March 8, 2024, to April 14, 2024. The survey was available in English, Spanish, Vietnamese, Simplified Chinese and Russian. The survey was reviewed by the internal working group, Technical Advisory Committee, the Community Involvement Committee, and the BPS Equity and Engagement team as well as by project staff and management. Outreach was done through BPS news and social media outlets, as well as organizations engaged throughout the HNA and HPS process were invited to share with their community and memberships.

A total of 350 survey responses were received over the six-week open period, about 30 of these respondents indicated they did not live in Portland. Survey responses were received from Portlanders in all but two ZIP codes in the city (Figure 66). The survey asked questions about experiences and needs

across several topics: Current needs, challenges in finding or keeping housing, accessibility needs, future needs, strategy priorities and closing thoughts.

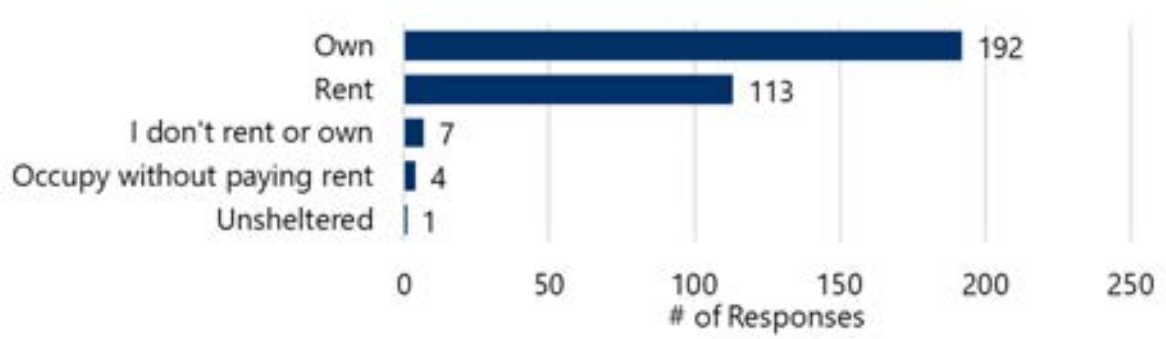
Figure 67. Map Of ZIP Codes Where Portland Respondents Lived



Source: BPS Analysis of HPS Survey

The only required questions in the survey were in the Introductory "About you" section; however, the majority of respondents answered all questions in the survey. The majority of respondents identified as owners (61 percent) while 36 percent identified as renters and three percent identified as either unsheltered, not renting or owning or occupying without renting (Figure 67). Currently, an estimated 47 percent of Portlanders are renters.

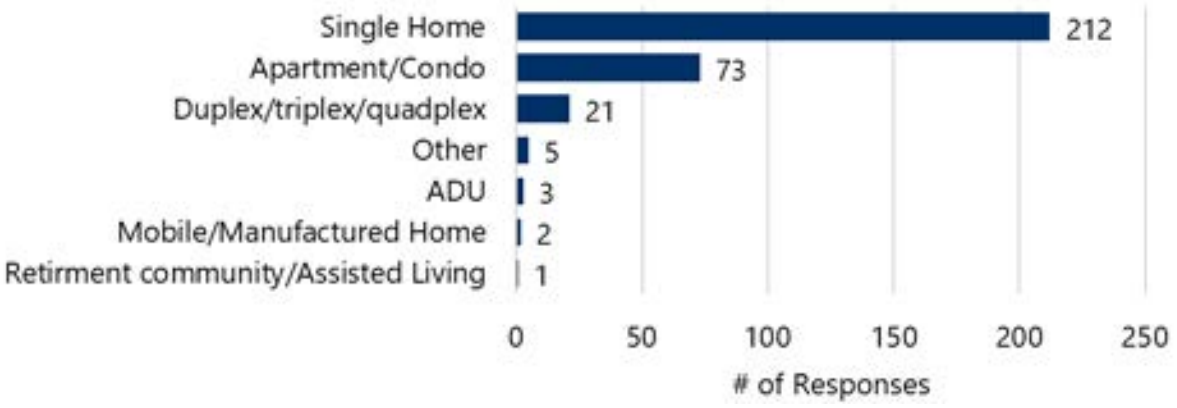
Figure 68. "Do you own or rent the housing you live in?"



Source: BPS Analysis of HPS Survey

The majority of renter respondents lived in apartment buildings with five or more units (53 percent) and most owners indicated they owned a singled detached unit (89 percent) (Figure 68).

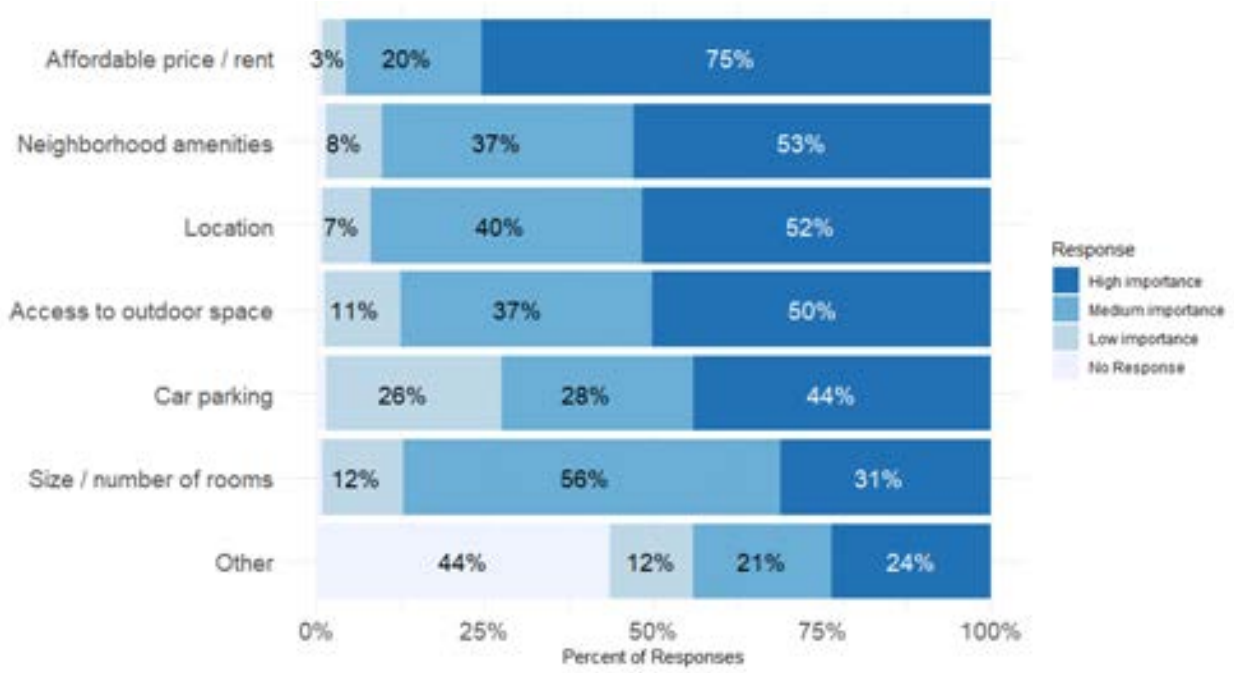
Figure 69. "What type of housing do you live in?" Renters and Owners



Source: BPS Analysis of HPS Survey

Key themes emerged in each section for respondents. In current needs, the most important aspect about a home to Portlanders was an affordable unit (76 percent indicated it as highest importance). Location, neighborhood amenities, and access to outdoor space were also indicated as high or medium importance for a majority of respondents (Figure 69).

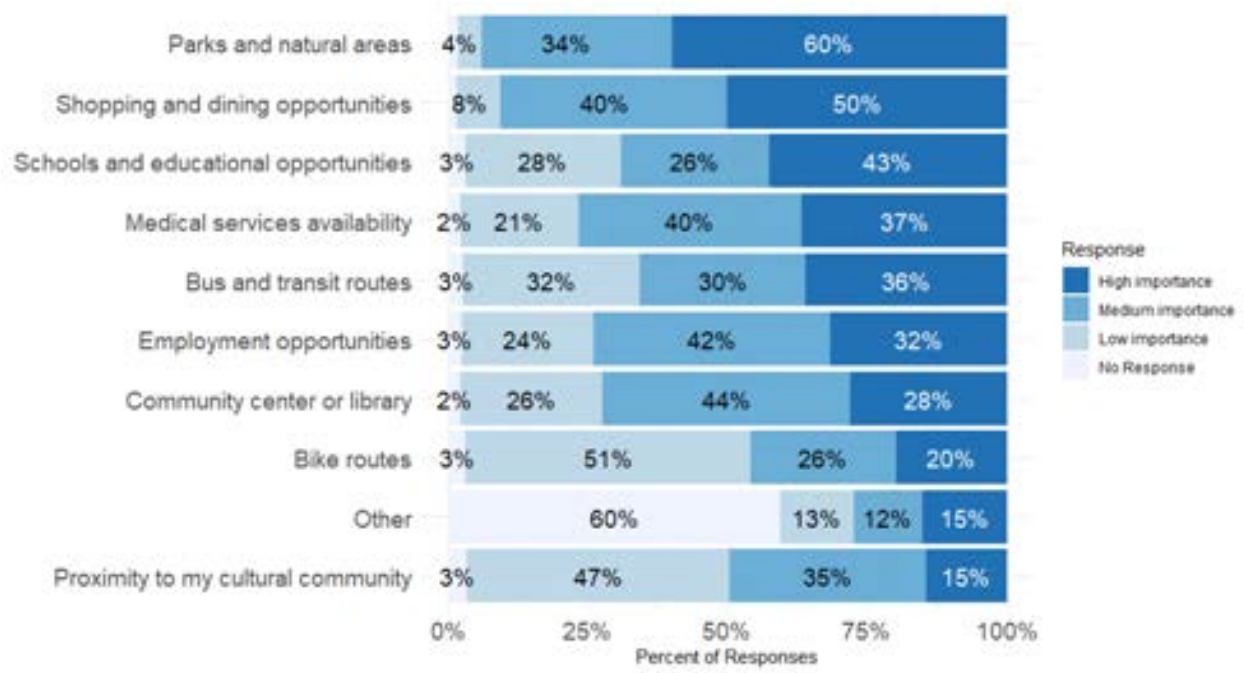
Figure 70. "What is most important to you about a home?"



Source: BPS Analysis of HPS Survey

For the qualities of an ideal neighborhood, most respondents indicated access to parks and natural areas as high importance (60 percent). Other qualities that were indicated as high or medium importance to the majority of respondents were shopping and dining, schools and educational opportunities, medical services availability, bus and transit options, employment opportunities and community center or library access (Figure 70).

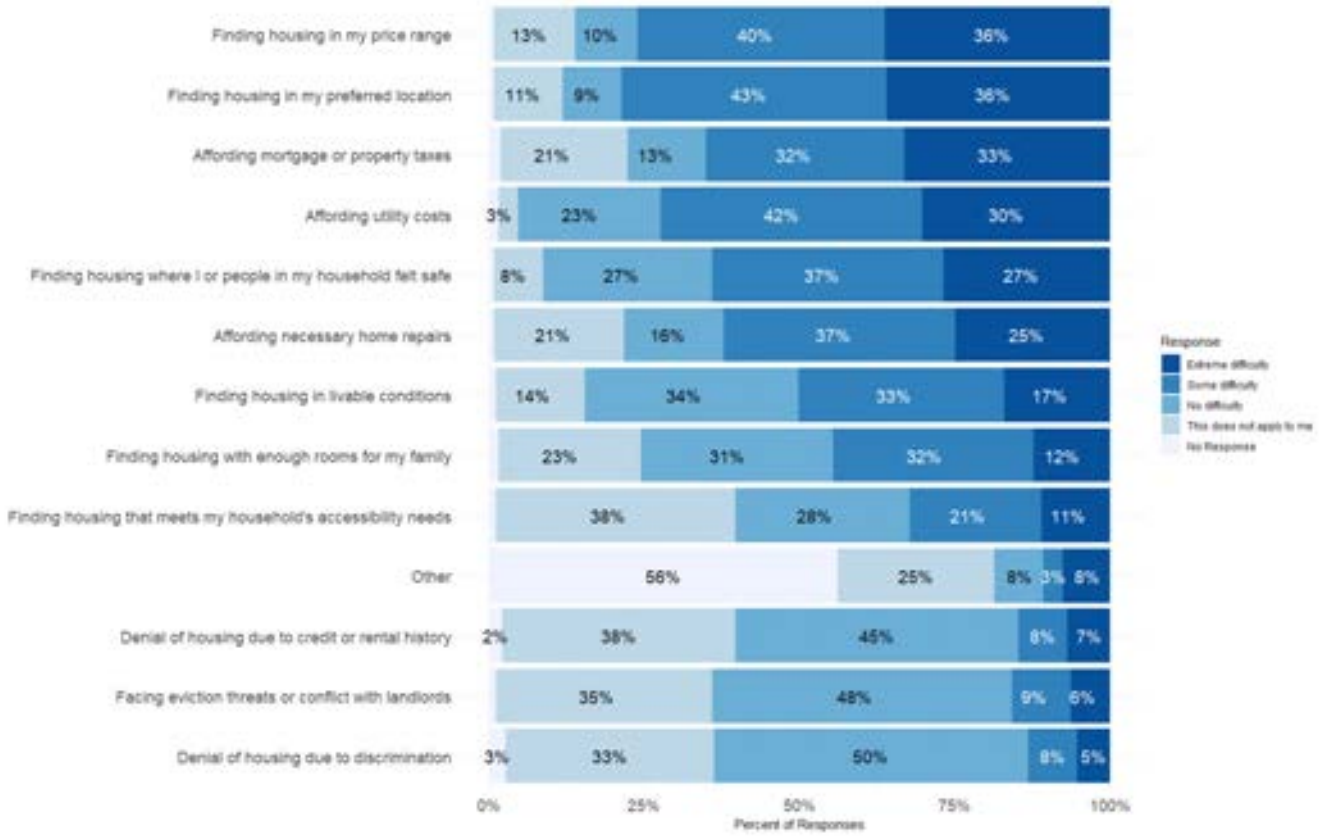
Figure 71. "What are the most important qualities of your ideal neighborhood?"



Source: BPS Analysis of HPS Survey

When Portlanders answered questions regarding finding housing that meets their needs, the greatest share indicated that they faced the greatest difficulty finding housing in their price range (36 percent indicated extreme difficulty, 40 percent indicated some difficulty). Other areas of extreme difficulty were finding housing in their preferred location, affording utility costs, affording their mortgage or property taxes and affording housing where they or their household felt safe (Figure 71). This shows that respondents are experiencing challenges among various areas of affordability and housing costs.

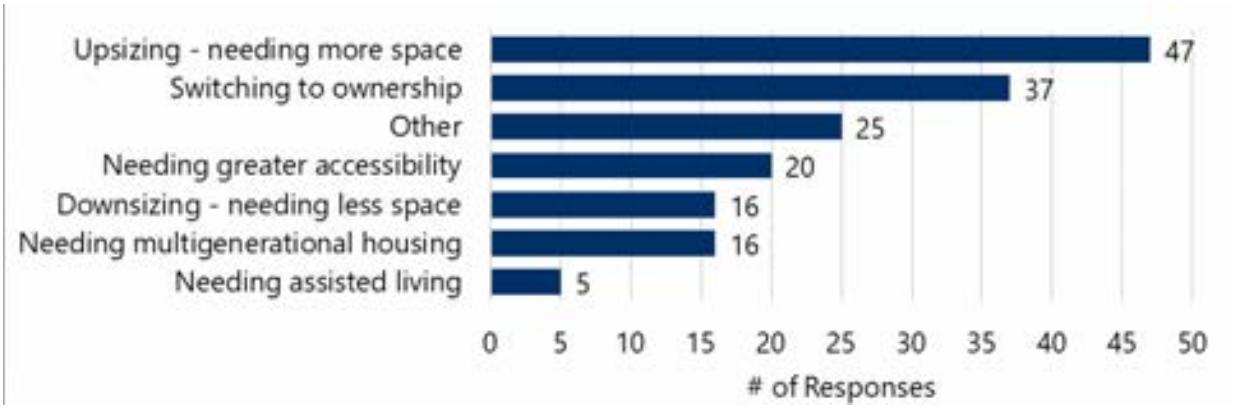
Figure 72. "What difficulty, if any, have you had finding housing that meets your needs in Portland?"



Source: BPS Analysis of HPS Survey

When asked if their current living situation would meet their housing needs 10 years from now, 58 percent of respondents (168) indicated that it would not, 46 percent said yes, and the remaining did not answer. Those who answered no were prompted to answer why not (Figure 72). Respondents were able to select from multiple prompts or to write in their own response. The greatest number of respondents (47) indicated that they would need more space ten years from now, 37 indicated a desire to move into ownership and another 25 indicated that some other aspect of their housing needs will change, including moving to more affordable housing, moving out of Portland and the area, and being unable to maintain their home as they age.

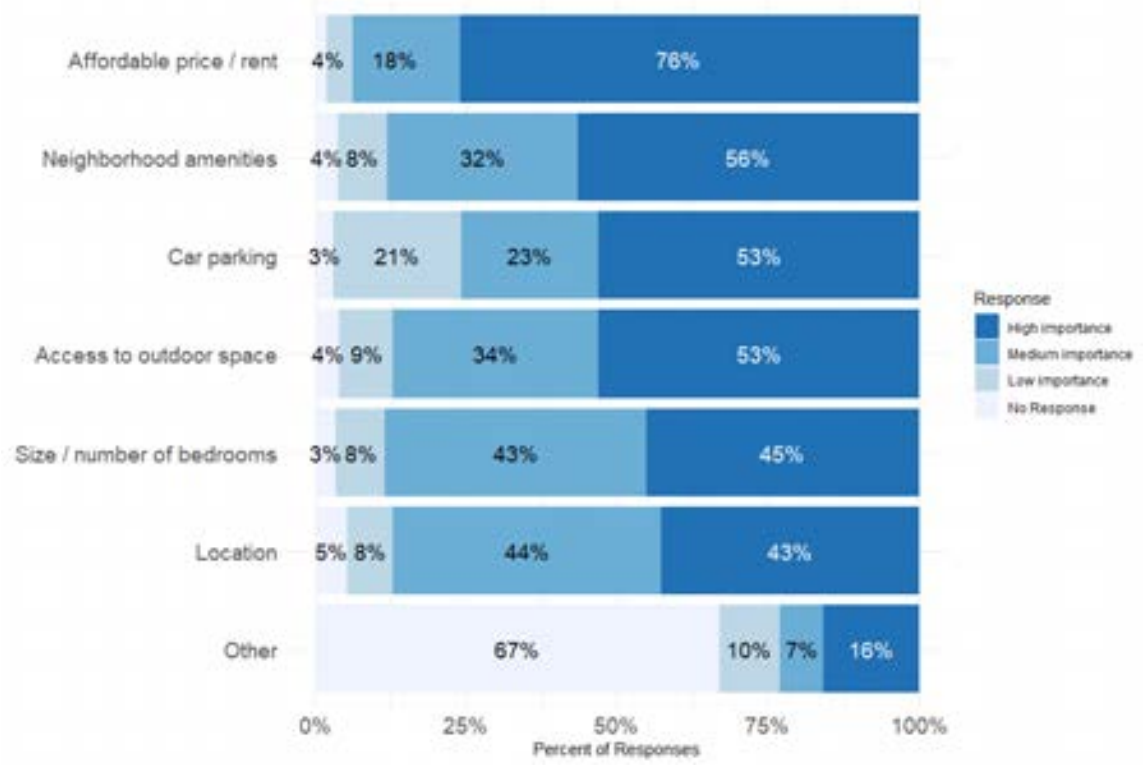
Figure 73. "If no, how do you expect your housing needs to change 10 years from now?"



Source: BPS Analysis of HPS Survey

Based on the 2045 Housing Needs Analysis, the City expects much of the development from now to 2045 to be multi-dwelling unit developments. When asked , what features or amenities would make living in an apartment more appealing or possible for them? The majority of respondents indicated factors of high or medium importance to be affordable price/rent (94 percent) neighborhood amenities (88 percent) size/number of bedrooms (88 percent) Access to outdoor space (87 percent) and location (87 percent) (Figure 73).

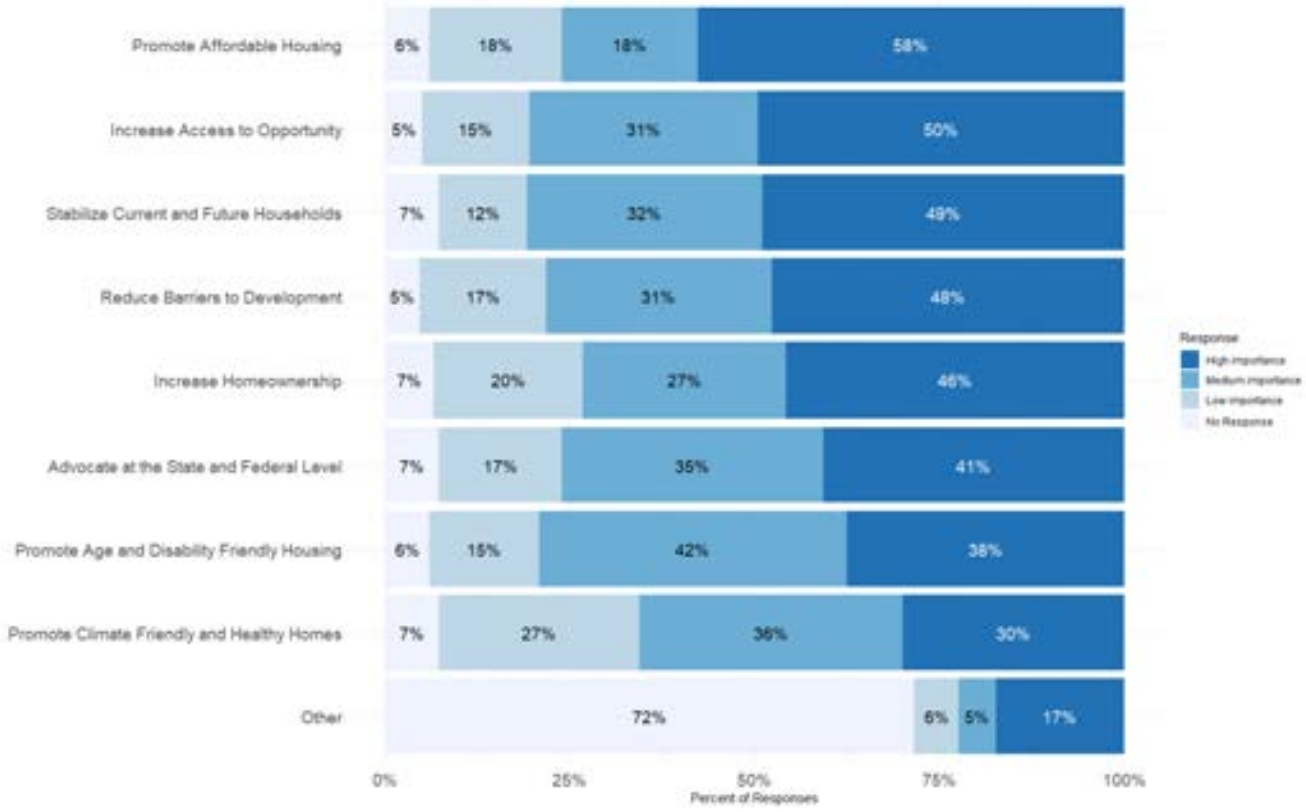
Figure 74. "Considering most of Portland's new housing will be in apartment buildings, what features or amenities would make living in an apartment more appealing or possible for you?"



Source: BPS Analysis of HPS Survey

When the survey was released, a discussion draft of the Housing Production Strategy was made available for public comment. Respondents were invited to view the draft and/or rank categories of strategies based on their view of what was most important. Respondents indicated that promoting affordable housing was of highest importance (58 percent) and 18 percent indicated as medium importance. Other categories that were indicated as high or medium importance include stabilize current and future households (81 percent), promote age and disability friendly housing (80 percent), increase access to opportunity (81 percent), reduce barriers to development (79 percent), and advocate at state and federal level (76 percent).

Figure 75. "Which housing strategies are the most important / highest priority in Portland?"



Source: BPS Analysis of HPS Survey

Open response questions were available throughout the survey by choosing "Other" in each section. In these open responses, safety was frequently mentioned and described in various ways in each section, especially in sections that did not have a question specifically about safety. For example, in Current Needs, 44 percent of respondents chose to describe something else important to them, and of those respondents, nearly half of them mentioned safety of some kind, from earthquake safety to safety from crime. Then, in open responses in the Challenges section, where a question regarding safety was asked, more respondents mentioned affordability and challenges with loans, taxes, and other economic issues. Survey responses indicated a clear need for housing that are in locations that are safe and are affordable to more Portlanders.

Map App

As part of BPS' standard public engagement procedures, the *2024 Housing Production Strategy, Proposed Strategies Discussion Draft* was released for comment on the Bureau's Map App.[134] The comment period was open from February 21, 2024, to April 7, 2024. The draft received 50 pieces of public comment. The Map App comment period was re-opened from May 14 to June 11 as part of the Planning Commission discussions and received an additional 57 comments. It will reopen again in Summer 2024 as part of the Council adoption process.

SUMMARY

Commenters specifically expressed interest in the following;

- Increase Accessibility - The most critically needed special needs housing types were identified as: housing for persons experiencing houselessness, mental health support, ageing individuals and households and persons with disabilities.
- Commit to action – Advocates expressed a desire for bureaus to articulate a higher level of commitment to action within the strategies (i.e., "study" vs "do").
- Address the diversity of needed housing types - Create equitable access for everyone by addressing housing cost, location, housing type, size, universal visitability, and culturally specific housing.
- Include advocacy around property tax reform to the state legislature.
- Increase rental assistance.
- Invest in Low Income Housing Tax Credits for affordable housing, community land trusts, and land banking, while exploring other non-market social housing models that have demonstrated success globally and do not further commodify housing.
- Affirmatively further fair housing by undoing historic racial discrimination and race-based housing segregation.
- Address homeownership inequities among households below 80% AMI. New resources to be directed to rental and homeownership opportunities for households below 80% AMI.
- A significant amount of comments expressed support around the further development of strategies that result in upzoning and area planning in the Inner East.
- Simultaneously, staff received comments from residents concerned about the impact of upzoning the inner east, citing concerns around adequate future engagement in an area planning process, the

[134] https://www.portlandmaps.com/bps/mapapp/

exclusion of other more constrained and less "Complete" neighborhoods from being considered in the upzoning project, namely southwest Portland.

- Engagement - Concern around engagement process for the HPS as well as future projects needing to be equitable and include impacted residents.
- Land banking - Identify publicly owned land that can be used for affordable housing.
- Adaptive reuse - Emphasis on reusing existing buildings, creating housing through the conversion of existing commercial or industrial structures.
- Support for state and federal advocacy priorities and for the City to add support for increased downpayment assistance targeted for communities historically excluded from homeownership and flexible state funds for affordable homeownership development.

Strategic Stakeholder Outreach

BPS staff also discussed the draft strategies with the community members through strategic outreach at various phases throughout the project.

HNA: July through October 2023

Staff attended group meetings, held via Zoom video conference, to introduce the project and collect feedback on the project engagement strategy, equity considerations, and housing needs. the following stakeholder and interested party groups: Portland State University Homelessness Research Center, Anti Displacement PDX, Sightline, Cully Neighborhood Association, Portland Neighbors Welcome, Development Review Advisory Committee, Community Involvement Committee, Portland Homebuilders' Association, Portland Building And Development Council, East Portland Action Plan Housing Committee, Central Eastside Industrial Council, Oregon Smart Growth, North Portland Land Use Group, SE Uplift, and the Southwest Land Use & Transportation Forum.

HPS: October 2023 through July 2024

Staff continued strategic conversations with community organizations, developers, builders and other interested parties. Staff wanted to develop awareness of draft strategies, engage around what the City can improve, what has been working well and what new ideas the City needs to consider implementing to have the greatest impact on creating housing opportunity, choice and support a housing abundant environment across Portland.

Community Organizations And Stakeholders Engaged Directly

Over 250 community members, developers and service providers were engaged through direct meetings and presentations to the following organizations and coalitions:

- N/NE Oversight Committee
- Central Northeast Neighbors LUTOP
- Northeast Neighborhood Coalition
- North Portland Land Use Group
- Northwest District Association planning committee
- Southeast UPLIFT
- East Portland Action Plan Housing Committee
- Southwest Land Use & Transportation Forum
- Southwest Corridor Equity Coalition
- Housing Land Advocates
- Housing Oregon; Portland Metro Policy Council
- Housing Alliance
- Neighborhood Partnerships
- Living Cully
- Welcome Home Coalition
- Fair Housing Council of Oregon
- 1000 Friends of Oregon
- Portland: Neighbors Welcome
- Portland Homebuilders' Association
- Oregon Smart Growth
- League of Women Voters
- Home Forward

SUMMARY

Key issues that attendees noted included the following;

- Affordability – Even with restricted rent, some housing is still out of reach and multiple types of services need to be combined to make it affordable. There was a greater desire to better understand how to get on lists for access to affordable housing that becomes available. Advocates suggested more focus on lower affordability levels for both rent and ownership strategies (<50% AMI) and at the 0-30% level there is a need for permanent supportive housing and rental assistance in addition to an affordable unit.
    - Targeting lower income levels for ownership programs is more likely to benefit BIPOC households given the current disparities in wealth and income distribution in Portland.
- Access – Infrastructure and the expansion of transit opportunities were identified as key investments needed to support the construction of housing and to provide mobility and access to key services, such as grocery stores in neighborhoods.
- Access to programs to gain or maintain homeownership – Greater access to homeownership is desired (esp. for lower income households). Greater access to stabilization or repair programs for middle income households.
- Accessibility - The most critically needed special needs housing types were identified as: housing for persons experiencing houselessness, mental health support, ageing individuals and people with disabilities.
- Fair Housing – There was a desire expressed, particularly by coalitions, to better understand how the City aims to address issues of fair housing with the HPS.

Black, Indigenous and Persons Of Color (BIPOC) Communities Outreach

One of the key issues identified in the 2045 Housing Needs Analysis (2045 HNA) is economic prosperity and housing opportunity for BIPOC Portlanders. The project team received a Department of Land Conservation and Development grant to conduct engagement specifically with BIPOC community members.

While there has been robust engagement around housing issues in the City, Black, Latine and Native American communities are still most impacted and priced out of housing market and wealth building opportunities. Staff wanted to provide an opportunity for BIPOC communities to give their input on housing issues and identify strategies that would be most impactful to create better living conditions and stable housing.

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FOCUS GROUPS

Staff and two consultants hosted 6 focus groups between March and April 2024 with Black, Native, Vietnamese, Chinese, Slavic and Latine communities. The Black (10 participants), Native (10 participants), Vietnamese (12 participants), Chinese (11 participants) and Slavic (11 participants) focus groups were planned, recruited for and hosted by the Community Engagement Liaisons. The Latine focus group (7 participants) was planned, recruited for and hosted by LatinoBuilt.

The focus groups included information on Portland's housing conditions and forecast and explain the role and purpose of the HPS. The discussion explored key elements of need and desired housing opportunities that will help inform the HPS policy choices and evaluation.

Focus Group Discussion Questions

1. What is most important to you about a home?
2. What types of housing best meets your current needs?
3. Considering that most of Portland's new housing will be in apartment buildings, what features or amenities would make living in an apartment more appealing or possible for you?
4. What are the most important qualities for your ideal neighborhood?
5. What difficulty, if any, have you had finding/staying housing that meets your needs in the city?
6. What programs might be helpful to you or your household?
7. Which housing strategies are the most important/highest priority in Portland?

Figure 76. Latine Focus Group Led by Latinobuilt's Rosa Martinez

COMMUNITY MEETING

Building off of the results of the focus groups, staff worked with PKS International; Community Engagement Liaisons to host and facilitate an in-person East Portland BIPOC Community Meeting. This community meeting for Pacific Islander, Burmese, Cambodian and African immigrants was held in April

2024 in-person at a local restaurant on 82nd Avenue. The meeting included facilitators/translators to engage participants in their native languages. Participants included six CELS liaisons and staff, eleven Burmese, eleven Cambodian, five Pacific Islander and eight African community members.

SUMMARY OF BIPOC ENGAGEMENT ON HOUSING NEEDS AND PRIORITIES

Affordable Housing

The biggest housing issue identified is that over the years living in Portland has become a lot more expensive, so families are being pushed out of the city center. This has created economic segregation. Housing prices have significantly skyrocketed over the years, which identified another common theme among all the communities, affordable housing. Participants expressed desire to find ways to improve the way that current supportive housing is used and to consider how new rules or rule changes are impacting smaller landlords. Participants in the Black community brought up that there's a need for not just homes for the houseless or low income but people that are in between the middle class and 'poor'. There's not a lot of options in the housing stock and participants would like to see more develop.

> *"One of the challenges of affordable housing is new construction is very expensive, whether you want to purchase or want to rent, whereas older construction has already been depreciated. Those of the units that you're talking about leveling for the new construction, where those units are the ones that are the most affordable. So, I understand you want to bring in more density, but at the cost of taking out properties that people are living more affordably now."*

In the Latine focus group, it was a consensus that affordability was the most important for everyone when it comes to a home, with size/number of bedrooms coming in second and outdoor space for grills and gatherings tied with location for third. However, if we're looking into the future, having apartments with elevators and wider doorways was mentioned as something that would be desirable. Along with making sure the transportation system accommodates the increase in housing units.

The Russian community felt there is a perception that when affordable housing complexes are built, segregated areas with reputation for higher crime may be created. People and businesses avoid these areas. Units are built in areas that are not safe and often have homeless camps near them and don't have all the necessary things nearby (school, parks, playgrounds, hospitals etc.).

The Native community addressed buying their own home is out of reach, especially for single people with an average income. Many people will not be able to purchase their own home any longer because of not only the cost of the home, but also the interest rates, property tax, utilities, insurance, and all other expenses. Some participants shared that there's a lot of people in their community that work and

don't qualify for a lot of the programs but need those programs. So, changing the guidelines and qualification standards would be helpful for a lot of people to afford housing.

The Chinese and Vietnamese community shared there's housing demand for senior living communities, many are on the waiting list and the wait is too long. Another issue is the language barrier, many seniors don't understand English, and the application is only in English.

Safety

One common theme during the focus groups was the need for safety and security of the area where their home is located and the neighborhood itself. One community shared it doesn't matter the size of the home, big or small. They want to feel safe when they go to sleep at night. Participants in each community noted that to feel safe they want to see lower crime rates (theft, drugs, car racing, break-ins) and less homelessness in their neighborhood (homeless camps and abandoned vehicles).

Many of the communities mentioned having a clean, safe street would mean their families and children can walk around their neighborhood with less fear and would allow them to have a healthier lifestyle. Because of safety concerns of their neighborhood, several participants in the Native and Vietnamese communities expressed they've moved or see themselves wanting to relocate.

Participants in the Russian community shared, "Downtown already has a reputation of being unsafe, public transport unsafe and dirty, homeless camps and garbage in uptown and downtown. Adding more affordable housing units in Downtown poses the question of whether we will lose it as a desired landmark and place to visit in the future."

Location

Another common theme shared between all the communities is location. Many of the community groups discussed location being one of the main priorities on their list for an ideal neighborhood. There is a need to be close to public transportation. The Vietnamese community participants felt that if a lot of housing units are developed, and we don't think about transportation, it will be very difficult to get from East to West or North to South. So, if transportation is not addressed, and more houses are built, the road will become more challenging for traveling to work or to school and will create another challenge for both the residents and the city. Participants with families expressed the need to be close to schools, parks, community centers (for all ages), and an overall safe environment for children to play outside.

The Chinese and Native community also discussed that having close access to medical offices is critical for many people, especially for seniors, retirees, and families with young children. The communities

agree that having access to amenities near their neighborhood is important like shopping, grocery stores and being close to work.

The Black focus group participants discussed issues of safety as it relates to location. One participant shared that they are seeing developments along certain corridors with a disparity between the development that is targeted towards communities of color and lower income people and the development that is at market rate. So, a lot along MLK, along Lombard, Broadway and these areas are high crash zones. They're dangerous to walk around and they have lower air quality because of the traffic. They're more unbearable during heat and during rain, they flood and they generally have a lower quality of life versus locations like Williams. The participant lives close to Broadway and is right next to the freeway. Further up Broadway are these luxury units that have walkable grocery stores, trees, and the quality of life is clearly, and the infrastructure is clearly built better than a few blocks to MLK, where a lot more people of color are housed, and the quality is visibly worse.

Many of the communities discussed how locations in Portland differ between a good and adverse quality of life. For example, rich neighborhoods have clean air quality and walkable amenities while poor neighborhoods have more underserved communities and quality is visibly worse.

Expanding Programs

Discussion with focus group participants revealed a lack of awareness about certain programs that may already exist. More outreach in various venues about the City's housing assistance programs would be helpful. Below is a list of topics that were mentioned as programs to be implemented or expanded.

- Down Payment Assistance: Participants mentioned that rents are the same as monthly mortgages. They would love to own a home but are unable to produce a down payment or do not qualify for existing programs for various reasons, bad credit being one of them. However, they are able to pay their rent, and assistance with down payments would allow them to build wealth through home ownership.
- Home Buying Qualifications: The programs offered for homeownership require lots of documentation and qualifications, and sometimes, because of the in-depth need, they don't qualify. Can documentation be simplified?
- Loan Programs: Develop a loan program for mid-level professionals (e.g., teachers, firefighters, contractors, etc.) to buy homes by deducting a portion of their monthly check.
- Rental Incentives: Bad Credit limits rental ability. Create programs to help clean up credit issues.
- Coaching/Education Programs for first time home buyers. Oftentimes, ownership is a larger responsibility than is realized. Understanding how to save for repairs, etc. would be helpful.

- Home Repair Costs: Home repairs are costly, and energy efficiencies are not affordable, even with the incentives that are in place. Programs that assist with home repairs were encouraged.
- Foreclosure Prevention: Programs to prevent losing your home or going into foreclosure

What's Missing From The Draft Strategies

- PUBLIC TRANSIT SAFETY - Participants were very concerned about safety. Recognizing that much of the new construction would happen in the central core of Portland along bus lines with a push to use public transit, they felt conversations need to take place to ensure riders safety.
- ACCESSIBLE UNITS - Participants discussed this issue in depth and wondered why homes aren't being built with accessibility features as a standard. Can this be incorporated at the onset of building planning? If they have a sick family member and need modifications in their home, retrofitting is expensive.

At the East Portland BIPOC Community Meeting, the most common concern between the 5 groups was the need for affordable housing and financial stability. Participants mentioned a need for jobs for seniors and residents within the area. Safety came in as another high-ranking concern, especially with the combination of location and zoning when discussing the location of schooling and where affordable housing was located. Cultural needs and quality of living goes hand-in-hand, as many participants noted that they needed larger housing units to fit the number of family members living in one house. Similarly, the participants expressed wanting more space for recreational activities, such as nature areas, parks, or spaces within the household for families to hold celebrations or spend time together.

The most important factor that participants mentioned was the safety of the area where the home is located and the neighborhood itself. The participants do not feel comfortable with their homes being in areas with high rates of houselessness. Most groups expressed the need to have good schools and their work within a close proximity to their home. For seniors within the community, the participants noted that it is not easy for them to walk further distances. Grocery stores need to be within a walkable distance or have public transportation within the route. Participants also noted that they would prefer denser populated areas if it meant that they were near essential services, such as grocery stores, nearby. Easy access to public transportation was another factor that was considered. This includes having adequate parking infrastructure at the homes. Participants also addressed that their ideal home would have 3+ bedrooms to accommodate their family sizes. Finally, participants want to see newer high-quality homes that are fit for the weather year-round and have plenty of outdoor recreation areas for children to play on playgrounds or for community members to gather. They mentioned that the current houses are old, smelly, and moldy.

The most valued quality of an ideal neighborhood for all community groups was safety. There were multiple repeat comments about safety throughout the groups, with one group noting that safety is a priority and more important than anything else. Participants specifically noted that to feel safe they want to see lower levels of homelessness within their neighborhood (and lower levels in general),

decreased crime rates (break-ins, car theft, violent crime, etc.), higher levels of security, and also more street lights and sidewalks to promote road safety. Another participant noted that they want to be safe at night when they are working a night shift, both being outside and taking transportation.

The participants also expressed the want for more green spaces (private and public) around the neighborhood. They would like playgrounds for the children, community centers or communal space that gives them access to parks or green space. Similarly, participants also want community centers or shopping centers within their neighborhood as well (or within walking distance). Finally, some participants expressed that they would like to have close access to transit.

Financial issues emerged as the top challenge that participants had in finding or staying in their housing. Some examples are that multiple concerns were raised regarding the issue of finding affordable housing, as participants cannot afford housing with their current incomes. Many participants mentioned that the rising housing costs exceed the current income rates by far. Similarly, seniors, or those with fixed incomes, face limited options for finding supplemental earnings. Participants cannot afford housing that fits their needs, this includes seniors trying to downsize and families needing larger housing units. At the same time, multiple groups noted that there are not enough units to support their needs or units that are at a preferable location (participants discussed having to commute to work in order to afford housing). Households feel shameful asking for assistance or may not know where to go to seek assistance, which causes them to quietly go into houselessness. The overarching theme present is that the vast majority of the participants are struggling to find housing or maintain their housing due to the rising housing costs and limited means to achieve housing assistance, at the same time, if they are able to afford housing, there are not enough units that support their needs.

Another issue that was raised when discussing the challenges of finding/staying in housing, was credit. Participants noted that building credit is hard and expensive. Some mentioned that non-existent or bad credit impacts their eligibility for rental and homeowner services, and limits access to high quality and affordable rental housing. Other participants talked about needing more education about the process, credit scores, and saving, and ultimately more down payment assistance.

The most repeated program that participants mentioned was rental assistance. One participant specifically noted that there should be rent assistance support available for those who just arrived in the US and have not secured a job yet. In terms of renting or owning a house, multiple participants also noted that they would like mortgage or down payment assistance. A common theme seemed to be that participants were seeking assistance or pathways to homeownership. Another program mentioned between the groups was the need for energy and utility assistance, as bills have been increasing. Other highly mentioned programs were legal support for renter rights, fair housing, discrimination, and eviction support. Multiple participants noted that faster relief is needed after applying for the programs, and ultimately, households need more education about what programs there are and what they do. For some, they would also need language and interpretation services. One comment to note was that a participant suggested having loan programs that are specifically designed for immigrants.

Some other programs that were mentioned but not as frequently were, internet or digital access assistance, weatherization, any programs to support single adults with children (specifically moms), gym amenities, home repair assistance, debt relief, foreclosure assistance and finally, food assistance.

Most participants expressed wanting to own a house in 10 years. A number of participants noted that they would like to own a larger sized house so that they can support their family and friends. Some participants expressed wanting to own multiple houses and some even mentioned being a landowner so that they can rent to other immigrants or refugees in the community. They expressed desire to do so in order to help build the economy, support the immigrant and refugee community, as well as reducing houselessness. A few participants mentioned that while they would like to own a house, the inflation and gentrification will make it nearly impossible to buy a home. Even renting may be expensive to them. Another participant agreed buying a house would be ideal, but they would probably continue renting.

Seniors within the Cambodian community expressed the desire to downsize. Finally, a participant said that moving away might be their only option because they can't afford to live here, and their social security is not enough to make ends meet. They noted that they may have to move back to Cambodia, but they don't have enough savings to do so.

For most groups, the communities mentioned larger houses that fit all the family members. Some expressed wanting 3 or more bedrooms, some wanted 4–5-bedroom houses, others wanted 6-bedroom houses that fit the entire family with bigger rooms, balconies, spaces for kids to play, and other factors. A participant specifically mentioned that they wanted a bigger or more spacious house in order to conduct business or to assist others. One participant specifically mentioned that ideally a house would have more than 3 bedrooms, a yard or grounds to play in, barbeque area, and a garden. A different participant mentioned that if they were to own a house, they do not want to be restricted by how they choose to decorate their house or what the conditions of their plants were. Within these groups, a large number of participants mentioned having space for multigenerational or multifamily living.

On the other hand, other participants were wanting smaller houses. Some participants mentioned that apartments and townhouses would fit their current needs. It was expressed that apartments and mobile homes are really good and important for what they need. Others want small single houses or single dwelling/houses. Something to note is that this was a common theme from the senior attendees, who had previously expressed wanting to downsize. These differences highlight that even among cultural communities, there are still a range of needs and desires as it relates to housing type.

Figure 77. East PDX BIPOC Community Meeting

Housing Developers

In addition to the housing barriers survey conducted by Commissioner Rubio's office, and presentations to Oregon Smart Growth and Portland members of the Home Building Association of Greater Portland, BPS conducted interviews with sixteen developers to discuss their experiences in developing housing in Portland, barriers to development, and strategies to increase housing production. BPS met with representatives from the following organizations:

- Edlen & Co
- Sabr Development
- Oregon Homeworks
- Fish Construction
- Project PDX
- Urban Roost Development
- Owen Gabbert LLC
- HomeWork Development
- SkipStone Development
- ROSE Community Development Corporation (CDC)
- Community Partners for Affordable Housing (CPAH)

Barriers to housing production identified through these conversations ranged from regulatory code barriers, financial and market factors, and building code/process issues. Strategies identified to respond to these barriers cover regulatory code, permitting and development process improvements, financing opportunities and housing innovation considerations.

SUMMARY OF COMMENTS ON BARRIERS TO RESIDENTIAL DEVELOPMENT

Regulatory Code Barriers

- **Form.** There is a disconnect over the allowable FAR and building coverage. Lot coverage ratios are constraining, with 10-20 percent more coverage usually needed to maximize the FAR (especially with middle housing). Height limits could be enough to prevent out of scale development. The lack

of allowances for single staircase buildings means apartment buildings must be built with double-loaded corridors on larger sites; single staircase buildings could better utilize small sites.

- **Zoning Code.** There is a perception that there are large sections of outdated/irrelevant/complicated code, especially for multi-dwelling buildings.
- **Inclusionary housing.** The long-term covenant on affordable units is less attractive to investors. Perception among developers is that ongoing compliance is difficult, and there is a fear the City will charge an excessive fee-in-lieu if projects fall out of compliance.
- **Ground floor requirements. Active ground floor use requirements** are difficult to make financially feasible and are 'subsidized' by the housing units. Eliminating these requirements would reduce housing cost. Commercial space is a "loss leader" and is an especially big barrier to affordable housing developers – building commercial space pushes developers into a higher prevailing wage bracket.
- **Cottage cluster common area.** The code dictates 20 percent common area/courtyard, even when each unit has individual yards.
- **Middle housing/cottage cluster utilities.** There is a perception of a misalignment in the way the City requires developers to provide infrastructure on middle housing and cottage cluster lots. Developers would prefer more control over the infrastructure that can be shared and the infrastructure that must be separated for each individual unit on the lot. For example, stormwater infrastructure can currently be shared for middle housing and cottage clusters, but sewer must be individually provided.

Financial and Market Factors

- **Homebuyer Opportunity Limited Tax Exemption (HOLTE) Program.** There is a disconnect between the income cap of buyers and the price cap of units. There are many unsold units in the HOLTE program due to high interest rates decreasing buyers' disposable income, as well as general demand and growing pains associated with a new building form (i.e., attached fourplexes/townhomes with no parking).
- **Development costs.** Material costs remain high, albeit they are better than one year ago. Labor costs are high and finding contractors can be challenging (labor shortage). High interest rates are the major barrier and can add major costs to projects, reducing the ability of developers to provide affordable units.
- **System Development Charges (SDCs).** SDCs, especially for parks, are one of the biggest line items in construction budgets (e.g., $25,000 per unit for 800 sq. ft. cottage). The recent change for deferred payments is not effective because the City is in "first position" which interferes with the bank financing.
- **Tree preservation**. The tree code can be cost-prohibitive for new development.
- **Feasibility issues.** It is hard to finance debt. 15-35-unit projects are particularly challenging. Rent is too low for market-rate projects in East Portland. It is difficult to add detached units to land with existing homes – the value of the house typically exceeds the value of land.
- **Affordable housing financing challenges.** Projects typically have more than 10 funders and providers have difficulty navigating compliance (e.g., ongoing annual income recertification) with each one. Prevailing wage requirements around affordable housing is an ongoing tension.

- **Land supply issues.** It is difficult to find sites appropriately zoned, especially for higher density development. Affordable housing providers are unable to compete with market-rate developers because of the longer timelines associated with financing and development.
- **Low rent growth.** Rent growth has slowed down but costs (and capital) have continued to increase, especially with interest rates. Developers expect the lack of new housing development (diminishing supply) to result in higher rent growth by 2025, which will improve development feasibility but exacerbate affordability issues.

Building Code and Process Issues

- **Permitting delays.** While permitting review timeframes have been improving as a result of the Permit Improvement Task Force work, there is a perception amongst some developers that delays in permitting still occur across bureaus and departments to varying extents (and that the Water Bureau, Urban Forestry, and PBOT are potentially responsible). Developers also suspect time-consuming inefficiencies that result from the City's desire for everything to be perfect throughout the permitting process (rather than simply "good enough"). Getting HOLTE waivers is considered a slow process by developers. Some delays are due to the inspection process; the building inspector once had more flexibility and discretion in the field (e.g., inspectors were once able to use an orange colored in-the-field check-sheet for small adjustments and requests, but that is no longer used). Work is ongoing to improve the permitting and inspection process, yet uncertainty leads to developer hesitation to embark on new projects, especially if a developer perceives the code is applied differently for multiple similar projects with a code applied differently for each, adding unnecessary costs.
- **Inspections.** Uncertainty and subjectivity add risk to development projects. Barrier to a FIR-like program is finding inspector who understands all areas.
- **Adjustments**. The adjustment process is a good tool, but it is very subjective (builders/developers are hesitant to use the process) and there is little guidance about what developers must do. It is also a 3-4-month process and requires neighborhood notification.

SUMMARY OF FEEDBACK ON STRATEGIES TO INCREASE HOUSING PRODUCTION

Regulatory Code

- **Simplify the Zoning Code.** Implement a 'lean code' such as Tigard's vertical housing development code. Identify cumbersome/vague/contradictory language to eliminate.
- **Simplify middle housing building code.** Implement a middle housing code for 1-4 units (detached and attached), cottage cluster for 5+ units. Add flexibility to support building either attached or detached units regardless of the existing property usage. Provide more flexible standards if the existing structure is preserved, e.g., additional floor area ratio (FAR).
- **Increase allowable density.** Upzone for 3-8 stories near public transportation, increase FARs and let height prevent out-of-scale development, strategically increase CM2, CM3, RM3, and RM4/RX zoning throughout city, and identify opportunities to eliminate commercial ground floor requirements. Explore opportunities to more liberally apply zoning that allows three-story walkups (RM2/RM3)—the most feasible multi-dwelling development type.

- **Create specific East Portland production strategy.** Increase housing density in areas where there is existing or future planning and investments, e.g., corridor improvements on Powell, 82nd, and 122nd, and TIF districts.
- **Identify commonly accepted adjustments and revise code.** For example, the East Portland Pattern Area rear setback of 25% depth of lot, but typically 5ft elsewhere.
- **Reduce off-street parking depth.** For example, if there is a garage, 18ft driveway, if no garage, it's 28ft driveway.
- **Advocate for State legislative changes**. Allow single-staircase buildings, expand use of single-dwelling code to middle housing, etc.

Permitting and Development Process Improvements

- **Simplify the permitting process.** Provide more criteria-based processes, offer streamlined permitting tracks for needed housing types and affordability, improve transparency and certainty in all areas, identify and eliminate unnecessary steps in the process, improve inter-bureau coordination, etc.
- **Streamline permitting for previously approved plans.** Projects previously approved in other locations could be replicated with minimal additional work and cost.
- **Reduce neighborhood notification and demo permits wait times.** Applications often take multiple rounds; improve the ability of permit reviewers to accept submissions. Revise the demolition permitting process (e.g., it could be criteria-based).
- **Simplify the inspection process.** Look at the Field Issuance Remodel (FIR) program as a model to middle housing. Improve the ability of inspectors to make in-the-field decisions without the need to resubmit plans.
- **Allow applicants to choose a code if code changes apply mid-permit process.** Code changes while projects are in the permitting process are challenging but can also be beneficial. All code changes should be available to projects in permitting process, i.e., developers could be allowed to 'pick' which code they use (original code versus new).
- **Explore revisions to the energy code.** Realign the code to reflect the sustainability benefits of multi-dwelling development, feedback was that it is inequitable having a more stringent code for multi-dwelling than single dwelling.
- **Explore opportunities for development partnerships** on institutional campuses near transit.

Financing Opportunities

- **Include fair housing elements as part of the bonus and incentive structure** so developers can maximize density/height.
- **Provide a middle housing revolving loan fund** to cover acquisition and entitlement fees to bridge the initial fees to get a construction loan.
- **Expand the affordable definition** to 100-120% to open up bonuses and incentives for middle income housing units.
- **Reduce fees** if needed housing types involved, e.g., lower tree removal fees for middle housing

- **Revise SDCs.** E.g., consider SDC waivers to increase production of certain housing types. Defer payment until building completion. Developers would like SDCs to be scaled to the size of unit and/or density on the lot, and consider location, proximity to amenities like parks, transit, etc.
- **Explore opportunities to support private development with public finance.** E.g., the City could provide tax abatement, credit enhancement for bonds, and/or below-market capital. City can also buy bonds at 2-3% and offer to developers (employers can also do this for employee housing).
- **Explore funding sources for off-site infrastructure improvements.**

Housing Innovation/Other

- Support recruitment, training and education for code officials working with mass timber.
- Align maximum building heights with mass timber (eight stories).
- Allow single staircase buildings for under 4-5 stories (state legislative changes needed).
- Promote state modular code for use at city level.
- Review existing codes and zoning policies and revise to encourage reusing existing buildings. For example, policies could include allowing single point of access, building flexibility into the energy code for historic structures, and realigning City policies with state and federal.
- Consider an expansion of historic resource incentives, which allow a variety of uses not otherwise allowed.

Internal Outreach

The City has many capable and knowledgeable experts among the staff and the many community members serving in advisory capacities. The project team extended the opportunity to collaborate, participate and advise on both the HNA and HPS with an internal working group, to several advisory committees or groups, Planning and Sustainability (BPS) Staff and decision makers within the City.

HPS Internal Working Group

This engagement serves to inform, update and collaborate with bureau partners involved in regulation and development of housing. Bureaus meet bi-monthly for a total of 19 times in order to collaborate on updates and revisions until council adoption of HPS in Summer 2024. Participation has included staff from the following bureaus; Housing, Planning and Sustainability, Development Services, Prosper Portland, Management and Finance, and Transportation.

City Advisory Committees and Groups

Development Review Advisory Council

The Development Review Advisory Committee (DRAC) is a community advisory body, representing those with interests in the outcome of policies, budgets, regulations, and procedures that affect development review processes.

- **HNA Meeting: August 17, 2023.** Presented HNA basics and received feedback.
- **HPS Meeting: February 15, 2024.** Presented HPS basics and received feedback.

SUMMARY OF COMMENTS

DRAC members engaged in discussions on some of these issues as well as suggestions. Areas of discussion included the difficulty in tackling income inequality and unaffordability, finding other opportunities for tax abatement or relief to help make projects feasible, addressing the difficulty in making smaller projects pencil when they trigger infrastructure improvements. Other suggestions included further incentivizing the adaptive reuse of buildings, and determining the amount of funding needs to be able to meet housing targets. One member suggested that the target numbers were aggressive considering past production and the capacity of the construction industry. Many jurisdictions and agencies are having similar conversations and there was a concern about focusing too much on only one aspect (affordability) and losing sight of the holistic housing need.

Historic Landmarks Commission

The Landmarks Commission is a community advisory body, that provides leadership and expertise on maintaining and enhancing Portland's historic and architectural heritage.

- **HPS Meeting: April 21, 2024.** Presented HPS basics and received feedback.

SUMMARY OF COMMENTS

- Initiatives E - G are necessary and preventative. Household retention will be very important to solve this problem which can reduce the need to create new housing. It will be important to include a strategy to preserve existing housing. A home ownership repair program would help such strategy as these are often expensive.
- Initiatives F & G are important to scope beyond the housing itself. There is a need to consider the surrounding environment to ensure it supports the community, including the aging and disabled populations where the housing is built. This includes locations near transit hubs, the importance of placemaking and contact with nature, and keeping people involved in the community.
- Look for opportunities to double up efforts so the focus goes beyond housing. Consider multiple funding sources, rather than siloing funds. Consider not just the units themselves but also how the density increases within the community, to create a healthier environment for all. Examples might include focusing on adding housing in the Central City to help support that area and focusing on improvements to unreinforced masonry structures by finding ways to fund reinforcing existing unreinforced masonry buildings.
- The cost of housing is one part of the calculation, but there are other layers of costs that are also contributing to making it prohibitive, like property taxes, increased costs of utilities, cost of permitting, etc.
- In alignment with these strategies, the Landmarks Commission has a track record of promoting density. Support the efforts here to prioritize retrofitting existing assets, as low carbon building policies start with buildings that already exist.

- Support advocating for the historic tax credit. This, when layered with other funding mechanisms, can make a big impact on the production of housing.

Design Commission

The Design Commission is a community advisory body that provides leadership and expertise on urban design and architecture and advances the purpose of the Design overlay zone.

- **HPS Meeting: April 18, 2024.** Presented HPS basics and received feedback.

SUMMARY OF COMMENTS

- Public outreach is important. The extensive public outreach for this project is appreciated. The recent Housing Regularity Relief (HRR) project had much less time for public outreach during the process.
- Provide help for the current market, address barriers. Many of the changes done in the Housing Regulatory Relief program benefit housing developers, however, they are not helping get projects off the ground.
    - The recent SDC fee deferral requires the City to be in the first position in the loan repayment. As currently written, however, it is not useful as the banks won't accept this.
    - There are permits that are waiting to be picked up that are currently unfinanceable. Extensions of these building permits would allow already entitled projects to move forward in the future, which could quickly get off the ground.
    - The City might consider purchasing buildings on market, and switch to affordable units.
- Educate the public on available funding. Much of this depends on funding available. It would be helpful to show, given available funds, how much of this work can be done now, and in how many years. This process could educate the public and also illustrate where there are the gaps. Otherwise, it may appear that the City is going to go out and do all of this.
- Focus on increasing housing production for the 0-30% sector. While increasing home ownership covers a wider range of incomes, this sector has the direst need of housing so is the most critical to support. Providing stable housing for unhoused or those at risk of losing housing can increase the quality of life for all city residents. Incentives such as zoning bonuses can help make those projects more effective to build, however, many of the changes done in the Housing Regulatory Relief program benefited development of all housing sectors, rather than focusing on this sector. Support going a step further to help deeply affordable projects.
- Supporting the public realm and the quality of communal life are critical components to consider when adding more density. While there is some reference to climate friendly requirements, language related to quality of life and the quality of the street, neighborhood and public realm is missing. Would like to see language related to public stewardship included to maintain and support the quality of life in communities as they continue to grow and densify.

Community Involvement Committee (CIC)

The Community Involvement Committee (CIC) reviews and advises the way City staff engage with the public in land use and transportation planning. This is an important part of the City's 2035 Comprehensive Plan Community Involvement Program, supporting the goals and policies of the Comprehensive Plan.

- **Meeting 1: June 2023.** Attended the CIC to present the HNA basics and receive feedback on how to communicate results and successfully gather input on needed housing.
- **Meeting 2: January 2024.** Attended the CIC to present the HPS basics and receive feedback on how to communicate draft strategies, develop survey and successfully gather input.

Planning Commission

The Planning Commission focuses on land use planning, while continuing to advance the policies in Portland's Comprehensive Plan. By holding public meetings and discussing issues and proposals, the commission advises council on plans and policies regarding such issues as housing. For the Housing Production Strategy, the Planning Commission was engaged in an advisory capacity.

- **Meeting 1. December 12, 2024. Present HPS Outreach Plan.** Presented proposed outreach plan and DLCD BIPOC outreach grant.
- **Meeting 2. May 28, 2024. Present HPS Draft.** Presented Discussion Draft of the Housing Production Strategy and additional required elements for comment.
- **Meeting 3. June 11, 2024. HPS Planning Commission Discussion.** Concluded discussion of HPS.

SUMMARY OF COMMENTS

- Commissioners heard about study versus embark on a project and would like to understand the ability of staff to firm up commitments.
- Some commissioners expressed support that the City declared housing emergency, this should inform the HPS and place urgency on the work.
- A commissioner expressed support for Expanding Opportunities for Affordable Housing as a terrific project and agree that we should focus on this as Habitat has done and is knowledgeable about. It's not just land; properties are also selling for much lower than what we can even build. We need to be nimble.
- A commissioner expressed support for Climate-friendly and healthy homes have to do with the building and the edge of building codes… but the real opportunity is about how we power our homes, which is the much larger items. The City is not projecting much growth in the RCAA in close-in neighborhoods given the zoning capacity. From an equity perspective, this is a glitch. If we had the benefit of the RCAA analysis, we wouldn't have a comment in the Comprehensive Plan versus the actual density we have in inner southeast neighborhoods right now.
- A commissioner expressed support for Disability-friendly housing as "everybody housing," which is a greater home for the present as well as the future.

- Some commissioners wanted to know, How do we ensure the HPS is actionable and moves us forward?
- A commissioner expressed support to Urge bureaus to look at the 80% MFI as the threshold versus lower to reach more people.
- A commissioner expressed concerns around increasing the transient lodging tax could be counterproductive for an industry that's been facing challenges since the pandemic.
- Some commissioners expressed support that this is becoming more specific, and that staff are setting a good example on this.
- A commissioner expressed concerns around strategies that would support eliminating prevailing wage requirements.
- Some commissioners wanted to know if, based on recent testimony, about converting existing buildings into housing. Are there opportunities to include that to address the climate implications of demolition and building new?
- A commissioner expressed support for including PCEF SP3 in the "Promote climate-friendly and healthy homes" category. PCEF announced the SP3 Program which provides $140 million for over 3000 homes for home energy assessments and follow up work.

Additionally, the following letter has been submitted:

Portland Planning Commission

Mary-Rain O'Meara, Chair

Erica Thompson, Vice Chair
Nikesh Patel
Steph Routh

Michael Pouncil, Vice Chair
Michael Alexander

Wade Lange
Eli Spevak

July 23, 2024

Dear Mayor Wheeler, Commissioner Rubio, and Commissioners Gonzalez, Mapps, and Ryan:

The Planning Commission, serving in its non-legislative, advisory role, has reviewed the draft Housing Production Strategy (HPS) for consistency with relevant 2035 Comprehensive Plan policies. We are impressed with the work of staff from Bureau of Planning and Sustainability, Portland Housing Bureau, Prosper Portland, Portland Planning and Development, and Portland Bureau of Transportation as well as other City, regional, and state partners for their ongoing efforts and coordination.

The Planning Commission finds that the HPS is consistent with the goals and policies of the Comprehensive Plan. Specifically, there are five housing goals, each of which are addressed in the HPS:

- **Housing Diversity**. Initiatives such as Promote Affordable Housing (0-80% AMI), Increase Access to Opportunity, Promote Age and Disability Friendly Housing and Increase Middle Income Housing and Homeownership aim to further this goal.
- **Equitable access to housing.** The HPS makes a special effort to remove disparities in housing access for people with disabilities, people of color, low-income households, diverse household types, and older adults The HPS addresses this goal through initiatives such as Promote Affordable Housing, Increase Access to Opportunity, Promote Age and Disability Friendly Housing with specific strategies like Create New Tax Increment Financing (TIF) Districts, Rezone Sites for Affordable Housing, and Conduct Inclusionary Housing (IH) Program Periodic Review.
- **Healthy connected city**. Living in safe, healthy housing that provides convenient access to goods and services that meet daily needs is a key principle of the Comprehensive Plan. Initiatives such as

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Promote Affordable Housing (0-80% AMI), Increase Access To Opportunity and Promote Age, and Disability Friendly Housing aim to further this goal through strategies such as Create New Tax

Increment Financing (TIF) Districts, Rezone Sites for Affordable Housing, Increase Housing Capacity in Inner Centers & Corridors, Revise Zoning Bonuses and Incentives, Increase Housing Capacity in the Central City, and Identify Housing Opportunity Along 82nd Avenue.

- **Affordable housing**. The HPS initiatives Promote Affordable Housing (0-80% AMI), Stabilize Current and Future Households, Increase Middle Income Housing and Homeownership and Advocate at State and Federal Level promote this goal through strategies like Replace Housing Bonds Revenue Source, Establish a Comprehensive Citywide Land Banking Strategy, Expand Homeownership Programs, Rezone Sites for Affordable Housing, Preserve Existing Affordable Housing, and Advocate for preservation of expiring regulated affordable units.
- **High-performance housing.** Portlanders need access to resource-efficient and high-performance housing. The initiatives Promote Climate Friendly and Healthy Homes and Advocate at State and Federal Level further this goal through strategies such as Support Mass Timber and Modular Innovations, Develop Low Carbon Building Policies, Promote Commercial to Residential Conversion / Adaptive Reuse, Implement Heat Adaptation Recommendations, Advocate for reduced embodied carbon strategies, for all electric housing production, and for additional infrastructure resources.

To meet our housing goals, we need to increase production significantly and make living in Portland safe and affordable for everyone and all abilities. The HPS addresses Portland's housing needs in a way that achieves our housing, urban design, climate, health, and equity goals as articulated in the 2035 Comprehensive Plan.

The HPS lays out an ambitious five-year action plan with specific strategies across a wide range of issues. The Planning Commission looks forward to working with the Mayor and City Council to implement these actions to meet our long-term housing goals.

Sincerely,

Mary-Rain O'Meara Chair

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Decision Makers

The project team presented at Planning Commission and City Council meetings several times during the HNA / HPS process, corresponding to the timing of specific draft deliverables. The purpose of these meetings was to provide decision makers with information from the project and ask for feedback on key questions about assumptions and policy issues in addition to adoption of the final reports and policies as directed by the state.

Planning Commission

The Planning Commission focuses on land use planning, while continuing to advance the policies in Portland's Comprehensive Plan. By holding public hearings and discussing issues and proposals, the commission develops recommendations to share with City Council. The Housing Needs Analysis was adopted as part of a legislative process that modified the Portland Comprehensive Plan, the Planning Commission served both an advisory and legislative role in the Housing Needs Analysis.

- **Meeting 1. April 25, 2023. Introduce the HNA.** Staff provided a brief introduction to the HNA, HPS, and BLI, providing Planning Commission with information on its purpose, the process, the regulatory requirements, desired outcomes, and potential issues.
- **Meeting 2. September 26. HNA Planning Commission Hearing.** Testimony on the proposed draft collected from 08/17 to 09/26.
- **Meeting 3. October 10. HNA Planning Commission Continued Hearing and Work Session**
- **Meeting 4. October 24. HNA Planning Commission Recommendation.**

City Council

- **Meeting 1. July 26th, 2023. Joint Bureau Council Office Briefing/ Housing Work Session.** Alongside PHB, Prosper Portland and BDS, presented the HNA as well as ongoing and future housing work across bureaus.
- **Meeting 2. December 6th, 2023. City Council Hearing. Adopt the HNA. Present preliminary summary of housing production strategies.** City Council heard testimony on the Housing Needs Analysis and City staff presented a preliminary summary of existing and some drafted future strategies to the City Council and receive feedback.
- **Meeting 3. January 9th, 2024. City Council Resolution.** Adopt DLCD Grant for BIPOC outreach.
- **Meeting 4. August 28th, 2024. Present draft Housing Production Strategy.** BPS will attend one City Council meeting to present the draft HPS report and make revisions based on Council review.

- **Meeting 5. September 11th, 2024. Adopt final Housing Production Strategy Report.** BPS will attend one City Council meeting to respond to any final questions on the Housing Production Strategy.

Technical Advisory Committee (TAC)

The City recruited and established a Technical Advisory Committee (TAC) made up of members of regional jurisdictional partners to review and provide feedback on the analysis and guide strategy development. The HNA/HPS TAC meetings occurred as follows:

- **Meeting 1. May 2023. Project kickoff.** Staff provided an overview of the HNA and overall process, including project schedule, regulatory requirements, and desired outcomes. Staff presented the preliminary findings of housing needs, including key findings of the draft housing needs projection. The draft HNA was made available for TAC review and comment at this meeting.
- **Meeting 2**. **October 2023. Identify unmet housing need and policy gaps.** The TAC discussed a list of strategies to address housing need in Portland, gaps in existing housing policies and equity issues. Staff worked with the TAC to draft new strategies.
- **Meeting 3. December 2023. Develop details of each strategy.** This meeting continued the discussion from the previous meeting. It included finalizing a list of strategies and soliciting advice on the relative priority of each strategy.
- **Meeting 4. April 2024. Finalize strategies.** The TAC discussed the final list of strategies and discuss the timing of implementation of each strategy. The draft HPS report was made available.

Participants:

HNA Participants	Additional HPS Participants
Metro • Ted Reid, Dennis Yee, Clint Chiavarini **Portland Housing Bureau (PHB)** • Jessi Conner, Antoinette Pietka, Jill Chen **Multnomah County** • Max Nonnamaker, Abe Moland **Department of Land Conservation and Development (DLCD)** • Kelly Reid, Sean Edging, Celestina Teva **Portland State University** • Alan DeLaTorre	*Joining the HNA TAC members, these participants were brought into the TAC in Fall 2023.* **Metro** • Emily Liebe **Prosper Portland** • Lisa Abuaf, Sarah Harpole, Justin Douglas **Bureau of Planning and Sustainability (BPS)** • Ludwig Salzmann, Kyle Diesner **Joint Office of Homeless Services (JOHS)** • Lori Kelley, Jenna Kivanc, Claudia Sharygin

Core Engagement Principles

At BPS, it is our responsibility to seek out the voices and interests of underserved and underrepresented communities who may be impacted by a decision and use an equity framework to:

- Identify disproportionate adverse effects this work may have on a community, particularly low-income populations and communities of color.
- Identify ways in which communities' needs inform planning, investment and implementation

We know that we must intentionally allocate resources to overcome the cumulative impacts of institutional racism on historically underserved and under-represented people. Investing resources into quality engagement can prevent costly course corrections in the long run. Because community engagement with communities of color and low-income populations is highly relational, one of the best investments is ample staff time to develop relationships with underserved and underrepresented community members. Navigating across cultures and addressing previous negative experiences with government requires both cultural competency skills and time. It is important to note this work does not begin and end with a project but is an ongoing investment connected across projects over time.

When beginning to engage communities, staff have worked with the Equity and Engagement team closely and have been encouraged to center impacted community and continually ask;

- Has the design of this initiative been analyzed for cultural relevancy or versatility?
- Have select racial/ethnic groups been inequitably impacted or denied access by this work, or similar/related types of initiatives in the past?
- Is personal wealth or income a determining factor in the ability to benefit from this initiative?
- Is participation reliant upon an individual's ability to comfortably interact with mainstream educated, middle- and upper-class persons, BPS employees AND/OR their designated consultants?

Outreach Questions

Community Survey Questions

This survey has eight sections, each asking questions about different needs and experiences around housing. The sections are:

1. About you
2. Current needs
3. Challenges
4. Accessibility
5. Future needs
6. Priorities and Closing thoughts

1. What zip code do you live in?
2. Do you own or rent the housing you live in? (Select one)
    a. Rent
    b. Own
    c. Occupy without paying rent
    d. I don't rent or own
3. What type of housing do you live in? (Select one)
    a. Single home (detached from any other house)
    b. Mobile or manufactured home
    c. Accessory dwelling unit (ADU) (a smaller unit that shares a lot with a main dwelling, may be attached or detached)
    d. Duplex/triplex/quadplex (building with 2-4 units)
    e. Apartment/Condo (5+units)
    f. Retirement community or Assisted care/living facility
    g. Other (please specify)

Please answer these questions thinking about your and/or your household's current needs
Think about your household size, your accessibility needs, where your house is located, etc.

4. What is most important to you about a home? Please only select three as "high importance" (Options – high importance, medium importance, low importance)
    a. Affordable price/rent
    b. Size / Number of bedrooms
    c. Car Parking
    d. Access to outdoor space (Yard, garden, patio, etc.)
    e. Location (Close to employment/family, etc.)
    f. Neighborhood amenities/features
    g. Other (please specify)
        i. Please specify what other features are most important to you about a home.
5. What are the most important qualities for your ideal neighborhood? Please only select three as "high importance."(Options – high importance, medium importance, low importance))

a. Bike routes
b. Bus and transit options
c. Employment opportunities
d. Shopping and dining opportunities
e. Parks, natural areas and outdoor recreational areas
f. Schools and educational opportunities
g. Proximity to my cultural community
h. Community center or library
i. Medical services availability
j. Other (please specify)
    i. Please specify what other qualities your ideal neighborhood has.

Please provide more information to help us understand your needs.

6. What difficulty, if any, have you had **finding or staying in** housing that meets your needs in Portland? (Options – extreme difficulty, some difficulty, no difficulty, this does not apply to me)
    a. Finding housing in my price range
    b. Affording mortgage or property taxes
    c. Affording utility costs
    d. Affording necessary home repairs
    e. Finding housing in my preferred location
    f. Finding housing in livable conditions
    g. Finding housing that meets my or my household's accessibility needs
    h. Finding housing with enough rooms for my family
    i. Finding housing where I or people in my household felt safe
    j. Denial of housing due to credit or rental history
    k. Denial of housing due to discrimination
    l. Facing eviction threats or conflict with landlords
    m. Other
        i. Please specify what other difficulties you have had finding housing that meets your needs in Portland.
7. Which of these programs might be helpful to you or your household? (Choose all that apply)
    a. Rent assistance
    b. Eviction legal support
    c. Fair Housing/Anti-Discrimination
    d. Utility assistance
    e. Home repair assistance
    f. Down payment assistance
    g. Debt relief
    h. Foreclosure assistance
    i. Internet or digital access assistance

j. None
k. Other (please specify)

8. What challenges have you and/or your household had finding accessible units? (Choose all that apply)
    a. It is difficult to find any accessible unit
    b. It is difficult to afford an accessible unit
    c. It is difficult to find an accessible unit that specifically accommodates my needs
    d. Units that are accessible are not reserved for people with disabilities
    e. It is difficult to make my existing space meet my needs
    f. This doesn't apply
    g. other (please specify)
9. What accessibility features are needed in your housing? (Choose all that apply)
    a. Wider doorways / space for wheelchairs to move throughout the home,
    b. Low/adjustable cabinets and countertops,
    c. Grab bars in bathrooms / non-slip surfaces
    d. An accessible parking spaces
    e. Extra space for medical equipment
    f. Visual/audible alert systems
    g. No-step entry/ramps
    h. Level and complete exterior pathways and/or sidewalks
    i. Other (please specify)
10. What programs would support you or others with disabilities in helping make housing that meets your needs?
    a. Home modification programs
    b. Weatherization programs
    c. Transportation and mobility
    d. Home and community-based support services
    e. Renter/homeownership education
    f. Other (please specify)

Answer these questions thinking about the housing needs you and/or your household might have in the **next 10 years**. Think about your household size, your accessibility needs, etc.

11. Will your current living situation meet your housing needs 10 years from now?
    a. Yes
    b. No
12. If no, how do you expect your housing needs to change 10 years from now?
    a. Switching to homeownership
    b. Needing greater accessibility
    c. Downsizing – needing less space
    d. Upsizing – needing more space
    e. Needing assisted living
    f. Other

13. Considering that most of Portland's new housing will be in apartment buildings, what features or amenities would make living in an apartment more appealing or possible for you? Please only select three as "high importance." (Options – high importance, medium importance, low importance)
    a. Affordable price/rent
    b. Larger bedrooms
    c. Multiple bedrooms
    d. Access to outdoor space
    e. Sound and noise privacy
    f. Adequate heating and cooling
    g. Property security
    h. Community spaces
    i. Access to car parking
    j. Secure bike parking
    k. Neighborhood amenities/features
    l. Other (please specify)
        i. Please specify what other features or amenities are most important to you about an apartment.

Which housing strategies are the most important/highest priority in Portland? Please only select three as "high importance."(Options – high importance, medium importance, low importance)

a. Promote Affordable Housing (0-80% AMI)
    i. increase the supply of regulated and unregulated affordable housing units
b. Increase Homeownership
    i. Improve homeownership rates, retention, and locational choice for people of color and other groups who have been historically under-served and under-represented
c. Increase Access to Opportunity
    i. ensure equitable access to housing and increase the number of Portlanders living in safe, healthy housing with convenient access to jobs, goods and services that meet daily needs
d. Reduce Barriers to Development
    i. address known regulatory impediments to building needed housing
e. Stabilize Current and Future Households
    i. support the stabilization of households, prevent houselessness, and reduce housing insecurity
f. Promote Age and Disability Friendly Housing
    i. further Portland's ability to ensure equitable access to housing, making a special effort to remove disparities in access for people with disabilities and older adults
g. Promote Climate Friendly and Healthy Homes
    i. promote the development of climate friendly and healthy homes so that there is access to high-performance housing for people of all abilities and income levels

h. Advocate at the State and Federal Level
    i. some changes in codes or regulations that would promote production require the City to advocate at the State and Federal level
i. Other (please specify)
    i. Please specify which other housing strategies are most important/highest priority in Portland.

14. Is there anything else you'd like to share that would help us better understand your housing needs and challenges?

Questions for Developer Outreach

Questions for Affordable Housing Developers/Designers:

- What types of incentives are most beneficial to your organization?
- What are other ways that local governments have supported your work?
- Does your organization include accessibility features beyond the minimum federal requirements? What are the barriers to providing accessible units?
- Do you think financial, or code incentives would be effective in delivering more accessible units? What about requirements for accessibility beyond federal standards?
- One of the needs identified in Portland is more housing for multi-generational families. Does your organization provide units that meet these types of needs? What are the barriers? Would bonuses be an effective way to encourage multiple bedrooms?
- Do you see opportunities for SRO development in Portland?

Questions for Middle Housing Developers:

- What challenges have you faced developing middle housing in Portland?
- Are there development code or process barriers that should be addressed to make middle housing easier to build in Portland?

Questions for Multi-Dwelling Developers/Designers:

- Are there development code or process barriers that you think should be addressed to make multi-dwelling housing easier to build in Portland?
- Do you think higher allowed densities would make housing units more affordable? What density range would you target if there were no limits (except height)?
- Does your organization include accessibility features beyond the minimum federal requirements? What are the barriers to providing accessible units? What are the costs?
- Do you think financial, or code incentives would be effective in delivering more accessible units? What about requirements for accessibility beyond federal standards?

Summary of Engagement from Recent Projects

Homelessness Response Action Plan

The core goals of the plan include sheltering or housing an additional 2,699 people who are sleeping outside by Dec. 31, 2025; adding 1,000 units of shelter, which would increase shelter system capacity by nearly 40%; reducing homelessness among vulnerable populations (including people of color and LGBTQIA2S+ people); adding hundreds more behavioral health beds; opening a drop-off sobering center; and increasing the supply of affordable housing. The plan builds on the initial draft shared in spring 2024 with added goals and action items based on community feedback collected from nearly 200 emails and from nearly 300 people engaged during public forums and presentations:

- Better meeting the housing needs of refugees and asylum seekers through coordination with other governments and community partners.
- Supporting and expanding the behavioral health workforce.
- Increasing outreach services at library locations.
- Funding additional day services for people experiencing homelessness.
- Better meeting the accessible housing and shelter needs of people with physical disabilities.
- Increasing access to behavioral healthcare for people who have been involved in the criminal justice system by committing ongoing funding to the Department of Community Justice's Stabilization and Readiness Program.
- Developing an integrated healthcare management platform to coordinate care across housing and healthcare providers.
- Further acknowledging the geographic diversity and different service environments of East County.
- Adding a general member of the public to the Community Advisory Subcommittee — an oversight committee for the plan and for the Joint Office — to better align with the County's requirements for Community Budget Advisory Committees.
- The plan also updates or adds timelines for work that involves partners such as the Oregon Legislature.

Feedback was solicited through several avenues, including a joint session with the Board of County Commissioners and Portland City Council on March 12, multiple town hall meetings, and multiple direct meetings with service providers, business and health system partners.

Regulatory Improvement Code Amendment Package (RICAP 10)

RICAP projects are typically scoped based on items that have been entered into the Regulatory Improvement Request database that contains requests from city staff and the public for changes to the Zoning Code. Project staff sorted through the database and selected items that fell under the themes of housing production, economic development, or regulatory improvement. This formed the basis for the RICAP 10 Discussion Draft, which was released in November of 2023. The Discussion Draft was made available to the public and shared with all of the district coalitions and neighborhood associations, a broad spectrum of community groups and nonprofits that focus on land use, housing, equity and environmental concerns, as well as to the BPS email newsletter network. Comments on the draft were accepted through the MapApp, the BPS public comment and testimony database, in November and December of 2023.

The RICAP 10 Proposed Draft was released in January of 2024. Project staff met with neighborhood and community groups to present the project and discuss the proposals in more detail, including the land use groups for North Portland Neighborhood Services, Southeast Uplift, and the Southwest Land Use and Transportation Forum. Stakeholder engagement included meeting with the Development Review Advisory Committee, the Design Commission, and the Landmarks Commission. Ten pieces of written testimony were submitted via the MapApp, and one person testified at the RICAP 10 hearing before the Planning Commission on February 27, 2024. The Planning Commission made their recommendation for City Council to approve the proposal with two amendments on March 26. A public hearing on the project was held May 23.

Housing Regulatory Relief (HRR) Project

The genesis of the HRR project was in the survey that was done by Bureau of Development Services and sent to over 3,000 people who engage in the development review process, including applicants, developer, housing non-profits, newsletter subscribers and employees. The survey asked for a ranking of items based on the challenges impacting development. Over 600 responses were received and released in March 2023. The results of the survey, along with additional conversations with Bureau Development Services resulted in the HRR workplan.

The Proposed Draft was released in September 2023, and notice provided to the cities legislative list. The Bureau's Map App testimony database was opened up to allow people to testify directly to the system. Information was also provided through BDS' Plans Examiner newsletter in order to reach those who had participated in the survey. BPS staff also reached out to various interest groups and stakeholders who could potentially be impacted by the proposed amendments. The Planning Commission hearing included over 200 pieces of written testimony, and 30 people testified in person. As a result of this testimony, the Planning Commission amended the staff proposal on the ecoroof suspension and removed the amendments waiving bird-safe glazing.

During the public outreach period for both the Planning Commission and City Council hearings, staff also presented the proposal at neighborhood associations and district coalition meetings as well as with various interest groups. The City Council hearing on January 10, 2024, also generated a significant amount of testimony, much of it in support of the changes that the Planning Commission had made. Approximately 50 people testified at the hearing, and over 400 pieces of testimony was submitted through the Map App. The Council considered the recommendation, the scope of the testimony and a set of amendments, before ultimately approving the package with three amendments.

Housing Regulatory Survey Response Code Change

The online survey was open from Feb. 16 through March 3, 2023. Participation in the survey was promoted via email to:

- Those who applied for construction permits for housing-related projects since January 2019
- Non-profit organizations involved in the development of new housing units
- Business associations serving companies and consultants involved in housing development
- Subscribers to the Bureau of Development Services' Plans Examiner newsletter
- Employees involved in permitting functions at the City of Portland's seven development review bureaus (Development Services, Environmental Services, Fire and Rescue, Housing, Transportation, Urban Forestry, Water)

611 responses were received while the initial request for participation was sent to approximately 3,100 email addresses. Participants were provided a list of more than 20 current requirements in the development of new housing and asked to rank the top five they believe should be suspended or modified to encourage new housing development. That list represented feedback the City had already received over recent years.

Figure 78. Top Ten Policies That Received The Highest Numbers Of Top Five Priority Rankings

Policy	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Total count
Bicycle parking requirements	53	54	37	34	45	223
System Development Charges (SDCs) – timing of payment	66	35	46	26	45	218
Floor area ratio (FAR) limits	44	45	27	27	20	163
First floor active use requirement	31	44	31	27	23	156
Reduced public infrastructure requirements	29	27	25	36	28	145
Demolition delay requirements	29	23	32	26	26	136
Non-conforming upgrade requirements	24	23	26	37	22	132
Parking impacts analysis	30	19	35	18	28	130

Policy	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Total count
Maximum height limit	35	28	21	27	17	128
Bird-safe glazing requirements	15	23	28	20	38	124

Source: BDS Survey Results

The priorities identified were fairly consistent across these categories. Bicycle parking requirements, first floor active use, and timing of SDC payments ranked among the top four considerations across most participant categories. Only the two categories with the smallest numbers of respondents—non-profit developers and permit runners—did not mention SDC payments in their top five priorities. Non-profit developers are not subject to SDCs.

Portland Insights Survey

A few items were included in the Portland Insights survey that focused on housing and houselessness. Respondents were asked to identify the solutions to houselessness they would support being built in their neighborhood and if they knew about and needed the rental and housing assistance program and the water, sewer, and stormwater bill payment assistance program.

- A variety of solutions to address houselessness were identified by respondents, with Substance Abuse and Mental Health Clinics (65.2%) and Subsidized Apartment Complexes (61.9%) constituting the most frequently selected options.
- Over half of respondents (55.5%) knew about the Rental and Housing Assistance Program and the Water, Sewer, and Stormwater Bill Payment Assistance Program (53.3%), while proportions of respondents who need each of those programs were also comparable (18.3% and 18.1%).
- The proportions of individuals who needed but didn't know about the Rental and Housing Assistance Program (7.3%) and the Water, Sewer, and Stormwater Bill Payment Assistance Program (7.5%) suggest that educating the community about the programs would be beneficial. The largest proportions of respondents who needed, but did not know about the Water, Sewer, and Stormwater Bill Payment Assistance Program were in North (53.9%), Northeast (42.1%), and East (41.9%) Portland. The areas with the largest proportion of respondents who needed but did not know about the Rental and Housing Assistance Program were East (46.9%) and Southeast (44.7%).
- Respondents identified which solutions to houselessness they would support being built in their neighborhood. Approximately two-thirds of the respondents selected Substance Abuse and Mental Health Clinics (65.2%) and Subsidized Apartment Complexes (61.9%). Slightly over half of the respondents selected Indoor Shelter Facilities (54.0%) and Tiny Houses/Pods (50.4%).
- The majority of narrative responses to the survey's open-ended questions had things to say regarding housing, houselessness, and the increased number of camps within the city. Respondents

mentioned seeing and being affected by the increased numbers of camps and those living on the streets – in tents, in cars, and in RVs. Feelings of not being safe when having to walk around encampments that are located on the sidewalks, dirty streets and accumulated trash, and open drug use and criminal activity have created sadness, frustration, and anger for many Portlanders. A variety of ideas were shared about what to do with and how to support those who are houseless.

Aging and Disability Engagement

Extensive outreach was done in the work staff did for the Age- and Disability-Inclusive Neighborhoods (ADIN) working group and in the development of the Age- And Disability-Inclusive Neighborhoods (ADIN) Plan – BPS relied heavily on the extensive engagement and documentation done in this process so as to not over burden or be redundant in outreach. The ADIN coordinator worked with the project team to summarize the following efforts:

- Age- and Disability-Inclusive Neighborhoods Action Plan (ADIN) Discussion Draft [135]
- Age-Friendly Portland Cities Project [136]
    - Age-Friendly Portland Qualitative Research (With older adults, caregivers, and providers) [137]

Summary of Age- and Disability-Inclusive Neighborhoods On Housing Needs and Priorities

- Increase options for housing generations together or in close proximity.
- Increase range of accessible housing options to meet residents' aging and disability needs.
- Increase incentives for developing new accessible housing and retrofitting existing housing stock near transit and key services (e.g., bonuses, SDC waivers) so that they are "visitable" (i.e., no-step entrance, accessible hallways/doorways, and amenities on single floors).
- Update incentives for zoning code 33.229: Elderly and Disabled High Density Housing.
- Ensure housing accessibility is part of needs analysis and future planning actions.
- Support the addition of physically accessible housing in required Department of Land Conservation and Development (DLCD) needs analyses and housing production strategies.

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[135] https://www.portland.gov/bps/planning/adin/documents/adin-action-plan-discussion-draft-october2023/download

[136] https://extranet.who.int/agefriendlyworld/wp-content/uploads/2014/05/PORTLAND-OREGON-USA-1.pdf

[137] https://extranet.who.int/agefriendlyworld/wp-content/uploads/2015/03/Age-Friendly-Cities-Project-in-Portland-Oregon-Summary-of-Findings.pdf

- Strengthen the focus on addressing houselessness for older adults and people with disabilities and ensure their rapid re-housing when they are experiencing houselessness.
- Because the process to apply for affordable housing is too difficult, Navigation should be available to help to fill out the forms and understand the systems and requirements/criteria.
- Streamline the many venues for referrals to housing, social services, etc., so people do not have to call multiple agencies. A one-stop source of information, answers, and referrals.
- Educate building industry and companies that provide rental housing and tenants' organizations about reasonable accommodation (RA) and reasonable modifications (RM)
- Educate PHB and others to require new apartment buildings to provide adequate parking. When parking bleeds into nearby neighborhoods, seniors and the frail have difficulty parking close to their homes. Leverage the trend to eliminate the requirement for parking for new apartment construction to include space for rideshare vehicles, safe curbside pick-up, vehicles for residents with disabilities.
- Create additional affordable housing for older adults and those with disabilities who have fixed or restricted incomes; limit property tax increases; assist older adults who are experiencing "condo conversions" (e.g., provide ample time for relocation, provide relocation assistance, including help with moving expenses); ensure housing near concentrated services is affordable.
- Provide a continuum of housing and care options that allow individuals to age in place within their neighborhood; explore the development and implementation of multigenerational and co-housing/cooperative housing that cut costs, offer shared facilities, and foster a sense of community, but recognize that these options will appeal to only some older adults; promote the current zoning allowance of ADUs as a viable and affordable option for older adults or for their caregivers or family, or for renting out as a source of additional income; explore a public program to facilitate the development of quality and appropriate ADUs in Portland; educate older home buyers concerning how best to age in place (e.g., find housing with services and transit nearby.
- Locate new age-specific developments (e.g., assisted living, co-housing) near services (e.g., grocery stores, parks, public transit options); ensure developments near planned centers and corridors are accessible, available, and affordable to older adults; develop links between programs for children and older adults (e.g., safe routes to schools/community centers); locate key services in areas where there are large or growing populations of older adults; co-locate more services for older adults.
- Develop housing with green spaces, gardening areas, and balconies; allow pets in housing for older adults; for new developments, consider design possibilities to make them more accessible to an aging population (e.g., elevators in smaller buildings, town homes with accessible ground floor units); install higher toilets, higher electrical outlets, and door levers instead of handles for those with physical and cognitive disabilities; consider allowing accessibility improvements made by renters in housing to remain rather than requiring the unit to be restored to its original condition;

design apartments and other shared housing for older adults to have windows facing hallways to foster a sense of community and safety; change building codes to require better accessibility in all homes; consider designing new housing to accommodate not only residents but also visitors with disabilities; develop an adequate supply of housing that has level entries (or ramps), first-floor bathrooms, rocker light switches, and wide hallways and doorways for wheelchair entry; provide seating and waiting areas outside of housing; develop single-level housing or multi-level housing with elevators or ground floor units; develop flexible housing that can be easily converted into multiple dwellings and/or remodeled to add accessible features (e.g., grab bars); reduce glare on floors (e.g., avoid direct light shining on floor, use blinds and dimmers); eliminate dramatic changes in floor color; remodel housing so that it appears similar to prior living arrangements to aid those with cognitive impairment; install radiant heating in floors; place locks on doors and cabinets.

Appendix D. Pre-Housing Production Strategy Survey

Figure 79. Pre-Housing Production Strategy Survey

Housing Portal Pre-HPS Survey Submission Page: 1 of 5 Year: 2022 City: Portland Submitted Date: 12/02/2022 6/11/2024 1:54:12 pm

Category	Strategy	Encourage Needed Housing	Increase Affordability	Reduce Rent Burden
A - Zoning and Code Changes	A01 - Ensure Land Zoned for Higher Density is not Developed at Lower Densities	Yes	No	No
Comments:				
A - Zoning and Code Changes	A02 - Zoning Changes to Facilitate the Use of Lower-Cost Housing Types	Yes	No	No
Comments:	Shelter to Housing Continuum project legalized many smaller lower cost shelter options. Residential Infill Project increased ADUs (2 per lot) and middle housing types			
A - Zoning and Code Changes	A03 - FAR, Density, or Height Bonuses for Affordable Housing	Yes	No	No
Comments:	Multi-dwelling and low-density residential zones include larger FAR and height bonuses for projects with more than 50% of units are regulated affordable units.			
A - Zoning and Code Changes	A05 - Code Provisions for ADUs	Yes	No	No
Comments:	Residential Infill Project changes allow for two ADUs on a lot.			
A - Zoning and Code Changes	A06 - Broaden the Definition of Housing Type	Yes	No	No
Comments:	Shelter to Housing Continuum Project			
A - Zoning and Code Changes	A08 - Promote Cottage Cluster Housing	Yes	No	No
Comments:	Residential Infill Project Phase 2			
A - Zoning and Code Changes	A09 - Short-Term Rentals Regulations	Yes	No	No
Comments:				
A - Zoning and Code Changes	A10 - Inclusionary Zoning	Yes	No	No
Comments:	Adopted and effective in 2017			
A - Zoning and Code Changes	A11 - Add Restrictive Covenants to Ensure Affordability	Yes	No	No
Comments:				
A - Zoning and Code Changes	A13 - FAR & Density Transfer Provisions	Yes	No	No

Category	Strategy	Encourage Needed Housing	Increase Affordability	Reduce Rent Burden
A - Zoning and Code Changes	A14 - Re-examine Requirements for Ground-floor Retail/Commercial	Yes	No	No
Comments:				
A - Zoning and Code Changes	A16 - Manufactured Housing Community Preservation Zone	Yes	No	No
Comments:				
A - Zoning and Code Changes	A17 - Small Dwelling Unit Developments	Yes	No	No
Comments:				
A - Zoning and Code Changes	A18 - Increase Density near Transit Stations and Regional Multi-use Trails	Yes	No	No
Comments:				
A - Zoning and Code Changes	A24 - Legalize Alternative Housing Types on Wheels and in Parks	Yes	No	No
Comments:				
A - Zoning and Code Changes	A25 - Legalize and Encourage Tiny Homes and Villages	Yes	No	No
Comments:				
B - Reduce Regulatory Impediments	B01 - Remove or Reduce Minimum Parking Requirements	No	Yes	No
Comments:	Current - Reduced minimums near transit. Spring 2023 - eliminate minimums per CFEC rule requirements			
B - Reduce Regulatory Impediments	B02 - Remove Development Code Impediments for Conversions	No	Yes	No
Comments:	Residential Infill Project - allowed for multi-unit conversions, eliminated parking minimums. State building code remains a barrier.			
B - Reduce Regulatory Impediments	B03 - Expedite Permitting for Needed Housing Types	No	Yes	No
Comments:	Expedited permitting for affordable housing projects			
B - Reduce Regulatory Impediments	B05 - Reduce Regulatory Barriers to Lot Division	No	Yes	No
Comments:	Residential Infill Project Phase 2. Current project to re-write land division code to include more clear and objective standards			

Category	Strategy	Encourage Needed Housing	Increase Affordability	Reduce Rent Burden
B - Reduce Regulatory Impediments	B06 - Streamline Permitting Process	Yes	No	No
Comments:	On-going process			
B - Reduce Regulatory Impediments	B07 - Flexible Regulatory Concessions for Affordable Housing	Yes	No	No
Comments:				
B - Reduce Regulatory Impediments	B14 - Adopt Affirmatively Furthering Fair Housing as a Housing Policy in Comprehensive Plan	Yes	No	No
Comments:				
B - Reduce Regulatory Impediments	B15 - Reduce the Power of NIMBYism to stop, slow, change, or reduce affordable housing	Yes	No	No
Comments:				
C - Financial Incentives	C01 - Reduce or Exempt SDCs for Needed Housing	Yes	No	No
Comments:	For affordable units only			
C - Financial Incentives	C03 - Reduce or Exempt SDCs for ADUs	Yes	No	No
Comments:				
C - Financial Incentives	C05 - Waive or Finance Park Impact Fees for Affordable Housing	Yes	No	No
Comments:				
D - Financial Resources	D01 - Community Development Block Grant (CDBG)	Yes	No	No
Comments:				
D - Financial Resources	D03 - Housing Trust Funds	Yes	No	No
Comments:				
D - Financial Resources	D06 - HOME Program	No	Yes	No
Comments:				
D - Financial Resources	D07 - Dedicated Revenue Sources for Affordable Housing	No	Yes	No
Comments:				

Category	Strategy	Encourage Needed Housing	Increase Affordability	Reduce Rent Burden
D - Financial Resources	D09 - Construction Excise Tax (CET)	No	Yes	No
Comments:	dedicated to affordable housing			
D - Financial Resources	D10 - Tax Increment Financing (TIF) Set-Aside	No	Yes	No
Comments:				
D - Financial Resources	D11 - Flexible Use of Housing Choice Vouchers	No	No	Yes
Comments:				
D - Financial Resources	D13 - Low-Interest Loans / Revolving Loan Fund	No	No	Yes
Comments:				
D - Financial Resources	D14 - Eviction Prevention Programs	No	No	Yes
Comments:				
D - Financial Resources	D15 - Bond - for Resident Support Services and Permanent Supportive Housing Services	No	Yes	No
Comments:				
D - Financial Resources	D16 - General Obligation Bonds – for Affordable Housing	No	Yes	No
Comments:				
D - Financial Resources	D18 - Weatherization Funds through Community Action Agencies	No	Yes	No
Comments:				
E - Tax Exemption and Abatement	E01 - Nonprofit Low-Income Rental Housing Exemption	No	Yes	No
Comments:				
E - Tax Exemption and Abatement	E02 - Property Tax Exemption for Affordable Housing Tied to Level of Affordability	No	Yes	No
Comments:				
E - Tax Exemption and Abatement	E05 - Multiple Unit Limited Tax Exemption (MULTE)	No	Yes	No
Comments:				

Category	Strategy	Encourage Needed Housing	Increase Affordability	Reduce Rent Burden
E - Tax Exemption and Abatement	E06 - Homebuyer Opportunity Limited Tax Exemption Program (HOLTE)	No	Yes	No
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F01 - Land Banking	No	Yes	No
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F04 - Public/Private Partnerships (P3)	No	Yes	No
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F05 - Preserving Low-Cost Rental Housing to Mitigate Displacement	No	No	Yes
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F06 - Preserving Safe, Affordable Manufactured Homes	No	No	Yes
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F12 - Surplus Land for Affordable Housing	No	Yes	No
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F18 - Utilize Surplus Land Owned by Faith-Based Organizations for Affordable Housing	Yes	No	No
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F20 - Fair Housing Education, Referral, and Other Services	No	No	Yes
Comments:				

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Contact

Ariel Kane
Economic Planner | Bureau of Planning and Sustainability
ariel.kane@portlandoregon.gov

About City of Portland Bureau of Planning and Sustainability
The Bureau of Planning and Sustainability (BPS) develops creative and practical solutions to enhance Portland's livability, preserve distinctive places, and plan for a resilient future.

THE BUREAU OF PLANNING & SUSTAINABILITY

http://portland.gov/bps
503-823-7700
bps@portlandoregon.gov

OREGON DEPARTMENT OF EDUCATION

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OREGON AT-A-GLANCE SCHOOL PROFILE

David Douglas High School

PRINCIPAL: Greg Carradine | GRADES: 9-12 | 1001 SE 135th Ave, Portland 97233 | 503-261-8300

2022-23

Students We Serve

2,546
Student Enrollment

DEMOGRAPHICS

	Students	Teachers
American Indian/Alaska Native	1%	1%
Asian	17%	3%
Black/African American	12%	2%
Hispanic/Latino	31%	8%
Multiracial	6%	2%
Native Hawaiian/Pacific Islander	3%	0%
White	30%	84%

48% Ever English Learners

46 Languages Spoken

11% Students with Disabilities

92% Required Childhood Vaccinations

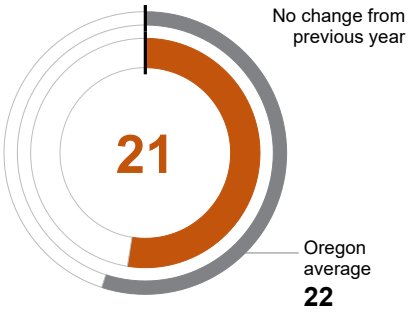
>95% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

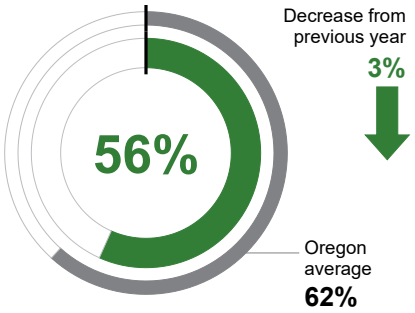
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

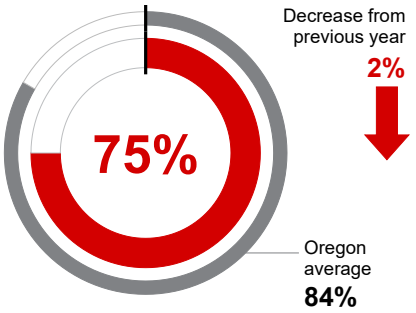
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

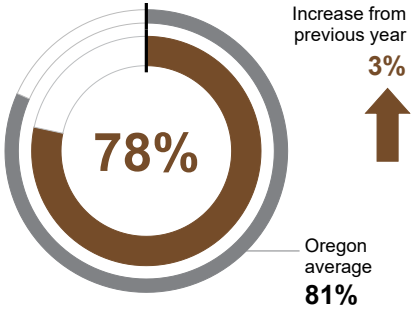
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

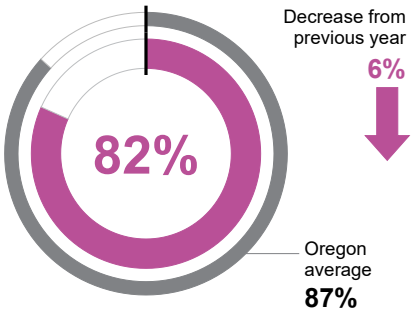
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



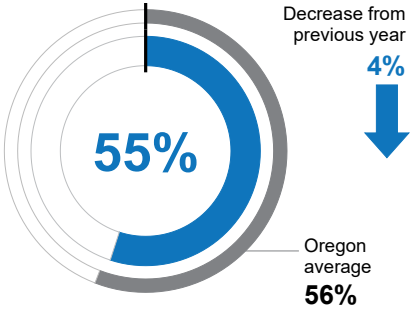
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

The mission of David Douglas High School is to provide comprehensive educational opportunities that acknowledge the diversity of the students' academic, career and social needs in preparation for post-secondary success.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

We commit to the safety of the school community by following the I Love You Guys Standard Response Protocols. Link Crew peer mentors help 9th grade students integrate into our school community. Advisory addresses the social-emotional needs of students and builds positive relationships. Faculty and staff have been trained in the implementation of restorative practices. Student voice is represented through the Associated Student Body and Presidential Council. We staff eight counselors and 1.5 social workers to ensure students are successful academically and socially.

School Website: hs.ddouglas.k12.or.us/

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

David Douglas High School

2022-23

Our Staff (rounded FTE)

144 Teachers

13 Educational assistants

12 Counselors/ Psychologists/ Social Workers

91% Average teacher retention rate over the past three years

83% % of licensed teachers with more than 3 years of experience

Yes Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	36%	<10 students or data unavailable	<10 students or data unavailable
Asian	79%	>95%	91%
Black/African American	46%	63%	80%
Hispanic/Latino	48%	69%	74%
Multiracial	60%	79%	62%
Native Hawaiian/Pacific Islander	35%	61%	61%
White	58%	75%	81%
Free/Reduced Price Lunch	56%	75%	79%
Ever English Learner	56%	74%	78%
Students with Disabilities	49%	74%	65%
Migrant	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Homeless	33%	54%	49%
Students in Foster Care	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Military Connected	<10 students or data unavailable	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	82%	88%	92%
Female	57%	77%	85%
Male	56%	72%	71%
Non-Binary	46%	<10 students or data unavailable	<10 students or data unavailable

About Our School

ADVANCED COURSEWORK

DDHS offers 11 Advanced Placement (AP) courses and approximately 34 College Now Dual Credit-eligible courses. The College Now Dual Credit Program through Central Oregon Community College, Clackamas Community College, Eastern Oregon University, and Mt. Hood Community College provides students the opportunity to get a head start on their college experience. Students take college level coursework from approved high school instructors. All College Now courses are taken at David Douglas High School and receive credit from both schools at no cost to the student. Students must apply to the College Now Program and register for each articulated course during the appropriate term to receive Credit.

CAREER & TECHNICAL EDUCATION

David Douglas School District believes that career technical education (CTE) and hands-on learning provides students of all ages with the academic and technical skills, knowledge and training to succeed in future careers. David Douglas High School has 11 Programs of Study. students. Programs of Study at DDHS: Automotive, Business Management, Computer Information Systems, Construction, Education, Engineering, Health Sciences, Hospitality & Tourism (Culinary), Metals Manufacturing, Natural Resources, and Technical Theater.

EXTRACURRICULAR ACTIVITIES

David Douglas High School encourages all students to be involved in extracurricular activities. Extracurricular and co-curricular activities provide opportunities for students to make positive connections with their peers and community. We offer a rich assortment of co-curricular activities for students. Many of these activities are sanctioned by OSAA. Through our 21st Century Community Learning Centers grant, Activities Director, and community partners we offer a wide variety of after school academic enrichment programs.

PARENT & COMMUNITY ENGAGEMENT

Building and maintaining strong family and community relationships are essential to student success. School communication is shared through ParentSquare, monthly newsletters, and our website. ParentVue is a system designed to provide up-to-date information on student grades, attendance, and information regarding class assignments, allowing caregivers and teachers to collaborate. We offer back-to-school night, fall conferences, spring student-led conferences, athletic competitions, career fairs, culturally-specific caregiver events and college nights. We currently house the largest food bank in Oregon and maintain a community garden. We partner with community-based organizations to meet the needs of our school community. We have active parent-led groups such as PTSA and Dad's Club.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE

Franklin High School

PRINCIPAL: Zulema Naegele | GRADES: 9-12 | 5405 SE Woodward St, Portland 97206 | 503-916-5140

2022-23

Students We Serve

1,876
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	<1%
Teachers	0%
Asian	
Students	13%
Teachers	6%
Black/African American	
Students	5%
Teachers	5%
Hispanic/Latino	
Students	20%
Teachers	12%
Multiracial	
Students	9%
Teachers	2%
Native Hawaiian/Pacific Islander	
Students	1%
Teachers	0%
White	
Students	52%
Teachers	75%

24% Ever English Learners

33 Languages Spoken

13% Students with Disabilities

90% Required Childhood Vaccinations

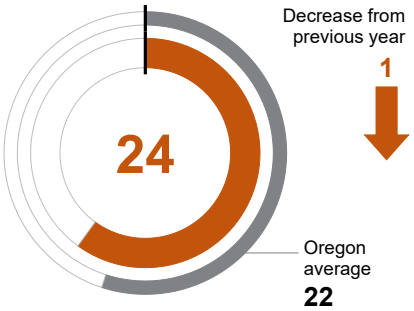
46% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

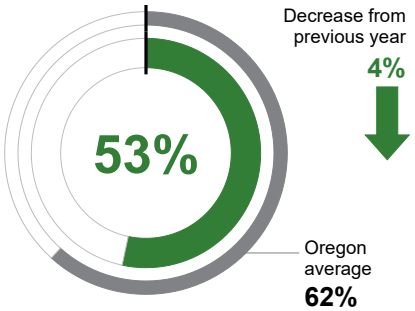
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

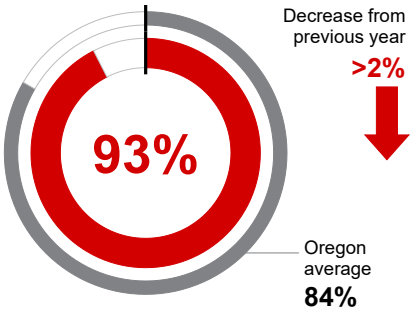
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

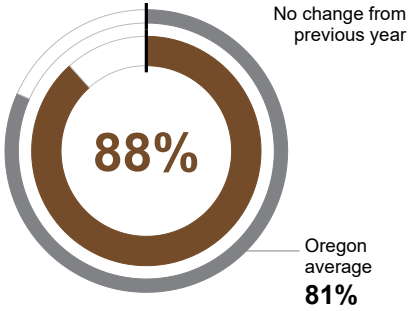
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

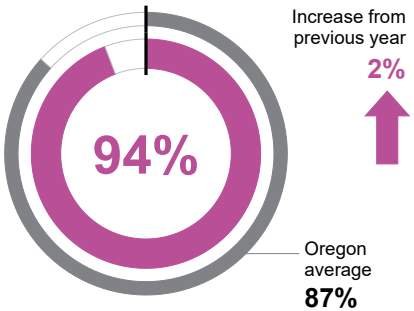
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



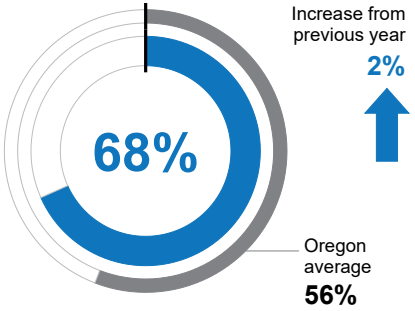
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

Our focus is on literacy and math fluency, with the aim of refining our instructional strategies and providing all students with the skills they need to be ready to succeed in college and careers. We strive to provide a welcoming environment and equitable opportunities for students of all races, genders, and home languages. We encourage you to contact us with any questions, concerns, or information that will help us ensure success for your students.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

We work hard to make our school a place where all students and families feel welcome and included. We celebrate our community's diversity and we honor this diversity in our learning activities. We understand how important it is to keep our students feeling safe, both physically and emotionally, when they are with us.

School Website: www.pps.net/schools/franklin

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Franklin High School

2022-23

Our Staff (rounded FTE)

106 Teachers

11 Educational assistants

9 Counselors/ Psychologists/ Social Workers

91% Average teacher retention rate over the past three years

84% % of licensed teachers with more than 3 years of experience

Yes Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Asian	70%	>95%	91%
Black/African American	29%	74%	>95%
Hispanic/Latino	42%	87%	81%
Multiracial	53%	87%	89%
Native Hawaiian/Pacific Islander	27%	70%	<10 students or data unavailable
White	57%	>95%	90%
Free/Reduced Price Lunch	45%	87%	90%
Ever English Learner	51%	88%	85%
Students with Disabilities	55%	90%	77%
Migrant	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Homeless	26%	<10 students or data unavailable	79%
Students in Foster Care	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Military Connected	<10 students or data unavailable	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	65%	>95%	>95%
Female	49%	93%	91%
Male	57%	92%	85%
Non-Binary	55%	89%	>95%

About Our School

ADVANCED COURSEWORK

Most high schools in Portland Public Schools offer Advanced Placement or International Baccalaureate courses in several subject areas. In addition, students have the option to earn college credit for some classes.

CAREER & TECHNICAL EDUCATION

District-wide we have 60 state-approved CTE programs of study. Career clusters include Architecture and Construction, Health Services, Information Technology, Manufacturing, and others. As part of these programs, we facilitate career learning experiences for students such as guest speakers, field trips, job shadows, etc. Visit our CTE web page for additional information: https://www.pps.net/Domain/190

EXTRACURRICULAR ACTIVITIES

Our school offers a variety of extracurricular activities. Check our website for details about specific activities.

PARENT & COMMUNITY ENGAGEMENT

Our school offers several meetings each year where we invite families to attend. The meetings are to discover what your children are learning at school, to see examples of their good work, and to learn ways that you can help them succeed at school. We will inform you of these school events and celebrations through our newsletters and other media. Please check our website for details about these events. We appreciate our community neighbors and want them to feel welcome to join us in supporting the success of our students.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE

Gresham High School

PRINCIPAL: Erika Beddoe-Whitlock | GRADES: 9-12 | 1200 N Main Ave, Gresham 97030 | 503-674-5500

2022-23

Students We Serve

1,595
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	1%
Teachers	0%
Asian	
Students	4%
Teachers	5%
Black/African American	
Students	6%
Teachers	2%
Hispanic/Latino	
Students	45%
Teachers	13%
Multiracial	
Students	8%
Teachers	0%
Native Hawaiian/Pacific Islander	
Students	1%
Teachers	0%
White	
Students	36%
Teachers	80%

38% Ever English Learners

35 Languages Spoken

11% Students with Disabilities

93% Required Childhood Vaccinations

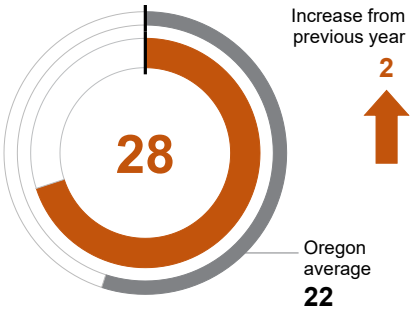
>95% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

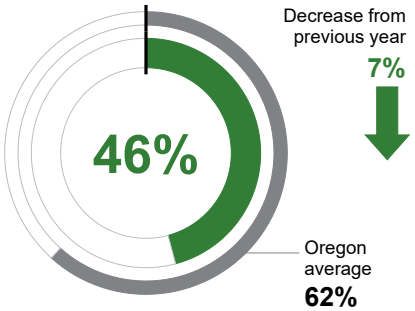
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

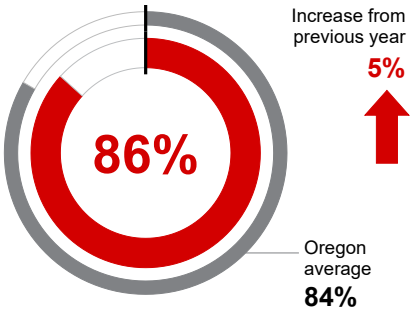
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

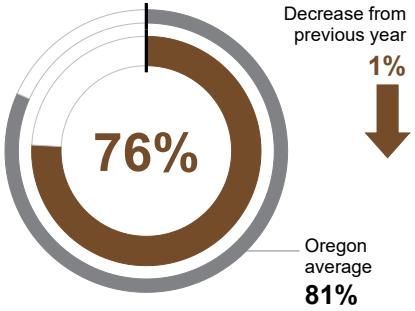
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

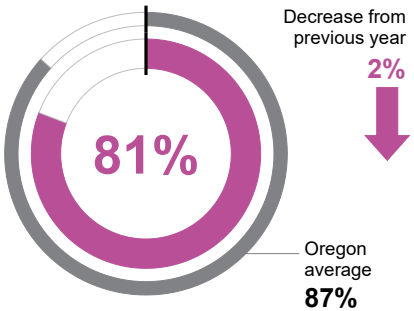
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



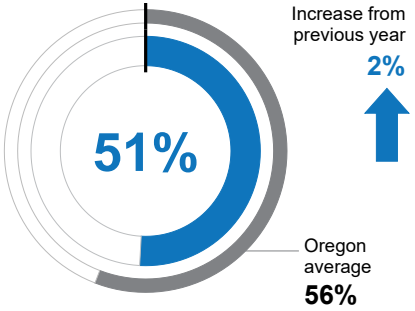
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

Gresham High School is focused on building a positive culture and climate in our school, where every student feels like they belong and will have an opportunity to thrive. We are prioritizing family engagement, culturally relevant instructional practice, and overall graduation rates. Our multi-tiered systems of support will provide intentional and well designed universal supports for all students, along with additional and intensified supports designed to help smaller groups and individual students find success.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

We celebrate the rich cultural diversity of our students, families, and staff. We honor that every student and family feels a sense of belonging in our school community. It is our goal to know every student by name, strength, and need to ensure a safe and welcoming environment for all.

School Website: www.gresham.k12.or.us/ghs

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Gresham High School

2022-23

Our Staff (rounded FTE)

69 Teachers

20 Educational assistants

9 Counselors/ Psychologists/ Social Workers

88% Average teacher retention rate over the past three years

76% % of licensed teachers with more than 3 years of experience

No Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	50%	<10 students or data unavailable	<10 students or data unavailable
Asian	53%	81%	>95%
Black/African American	41%	92%	77%
Hispanic/Latino	45%	83%	71%
Multiracial	50%	94%	79%
Native Hawaiian/Pacific Islander	39%	<10 students or data unavailable	<10 students or data unavailable
White	46%	88%	79%
Free/Reduced Price Lunch	46%	86%	74%
Ever English Learner	45%	81%	72%
Students with Disabilities	45%	86%	52%
Migrant	63%	>95%	91%
Homeless	39%	65%	49%
Students in Foster Care	42%	<10 students or data unavailable	<10 students or data unavailable
Military Connected	<10 students or data unavailable	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	71%	>95%	<10 students or data unavailable
Female	45%	85%	81%
Male	47%	88%	71%
Non-Binary	37%	<10 students or data unavailable	<10 students or data unavailable

About Our School

ADVANCED COURSEWORK

Gresham High School is in our third year of Advanced Placement course implementation. We offer twelve AP courses for our students with 4 options in Social Sciences, 2 in Language Arts, 2 in Science, 2 in Math, and 2 in World Languages. In addition, there are several opportunities for our students to earn college credit through community partners including Mt. Hood Community College, Western Oregon University, Eastern Oregon University, and Oregon Institute of Technology.

CAREER & TECHNICAL EDUCATION

At Gresham High School, Career and Technical Education Programs of Study provide an opportunity for students to earn college credit through the College Now program at Mt. Hood Community College. We offer CTE courses in Automotive Technology, Construction, Integrated Media, Education, Business Management, and Marketing Management.

EXTRACURRICULAR ACTIVITIES

As a member of the OSAA, Gresham High School offers co-curricular participation in 18 different sports and activities. In addition, our interest-based clubs include: MeCha, Black Student Union, GSA, Asian/Pacific Islander Club, Journalism, DECA, National Honor Society, Key Club, Theatre Arts, Yearbook, International Club, Hiking Club, and Social Justice Club.

PARENT & COMMUNITY ENGAGEMENT

Gresham High School partners with local businesses and community organizations to provide opportunities in the school, as well as in the community, that will bring enhanced engagement with our students. Partners include: SUN (Multnomah Family Services), TRIO, College Possible, Latino Network, Northwest Family Services, REAP, Trillium, IRCO, and many more. Each month, Gresham High School, SUN and the Oregon Children's Outreach program bring in, sort and deliver over 20 food boxes to Gresham community families. In addition, our community partners offer culturally relevant services to coach our students in their future endeavors (college/career), to re-engage students and families into our school, and to mentor and support our students during the school day.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE

Hillsboro High School

2022-23

PRINCIPAL: Cary Meier | GRADES: 9-12 | 3285 SE Rood Bridge Rd, Hillsboro 97123 | 503-844-1980

Students We Serve

1,312
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native		
	Students	1%
	Teachers	1%
Asian		
	Students	4%
	Teachers	6%
Black/African American		
	Students	2%
	Teachers	0%
Hispanic/Latino		
	Students	55%
	Teachers	22%
Multiracial		
	Students	6%
	Teachers	0%
Native Hawaiian/Pacific Islander		
	Students	1%
	Teachers	1%
White		
	Students	31%
	Teachers	70%

46% Ever English Learners

45 Languages Spoken

14% Students with Disabilities

94% Required Childhood Vaccinations

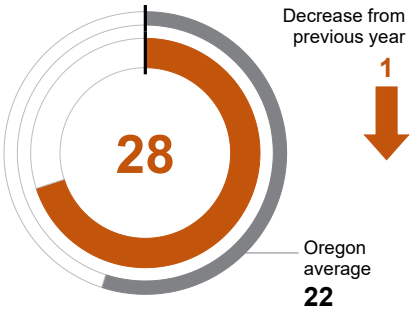
>95% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

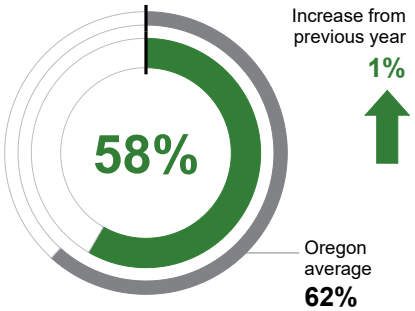
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

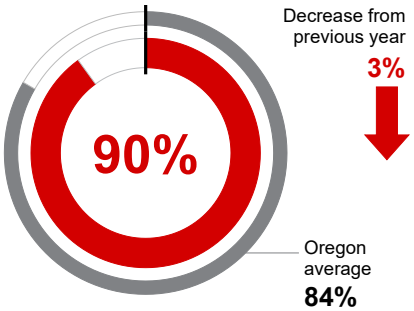
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

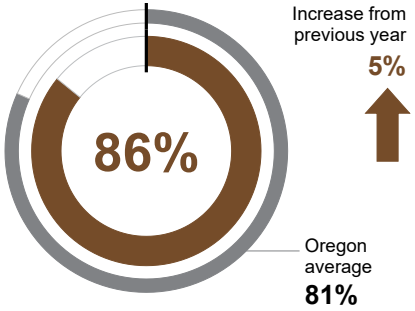
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

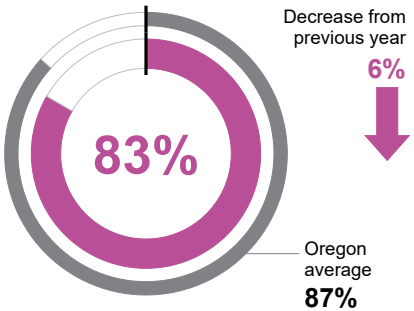
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

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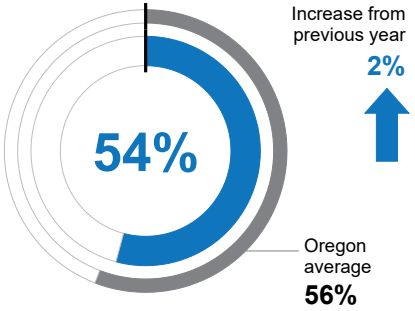

School Goals

Hillsboro High School's goals center on scaffolding support for all students to access academic rigor and graduate college and career ready. We use the 5 Dimensions of Teaching and Learning Instructional Framework, equitable assessment practices, engaging learning environments, positive classroom cultures, and focused academic language instruction. Additionally, we target our most vulnerable students and utilize a 9th grade on-track team to ensure students begin high school feeling seen and supported as they work towards graduation and postsecondary opportunities.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Common expectations, social emotional supports, and safety and security systems allow our students to feel safe, seen and welcome on our campus. Technology, systems and people support mental health, physical safety, and positive classroom environments across our campus. Students are connected through an advisor and access academic and social support through our Spartan Academy weekly schedule.

School Website: schools.hsd.k12.or.us/hillhi/Home/tabid/1054/Default.aspx

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

OREGON DEPARTMENT OF EDUCATION

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Hillsboro High School

2022-23

Our Staff (rounded FTE)

68 Teachers

20 Educational assistants

7 Counselors/ Psychologists/ Social Workers

90% Average teacher retention rate over the past three years

73% % of licensed teachers with more than 3 years of experience

Yes Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	9%	<10 students or data unavailable	<10 students or data unavailable
Asian	91%	>95%	94%
Black/African American	68%	<10 students or data unavailable	80%
Hispanic/Latino	53%	86%	83%
Multiracial	58%	94%	>95%
Native Hawaiian/Pacific Islander	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
White	63%	94%	90%
Free/Reduced Price Lunch	58%	90%	87%
Ever English Learner	54%	86%	78%
Students with Disabilities	51%	93%	74%
Migrant	52%	82%	83%
Homeless	48%	59%	56%
Students in Foster Care	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Military Connected	<10 students or data unavailable	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	74%	>95%	90%
Female	53%	90%	87%
Male	62%	90%	85%
Non-Binary	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable

About Our School

ADVANCED COURSEWORK

Hillsboro High School is proud to be an International Baccalaureate World School. Within the IB program, we offer courses in Language and Literature (both Spanish and English), Japanese, French, Spanish, Biology, Physics, Sports Exercise and Health Sciences, Math Analysis and Approaches, Math Applications and Interpretations, Business Management, Psychology, Global Politics, History of the Americas, Theory of Knowledge, and Theatre. Additionally, we are a dual language school where students have the opportunity to earn a bilingual seal after completing core coursework at each grade level in both English and Spanish.

CAREER & TECHNICAL EDUCATION

Hillsboro High School offers the following career-technical education programs: Industrial Technology and Engineering Systems, Graphic Design, Communication and Media, Automotive Technology, Business Education, Computer Technology, Biotechnology, Sports Medicine, Early Childhood Education, Diesel Mechanics, and Veterinary Science.

EXTRACURRICULAR ACTIVITIES

Hillsboro High School's extracurricular activities include OSAA Athletics, OSAA Activities, OSAA Arts (Band, Choir, Theater, and Marching Band), 31 Academic and Service Clubs, and 3+ Theatrical productions each year. We also offer a variety of STEAM activities, including Robotics (multiple teams), Computer Programming, and Si Se Puede STEAM camp.

PARENT & COMMUNITY ENGAGEMENT

At Hillsboro High School, we value the diversity of our students and families and plan for community outreach accordingly. We partner with our community, families, and students through a variety of evening events: bilingual parent nights, AVID family nights, Back-to-School night, Academic Planning night, IB Family Night, College and Career Center nights, and parent conferences. Additionally, we have targeted outreach achieved through home visits, weekly newsletters, Principal Coffees, Remind notifications, and our Family Liaison.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE

Lake Oswego Senior High School

2022-23

PRINCIPAL: Kristen Colyer | GRADES: 9-12 | 2501 SW Country Club Rd, Lake Oswego 97034 | 503-534-2313

Students We Serve

1,230
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	<1%
Teachers	0%
Asian	
Students	13%
Teachers	2%
Black/African American	
Students	1%
Teachers	0%
Hispanic/Latino	
Students	10%
Teachers	4%
Multiracial	
Students	10%
Teachers	2%
Native Hawaiian/Pacific Islander	
Students	0%
Teachers	0%
White	
Students	66%
Teachers	92%

6% Ever English Learners

29 Languages Spoken

11% Students with Disabilities

96% Required Childhood Vaccinations

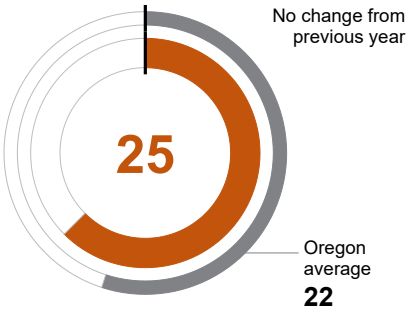
8% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

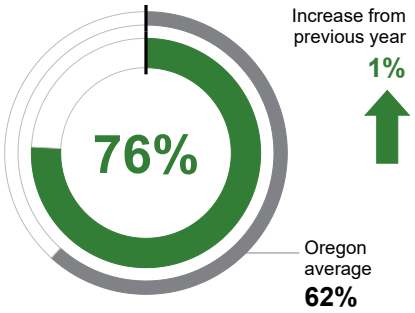
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

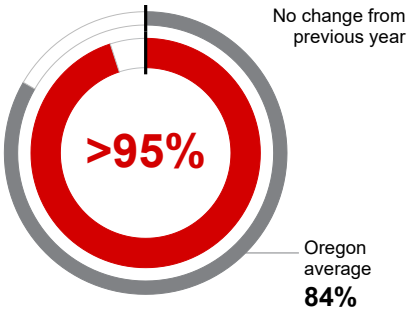
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

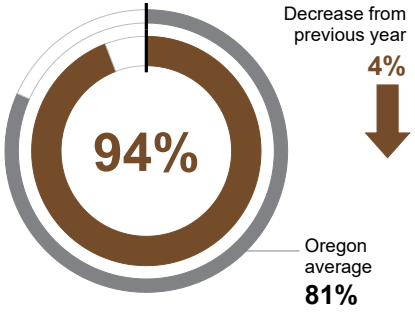
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

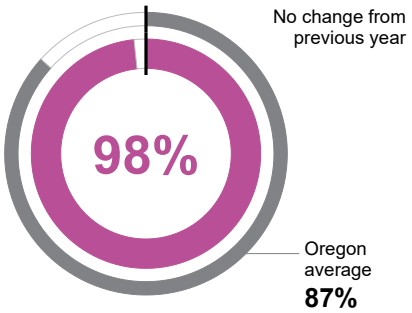
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



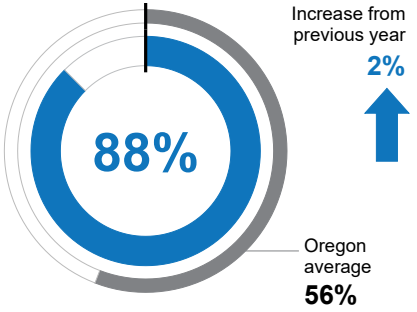
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

Lake Oswego High School strives to have 100% of its students graduate; 100% of its students feel safe, supported, challenged, and connected to a trusted adult; and 90% of its students take at least one AP, college, or dual-credit class before graduating.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Our school strives to ensure all students and their parents feel welcome. The district has policies prohibiting discrimination, harassment, intimidation, and bullying as well as procedures to address incidents with fairness and compassion as soon as they occur. Our school's equity team works with district administrators in the ongoing, school-wide work of awareness, respect, and inclusion. The district provides access to translation and interpreters for our families who request these services.

School Website: losdschools.org/lohs

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Lake Oswego Senior High School

2022-23

Our Staff (rounded FTE)

65 Teachers

24 Educational assistants

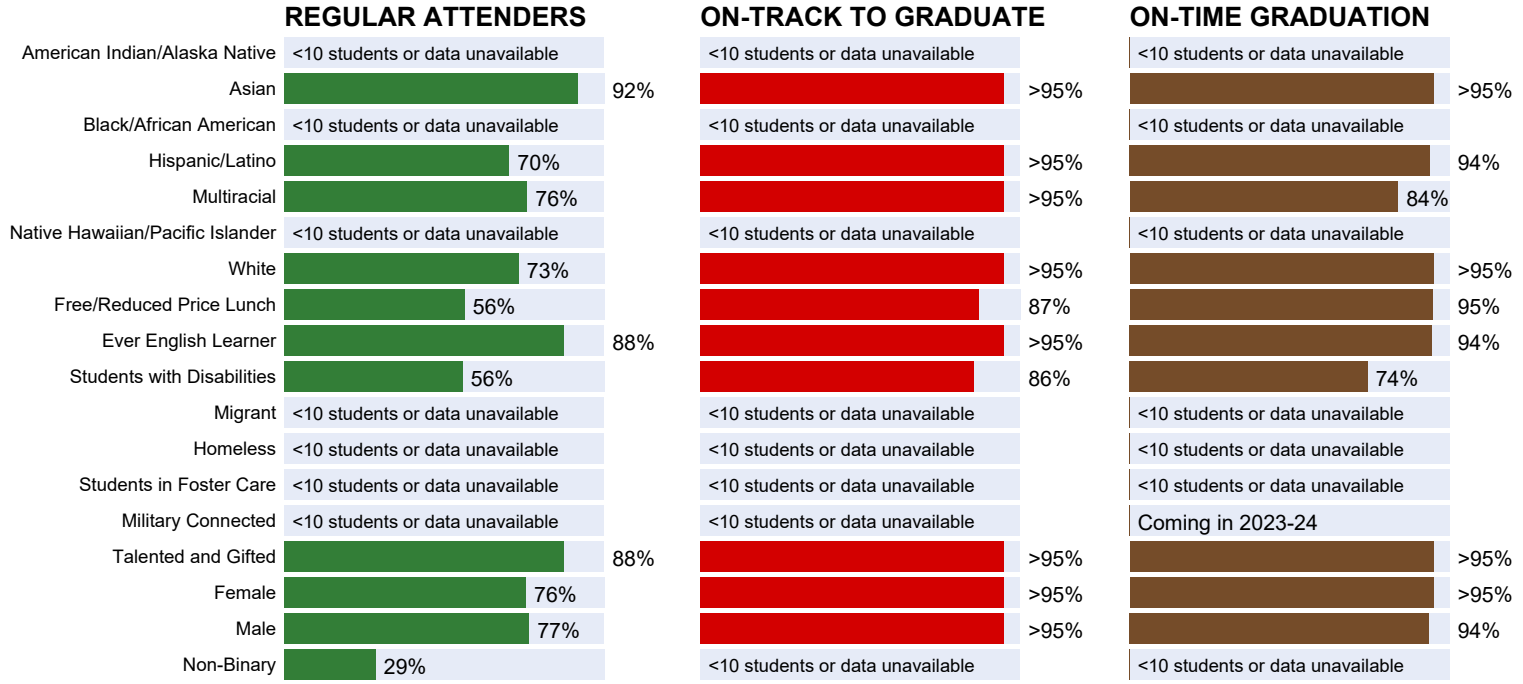
6 Counselors/ Psychologists/ Social Workers

91% Average teacher retention rate over the past three years

88% % of licensed teachers with more than 3 years of experience

No Same principal in the last 3 years

Outcomes



About Our School

ADVANCED COURSEWORK

Numerous AP courses, Engineering Concepts, Engineering and Design, Junior & Senior English, French 3 & 4, Oceanography, Spanish 3

CAREER & TECHNICAL EDUCATION

CTE Programs of Study in Computer Science, Engineering Technology, Marketing, and Restaurant/Food Services

EXTRACURRICULAR ACTIVITIES

· Numerous athletic opportunities

· Leadership options in many academic, service and co-curricular clubs

· Arts opportunities in band, choir, orchestra, drama and visual arts

PARENT & COMMUNITY ENGAGEMENT

Our school works diligently to engage community members through our cultural events, booster club events, equity team, and site improvement committee. Parents and community members support our school by volunteering for committees and providing guidance and support in our equity, diversity, and inclusion work. We encourage our local businesses to be involved in career exploration programs and mock interview events. The Lake Oswego Rotary, Kruse Way Rotary, and LO Chamber of Commerce are integral partners in the success of our school, along with other organizations.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE

Leodis V. McDaniel High School

PRINCIPAL: Adam Skyles | GRADES: 9-12 | 3905 SE 91st Ave, Portland 97266 | 503-916-5220

2022-23

Students We Serve

1,403
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native		
	Students	1%
	Teachers	2%
Asian		
	Students	12%
	Teachers	6%
Black/African American		
	Students	12%
	Teachers	7%
Hispanic/Latino		
	Students	26%
	Teachers	12%
Multiracial		
	Students	10%
	Teachers	8%
Native Hawaiian/Pacific Islander		
	Students	2%
	Teachers	0%
White		
	Students	37%
	Teachers	65%

33% Ever English Learners

36 Languages Spoken

14% Students with Disabilities

91% Required Childhood Vaccinations

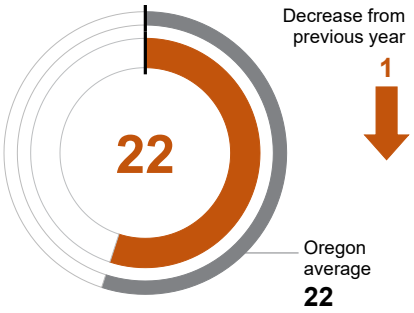
>95% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

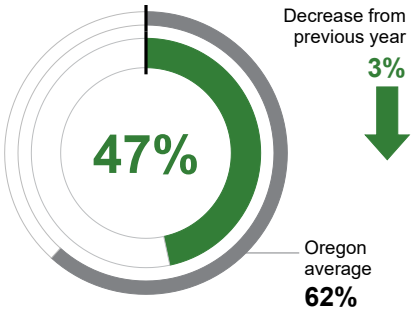
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

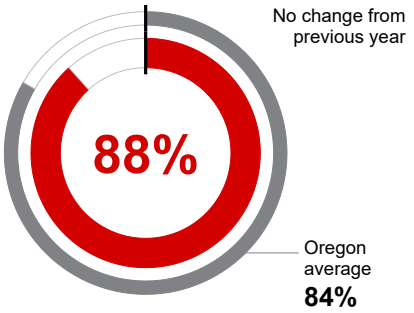
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

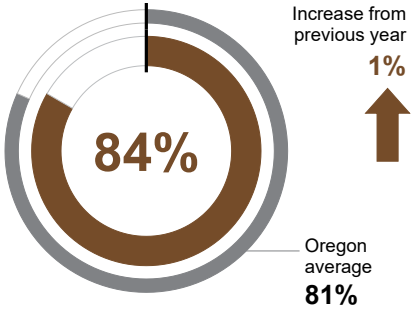
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

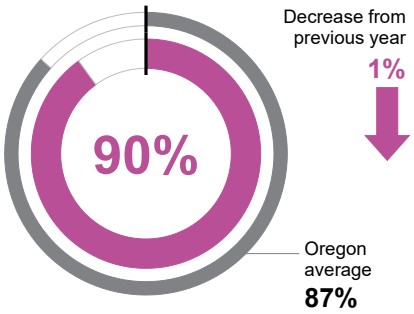
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



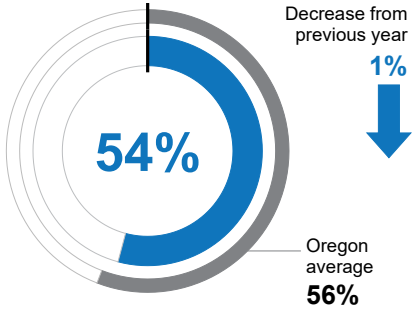
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

Our focus is on literacy and math fluency, with the aim of refining our instructional strategies and providing all students with the skills they need to be ready to succeed in college and careers. We strive to provide a welcoming environment and equitable opportunities for students of all races, genders, and home languages. We encourage you to contact us with any questions, concerns, or information that will help us ensure success for your students.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

We work hard to make our school a place where all students and families feel welcome and included. We celebrate our community's diversity and we honor this diversity in our learning activities. We understand how important it is to keep our students feeling safe, both physically and emotionally, when they are with us.

School Website: www.pps.net/schools/madison/ Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Leodis V. McDaniel High School

2022-23

Our Staff (rounded FTE)

92 Teachers

14 Educational assistants

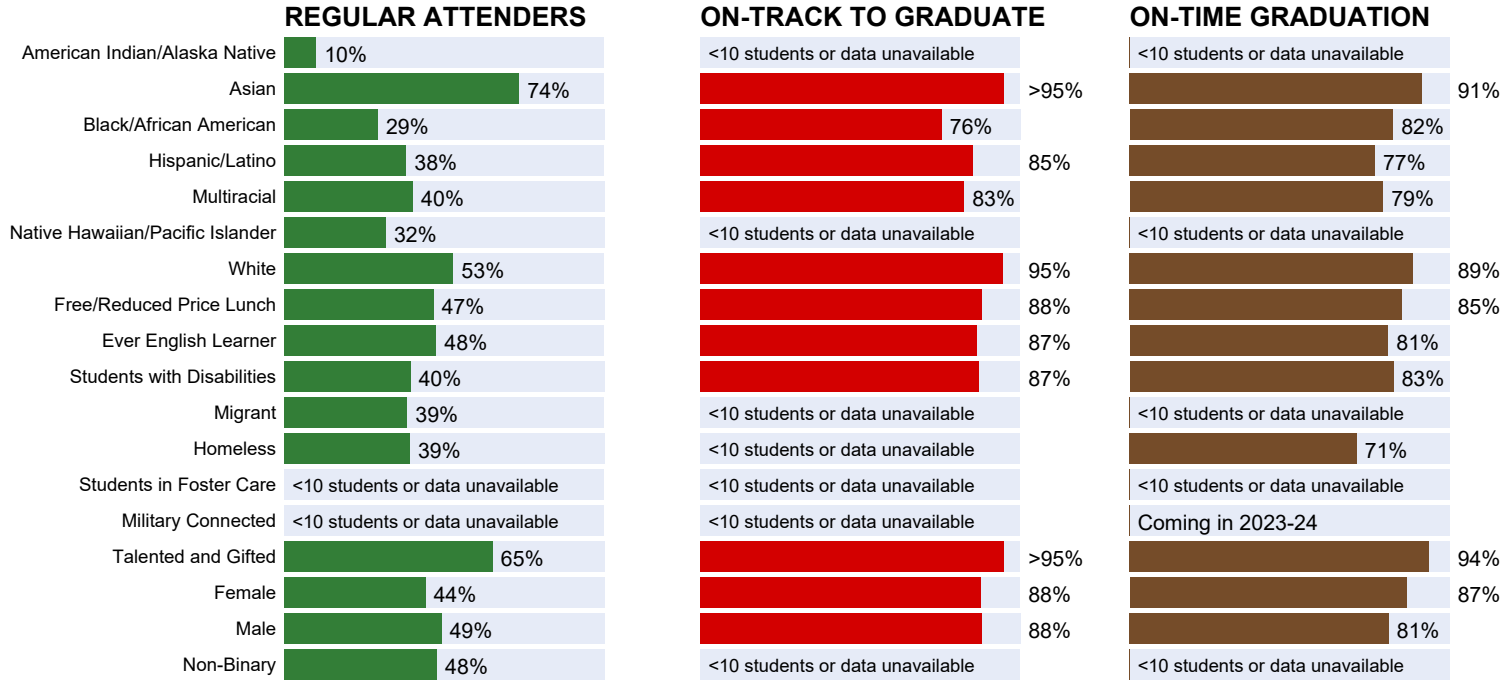
8 Counselors/ Psychologists/ Social Workers

91% Average teacher retention rate over the past three years

74% % of licensed teachers with more than 3 years of experience

Yes Same principal in the last 3 years

Outcomes



About Our School

ADVANCED COURSEWORK

Most high schools in Portland Public Schools offer Advanced Placement or International Baccalaureate courses in several subject areas. In addition, students have the option to earn college credit for some classes.

CAREER & TECHNICAL EDUCATION

District-wide we have 60 state-approved CTE programs of study. Career clusters include Architecture and Construction, Health Services, Information Technology, Manufacturing, and others. As part of these programs, we facilitate career learning experiences for students such as guest speakers, field trips, job shadows, etc. Visit our CTE web page for additional information: https://www.pps.net/Domain/190

EXTRACURRICULAR ACTIVITIES

Our school offers a variety of extracurricular activities. Check our website for details about specific activities.

PARENT & COMMUNITY ENGAGEMENT

Our school offers several meetings each year where we invite families to attend. The meetings are to discover what your children are learning at school, to see examples of their good work, and to learn ways that you can help them succeed at school. We will inform you of these school events and celebrations through our newsletters and other media. Please check our website for details about these events. We appreciate our community neighbors and want them to feel welcome to join us in supporting the success of our students.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

METRO HOUSING BOND QUARTERLY REPORT | JULY-SEPTEMBER 2024

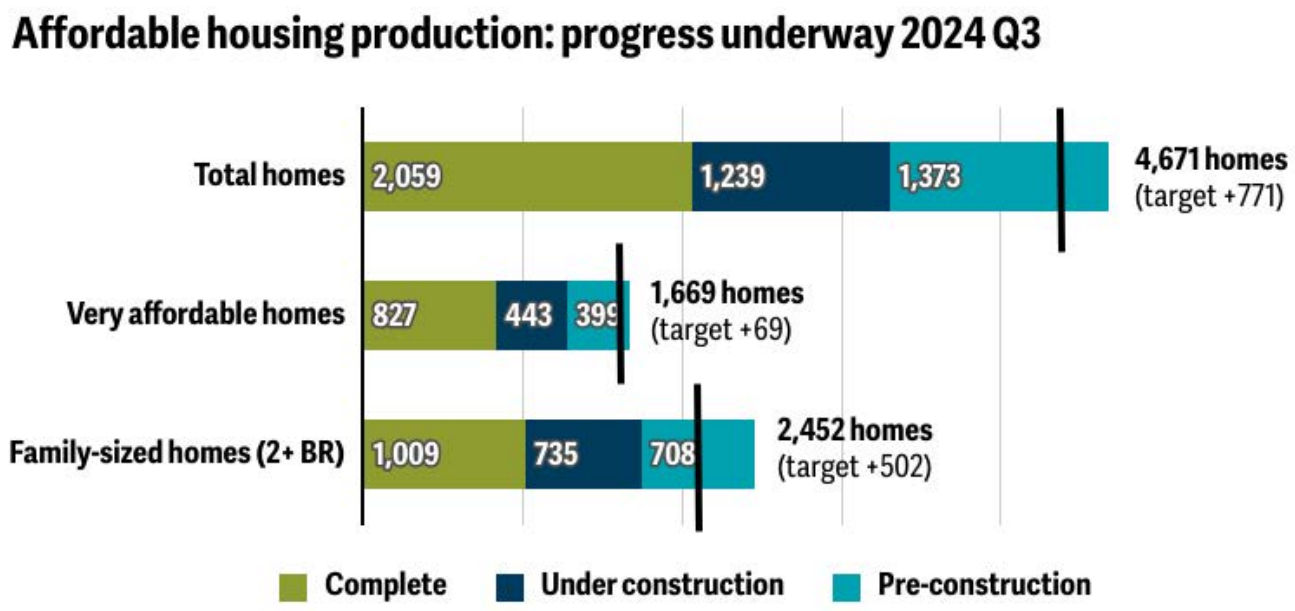
November 7, 2024

This is the third quarterly progress report for the Metro Affordable Housing Bond of 2024. Similar reports are produced quarterly with the goal of keeping the Housing Bond Community Oversight Committee, Metro Council, and other stakeholders and partners informed about ongoing implementation progress. A more detailed report will be provided annually for each calendar year, following submission of local progress reports by each participating implementation jurisdiction.

REGIONAL PRODUCTION PROGRESS

As of the end of September 2024, the Affordable Housing Bond program has 57 projects representing 4,671 new affordable homes in the portfolio, including 20 projects (1,373 units) that are in pre-construction. Forty-five projects have received final approval, of which fourteen (1,239 units) are under construction, and twenty-three projects (2,059 units) have completed construction and are accepting residents. Of these homes, 2,452 will have two or more bedrooms, representing 126% of the program's production goal of 1,950 family-sized homes; and 1669 will be affordable to households with incomes at or below 30% of area median income (AMI), representing 104% of the program's production goal of 1,600 deeply affordable homes. Collectively, the 57 projects in the portfolio represent 4,671 new affordable homes, or 120% of the total production target for the Housing Bond, while utilizing approximately 81% of allocated project funding.

Production and funding dashboard



REGIONAL PRODUCTION PROGRESS

	Eligible units	30% AMI units	2+ BR units	PSH units
Total units in portfolio	**4,671**	**1,669**	**2,452**	**763**
Total unit production targets	**3,900**	**1,600**	**1,950**	**N/A**
% of unit progress underway	**120%**	**104%**	**126%**	**N/A**
Total funding committed or underway ***% of funding committed*** ***Total funding remaining***	**$545,714,222** **81%** **$128,876,963**			

LOCAL PRODUCTION PROGRESS

Portland

Name	Metro Bond Funds	Status	Eligible units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
73rd and Foster	$3,032,340	Pre-construction	64	22	29	22	Jul-24	Feb-25
Abbey Townhomes	$1,200,000	Pre-construction	8	0	8	0	Apr-24	Feb-25
Albina One	$14,424,597	In Construction	94	32	55	0	Jun-23	Jun-25
Aldea at Glisan Landing	$3,685,679	In Construction	96	15	63	0	May-23	Apr-25
Barbur Apartments	$22,519,248	Pre-construction	149	32	102	0	Dec-24	Jun-26
Beacon at Glisan Landing	$5,822,000	In Construction	41	41	0	41	Jun-23	Sep-25
Carey Blvd. (Homeownership)	$6,087,267	Pre-construction	53	0	53	0	Jul-25	Feb-29
Dekum Court*	see Home Forward	In Construction	147	61	78	0	Mar-22	Jan-25
Dr. Darrell Millner Building	$9,216,838	Complete	63	17	48	0	Jul-22	Jun-24
Findley Commons	$1,945,175	Complete	35	0	0	35	Oct-20	Dec-21
Garden Park Estates	$2,239,308	In Construction	54	25	40	25	Jun-23	Oct-25
Gooseberry Trails (Homeownership)	$5,451,773	Pre-construction	52	0	52	0	Aug-24	May-26
Hattie Redmond	$4,411,737	Complete	60	60	0	60	Oct-21	Feb-23
Hollywood Hub	$10,256,344	Pre-construction	73	39	24	0	Sep-24	Mar-26
Jamii Court	$6,155,974	Pre-construction	98	39	58	15	Apr-25	Aug-26
M Carter Commons	$5,800,000	Pre-construction	62	21	0	0	Jun-24	Aug-25
Meridian Gardens	$13,365,160	Complete	85	70	0	65	Jul-23	Sep-24
PCC Killingsworth	$2,538,237	In Construction	84	28	60	0	Aug-24	Jun-25
PCC Southeast (Legin Commons)	$2,649,254	Pre-construction	124	20	63	0	Jul-24	Jan-26
Powellhurst Place	$4,091,048	Complete	64	12	45	12	Aug-22	Apr-24
Strong Site	$3,150,000	Pre-construction	75	11	54	0	Aug-24	Aug-25
Tistilal Village	$4,632,538	In Construction	24	24	22	16	Mar-23	Aug-24
Waterleaf	$1,929,219	Complete	176	17	48	20	Dec-20	Dec-22
Total units in jurisdiction portfolio			***1,781***	***586***	***902***	***311***		
Total unit production targets			***1,475***	***605***	***737***	***300***		
% of commitment complete			***121%***	***97%***	***122%***	***104%***		
Total committed or underway			***$153,431,720***					
Total LIS funding			***$208,740,992***					
% of funding committed			***74%***					

Remaining LIS funding	***$55,309,272***

**Home Forward is the developer of Dekum Court, but the units will count toward Portland's production goals. Dekum Court's funding was allocated directly to Home Forward, based on an agreement between Portland, Home Forward, and Metro prior to the execution of IGAs allocating funds, and as part of Metro's early commitment of funding to four "Phase I projects" (also including Viewfinder, Mary Ann, and Tukwila Springs).*

Washington County

Name	Metro Bond Funds	Status	Eligible Units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
Alongside Senior Housing	$6,270,000	Complete	57	23	0	24	Jul-22	Sep-23
Cedar Rising	$10,230,000	Complete	81	33	50	0	Apr-22	Dec-23
Goldcrest	$12,000,000	In Construction	74	14	45	0	Sep-22	Jun-24
Heartwood Commons	$9,283,000	Complete	54	54	0	54	Dec-21	Mar-23
Opal Apartments	$6,149,000	Complete	54	28	9	0	Jun-22	Mar-24
Plambeck Gardens	$14,700,000	In Construction	116	47	62	8	Apr-23	Oct-24
Plaza Los Amigos	$13,670,523	Complete	112	26	72	0	Jul-22	Aug-24
Terrace Glen	$17,484,000	Complete	144	51	74	3	Jan-21	May-23
The Valfre at Avenida 26	$3,792,088	Complete	36	8	30	8	Sep-21	Oct-22
Viewfinder	$11,583,000	Complete	81	34	56	30	Jul-20	Dec-21
Woodland Hearth	$9,450,000	Pre-construction	63	24	40	22	Oct-24	Apr-26
Total units in jurisdiction portfolio			***872***	***342***	***438***	***149***		
Total unit production targets			***814***	***334***	***407***	***100***		
% of commitment complete			***107%***	***102%***	***108%***	***N/A***		
Total committed or underway			***$114,665,302***					
Total LIS funding			***$118,135,532***					
% of funding committed			***97%***					
Remaining LIS funding			***$3,470,230***					

Clackamas County

Name	Metro Bond Funds	Status	Eligible units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
Fuller Road Station	$8,570,000	Complete	99	30	82	25	Apr-21	Sep-22
Good Shepherd Village	$18,330,000	Complete	142	58	79	58	Mar-22	Sep-23
Hillside Park – A & B	$25,454,545	Pre-construction	143	40	14	13	Sep-24	Apr-26
Hillside Park – C	$18,190,692	In Construction	78	68	53	8	Jul-24	Sep-26
Lake Grove	$10,000,000	Pre-construction	54	20	28	10	May-25	Oct-25
Las Flores (Maple Apts.)	$15,903,000	Complete	171	70	129	9	Mar-22	May-24
Mercy Greenbrae (Marylhurst Commons)	$3,000,000	Complete	100	40	83	40	Sep-22	Jun-24
Shortstack Milwaukie	$700,000	Pre-construction	15	0	15	0	Jul-24	Jun-25
Tukwila Springs	$5,548,542	Complete	48	48	0	48	Jun-21	Jun-22

Wilsonville TOD	$8,000,000	In Construction	120	35	79	20	Jul-24	Jan-26
		Total units in jurisdiction portfolio	***970***	***409***	***562***	***231***		
		Total unit production targets	***812***	***333***	***406***	***0***		
		% of commitment complete	***119%***	***123%***	***138%***	***N/A***		
		Total committed or underway	***$103,696,780***					
		Total LIS funding	***$122,018,094***					
		% of funding committed	***85%***					
		Remaining LIS funding	***$18,321,314***					

Hillsboro

Name		Status	Eligible units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
Nueva Esperanza	$16,940,731	Complete	149	60	105	0	Mar-22	Nov-23
The Dolores	$10,500,000	Pre-construction	66	30	46	12	Sep-24	Mar-26
		Total units in jurisdiction portfolio	***215***	***90***	***151***	***12***		
		Total unit production targets	***284***	***117***	***142***	***0***		
		% of commitment complete	***76%***	***77%***	***106%***	***N/A***		
		Total committed or underway	***$25,690,731***					
		Total LIS funding	***$41,240,081***					
		% of funding committed	***62%***					
		Remaining LIS funding	***$15,549,350***					

Gresham

Name	Metro Bond Funds	Status	Eligible units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
Civic Drive	$2,100,000	Pre-construction	59	0	59	0	Feb-25	May-26
Myrtlewood Way	$3,800,000	Pre-construction	20	0	20	0	Nov-24	Aug-26
Oak Row at Rockwood	$2,200,000	Pre-construction	11	0	11	0	Sep-24	Dec-24
Rockwood Village	$5,237,814	Complete	47	47	39	0	Jan-20	Apr-22
Terracina Vista	$2,500,000	In Construction	91	0	56	0	Dec-23	Mar-25
Wynne Watts Commons	$11,292,447	Complete	147	30	31	30	Jan-21	Jun-22
		Total units in jurisdiction portfolio	***375***	***77***	***216***	***30***		
		Total unit production targets	***187***	***77***	***93***	***0***		
		% of commitment complete	***201%***	***100%***	***232%***	***N/A***		
		Total committed or underway	***$27,130,261***					
		Total LIS funding	***$27,140,995***					
		% of funding committed	***100%***					
		Remaining LIS funding	***$10,734***					

Beaverton

Name	Metro Bond Funds	Status	Eligible units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
Amity Orchards	$9,000,000	In Construction	135	17	79	0	Jul-22	Jan-24
Elmonica	$8,439,934	Pre-construction	80	33	32	0	Sep-24	Apr-26

Mary Ann	$3,000,000	Complete	54	11	29	0	Jun-20	Sep-21
Senior Housing on 5th	$10,500,000	Pre-construction	104	68	0	30	Jan-25	Jun-26
Total units in jurisdiction portfolio			***373***	***129***	***140***	***30***		
Total unit production targets			***218***	***89***	***109***	***N/A***		
% of commitment complete			***171%***	***145%***	***128%***	***N/A***		
Total committed or underway			***$30,939,934***					
Total LIS funding			***$31,587,595***					
% of funding committed			***98%***					
Remaining LIS funding			***$647,661***					

Home Forward (East Multnomah County)

Name	Metro Bond Funds	Status	Eligible units	30% AMI units	2+ BR units	PSH units	Construction Start	Anticipated Completion
Troutdale Apartments	$15,970,323	In Construction	85	36	43	0	Jul-24	Dec-25
Dekum Court (PHB)*	$21,034,083	In Construction	*Counts toward PHB's unit production goals*				Apr-22	Jan-25
Total units in jurisdiction portfolio			***85***	***36***	***43***	***0***		
Total unit production targets			***111***	***46***	***55***	***0***		
% of commitment complete			***77%***	***78%***	***78%***	***N/A***		
Total committed or underway			***$37,004,406***					
Total LIS funding			***$37,141,206***					
% of funding committed			***100%***					
Remaining LIS funding			***$136,800***					

**Home Forward is the developer of Dekum Court, but the units will count toward Portland's production goals. Dekum Court's funding was allocated directly to Home Forward, based on an agreement between Portland, Home Forward, and Metro prior to the execution of IGAs allocating funds, and as part of Metro's early commitment of funding to four "Phase I projects" (also including Viewfinder, Mary Ann, and Tukwila Springs).*

PROJECT ENDORSEMENTS AND FINAL APPROVALS

*The following projects were endorsed or approved during the third quarter of 2024. Staff reports for these approvals are included in the Quarterly Report Project Approvals Addendum**

Project	Jurisdiction	Developer(s)	Endorsement/Approval
Vuela (Wilsonville TOD)	Clackamas	Palindrome	Final Approval
Shortstack Milwaukie	Clackamas	HomeWork/Sister City	Final Approval
Strong Family Housing	Portland	SEI/CDP	Final Approval
The Dolores	Hillsboro	Hacienda	Final Approval

*Staff reports for projects approved in the third quarter can be found at https://www.oregonmetro.gov/public-projects/affordable-homes-greater-portland/progress

METRO AFFORDABLE HOUSING BOND

Financial Report Through September 2024

FINANCIAL SUMMARY

TOTAL REVENUE	**$710,095,984**
TOTAL EXPENSES and DISBURSEMENTS	**$401,416,897**
TOTAL COMMITTED	**$167,670,735**
TOTAL FUNDING REMAINING	**$141,008,352**

REVENUE

	FY 2018 - 2024	FY 2024 - 2025	TOTAL REVENUE
Bond Proceeds	$652,800,000		$652,800,000
Premiums on Bonds	$2,630,335		$2,630,335
Interest Earnings	$50,617,834	$3,810,314	$54,428,149
Metro General Fund	$0	$237,500	$237,500
TOTAL REVENUE:	**$706,048,169**	**$4,047,814**	**$710,095,984**

EXPENSES

PROJECTS Jurisdiction:	Prior Years Expended or Disbursed	FY2024-25 Expended or Disbursed	Committed -- Not Yet Disbursed	TOTAL EXPENDED, DISBURSED or COMMITTED	WORK PLAN FUNDING (Amended)	% of Work Plan Funding Expended, Disbursed or Committed
Beaverton	$12,000,000	$0	$18,939,934	$30,939,934	$31,587,595	98%
Clackamas County	$69,542,235	$8,700,000	$25,454,545	$103,696,780	$122,018,094	85%
Gresham	$19,030,261	$0	$8,100,000	$27,130,261	$27,140,995	100%
Hillsboro	$16,940,731	$8,750,000	$0	$25,690,731	$41,240,081	62%
Home Forward (East Multnomah Co.)	$37,004,406	$0	$0	$37,004,406	$37,141,206	100%
Portland	$68,301,536	$3,150,000	$81,980,184	$153,431,720	$208,740,992	74%
Washington County	$105,215,302	$0	$9,450,000	$114,665,302	$118,135,532	97%
Metro Site Acquisition Program	$27,324,043	$1,800,320	$23,746,072	$52,870,435	$62,016,000	85%
Other Metro Direct Project Costs	$266,861	$17,792	$0	$284,653	$0	N/A
PSH IGA in progress (Wash Co)					$6,746,000	N/A
Funding to be allocated (Interest Earnings)					$19,824,690	N/A
TOTAL:	**$355,625,375**	**$22,418,111**	**$167,670,735**	**$545,714,222**	**$ 674,591,185**	**81%**

ADMINISTRATIVE Jurisdiction:	Prior Years Expended or Disbursed	FY2024-25 Expended or Disbursed	TOTAL EXPENDED or DISBURSED	WORK PLAN FUNDING (Amended)	% of Work Plan Funding Expended or Disbursed
Beaverton	$945,835	$0	$945,835	$974,615	97%
Clackamas County	$2,353,622	$641,376	$2,994,998	$3,636,371	82%
Gresham	$598,345	$119,538	$717,883	$837,421	86%
Hillsboro	$994,779	$138,839	$1,133,618	$1,272,457	89%
Home Forward (East Multnomah Co.)	$496,973	$0	$496,973	$496,973	100%
Portland[1]	$0	$0	$0	$0	N/A
Washington County	$2,387,306	$627,716	$3,015,022	$3,645,054	83%
Metro Site Acquisition Program[2]	$0	$0	$0	$1,940,932	N/A
Metro Accountability and Financial Transaction Costs	$13,469,235	$599,847	$14,069,081	$19,409,319	72%
Funding to be allocated (Interest Earnings)				$3,291,657	N/A
TOTAL:	**$21,246,095**	**$2,127,316**	**$23,373,410**	**$35,504,799**	**66%**

[1] PHB uses a Program Delivery Fee, not paid for by Metro's Affordable Housing Bond, to cover administrative expenses.

[2] Administrative expenses in support of Metro's Site Acquisition Program are combined with Metro's total Administrative expenses and included in "Metro Accountability and Financial Transaction Costs."

METRO COSTS ANNUAL BASIS[3]	FY2024-25 YTD Actuals	FY2024-25 Metro Budget	YTD % Spent
	660,353	3,209,375	21%

[3] In addition to Metro's Administrative costs, these costs include certain Metro Direct Costs reported under the "Project" Cost table above (e.g. personnel costs for the Metro Site Acquisition Program as well as Other Metro Direct costs). These costs were not provided a Work Plan Funding allocation, and therefore must be covered by Metro's Administrative Funding allocation.

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Portland, OR 97232-2736
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Metro Affordable Housing Bond Program

Final Approval

Project Name: Wilsonville TOD
Implementing Jurisdiction: Housing Authority of Clackamas County
Metro IGA Contract Number: 936551
Anticipated construction start: July 2024
Anticipated construction completion: January 2026

Action:
Metro hereby provides the Housing Authority of Clackamas County (HACC) with Final Approval of $4,164,000.00 Metro Permanent Supportive Housing Pilot funds and $3,836,000.00 Metro Affordable Housing Bond funds for the development of Wilsonville TOD, a regulated affordable housing project located at 9699 SW Barber Street, Wilsonville. Metro staff findings are attached in Exhibit A, and a more detailed description of the Project, as provided by the Housing Authority of Clackamas County (HACC), is attached as Exhibit B.

This Final Approval is based upon the information contained in the final approval request provided to Metro by the Housing Authority of Clackamas County, including Project cost proformas and statements of sources and uses of funding needed to generate a Project with the following unit mix:

Number of Units	Bedroom type	AMI Level	Project Based/RLRA Vouchers	PSH Units
4	Studio	30%	4	4
16	One-bedroom	30%	16	16
21	One-bedroom	80%	0	0
13	Two-bedroom	30%	0	0
35	Two-bedroom	60%	0	0
19	Two-bedroom	80%	0	0
2	Three-bedroom	30%	0	0
8	Three-bedroom	60%	0	0
2	Three-bedroom	80%	0	0

Changes to the information contained in the final approval request provided by the Housing Authority of Clackamas County could result in reevaluation of the Project's need for Metro Affordable Housing Bond Funds and changes to the staff findings and funding allocation to

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the Project before funding disbursement. Disbursement of funds for the Project will be processed in accordance with the terms and conditions set forth in the Affordable Housing Bond Measure Program Intergovernmental Agreement between Metro and the Housing Authority of Clackamas County (HACC), and will occur within 10 days of Metro's receipt of the following items: a draft regulatory agreement meeting IGA requirements, a final sources and uses budget, a construction contract schedule of values, and an invoice from the Housing Authority of Clackamas County (HACC) including wiring or other instructions related to transfer of funds.

Andrew Scott
Deputy Chief Operating Officer

Date

Exhibit A: Metro staff findings and recommendations | Metro Affordable Housing Bond Final Approval request for Wilsonville TOD

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Drafted by: Jimmy Oporta, Senior Housing Bond Program Coordinator
and Alison Wicks, Housing Bond Program Supervisor
Date: July 15, 2024

Criteria for funding approval

Metro will issue Final approval to local implementation partner (LIP) upon Metro's determination that (a) the proposed Project reasonably contributes to the Unit Production Targets relative to the amount of the Eligible Share proposed to be used for the Project; and (b) the Project is consistent with the Local Implementation Strategy (LIS), the Work Plan, and the Bond Measure.

In addition, Metro will issue PSH Pilot Final approval upon Metro's determination that:
1) PSH Units produced by the PSH Pilot Project will serve Population A (as defined in the SHS IGA's) and utilize County coordinated access systems to serve the most vulnerable; 2) The proposed PSH Pilot Project maximizes PSH unit production as appropriate to the specifications of the site, PSH best practices, and population needs; 3) LIP has firmly committed to align ongoing County SHS funding for project-based rental assistance and wraparound services for the residents of the PSH Pilot Project; 4) For acquisition and rehab Projects to be occupied as a shelter on an interim basis during rehab, LIP must have a preliminary plan and capital funding to support the project's completion within 4 years of Final approval; 5) For all other PSH Pilot Projects, LIP must have a preliminary plan and capital funding to support the project's completion within 2 years of Final approval; 6) The Project is otherwise consistent with the LIP's Local Implementation Strategy the Work Plan and the Housing Bond Measure.

Staff recommendations

Staff recommends the Metro Chief Operating Officer (COO) provide Final approval of funding for Wilsonville TOD. Findings from Metro's staff review are summarized below. Additional information about the project can be found in Exhibit B, the project narrative submitted by the Housing Authority of Clackamas County (HACC).

Changes since Concept Endorsement

The project is being reviewed for Final Approval and has undergone changes since Concept Endorsement on October 23, 2023. Total project costs have increased to $58.86 million, up $2.06 million (3.6%) from the prior $56.8 million. The project's permanent loan has increased to $20 million, up $3.6 million (22%) from the prior $16.4 million. While the unit count (121 units) and number of family-sized units (79 units) is unchanged since concept endorsement, the unit affordability has changed. At concept endorsement, 40 units were affordable at 30% of AMI, 48 units were affordable at 60% of AMI, and 32 units were affordable at 80% of AMI. Now, at Final Approval, 35 units are affordable at 30% of AMI, 43 units are affordable at 60% of AMI, and 43 units are affordable at 80% of AMI. The project will also support 20 Permanent Supportive Housing (PSH) units. The Metro Housing Bond funding amount remains unchanged at $4,164,000 in Metro Permanent Supportive Housing Pilot funds and $3,836,000.00 Metro Affordable Housing Bond funds, for a total Metro funding award of $8,000,000.

- Total development costs are $58.86 million and Metro Housing Bond funding is $8,000,000.
- Net cash developer fee has been slightly reduced to 5.89% of developer fee basis. This amount is less than the Metro maximum of 6% for projects with 101 units or more.

- Construction start date in July 2024 with completion anticipated in January 2026.

Contribution to unit production targets

The Wilsonville TOD project requests $4,164,000.00 Metro Permanent Supportive Housing Pilot funds and $3,836,000.00 Metro Affordable Housing Bond funds. The project's combined funding will utilize 7% ($8,000,000) of HACC's total allocation of bond funds while delivering 120 units and 20 PSH units that meet the following unit production outcomes:

- 15% of HACC's overall unit production target;
- 11% of HACC's target of units affordable to households making 30% or less of area median income (AMI); and
- 20% of HACC's family sized unit target.

When combined with HACC's other pipeline projects, Wilsonville TOD puts the County on a path to have utilized 95% of HACC's total allocation of bond funds while delivering on the following cumulative unit production outcomes:

- 119% of HACC's overall unit production target;
- 121% of HACC's target of units affordable to households making 30% or less of area median income (AMI); and
- 139% of HACC's family sized unit target.

Eligibility and readiness to proceed

HACC has submitted and Metro staff have reviewed and evaluated submitted materials for evidence of project feasibility and readiness to proceed. These include:

- An executed memorandum of understanding between the City of Wilsonville and Palindrome Properties Group, LLC dated 5/31/2023 demonstrating evidence of site control
- Updated project pro forma dated 6/18/2024
- Development team resumes and developer schedule of real estate owned, demonstrating track record with affordable housing development in Oregon and nationally
- The site is appropriately zoned for the proposed design: Current zoning is Planned Development Industrial (PDI), which has no height or density restrictions and contemplates housing, commercial space, and other uses
- Permit set construction drawings by YBA Architects, dated 2/8/2024
- Phase 1 and Phase 2 Environmental Site Assessment reports, completed by Reynolds Engineering in March and April 2024, respectively
- Appraisal report completed by CBRE, dated 5/8/2024
- Letters of intent from CREA, LLC, Piper Sandler & Co., City of Wilsonville Grant, Clackamas County Health and Human Services Department
- Final HUD AFHMP (Affirmative Fair Housing Marketing Plan), dated 4/1/2024
- Final Community Engagement Outcomes report

Staff has not identified any unusual risks to project feasibility and readiness and will continue to request updates from the HACC regarding how work is proceeding. Given that this project is receiving Permanent Supportive Housing Pilot funds staff will provide technical assistance regarding permanent supportive housing services best practices as needed.

Advancing racial equity

Metro staff have reviewed final project materials to confirm consistency with the racial equity elements of the HACC's approved LIS. Key findings include:

- **Location:** The project is located at 9699 SW Barber Street in Wilsonville and within a half-mile are employers, natural areas and parks, and the City's planned I-5 Pedestrian Bridge connecting Wilsonville's west and east sides. Major commercial amenities are within a one-mile radius, including grocery stores, pharmacies, numerous restaurants, financial services, health, and personal care, and fitness. East of I-5, Wilsonville Town Center and its surrounding area offers Safeway, Wilsonville City Hall, Clackamas Community College and Wilsonville Community Center and Memorial Park. Current zoning is Planned Development Industrial (PDI), which has no height or density restrictions and contemplates housing, commercial space, and other uses.
- **Transit access:** The site is adjacent to the Wilsonville Transit Center, which provides connections to commuter rail and transfer to all SMART (South Metro Area Regional Transit) routes.
- **Diversity in contracting/hiring:** The project's General Contractor, PacifiCap Construction, seeks an aspirational goal of 35% MWESB participation for construction hard costs and an aspirational 30% goal for soft costs. Currently, when a subcontractor is needed, the COBID system is searched for vendors to be contacted for a proposal. At this time, the Wilsonville TOD project is utilizing four (4) COBID certified vendors for pre-development activities. COBID. COBID-firm selection and contract amounts will be verified upon construction completion, when the project submits its post-construction COBID participation report to Metro.
- **Access for historically marginalized communities:** Racial and ethnic minorities make up 26.8% of Wilsonville residents and 20.9% of Clackamas County residents. The proposed development is located at and will be integrated with Wilsonville's transit center, which provides easy connections to the commuter rail and quick transfer to all SMART transit routes. The geographic location of the proposed development would appeal to Communities of Color that rely on public transportation. Palindrome has partnered with Latino Network to provide referrals to the affordable housing community and provide culturally responsive programming. The property manager will periodically generate a summary statistics report to determine if targeted groups are showing interest in the property. If it is determined that the marketing has been unsuccessful in attracting underrepresented groups or those least likely to apply, new organizations will be identified to enhance outreach efforts and targeted messaging will be developed that speaks directly to the concerns and motivations of the target audience.
- **Culturally appropriate services:** Resident services will be provided by PacifiCap Management Inc. (PMI), in partnership with the Latino Network. A contract has been executed with Latino Network to provide outreach and culturally appropriate services to the Latino population at the project. Latino Network will provide programming to residents, along with case management. Case management will address housing barriers and include services such as budgeting/credit repair, referrals for mental health counseling and employment training. For additional details, see Latino Network's May 2024 Resident Services Plan document. Clackamas Women's Services (CWS) has been secured as the service provider for the PSH units. CWS will provide services for the PSH units and work with PMI for referrals and outreach through coordinated access for the project's 20 Permanent Supportive Housing (PSH) units. The wrap-around services from CWS are designed to support each household in achieving individualized goals centered on healing

from trauma, promoting well-being, and addressing the social determinants of health. For additional information regarding resident services and PSH services at the Wilsonville TOD project, please see HACC's Exhibit B Project Summary, under the "Partnership and Services" section.

- **Permanent Supportive Housing**: The 20 PSH units produced by the PSH Pilot Project funding will serve Population A (as defined in the SHS IGA's) and utilize Clackamas County's coordinated housing access (CHA) system to serve the community's most vulnerable residents. Clackamas County and the Housing Authority of Clackamas County are firmly committed to aligning ongoing Clackamas County SHS funding to provide project-based rental assistance and wraparound services to serve residents residing in these PSH units. Wilsonville TOD has a conditional award of 20 project-based Regional Long-Term Rental Assistance (RLRA) vouchers and up to $12,000 per unit per year for the provision of supportive services to support 20 units of Permanent Supportive Housing (PSH) with Supportive Housing Services (SHS) Funding. The term of the award will be through June 2031 and may be extended up to 20 years by mutual agreement if adequate resources are available.
- **Cooling plan:** The project will pursue an Earth Advantage sustainability certification and include a rooftop photovoltaic solar system to provide electricity for common areas. The project will also include enhanced insulation, high performance windows, LED lighting, energy star appliances and smart thermostats. Each residential unit will include through wall PTAC air-conditioning units, combined with ceiling fans in each bedroom. EV parking spaces will be provided on-site for residents and guests.

Community engagement to inform project implementation

Metro staff have reviewed the narrative to confirm consistency with the community engagement elements of HACC's approved Local Implementation Strategy (LIS). Key findings include:

- **Strategies for ensuring ongoing engagement around project implementation reaches communities of color and other historically marginalized community members:**

The development team convened focus groups and interviews during the summer of 2019. Online forums and surveys on Wilsonville's "Let's Talk Wilsonville" online public forum were offered from August 2019 to December 2019. Although this early engagement pre-dates the official Final approval review period, Palindrome continued community outreach in 2023 in partnership with Latino Network. This was done through engaging the targeted community on building and unit design features, supportive services, and culturally responsive programming. Engagement participants also completed project-specific surveys, where they shared their preferences for design features and services programming at the project. Two public meetings were held (October 18, 2023 and November 13, 2023) with a total attendance of 30 community members. Over half of the participants (53%) self-identified as BIPOC (Black, Indigenous and People of Color), with a large majority of BIPOC participants self-identifying as Hispanic, Latino or of Spanish origin.

Major themes gathered from community engagement included:

- Engagement participants were interested in paying affordable rent
- Resident services available for both children and adults
- Bilingual signage around the property, along with bilingual staff
- Services programming that includes cultural events for the community

- Security cameras and on-site security
- Ample lighting throughout the project at night
- Communal work and study spaces.

Major design feedback heard from community engagement included:

- Engagement participants expressed a preference for extra storage
- Addition of study rooms and tables in shared community space
- Free Wi-Fi and larger refrigerators in family-sized units
- Native plants and trees to help units stay cool in the summer
- Safe play areas and playgrounds for children
- Covered outdoor spaces, community gardens and flowers throughout the property
- Small dog park area for those with physical limitations

EXHIBIT B: Project summary submitted by Housing Authority of Clackamas County | Metro bond concept endorsement for Wilsonville TOD (WTOD)

Submitted by: Robert Gibson, Vice President
Palindrome Wilsonville Limited Partnership, rgibson@palindromecreates.com
Submitted on: 06/18/2024

The following narrative should be submitted at the concept endorsement stage and again at the final approval stage. As noted below, some items will be added to the report at the final approval stage.

Please do not change the formatting of margins, fonts, alignment or section titles ("project overview," "background"….)

Project Overview

Provide a general overview of the proposed project, including the requested amount of bond funding from Metro, the size of the site and its ownership status, any existing buildings and their current/past use, and high level financing structure for the project.

Palindrome Properties Group (Palindrome or PPG) was awarded the development rights to the Wilsonville Transit Oriented Development (WTOD) by the City of Wilsonville in response to a competitive Request for Qualifications (RFQ) in 2022. WTOD will be a mixed-use development with 121 affordable housing units over an active ground floor space. 100% of the housing units will be restricted to households earning 30% and 80% or less of area median income. The units will be a mix of studio, one, two and three-bedroom units.

The site is roughly 1.51 acres of vacant land owned by the City of Wilsonville adjacent to the Wilsonville Transit Station at 9749 SW Barber Street. The land will be deeded to Palindrome Wilsonville Limited Partnership at the close of financing. WTOD will be financed with tax exempt bond financing, 4% Low Income Housing Tax Credits (LIHTCs), energy tax credit equity, State grant funding for the Wilsonville SMART transit welcome center, a METRO transit-oriented development grant, and deferred development fees, as well as the $8,000,000 requested Metro gap funds. In order to complete this much needed development, the Wilsonville TOD project requests $8,000,000 in Affordable Housing Bond funding, of which $4,164,000.00 will be Metro Permanent Supportive Housing (PSH) Pilot funds and $3,836,000.00 from the Housing Authority of Clackamas County's eligible share of Metro Affordable Housing Bond funds.

Changes between Concept Endorsement and Final Approval (Final Approval only)

Summarize all changes to the project between concept endorsement and final approval and additional information provided in the report that was not previously included in the Concept Endorsement report. Specifically, please address how changes in total subsidy resulted in changes to the project that could impact sustainability, durability, climate resilience, and resident experience. If total subsidy increased, please describe whether a reduction in Metro bond funds is recommended and why or why not.

- Latino Network has been secured as the service provider for the residents; a Service Agreement and Resident Services Plan is provided.
- Clackamas Women's Services has been secured as the service provider for the PSH Units. A signed MOU will be provided prior to lease-up activities; a draft MOU is provided.

- Level Field Community Development Corporation has been contacted to become our non-profit partner, providing coordination of all service providers, so that we can provide the broadest possible services to our residents without overlap. Board approval is expected on May 15, 2023.
- The Metro TOD grant will be $250,000 (the maximum loan amount).
- The development will receive a partial SDC waiver. The SDC amount is reflected under the line item "Impact Fees/Tap Fees/Taxes/SDC" under the "Budget Uses" tab with the amount waived removed from this line item.
- The permanent lender has been finalized and the "Permanent First Loan, Hard Debt (Non-OAHTC)" amount now reflects the Piper Sandler LOI.
- The 45L and ITC equity amount has been updated based on expected subcontractor costs.
- The LIHTC equity line item has been updated based on selection of the LIHTC syndicator and changes to overall costs.
- "Construction Cost SOV" tab line items have been updated to reflect contractor and subcontractor updates. These changes do not reflect material changes in the project.
- Close of financing/construction start is scheduled for July 31, 2024.

Preliminary Development Program

Describe the planned development program including but not limited to number, size, and affordability of units; non-residential space, parking, and amenities; and total square footage.

The proposed building will be a single five-story elevator building with a landscaped plaza and a mix of on-site and shared parking on the adjacent Tri-Met parcel. In addition to providing affordable housing for 121 households, Palindrome proposes to activate the ground floor with community amenities, the SMART transit welcome center, Wilsonville Community Sharing food bank and a commercial space. For the commercial space, Palindrome proposes to create a coffee shop and craft beer tap room with a focus on commuters, area employees, and neighborhood residents within walking or biking distance.

Building amenities include on-site management offices, social service offices, parcel lockers, fitness room, multi-purpose community room, bike room and laundry room. The building will be fully accessible served by two elevators. Common areas will include complimentary Wi-Fi access.

Exterior amenities include, a children's playground, sports court, covered picnic tables, outdoor patio spaces and EV charging stations.

The total gross building square footage is 128,950 of which 5,830 is ground level commercial space.

Complete the below table summarizing unit breakdown. Add/delete rows as needed.

Unit size (no. of bedrooms)	*No. of units*	*AMI %*	*PSH*[1]	*PBVs*	*Square feet/unit*	*Gross monthly rent/unit*
Studio	4	30%	4	4	470	$619
1 BD/1 B	16	30%	16	16	630	$663
1 BD/1 B	21	80%			630	$1,770
2 BD/1 B	13	30%			870	$796
2 BD/1 B	35	60%			870	$1,593
2 BD/1 B	19	80%			870	$2,124
3 BD/2 B	2	30%			1125	$926
3 BD/2 B	8	60%			1125	$1,847
3 BD/2 B	2	80%			1125	$2,461
1 BD/1 B	1	MGR			630	MGR
Total	121		20	20		

Project Image

Provide a high resolution image in jpeg format (rendering is acceptable) of the project if available. If submitting final approval, please provide an updated image.

The project image is uploaded under separate cover (See WTOD - SD Renderings).

Background

Describe the process and timeline for how project was selected through a local funding process, and how the site was selected or acquired for affordable housing development. Provide an overview of due diligence and predevelopment completed to date.

The site was identified through the 2020 Wilsonville Equitable Housing Strategic Plan process. On March 18, 2020, the City of Wilsonville released an RFQ for the site. Palindrome responded to the RFQ on April 26, 2022. Subsequent Q&As and interviews were conducted, and Palindrome was ultimately awarded the development rights to the project on December 19, 2022. The City of Wilsonville and Palindrome are currently negotiating a Development and Disposition Agreement for the proposed project. Site due diligence, including a soil report, title review, *environmental* and survey, has been completed.

The site is appropriately zoned for the proposed design and Palindrome has received design review approval from the City design commission. Following design review approval, Palindrome completed design development drawings and construction pricing from the general contractor. In February 2024, Palindrome completed construction permit drawings and submitted for permit approval.

[1] Permanent supportive housing is housing that includes rental assistance and wraparound services, and is designated for households experiencing chronic homelessness and referred through coordinated access or local HUD Continuum of Care approved referral systems. PSH units include units with ongoing operating subsidy and services through Veterans Affairs Supportive Housing (VASH), Section 811 program for individuals with developmental disabilities, units with PSH funding from the state of Oregon, units supported through the Supportive Housing Services (SHS) program, and any other programs that provide ongoing funding to support housing stability for chronically homeless households.

Location and Neighborhood

[word limit: 100]

Describe the project location and surrounding zoning, land uses and activities. Describe any nearby services or community amenities, including schools or employment centers, grocery stores or farmer's markets, natural areas or parks. Describe walking distance and accessibility (e.g., sidewalks, signalized crossings) to nearby transit stations, and the existing/planned level and type of transit service (e.g., frequent service bus, MAX, etc.).

The project is located at 9749 SW Barber Street in Wilsonville and is adjacent to the Wilsonville Transit Center, which provides connections to commuter rail and transfer to all SMART routes. Current zoning is Planned Development Industrial (PDI), which has no height or density restrictions and contemplates housing, commercial space, and other uses via reference to the PDC and PDR zones. No rezoning is required.

Within a half-mile are employers, natural areas and parks, and the City's planned I-5 Pedestrian Bridge connecting Wilsonville's west and east sides. Major commercial amenities are within a one-mile radius, including grocery, pharmacy, numerous restaurants, financial services, health, and personal care, and fitness. East of I-5, Wilsonville Town Center and its surrounding area offers Safeway, Wilsonville City Hall, Clackamas Community College and Wilsonville Community Center and Memorial Park (see Amenities Table & Map provided at Concept Endorsement).

Provide an aerial map with key transit and amenity features labeled, along with the site location.

The aerial map is uploaded under separate cover (see Amenities Table & Map).

Site

[word limit: 300]

Describe key elements of the site including size, number of tax lots, site control/ownership, appraisal, and zoning. If the site includes existing buildings, provide an overview of the year they were built, past/current use, and future plans as part of the project.

Owner: City of Wilsonville
Primary Address: 9749 SW Barber St, Wilsonville, 97070
Estimated Acres: 3.45
Zoning: PDI
Jurisdiction: Wilsonville
Map Number: 31W14B
Taxlot Number: 31W14B 00703
Parcel Number: 05020822
Census Tract: 022707
Landclass: 300 (https://www.ci.wilsonville.or.us)
Current Year Assessed Value: $436,117.00
Market Building Value: $0.00 (No buildings onsite)
Market Land Value: $730,515.00

The total land area is 3.45 acres, so the lot will need to be subdivided, carving out the housing portion of 1.51 acres. There are no existing buildings on-site.

The site is zoned Planned Development Industrial which allows for the proposed mixed-use project as proposed.

<u>Final approval only:</u> Describe key findings from the Phase 1 environmental assessment and geotechnical report, and any follow up studies underway.

The Phase I Environmental Assessment dated 06/07/2024 shows no recognized environmental conditions.

<u>Building rehabilitation only:</u> Describe the findings from your capital needs assessment and anticipated repair needs. Describe hazardous materials assessments and planned abatement needs. Describe seismic risk assessment findings and related investment needs.

This section is not applicable.

Project Financing

Describe the estimated total development cost and total public subsidy, cost and subsidy per unit, and cost and subsidy per bedroom. Provide a table summarizing planned sources and uses of funding. Summarize funding contributions and any local incentives or policies benefiting the project (e.g., SDC waiver, property tax abatement, density bonus, reduced parking requirements, etc.).

Summarize the total developer fee and net cash developer fee and summarize how the following considerations informed the determination of the fee within the ranges specified by Metro's Developer Fee Guidelines: project complexity and risk (e.g. PSH units), developer organizational size and financial capacity, participation of small/emerging community based and culturally specific organizations in development, and exceptional track record or outcomes for serving communities of color. To receive a fee at the upper end of the fee limits projects should demonstrate alignment with multiple considerations. See Metro Developer Fee Guidelines for additional information.

Summarize ongoing funding sources for rental assistance and services, including total, and total per unit.

The estimated total development cost, excluding the commercial component, is $57,739,880 equating to $477,189 per unit and $274,951 per bedroom. The total requested Metro bond gap funds is $8,000,000 equating to $66,115 per unit and $38,095 per bedroom.

The sources and uses are included in the OHCS 4% NOFA application form submitted as part of the concept endorsement summary.

In addition to the land contribution, the City of Wilsonville is providing a $2,000,000 transit grant to support the Smart welcome center at the project and SDC waivers (see Section 4.1.3 of the provided DDA with the City of Wilsonville for specifics on the transit grant).. The project is benefiting from a shared parking agreement with Tri-met on the adjacent transit center park and ride parking lot. As part of the project's environmental sustainability measures, the proforma included energy tax credit equity from the photovoltaic solar credits. A letter of intent from the City for $1.9M is provided. The

The total developer fee is $7,106,011 of which $3 million is the net cash developer fee, which is below the maximum as outlined by "Exhibit G: Regional Guidelines for Cash Developer Fee" and is within the new construction range of 2% to 6%. The cash fee is justified as the project includes complexity and risk due to the integration of the development into the Wilsonville Transit Center, the mix of uses, and the number of proposed permanent supportive housing units. Further, Palindrome plans to partner with Latino Network to successfully engage and serve BIPOC communities through outreach and culturally responsive programming.

The initial total annual residential operating expenses are $675,872 or $5,585 per unit.

The 20 PSH units produced by the PSH Pilot Project funding will serve Population A (as defined in the SHS IGA's) and utilize Clackamas County's coordinated housing access (CHA) system to serve the community's most vulnerable residents. Clackamas County and the Housing Authority of Clackamas County are firmly committed to aligning ongoing Clackamas County SHS funding to provide project-based rental assistance and wraparound services to serve residents residing in these PSH units.

Wilsonville TOD has a conditional award of 20 project-based Regional Long-Term Rental Assistance (RLRA) vouchers and up to $12,000 per unit per year for the provision of supportive services to support 20 units of Permanent Supportive Housing (PSH) with Supportive Housing Services (SHS) Funding. The term of the award will be through June 2031 and may be extended up to 20 years by mutual agreement if adequate resources are available. The conditional award is provided.

Development Team

Describe the development team including the developer, general contractor, architect, and other key partners, and their relevant experience, respectively. If some members of the team are not yet selected as of the concept endorsement, this information can be added at the final approval step.

Developer:

Palindrome Properties Group

Palindrome has been a developer of affordable housing throughout the American West since 1999. Through its subsidiaries PacifiCap Construction and PacifiCap Management, it also builds and manages the affordable housing communities it develops. SOMOS Destinations, its hospitality subsidiary, owns and operates hotels, restaurants, breweries and tap rooms, while also managing the operations of dozens of micro-retail and food pod tenants.

Partnerships are essential to Palindrome's delivery of high-quality affordable housing. Palindrome has worked extensively with nonprofit partners, and city, state, and federal agencies, to produce a majority of its housing, retail and hospitality developments. Palindrome's real estate portfolio includes stabilized rental and mixed-use communities located in urban and suburban markets in Oregon, Washington, Colorado, Nevada, New Mexico and Arizona. Palindrome's approach to real estate investment focuses on initial success, as well as long-term feasibility. In its 25-year history, Palindrome has developed over 8,600 housing units, including 7,758 affordable units, and 389,000 square feet of commercial space.

General Contractor:

PacifiCap Construction

With over 20 years of general contracting experience, PacifiCap has become an expert in the niche of constructing affordable housing, with particular experience in public-private partnerships. The company employs highly experienced, technically qualified project managers and job superintendents who personally oversee and direct all aspects of every project. PacifiCap works with a team of loyal and reliable subcontractors who have had relationships with the company for many years.

Architect:
YBA Architects
YBA Architects is a full-service architecture, planning and interior design practice based in Portland, Oregon and engaged in projects worldwide. We forge enduring relationships with clients who share our passion for excellence, quality, and willingness to explore new approaches to craft vibrant places that delight, return exceptional value to investors, and can adapt well to change.

Community Engagement

Please summarize community engagement to inform project outcomes to support the needs of future residents. This could include engagement conducted previously by the LIP or developer to shape the goals of a NOFA or vision for a project. It could also include plans for further engagement to inform the design or programming of the project to meet the needs of historically marginalized community members.

As part of the Equitable Housing Plan process, the team conducted stakeholder and public engagement to understand housing challenges and possible solutions. The team conducted a process that included:

- One-on-one interviews with ten key stakeholders. Participants included community-based organizations, real estate professionals, and many others. Some of these organizations currently address the needs of underrepresented groups in Wilsonville.
- A survey of 15 community members who rent units in existing subsidized buildings.
- An online survey on Let's Talk, Wilsonville! with 80 participants.
- Three focus groups with nonprofit affordable housing developers, local employers, and community-based organizations that serve Wilsonville residents, including underrepresented populations.
- A kiosk at the Wilsonville Public Library that featured an interactive poll available in English and Spanish that was available during December 2019.
- A survey of employers with nine responses that indicated workforce housing costs were a concern.

Palindrome continued community outreach in 2023 in partnership with Latino Network engaging with the targeted community on building and unit design features and supportive services and culturally responsive programming. Two public meetings were held (October 18, 2023 and November 13, 2023) with a total attendance of 30 community members. Meeting forms provided.

Note: Outreach strategies for affirmative marketing and COBID participation should be described in the following section under "advancing racial equity." This section is focused on engagement to inform the goals, vision, design, or programming of the project.

Advancing Racial Equity

Summarize how the project will address strategies and policies for advancing racial equity, as described in your local implementation plan. Be sure to include:

- *How the project location reflects considerations related to racial equity (e.g., geographic distribution of affordable housing, access to opportunity, strategies to address racial segregation, and strategies to prevent displacement and stabilize communities)*
- *Fair housing strategies to eliminate barriers to housing access for communities of color and other historically marginalized groups (e.g., fair housing marketing strategies, community partnerships, low barrier screening, etc.)*
- *Strategies to include economic opportunities for people of color (e.g., MWESB/COBID participation and workforce diversity)*

Racial Equity: Racial and ethnic minorities make up 26.8% of Wilsonville residents and 20.9% of Clackamas County residents. The proposed development is located at and will be integrated with Wilsonville's transit center, which provides easy connections to the commuter rail and quick transfer to all SMART routes. According to the Pew Research Center, 23% of Black adults and 15% of Hispanic adults say they take public transportation on a daily, almost daily or weekly basis. Comparatively, this figure is 7% for White adults.[2] The geographic location of the proposed development would appeal to Communities of Color that rely on public transportation. Palindrome has a signed Service Agreement with Latino Network, including a Resident Services Plan which will provide referrals to the affordable housing community and culturally responsive programming. Please see the Partnerships and Services section for additional information.

Fair Housing: Palindrome's aim is to ensure all residents receive and maintain the basic human right of an affordable, high-quality home, along with support to maximize their probability of achieving stability and success. The property manager will periodically generate a summary statistics report to determine if targeted groups are showing interest in the property. If it is determined that the marketing has been unsuccessful in attracting underrepresented groups or those least likely to apply, new organizations will be identified to enhance outreach efforts and targeted messaging will be developed that speaks directly to the concerns and motivations of the target audience. This could involve highlighting the benefits of the community, addressing common misconceptions, and using language and imagery that resonates with those least likely to apply. At this point, a variety of outreach methods that go beyond traditional advertising and marketing channels may be used to reach these populations. This could include community events, partnerships with local organizations, targeted social media campaigns, and word-of-mouth referrals.

Economic Opportunities for People of Color: When a subcontractor is needed, the COBID system is searched to see if there is a compatible vendor that can be contacted for a proposal. Currently, the following COBID certified vendors are under contract and being utilized for pre-development activities:

RQ4D (Surveying) ESB and SDVBE Oregon Cert ID 12264
Emerio Design, LLC (Civil Engineering) DBE and MBE Oregon Cert ID 5611
Shaprio Didway LLC (Landscape Design) ESB Oregon Cert ID 10705
M.Thrailkill.architect LLC (Specifications) ESB Oregon Cert ID 9859
Valar (Structural Engineering) ESB and MBE Oregon Cert ID 9771

While Wilsonville TOD will utilize as many apprentices, women and people of color as possible, these statistics will not be tracked.

[2] https://www.pewresearch.org/short-reads/2016/04/07/who-relies-on-public-transit-in-the-u-s/

Wilsonville TOD has the following equitable contract goals for construction:
Hard Costs 35%
Soft Costs 30%

Partnerships and Services

Provide information about plans and partnerships for ongoing operations, including property management partner(s) or service providers. Describe strategies for aligning culturally specific programming or services to meet the needs of future residents. If your project includes PSH units, please describe if these will use coordinated access process, or another referral process.' Confirm that project will serve Population A – include definition.

PacifiCap Management Inc. (PMI) is a professional management company with 25 years of experience managing affordable multifamily housing communities. PMI uses a comprehensive strategy aimed at ensuring the efficient operation and maintenance of the property while fostering a vibrant community environment. PMI will provide a property management plan which encompasses various aspects including leasing and resident relations, financial management, maintenance and repairs, amenities management, and emergency preparedness. The plan will prioritize resident satisfaction through responsive communication channels, timely resolution of maintenance issues, and the provision of high-quality amenities and services.

Referrals into the apartment community will come from Clackamas Women's Services (CMS, through the Clackamas County's Coordinated Housing Access system) and Latino Network (LN). Palindrome Wilsonville Limited Partnership (Palindrome) through their affiliated management agent PacifiCap Management Inc. (PMI) will accept all referrals from RLRA referral partners and the coordinated access system and notify partners immediately when units are available or when management knows a PSH unit will become available in the future. Additionally, PMI will:

- Reduce screening barriers and/or accept applicants who have been pre-approved
- Limit application fees and security deposits to a reasonable limit
- Notify service partners when issues arise and work collaboratively to prevent damages or eviction
- Promote housing access and inclusion, and follow specific non-discrimination and anti-racism guidelines

PMI will work closely with both Clackamas Women's Services and Latino Network for referrals and resident services, based on their signed MOUs.

Case management services will be provided by Clackamas Women's Services onsite to the 20 PSH households supported by the voucher program. The Wrap-around services from Clackamas Women's Services are designed to support each household in achieving individualized goals centered on healing from trauma, promoting well-being, and addressing the social determinants of health. All Case Managers are state certified in domestic violence advocacy. CWS services work to enhance safety, mitigate isolation, and promote self-determination with individualized services. All services are voluntary and in the language of their choice, so participants are able to choose services that meet their needs and goals. Clackamas Women's Servies will provide trauma-informed and culturally responsive wrap-around services such as mental health counseling (individual and family), parenting support groups, art-based therapy, mentoring, legal representation, and health services recognizes that simply increasing one's income does not address the many root causes of homelessness, community harm, and interpersonal violence. They also include community connection activities and wellness programming in their wrap-around services to support

incorporating well-being into individualized service plans and to mitigate the harm caused by the isolation of domestic and sexual violence. Please see draft MOU attached.

Latino Network has identified several broad categories of services and opportunities that will benefit residents including:

- Health & Wellness Education
- Financial Education
- Legal Planning & Services
- Arts & Culture Activities

Latino Network will provide programming to building residents, and case management services to qualifying families through available programs as capacity permits. Case management will address identified housing barriers, including but not limited to, budgeting/credit repair, referrals for mental health counseling, housing, education, employment/training workshops, and parenting.

The goal of the Latino Network is to provide services from within these categories to residents on a monthly basis. Each month, the Latino Network will offer an opportunity from one of these service areas to residents, provided by the Latino Network directly or through an area community provider.

On-site activities and workshops will take place monthly in community spaces and will be advertised in advance. Additionally, an informative and practical schedule of free and low cost community events and activities will be posted in common areas for residents on a monthly basis. Events will be culturally specific, family friendly, low-cost or free and easily accessible within the neighborhood.

Additionally, Latino Network's staff will notify Property Management staff if any resident makes known issues that would affect the resident's ability to maintain housing. Latino Network will work with the resident/household to attempt to remedy the situation to maintain their housing. Finally, Latino Network will share with their clients the affordable housing opportunity at the Wilsonville development.

Livability and Accessibility

Please highlight design elements that enhance livability and accessibility (e.g. shared Wi-Fi, common spaces, universal design)

Starting with site grading and landscape design, the proposed project has been designed to maximize accessibility for residents and guests. The building is secure with an access control system with guest intercom. The main entry doors have push button controls to automatically open. The ground level entry and hallways are open and wide to eliminate obstacles for move in. The management office and common spaces are all located on the ground level with windows for visibility to enhance security. Common areas will include complimentary Wi-Fi access.

All units in the community are fully accessible and served by two elevators. Kitchens, bathrooms, and closets have been designed to maximize functionality and accessibility.

There are several outdoor spaces with covered seating areas to encourage residents to enjoy the outside environment.

Climate Resilience and Sustainability

Please describe the project's cooling plan to keep residents safe in extreme heat events, take into consideration Metro's Policy Statement of Air Conditioning (Sept. 14, 2021) for expectations related to cooling strategies. Include type of air conditioning system and cost. Including reasons why the type of air conditioning system was selected including sustainability, durability, expense, and feasibility given project constraints.

Please highlight sustainability certifications, elements and/or green building features for this project.

Each residential unit will include through wall PTAC air conditioning combined with ceiling fans in each bedroom. The common areas of the building will be serviced by roof-top condensers.

The project will pursue an Earth Advantage sustainability certification. Sustainability features include a rooftop photovoltaic solar system to provide for common area electric. Enhanced insulation and high-performance windows, LED lighting, energy star appliances and smart thermostats will provide energy efficient units for residents. The landscape design uses native water smart plants, and the units include low-flow water fixtures.

EV parking spaces will be provided on-site for residents and guests.

Anticipated Timeline

Describe the anticipated timeline and milestones for the project, including developer or contractor selection, concept endorsement, due diligence, final approval, closing, construction, and lease up – as well as any timelines related to community or elected body engagement.

The development team, including general contractor, design team, and property management, has been selected. The site due diligence, schematic design, and the City pre-application meeting has been completed.

The following timeline outlines the remaining key milestone to be completed:

Concept Endorsement	August, 2023
Community Outreach	September, 2023
Design Review Approval	November, 2023
Development & Disposition Agreement	May, 2024
Building Permit Application	February, 2024
Final Approval	August, 2024
Closing	July, 2024
Construction Completion	January, 2026
Initial Lease Up	January, 2026
Stabilization	June, 2026

600 NE Grand Ave.
Portland, OR 97232-2736
oregonmetro.gov

Metro Affordable Housing Bond Program

Final Approval

Project Name: Shortstack Milwaukie
Implementing Jurisdiction: Housing Authority of Clackamas County
Metro IGA Contract Number: 936551
Date of Concept Endorsement: November 15, 2023
Anticipated construction start: August 2024
Anticipated construction completion: July 2025

Action:
Metro hereby provides the Housing Authority of Clackamas County (HACC) with Final Approval of $700,000.00 in Metro Affordable Housing Bond funds for the development of Shortstack Milwaukie, a regulated affordable homeownership project located at 3736 SE Harvey Street, Milwaukie. Metro staff findings are attached in Exhibit A, and a more detailed description of the Project, as provided by the Housing Authority of Clackamas County (HACC), is attached as Exhibit B.

This Final Approval is based upon the information contained in the final approval request provided to Metro by the Housing Authority of Clackamas County, including Project cost proformas and statements of sources and uses of funding needed to generate a Project with the following unit mix:

Number of Units	Bedroom Type	AMI Level
15	Two-bedroom	80%

Changes to the information contained in the final approval request provided by the Housing Authority of Clackamas County could result in reevaluation of the Project's need for Metro Affordable Housing Bond Funds and changes to the staff findings and funding allocation to the Project before funding disbursement. Disbursement of funds for the Project will be processed in accordance with the terms and conditions set forth in the Affordable Housing Bond Measure Program Intergovernmental Agreement between Metro and Housing Authority of Clackamas County, and will occur within 10 days of Metro's receipt of the following items: a draft regulatory agreement meeting IGA requirements, a final sources and uses budget, a construction contract schedule of values, and an invoice from the Housing Authority of Clackamas County including wiring or other instructions related to transfer of funds.

Andrew Scott
Deputy Chief Operating Officer

July 15, 2024
Date

Exhibit A: Metro staff findings and recommendations | Metro Affordable Housing Bond Final Approval request for Shortstack Milwaukie

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Drafted by: Jimmy Oporta, Senior Housing Bond Program Coordinator
and Alison Wicks, Housing Bond Program Supervisor
Date: July 15, 2024

Criteria for funding approval

Metro will issue Final Approval to local implementation partner (LIP) upon Metro's determination that (a) the proposed Project reasonably contributes to the Unit Production Targets relative to the amount of the Eligible Share proposed to be used for the Project; and (b) the Project is consistent with the Local Implementation Strategy (LIS), the Work Plan, and the Bond Measure.

Staff recommendations

Staff recommends the Metro Chief Operating Officer (COO) provide Final Approval of funding for Shortstack Milwaukie. Findings from Metro's staff review are summarized below. Additional information about the project can be found in Exhibit B, the project narrative submitted by the Housing Authority of Clackamas County (HACC).

Changes since Concept Endorsement

The project is being reviewed for Final Approval and has undergone changes since Concept Endorsement on November 15, 2023. Project development costs have increased by 1% ($74.7K) and the construction loan has increased by the same amount. The Metro Housing Bond funding amount remains unchanged at $700,000.

- Total development costs are $7.62 million and Metro Housing Bond funding is $700,000.
- Net cash developer fee is 9.55% of developer fee basis. This amount is less than the Metro maximum of 14% for projects with 1 – 30 units.
- Construction start date in August 2024 with completion anticipated in July 2025.

Contribution to unit production targets

Shortstack Milwaukie will utilize 1% ($700,000) of HACC's total allocation of bond funds while delivering 15 homeownership units that meet the following unit production outcomes:

- 2% of HACC's overall unit production target;
- 4% of HACC's family sized unit target.

When combined with HACC's other pipeline projects, Shorstack Milwaukie puts the County on a path to have utilized 91% of HACC's total allocation of bond funds while delivering on the following cumulative unit production outcomes:

- 119% of HACC's overall unit production target;
- 139% of HACC's family sized unit target.

Eligibility and readiness to proceed

HACC has submitted and Metro staff have reviewed and evaluated submitted materials for evidence of project feasibility and readiness to proceed. These include:

- Purchase and sale agreement, dated 2/19/2023, demonstrating evidence of site control
- Updated project pro forma dated 5/18/2024
- Permit set drawings by Works Progress Architecture, date 2/29/2024
- Appraisal report by BBG Real Estate Services, dated 4/9/2024
- Phase I Environmental Site Assessment report by GeoPacific, dated 4/24/2023.
- Letters of intent from Craft3, City of Milwaukie CET Grant, USDA Forest Service – Wood Innovation Grant, OHCS LIFT Award Letter
- Development team resumes and developer schedule of real estate owned, demonstrating track record with affordable housing development in Oregon and nationally
- City of Milwaukie, Local Government Verification with Zoning and Land Use Regulations, dated 1/11/2023

Staff has identified this project as an affordable homeownership pilot project. Legal compliance of regulatory agreement and monitoring plan will need to be confirmed prior to funding disbursement and staff will continue to request updates from the Housing Authority of Clackamas County regarding how work is proceeding.

Advancing racial equity

Metro staff have reviewed final project materials to confirm consistency with the racial equity elements of the HACC's approved LIS. Key findings include:

- **Location:** The location in the Ardenwald neighborhood of Milwaukie was selected based on its ideal neighborhood location for affordable cottage homes. The neighborhood is well-connected to Milwaukie's thriving downtown commercial center, good schools, and major employers. The site is within walking distance to Providence Hospital, Safeway, Ardenwald Elementary School, Downtown Milwaukie, and many other public amenities. Water Tower Park is a block away and the larger Minthorn North Natural Area is ½ mile. The site is less than a ½ mile from SE 82nd Avenue commercial corridor.
- **Transit access:** The site is within ½ mile of the MAX yellow line, and less than ¼ mile from several tri-met bus lines (the nearest stop is only a block away).
- **Diversity in contracting/hiring:** The development team seeks an aspirational goal of 30% MWESB participation throughout the development and construction process of this project. The development team is in the process of finalizing a replacement bid from Owen Gabbert, LLC., the project's new General Contractor.
- **Access for historically marginalized communities:** Proud Ground recognizes inequitable access to homeownership has kept households of color, many of which are first-generation and first-time homebuyers, from building wealth and accessing high-quality neighborhood services, such as education and employment. For this reason, Proud Ground focuses its outreach on these groups, in particular historically marginalized communities with children and with limited English proficiency through marketing strategies and internal policies that break down barriers of accessing homeownership opportunities. In 2022, Proud Ground collaborated with Univision PDX for an Outreach campaign targeting the Spanish-speaking population, and Proud Ground services were highlighted in the Spanish show Elemento Latino (an independent television program that produces educational, social, and cultural programs related to Latino needs and issues). Proud Ground also began a partnership with Pueblo Unido PDX; Pueblo Unido is the Collective of Indigenous Interpreters of Oregon (CIIO), a group of interpreters of indigenous languages from Mexico, Central America, and South America that address barriers to legal and social services for indigenous language

speakers in Oregon. Pueblo Unido will be working in partnership with Proud Ground to conduct ongoing Information sessions in the top 10 indigenous languages from Mesoamerica that are spoken in this region. The Proud Ground waitlist policy, which has been approved by Fair Housing of Oregon, prioritizes larger households with children or households of 3 or more. Through targeted outreach to the BIPOC community, Proud Ground anticipates that most of the homes (75%) will be purchased by households identifying as BIPOC. 77% of Proud Ground homebuyers since 2021 identify as BIPOC households.

- **Culturally appropriate services:** Proud Ground will conduct regular information sessions to inform the public of homeownership opportunities and requirements. Once selected through the official waiting list, homebuyers gain access to Proud Ground's Homeownership Education and Counseling programs, which helps first-time homebuyers become mortgage ready. Proud Ground then administers down-payment assistance funds as buyers complete the purchasing process. In 2022, Proud Ground hired a Stewardship Manager to expand education, services and support to Proud Ground homeowners. Proud Ground offers post purchase education in a one-on-one and group format (in-person and virtual). A minimum of eight workshops are offered each year (4 in English and 4 in Spanish). Topics include: Estate Planning, Home Maintenance/Repair, Solar Panels, Budgeting, Insurance, Planning for Retirement, and more. Workshop partners include Solar for All, SparksNW, Financial Beginnings, Rebuilding Center, and Habitat for Humanity Portland Region.
- **Cooling Plan:** The all-electric homes will be designed to standards that exceed the energy efficiency requirements set forth by the City of Milwaukie building code. Heating and cooling for the homes will be provided by heat pump systems. The project will emphasize resiliency through integrated on-site stormwater management and a palate of native, naturally occurring plants and trees.

Community engagement to inform project implementation

Metro staff have reviewed the narrative to confirm consistency with the community engagement elements of HACC's approved Local Implementation Strategy (LIS). Key findings include:

- **Strategies for ensuring ongoing engagement around project implementation reaches communities of color and other historically marginalized community members:**

Community outreach will be used to drive income-qualified, first-time homebuyers to Proud Ground's information sessions to learn more about homeownership opportunities. Information sessions will be offered virtually and in person and include outreach materials, program application forms and program contracts in English and Spanish, as well as other languages upon request. If non-English speakers require a translator to proceed with the home buying process, Proud Ground will help cover that expense at no cost to the buyer. Organizationally, Proud Ground solicits and engages the community served, in developing solutions and improving services offered. This is supported by the organization by-laws which require 1/3 of Proud Ground's board directors to be current Proud Ground homeowners. All Proud Ground homeowners are voting members of Proud Ground's membership-based Community Land Trust (CLT) and have a voice in key decisions, including by-law changes.

Proud Ground partners with many culturally specific homeownership agencies in the Metro region, including: Bienestar, Hacienda CDC, NAYA, PCRI, OHDC, Pueblo Unido, IRCO, Univision PDS, VERDE, Rose CDC, Human Solutions and Centro Cultural. For Shortstack Milwaukie, Proud Ground intends to reach out to each agency offering advanced notice of the home purchase

opportunity before the homes are listed on the market, and to inquire if the agencies have an active presence in Milwaukie (or Clackamas County) or wish to expand their outreach into this area if they don't currently. Proud Ground will collaborate on outreach and info sessions with those partners that respond to the inquiry and who want to offer the homeownership opportunities to their service base.

Shortstack Milwaukie

Project Narrative
May 17, 2024

Project Overview

Provide a general overview of the proposed project, including the requested amount of bond funding from Metro, the size of the site and its ownership status, any existing buildings and their current/past use, and high level financing structure for the project.

The Shortstack Milwaukie project will deliver an innovative, replicable homeownership solution, led by a diverse team of industry experts. The project delivers 15 affordable homes in Milwaukie, through smart densification at the "missing middle" / "cottage cluster" scale. The project leverages recent up-zoning for middle housing neighborhoods and is located near amenities that working families need to thrive.

The project design for two-story, two-bedroom cottages was determined to be a compact, efficient design for cost purposes while providing a modern open ground floor plan concept that is desirable and marketable for home buyers. The units are intended to serve a mix of small families, couples, and individuals – all of whom are continuants in need of more affordable home buying options.

The Shortstack development concept is a direct response to housing legislation passed recently in Oregon, including House Bill 2001 (2019); the City of Portland's Better Housing by Design (2020) and Residential Infill Project (2021); and the City of Milwaukie's Middle Housing Zoning Code Update (2022). The policies address the State's desperate need for affordable housing options by creating opportunities to increase residential density for infill sites. This project also responds to affordable housing needs detailed in Governor Kotek's Executive Order No. 23-04 which calls for production of 36,000 housing units per year.

Thanks to partnership between Shortstack Developers Jessy Ledesma of HomeWork Development and Anna Mackay of Sister City, and Proud Ground, Oregon's largest non-profit Community Land Trust, homes at Shortstack Milwaukie will be priced for households earning up to 80% AMI.

Shortstack Milwaukie requests $700,000 from Metro to fill the financing gap for 15 affordable homeownership cottages to be built at 3736 SE Harvey Street, Milwaukie, OR.

Preliminary Development Program

Describe the planned development program including but not limited to number, size, and affordability of units; non-residential space, parking, and amenities; and total square footage.

Complete the below table summarizing unit breakdown. Add/delete rows as needed.

Unit size (no. of bedrooms)	No. of units	AMI %	Square feet/unit	2025 Sale Price
2 bed, 1.5 bath	*15*	*80%*	*960sf*	*$245,000-250,000*

Project Image

Provide a high resolution image in jpeg format (rendering is acceptable) of the project if available. If submitting final approval, please provide an updated image.

Background

Describe the process and timeline for how project was selected through a local funding process, and how the site was selected or acquired for affordable housing development. Provide an overview of due diligence and predevelopment completed to date.

Shortstack Milwaukie was selected for competitive funding processes as follows:

- May 2022: USDA Wood Innovation Grant
- December 2022: City of Milwaukie CET Grant
- May 2023: OHCS LIFT + LIFT Subsidy Award

Due diligence and predevelopment completed to date:

- Site due diligence: survey, Phase I environmental, Geotech report, land appraisal
- Architectural Plans: 95% Construction Documents
- Planning/Zoning entitlements: under review with the City of Milwaukie for building permits
- Contractor bid provide by Truebeck Construction
- Construction loan Letter of Interest provided by Craft3 (currently underwriting)

Location and Neighborhood

[word limit: 100]

Describe the project location and surrounding zoning, land uses and activities. Describe any nearby services or community amenities, including schools or employment centers, grocery stores or farmer's markets, natural areas or parks. Describe walking distance and accessibility (e.g., sidewalks, signalized crossings) to nearby transit stations, and the existing/planned level and type of transit service (e.g., frequent service bus, MAX, etc.).

The location in the Ardenwald neighborhood of Milwaukie was selected based on its ideal neighborhood location for affordable cottage homes. The neighborhood is well-connected to Milwaukie's thriving downtown commercial center, good schools and major employers.

The site is within ½ mile of the MAX yellow line, and less than ¼ mile from several tri-met bus lines (nearest stop is only a block away) and within walking distance to Providence Hospital, Safeway, Ardenwald Elementary School, Downtown Milwaukie, and many other public amenities. Water Tower Park is a block away and the larger Mintorn North Natural Area is ½ mile. The site is less than a ½ mile from SE 82nd Avenue commercial corridor.

Site

[word limit: 300]

Describe key elements of the site including size, number of tax lots, site control/ownership, appraisal, and zoning. If the site includes existing buildings, provide an overview of the year they were built, past/current use, and future plans as part of the project.

<u>Final approval only:</u> Describe key findings from the Phase 1 environmental assessment and geotechnical report, and any follow up studies underway.

<u>Building rehabilitation only:</u> Describe the findings from your capital needs assessment and anticipated repair needs. Describe hazardous materials assessments and planned abatement needs. Describe seismic risk assessment findings and related investment needs.

The site (3736 SE Harvey Street, Milwaukie, OR) is a 24,300 sf site on a single tax lot (Tax ID: 11E25DD02700). It is zoned R-MD; a Moderate Density Residential Zone.

There is an existing single-family home on the site (built 1940) which is scheduled for demolition. The existing tenant was given notice to vacate 60 days prior to land sale.

GeoPacific conducted an Environmental Phase 1 dated April 24, 2023 (reviewed by Craft3's environmental consultant May 2024 concluding the same). Their pertinent summarized findings are:

1. No surface water or drainages were observed at the site.
2. Site reconnaissance did not reveal the obvious presence of any environmental hazardous material contamination sources on the site, including soil staining or distressed vegetation except for the above ground heating oil tank on the east side of the residence. No signs of spill or leaks were observed in the vicinity of the above ground heating oil tank on the east side of the residence.

3. Available hydrogeologic literature suggests that the near surface groundwater table is likely between 80 and 120 feet below the ground surface at the lower elevations of the site.
4. The target property was not listed in any of the databases searched by EDR or GeoPacific.

Their conclusions and recommendations are as follows: GeoPacific has performed this Phase I environmental site assessment in general conformance with the scope and limitations of ASTM Standard E1527-13. The assessment did not reveal evidence of recognized environmental conditions (RECs) in connection with the property; no additional environmental investigation is necessary for this site.

A geotechnical engineering report was prepared by GeoPacific on May 3, 2023. Their site investigation indicates that the proposed development appears to be geotechnically feasible, provided that the recommendations of the report are incorporated into the design and construction phases of the project. The main geotechnical concern associated with the proposed site development is site preparation, due to the presence of undocumented fill material. This condition will be explored further in future phases of predevelopment.

Project Financing

Describe the estimated total development cost and total public subsidy, cost and subsidy per unit, and cost and subsidy per bedroom. Provide a table summarizing planned sources and uses of funding.

PROFORMA SUMMARY				
Sources		Public Subsidy	Per Unit	Per Bdrm
Construction Debt	3,622,092		241,473	120,736
OHCS LIFT Subsidy	2,745,000	X	183,000	91,500
Wood Innovation Grant	250,000	X	16,667	8,333
City of Milwaukie CET Grant	300,000	X	20,000	10,000
Metro Bond Funds - Clackamas County	700,000	X	46,667	23,333
Total Sources	**7,617,092**		**507,806**	**253,903**
Uses				
Land	600,000		40,000	20,000
Construction Costs	4,647,816		309,854	154,927
Soft Costs	1,808,223		120,548	60,274
Financing Costs (net of Sales Costs)	331,663		22,111	11,055
Contingency	229,391		15,293	7,646
Total Uses	**7,617,092**		**507,806**	**253,903**

Summarize funding contributions and any local incentives or policies benefiting the project (e.g., SDC waiver, property tax abatement, density bonus, reduced parking requirements, etc.).

Funding contributions are outlined in the sources/uses summary above. Local incentives such as SDC waivers are not available, however the City of Milwaukie supports the project via their CET grant program. A partial property tax abatement is provided under House Bill 3275, which exempts the land owned by a community land trust and a 27% discount for condominium homes with an affordable housing covenant.

Summarize the total developer fee and net cash developer fee and summarize how the following considerations informed the determination of the fee within the ranges specified by Metro's Developer Fee Guidelines: project complexity and risk (e.g. PSH units), developer organizational size and financial capacity, participation of small/emerging community based and culturally specific organizations in development, and exceptional track record or outcomes for serving communities of color. To receive a fee at the upper end of the fee limits projects should demonstrate alignment with multiple considerations. See Metro Developer Fee Guidelines for additional information.

Total developer fee/net cash developer fee: maximum of $695,000 or 10% of development costs per OHCS LIFT guidelines for affordable homeownership projects. Proforma includes a developer fee (inclusive of construction management) of $665,000.

OHCS does not provide for developer fee sizing for affordable homeownership projects according to project complexity and risk, developer organization size or other considerations. However, developer fee sizing of 10% does represent a reasonable fee for a small (15 unit) project, including participation of an emerging developer in partnership with an established non-profit community land trust.

The stated developer fee and net cash developer fee is within the Metro Developer Fee Guidelines outlined in Exhibit F of the 2021 Metro Report: 1-30 units / 8-14%.

Summarize ongoing funding sources for rental assistance and services, including total, and total per unit.

Not applicable for homeownership developments. Note that Proud Ground will provide ongoing homebuyer support and management for all home sales and re-sales for qualified buyers.

Development Team

Describe the development team including the developer, general contractor, architect, and other key partners, and their relevant experience, respectively. If some members of the team are not yet selected as of the concept endorsement, this information can be added at the final approval step.

<u>Jessy Ledesma of HomeWork Development, Co-Owner Shortstack Developer LLC:</u>

Jessy Ledesma is the Founder and Principal of HomeWork Development and co-Founder of Shortstack. Jessy founded HomeWork Development in early 2021 with a vision to build a new model for inclusive and responsive housing development. Prior to HomeWork, Jessy was Director of

Development at Beam Development (2015-2021) and previously developed affordable housing for both non-profit and for-profit ownership (2007-2015).

With 17 years of development experience in the Portland area, Jessy has transacted over $200M in development volume across 18 projects. This includes over 600 affordable housing units and 200,000 SF of commercial developments. Jessy is adept at creative structuring, including navigating complex for-profit/non-profit partnerships and layered financing stacks. Jessy currently serves on the Home Forward Board of Commissioners and chairs the ULI Northwest Women's Leadership Initiative.

Anna Mackay of Sister City, Co-Owner Shortstack Developer LLC:

Anna Mackay is the Founder and Principal of Sister City (2020) and co-Founder of Shortstack (2021). She has 12 years of experience as a real estate developer in Portland, Oregon. Through her work, Anna defines and field tests concepts of social impact in real estate, including:

- Delivering the first affordable multifamily housing project built using mass timber in Oregon (Chiles House, 2022).
- Structuring the first crowd-investing deal for new construction utilizing Regulation A in the United States ($1.5M, the Fair-Haired Dumbbell, 2016.
- Raising a tranche of crowd-invested equity from everyday Oregonians for a homelessness project in just 68 hours ($300,000, Jolene's First Cousin, 2018).
- Creating a non-displacement benefit to foster affordable retail (Rocket Empire Machine, 2020)

Prior to starting her own firm, she was the Director of Development at Guerrilla Development (2017-2020) where she managed equity raising, entitlements, construction, and lease up of 12 adaptive reuse and urban infill projects.

Briana Rae Mathias, Shortstack Developer CPA:

Briana Mathias is the Owner of Woodcrest Consulting, LLC, a boutique fractional CFO service firm supporting local business owners with their accounting and finance needs. Briana is a CPA with over 15 years of experience in public and private accounting and has primarily focused her career over the last several years on real estate focused businesses and projects. She also holds an active real estate license in Oregon and works part-time with a local commercial real estate firm, Macadam Forbes, as a broker for both landlords, developers, investors and tenants.

Briana acts a strategic financial partner and advisor for her clients and always provides the highest level of service. Currently, Briana is actively involved with clients ranging from real estate development, construction and property management, to high-net worth real estate investors. A majority of her time is dedicated to the Shortstack Team and suite of projects and Briana is primed to allocate her time and resources to support Shortstack's growth and evolution.

Community Land Trust Partner: Proud Ground

Proud Ground staff leadership have significant pre-development experience by taking the lead on the 5020 Condo project (COVID caused termination just before closing), New Spirit Village (including a LIFT award of 4.3 million), and the Portland Clean Energy Fund projects for 15 scattered site, net zero, permanently affordable homes. Additionally, Proud Ground developed a 12

unit sub division and partnered with a developer for a second 12 units condo in 2010/11. Habitat for Humanity Portland Region remains Proud Ground's strongest development partners.

Proud Ground staff members supporting this project include:

EXECUTIVE DIRECTOR, DOMINIQUE MERRIWEATHER: Dominique was recently appointed Executive Director Proud Ground in July 2023. Prior to joining Proud Ground, Dominique was the Director of Finance & Business Affairs for Innovative Housing, Inc. where he provided financial, operational, and human resources oversight and leadership. Dominique's professional background was developed in commercial lending for several local banks. Dominique received his bachelor's degree from Concordia University and holds a master's degree from Portland State University. He is a graduate of Benson High School.

Dominique has been an active community volunteer with organizations focusing on community leadership, youth sports and mentoring, housing security and diversity. Currently he serves as a Commissioner for the Vancouver Housing Authority, is a board member for Partners in Careers and sits on the finance committee for Second Step Housing. Dominique is excited for the opportunity to lead Proud Ground and to continue its mission of expanding home ownership opportunities to low- and moderate-income families such as to allow them to remain in communities of their choice. The community land trust model is proven, as represented by Proud Ground's nearly 25-year history, and Dominique believes that it is a useful tool in creating strong families, stable communities, economic viability, and permanent affordability.
Mr. Merriweather is married with a blended family of six children. A proud inductee to two halls of fame, he spends his spare time cooking, perfecting BBQ recipes and traveling to his kids sporting events or to tropical respites.

REAL ESTATE DEVELOPMENT MANAGER, MELISSA HOSKINS: Melissa graduated from High Point University with a bachelor's degree in business administration and Portland State University with a graduate certificate in real estate development. Her professional experience has focused on real estate finance and asset management of commercial properties including new multifamily development. She has been working with Proud Ground since May 2023 as Real Estate Development Manager overseeing a variety of development projects in the Proud Ground portfolio including New Spirit Village.

FISCAL DIRECTOR, DIANNE TOPP: Dianne has over 11 years of experience in community land trust fiscal management. Her fiscal support of the organization includes budget development, compliance support, overall management of Proud Ground's budget, financial reports and annual high-level audits. Her past experience includes work with OSPIRG, M & R Consulting, and she co-owned a small environmental consulting firm.

FUND DEVELOPMENT MANAGER, ALMA BARRAZA (BIPOC & BILINGUAL): Alma is a dedicated bilingual Spanish professional with over 16 years of fundraising and volunteer experience. She supports Proud Ground with public and private fund development through grants, sponsorships, and major donor fundraising. Alma brings extensive business experience, entrepreneurial skills, and passion for philanthropy to her work with Proud Ground.

HOMEOWNERSHIP PROGRAM DIRECTOR, KATIE ULLRICH: With 19 years experience as a CLT homeownership professional with Proud Ground, Katie is a leader in the industry. She has a Master's in Social Work, is a licensed Principal Real Estate Broker in Oregon and is a HUD Certified

Housing Counselor, providing Proud Ground clients with homebuyer counseling and education services, as well as post-purchase support.

CROSS CULTURAL OUTREACH MANAGER, YESIKA AREVALO (BIPOC & BILINGUAL): Yesika has provided bilingual and cross cultural support to Proud Ground families for over 12 years. She helps families learn about the CLT model and assists them through the homebuying process, with a focus on Spanish speaking families and families of color. She is a certified homeownership counselor.

REAL ESTATE BROKER AND PROJECT MANAGER, *Real Estate Development Manager, Melissa Hoskins: Melissa graduated from High Point University with a bachelor's degree in business administration and Portland State University with a graduate certificate in real estate development. Her professional experience has focused on real estate finance and asset management of commercial properties including new multifamily development. She has been working with Proud Ground since May 2023 as Real Estate Development Manager overseeing a variety of development projects in the Proud Ground portfolio including New Spirit Village.*
UNDRA ADAMS (BIPOC): As a licensed professional Real Estate Broker on staff for Proud Ground, Undra helps with CLT home closings and buyer representation, as well as home repairs and marketing. His goal is to "make sure my clients feel completely equipped and supported in the entire home buying and selling process.

Community Engagement

Please summarize community engagement to inform project outcomes to support the needs of future residents. This could include engagement conducted previously by the LIP or developer to shape the goals of a NOFA or vision for a project. It could also include plans for further engagement to inform the design or programming of the project to meet the needs of historically marginalized community members.

Note: Outreach strategies for affirmative marketing and COBID participation should be described in the following section under "advancing racial equity." This section is focused on engagement to inform the goals, vision, design, or programming of the project.

Proud Ground intentionally seeks input and engagement with the communities it intends to serve. Proud Ground is a membership-based organization, which gives homeowners and contributors voting rights on strategic organizational decisions. This ensures that the community members served by Proud Ground are part of its decision making.

Currently, over one-third of the organization's Board Members are Proud Ground homeowners and over half are people of color.

Proud Ground partners with many community organizations to reach its target populations (Additional detail in the "Advancing Racial Equity" and "Partnership and Services" sections, below). All outreach efforts focus on homebuyers attending Proud Ground information sessions. These sessions are available in English and Spanish, virtually or in person, and as pre-recorded sessions.

Advancing Racial Equity

Summarize how the project will address strategies and policies for advancing racial equity, as described in your local implementation plan. Be sure to include:

- *How the project location reflects considerations related to racial equity (e.g., geographic distribution of affordable housing, access to opportunity, strategies to address racial segregation, and strategies to prevent displacement and stabilize communities)*
- *Fair housing strategies to eliminate barriers to housing access for communities of color and other historically marginalized groups (e.g., fair housing marketing strategies, community partnerships, low barrier screening, etc.)*
- *Strategies to include economic opportunities for people of color (e.g., MWESB/COBID participation and workforce diversity)*

The Shortstack project is rooted in an ambitious and innovative development process aimed at diversification across all levels of the development, finance and construction processes. We are committed to engaging at least 30% COBID-certified MWESB firms for Shortstack Milwaukie throughout our development and construction process. The National Association of Minority Contractors Oregon Chapter (NAMC-O) is engaged to help create our outreach and representation plan. To date, **over 70% of our current consultant contract amounts (including development, architecture, engineering, civil, legal and others) are held with women-owned firms.**

Our development team consists of two woman-owned firms: HomeWork Development and Sister City. Our architect Works Progress Architecture is a woman-owned business, as is our civil engineer Vega and landscape architect Studio Wild. Our structural engineer is led by a female minority Principal.

Proud Ground has a rich history of serving people of color. Inequitable access to homeownership has kept Households of Color, many of which are first-generation and first-time homebuyers, from building wealth and accessing high-quality neighborhood services, such as education and employment. Therefore, Proud Ground focuses its outreach on Households of Color, first-time homebuyers, and households with children. Proud Ground's focus is to create programmatic strategies and internal policies that break down barriers preventing this population from accessing affordable homeownership opportunities.

The Proud Ground waitlist policy prioritizes households with children or households of 3 or more and then it is based on the buyer's date of application with the program. This policy has been approved by Fair Housing of Oregon. Through targeted outreach to the BIPOC community to develop a diverse waiting list, Proud Ground anticipates that a majority of the homes (75%) will be purchased by households identifying as BIPOC. 77% of Proud Ground homebuyers since 2021 identify as BIPOC households.

In 2021, Proud Ground launched its 5-year strategic plan with a goal to create another 200 homeownership opportunities, focusing on communities of color and historically marginalized communities through the Opening Doors initiative. Over five years, Opening Doors aims to increase Proud Ground's portfolio of permanently affordable homes from 350 to 550. At least 75% of these new homeownership opportunities will benefit families identifying as Black, Indigenous, or People of Color (BIPOC). Project leaders are committed to achieving this objective for sales of the new Shortstack Milwaukie units.

Partnerships and Services

Provide information about plans and partnerships for ongoing operations, including property management partner(s) or service providers. Describe strategies for aligning culturally specific programming or services to meet the needs of future residents. If your project includes PSH units, please describe if these will use coordinated access process, or another referral process.' Confirm that project will serve Population A – include definition.

Proud Ground partners with many culturally-specific homeownership agencies, including:

- Bienestar
- Hacienda CDC
- NAYA
- PCRI
- OHDC
- Pueblo Unido
- IRCO
- Univision PDS
- VERDE
- Rose CDC
- Human Solutions
- Centro Cultural

For Shortstack Milwaukie, Proud Ground intends to reach out to each agency offering advanced notice of the home purchase opportunity before the homes are listed on the market, and to inquire if the agencies have an active presence in Milwaukie (or Clackamas County), or wish to expand their outreach into this area if they don't currently. Proud Ground will follow up to partner more specifically on outreach and info sessions with those partners that respond to the inquiry and who want to offer the opportunity to their service base.

Proud Ground is committed to reducing barriers to program access for those with limited English proficiency through provisions of translation and interpretive services. Proud Ground's language access plan ensures those with limited English proficiency do not have barriers to accessing Proud Ground's services.

Proud Ground aims to mitigate barriers to homeownership for communities historically denied access to homeownership, including lower-income households and households of color. Prospective homebuyers gain access to Proud Ground's Homeownership Education and Counseling program, which helps first-time homebuyers become mortgage ready. Proud Ground then administers down-payment assistance funds as buyers complete the purchasing process. The combination of education and counseling with down-payment assistance breaks down the biggest barrier to homeownership and makes homeownership a possibility for families who would otherwise be locked out of owning their first home.

Livability and Accessibility

Please highlight design elements that enhance livability and accessibility (e.g. shared Wi-Fi, common spaces, universal design)

The Shortstack Milwaukie project operates under the residential building code which doesn't include accessibility or visitability requirements, since these are considered individual residential units. Nonetheless, the site is designed to be accessible from the public right-of-way to each unit; most of the homes do not include entrance stairs; and each home does include a half-bathroom on the ground level, which are all tenants of universal design.

Climate Resilience and Sustainability

Please describe the project's cooling plan to keep residents safe in extreme heat events, take into consideration Metro's Policy Statement of Air Conditioning (Sept. 14, 2021) for expectations related to cooling strategies. Include type of air conditioning system and cost. Including reasons why the type of air conditioning system was selected including sustainability, durability, expense, and feasibility given project constraints.

Please highlight sustainability certifications, elements and/or green building features for this project.

The Shortstack Milwaukie cottage cluster project embodies climate resiliency and energy efficiency throughout its design, build, and occupancy stages. Energy efficiency equates to further affordability for future residents and early coordination allows for decisions to be made with respect to this.

Shortstack Milwaukie, as with all Shortstack sites, prioritizes efficiency at the neighborhood scale, community scale and building scale. At the neighborhood scale, the project leverages the City of Milwaukie's recently adopted Cottage Cluster Zoning to maximize housing density across two properties in Milwaukie's Ardenwald neighborhoods. The development yields 15 units on one site through a unique double-cluster site design.

At the community scale, Shortstack Milwaukie is designed as 15 identical, replicable two-bedroom units. By perfecting one unit plan the project maximizes construction efficiency and trade buy-out efficiency. Each unit has the same structural package, the same kitchen package, the same bathroom and finish package. The two sites utilize the same landscape "kit of parts", tailored to the existing tree canopy and solar/shading conditions.

The cottage design includes research and development around mass timber panelized construction. One cottage will be built utilizing mass timber structure and fourteen cottages will be built utilizing panelized stick-framed structure. The team will compare the cost, speed of construction and marketability of the mass timber vs. conventional construction to optimize the design for future replicability. With respect to construction efficiency mass timber panelized buildings are constructed 20%-25% faster than traditional stick-built construction, with structure going up in a matter of days vs. weeks.

The multi-site development effort increases the efficiency of the development process through a cohesive design and engineering team and a kit-of-parts approach. In other words, the team does not

start from scratch to build 15 units – we are leveraging the knowledge, research and development, and relationship efficiency of several other Shortstack sites.

Each Shortstack Milwaukie unit is compact while still providing a desirable and marketable two-story, two-bedroom/1.5 bathroom layout. The prototype design comes from nearly two years of research out of the University of Oregon's Center for the Built Environment and the TallWood Design Institute, as part of their Mass Timber Coalition efforts to prototype mass timber housing options for statewide increased housing production. This R&D work is supported by a 2022 US Forest Service Wood Innovation Grant.

The all-electric homes are designed to standards that often exceed the energy efficiency requirements set forth by the City of Milwaukie building code. The homes include heating and cooling provided by heat pumps. In addition to sourcing building materials local to the Cascadia bioregion (such as our mass timber product) the project team is pursuing the Energy Trust of Oregon Energy Performance Score program.

The site emphasizes resiliency through design that integrates stormwater management with a palate of native new plants and trees sources from what Shortstack refers to as the Douglas Fir tree-shed– the naturally occurring habitat for one of Oregon's most resilient species.

Anticipated Timeline

Describe the anticipated timeline and milestones for the project, including developer or contractor selection, concept endorsement, due diligence, final approval, closing, construction, and lease up – as well as any timelines related to community or elected body engagement.

- Developer selection: complete
- GC Selection: complete
- Concept Endorsement: Q3 2023
- Due Diligence: complete
- Final Approval: anticipated July 2024
- Closing/Start of Construction: anticipated August 1, 2024
- Community Engagement via Proud Ground Marketing: anticipated Q4 2024-Q2 2025
- Home Sales: anticipated Q2-Q3 2025

600 NE Grand Ave.
Portland, OR 97232-2736
oregonmetro.gov

Metro Affordable Housing Bond Program

Final Approval

Project Name: Strong Site
Implementing Jurisdiction: Portland Housing Bureau
Metro IGA Contract Number: 937016
Anticipated construction start: August 2024
Anticipated construction completion: February 2026

Action:
Metro hereby provides Portland Housing Bureau with Final Approval of $3,150,000.00 in Metro Affordable Housing Bond funds for the development of Strong Site, a regulated affordable housing project located at 4931 N Williams Avenue, Portland. Metro staff findings are attached in Exhibit A, and a more detailed description of the Project, as provided by the Portland Housing Bureau, is attached as Exhibit B.

This Final Approval is based upon the information contained in the final approval request provided to Metro by Portland Housing Bureau, including Project cost proformas and statements of sources and uses of funding needed to generate a Project with the following unit mix:

Number of Units	Bedroom Type	AMI Level	Project Based Vouchers
3	One-bedroom	30%	0
18	One-bedroom	60%	0
5	Two-bedroom	30%	0
27	Two-bedroom	60%	0
3	Three-bedroom	30%	0
19	Three-bedroom	60%	0

Changes to the information contained in the final approval request provided by the Portland Housing Bureau could result in reevaluation of the Project's need for Metro Affordable Housing Bond Funds and changes to the staff findings and funding allocation to the Project before funding disbursement. Disbursement of funds for the Project will be processed in accordance with the terms and conditions set forth in the Affordable Housing Bond Measure Program Intergovernmental Agreement between Metro and Portland Housing Bureau, and will occur within 10 days of Metro's receipt of the following items: a draft regulatory agreement meeting IGA requirements, a final sources and uses budget, a construction

Metro

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contract schedule of values, and an invoice from the Portland Housing Bureau including wiring or other instructions related to transfer of funds.

7/24/2024

Marissa Madrigal

Date

Chief Operating Officer

Exhibit A: Metro staff findings and recommendations | Metro Affordable Housing Bond Final Approval request for Strong Site

Drafted by: Jimmy Oporta, Senior Housing Bond Program Coordinator and Alison Wicks, Housing Bond Program Supervisor

Date: July 24, 2024

Criteria for funding approval

Metro will issue Final Approval to local implementation partner (LIP) upon Metro's determination that (a) the proposed Project reasonably contributes to the Unit Production Targets relative to the amount of the Eligible Share proposed to be used for the Project; and (b) the Project is consistent with the Local Implementation Strategy (LIS), the Work Plan, and the Bond Measure.

Staff recommendations

Staff recommends the Metro Chief Operating Officer (COO) provide Final Approval of funding for Strong Site. Findings from Metro's staff review are summarized below. Additional information about the project can be found in Exhibit B, the project narrative submitted by the Portland Housing Bureau.

Changes since Concept Endorsement

The project is being reviewed for Final Approval and has undergone changes since Concept Endorsement on June 1, 2023. Project development costs increased to $45.25 million, up $7.03 million (+18.4%) from the prior $38.22 million. Project funding sources have correspondingly increased $7.03 million, including an increase of LIHTC equity to $18.77 million (+12%) and an increase of grant funding to $4.49 million, up $3.35 million (+294.6%) from the prior $1.17 million. The Metro Housing Bond funding amount also increased to $11.40 million, up $150.0K (+1.3%) from the prior $11.25 million at Concept Endorsement. The proposed unit mix and affordability levels are unchanged, and the project will deliver 75 total units of which 11 will be affordable at 30% AMI (14.7% of total) and 54 units will be family-sized (72% of total) units. Key project highlights include:

- Total development costs are $45.25 million and Metro Housing Bond funding is $11.4 million
- Net cash developer fee is 8.13% of developer fee basis. This amount is less than the Metro maximum of 10.0% for projects with 31-75 units and is within Metro's maximum of $3.0 million.
- Developer fee considerations: The Strong site is a continuation of SEI and CDP's Alberta Alive portfolio, a multi-building umbrella of affordable housing developments designed and built to serve the African American community in North and Northeast Portland. The project will work with PHB's N/NE Preference Policy and help those with generational ties to north Portland return to their previous neighborhoods. SEI is Oregon's largest African American led nonprofit multi-service organization and will be the resident services provider at the project. Through CDP's and SEI's co-development partnership, SEI will receive 20% of the amount of Developer Fee paid to CDP. The Strong site seeks an aspirational 30% COBID contracting goal and will track workforce participation on contracts that exceed $300,000.
- Construction start date in August 2024, with completion anticipated in February 2026

Contribution to unit production targets

The Strong site will utilize 6% ($11,400,000) of Portland's total allocation of bond funds while delivering 75 units of affordable housing that meet the following unit production outcomes:

- 5% of Portland's overall unit production target;
- 2% of Portland's target of units affordable to households making 30% or less of area median income (AMI);
- 7% of Portland's family sized unit target; and

When combining this project with Portland's existing development portfolio, this puts the City on a path to have utilized 92% of total allocation of bond funds while delivering on the following cumulative unit production outcomes:

- 121% of Portland's overall unit production target;
- 98% of Portland's target of units affordable to households making 30% or less of area median income (AMI);
- 137% of Portland's family sized unit target; and

Eligibility and readiness to proceed

The Portland Housing Bureau has submitted and Metro staff have reviewed and evaluated submitted materials for evidence of project feasibility and readiness to proceed. These include:

- Updated project pro forma dated 6/12/2024
- OHCS Affirmative Fair Housing Marketing Plan
- Preliminary title report dated 5/8/2019
- Letters of intent from Citi Community Capital, JP Morgan Chase Bank and Hudson Housing Capital
- Development drawings provided by Holst Architecture, dated 11/21/2023
- Statutory bargain and sale deed dated 2/12/2019 as evidence of developer site control
- Community engagement outcomes report
- SEI, Inc. Resident Services Plan
- Phase 1 Environmental Site Assessment report from Farallon Consulting, dated 9/15/2023
- Development team resumes and developer schedule of real estate owned, demonstrating track record with affordable housing development in Oregon and nationally

Staff have not identified any unusual risks to project feasibility and readiness and will continue to request updates from the City of Portland regarding how work is proceeding.

Advancing racial equity

Metro staff have reviewed final project materials to confirm consistency with the racial equity elements of City of Portland's approved local implementation strategy (LIS). Key findings include:

- **Location:** The Strong site is located at the intersection of N. Williams and N. Alberta Street in the Humboldt neighborhood. Humboldt is one of several neighborhoods in Northeast Portland that are historically home to the City's African American population, which has been displaced over the last 30 years due to discrimination and rising housing costs. The

Strong site is well located due to its proximity to many essential services and amenities. The neighborhood schools are Boise-Eliot Elementary (1 mi), Harriet Tubman Middle School (1.6 mi) and Jefferson High School (0.3 mi). KairosPDX (0.2 mi), Albina Head Start (0.1 mi) and MLK Jr. Elementary (0.4 mi) are all very close alternatives as additional educational options. SEI's campus on N. Kerby (0.8 mi) is a longstanding center for youth afterschool and summer programs, family support and solidarity for the Black community. In addition to SNAP and child welfare assistance programs, the DHS building just north of the Strong property also houses a WorkSource Portland Metro site, which offers job search and training opportunities.

- **Transit access:** The project is served by the 44 TriMet bus, with a stop across the street from the site. The 72 and 6 bus lines are also within a half mile of the project site.
- **Diversity in contracting/hiring:** The Strong site, co-developed by Self-Enhancement Inc (SEI) and Community Development Partners (CDP) selected COLAS, a minority owned firm, as the general contractor of the project, along with Holst, a woman-owned firm, as project architect. The project seeks an aspirational COBID goal of 30% MWESB participation and will be tracking the diversity of the workforce. This is in alignment with PHB's aspirational goals of awarding 20% of workforce hours to apprentices, 22% of apprentice hours to minorities and 9% of apprentice hours to women on contracts that exceed $300,000. Similar goals have been applied to those working in journey level positions.
- **Access for historically marginalized communities:** As a result of gentrification and other public policies, many SEI families, including many African American families were displaced from North Portland neighborhoods and pushed out of the inner city to east Multnomah County. CDP and SEI recently completed the first two Alberta Alive projects, which include the Ronnie Herndown Building (21 units) and the Paul and Geneva Knauls Building (31 units of PSH Housing for Veterans). Phase II of Alberta Alive is underway with PHB's Dr. Darell Building, a Metro-funded project that will deliver 63 units for families participating in PHB's N/NE preference policy. The Strong site project is a continuation of SEI and CDP's Alberta Alive portfolio, which represents a multi-building umbrella of affordable housing developments designed and built to serve the African American community in North and Northeast Portland. Through these projects, CDP and SEI's marketing and lease-up teams will work closely with PHB to advance the N/NE Preference Policy and help those with generational ties to North Portland return to their previous neighborhoods.
- **Culturally appropriate services:** SEI, Inc. will lead resident services at the Strong project through a Resident Services Coordinator. The Resident Services Coordinator (RSC) will be responsible for connecting residents with resources and support needed to remain in stable housing. The RSC will be available at the Strong property at regular, set times on-site for resident appointments and drop-in access. The RSC will also have scheduled time off-site to coordinate with community partners and address residents' requests/needs. Services at the Strong project will be culturally appropriate and targeted to African American and other populations from communities of color and low-income backgrounds who are at risk of or have histories of displacement for North/Northeast Portland neighborhoods. Through SEI's two main departments, Youth Services and Community + Family Programs, Strong Property resident services will prioritize the goals and needs of individual households, including those focused on housing stability, financial growth, youth enrichment, and connection to the community.
- **Climate resilience:** The Strong site will pursue Earth Advantage platinum certification that fully aligns with PHB's Green Building Policies. The project will include a photovoltaic solar array on the roof that will help offset common area electrical costs. The building will also

offer 17 EV (electric vehicle) ready parking stalls and 4 EV charging stations. The building will include central heat pump hot water heaters and in-unit mini-split hear pumps that provide both heating and cooling.

Community engagement to inform project implementation

Metro staff have reviewed the narrative to confirm consistency with the community engagement elements of City of Portland's approved Local Implementation Strategy (LIS). Key findings include:

- **Strategies for ensuring ongoing engagement around project implementation reaches communities of color and other historically marginalized community members:**

For the Strong Family Property, SEI and CDP hosted a neighborhood meeting, inviting local neighborhood associations, businesses, school districts, and community members to review and provide input on the design. The project was also presented to the N/NE oversight committee, where it received support and feedback that was integrated into the design process. A public notice for design review was also published to solicit community comments. Beginning in 2023, SEI conducted a series of informational sessions about the N/NE Preference Policy for the Dr. Darrell Millner Building, part of the Alberta Alive initiative. In April 2024, 27 participants attended one of these sessions, where they received food, childcare, and assistance with registering for the N/NE Preference Policy, which the Strong project will use to increase access for historically marginalized community members.

- **Strategy for ensuring community engagement to shape project outcomes to support the success of future residents:**

Major themes heard from community engagement included:

- Strong emphasis on resident services programming that fosters community cohesion
- Project design that aligns with the architectural style of the Albina neighborhood
- Removing obstacles to affordable housing access and ensuring developments do not further displace Black Portland residents
- Outreach and marketing strategies that integrate collaboration between property management and community organizations

Major design feedback heard from community engagement included:

- Need for larger community spaces on the ground floor
- Inclusion of heat pump/AC units in each residential unit
- Indoor and outdoor areas with play elements for children
- Inclusion of site-based activities for children and youth

EXHIBIT B: Project summary submitted by The Portland Housing Bureau| Metro bond concept endorsement for Strong Site

Submitted by: Megan Grillo, Bond Housing Program Coordinator
Portland Housing Bureau, megan.grillo@portlandoregon.gov
Submitted on: 7/19/2024 (initial submission 3/21/2023)

Project Overview

The Strong Family Apartments are sponsored by Self Enhancement Inc. (SEI) and Community Development Partners (CDP). The project is a continuation of SEI and CDP's Alberta Alive portfolio, a multi-building umbrella of affordable housing developments designed and built to serve the African American community in North and Northeast Portland. The first two phases of Alberta Alive consist of the Ronnie Herndon Building, located at 510 NE Alberta and the Paul and Geneva Knauls Building, located at 780 NE Alberta with a combined 52 units designed for families and veterans (Phase I), and The Dr. Darrell Millner Building located at 5050 N Interstate, a 63-unit building designed for families (Phase II).

Co-owned and co-developed by SEI and CDP, the Alberta Alive development initiative aims to celebrate and strengthen Portland's historically Black N/NE neighborhoods by providing culturally specific affordable housing, supportive services, and a shared sense of community for underserved individuals and families.

Located at the prominent intersection of N. Alberta and N. Williams Avenue, the Strong property embodies visual and historical significance for long-time residents of North and Northeast Portland. The address of the site is 4931-4947 N. Williams Avenue and 20-114 N. Alberta Street. The site is 42,253 SF and is currently comprised of six tax lots – a tax lot consolidation is currently in process. Our proposed design aims to balance PHB's goals to achieve more than 50 units on the site while also maintaining a cost-efficient building type and the desire to create a community that is welcomed by residents and neighbors alike.

SEI and CDP are requesting $3,150,000 in Metro Affordable Housing Bond funding to develop 75 units of new construction rental housing and community space for households between 30% and 60% of AMI. We will pair the M-BOS funds with 4% LIHTC and tax-exempt bonds to finance the project. Multiple members of the development team have relationships with the Strong family and look forward to working with them on the naming of the final development.

The project does not have any Section 8 Vouchers.

Development Program

*Complete the below table summarizing unit breakdown for **Rental ONLY**. Add/delete rows as needed.*

	Unit size (no. of bedrooms)	No. of units	AMI %	PSH	PBVs	Square feet/unit	Gross monthly rent/unit
	1	3	30%	0	0	640	$663
	1	18	60%	0	0	640	$1,327
	2	5	30%	0	0	833	$796
	2	27	60%	0	0	833	$1,593
	3	3	30%	0	0	110	$920
	3	19	60%	0	0	110	$1,841
Totals		75					

Project Image

NE Corner of Williams and Alberta
Credit: Holst Architecture

Courtyard

Background

In July 2019, PHB purchased an approximately .97-acre parcel of real property at 4931-4947 N. Williams Avenue and 20-114 N. Alberta Street, to further the goals of the N/NE Neighborhood Housing Strategy to address the community's strong desire to preserve property within the Interstate Corridor Urban Renewal Area (ICURA) for the development of affordable housing. The site currently contains a 1,288 square foot, single family house and detached garage built in 1906 and is zoned CM2. These structures will be deconstructed prior to construction of the apartment building.

Location and Neighborhood

The Strong property is located at the intersection of N. Williams and N. Alberta Street in the Humboldt neighborhood. The Humboldt neighborhood is one of several neighborhoods in North/Northeast Portland that are historically home to the City's African American population, which has been displaced over the last 30 years due to discrimination and rising housing costs. The Humboldt neighborhood is typical of many inner Portland neighborhoods containing a variety of different land uses and property types.

The Strong site has close proximity to many essential services and amenities. The neighborhood schools are Boise-Eliot Elementary (1 mi), Harriet Tubman Middle School (1.6 mi) and Jefferson High School (0.3 mi). In addition, KairosPDX (0.2 mi), Albina Head Start (0.1 mi) and MLK Jr. Elementary (0.4 mi) are all very close alternatives/additional educational options. SEI's campus on N. Kerby (0.8 mi) is a longstanding center for youth afterschool and summer programs, family support and solidarity for the Black community.

The site is served by the 44 TriMet bus, with a stop across the street from the Strong property and are within a half mile of the 72 and 6 bus routes. In addition to SNAP and child welfare assistance programs, the DHS building just north of the Strong property also houses a WorkSource Portland Metro site, which offers job search and training opportunities.

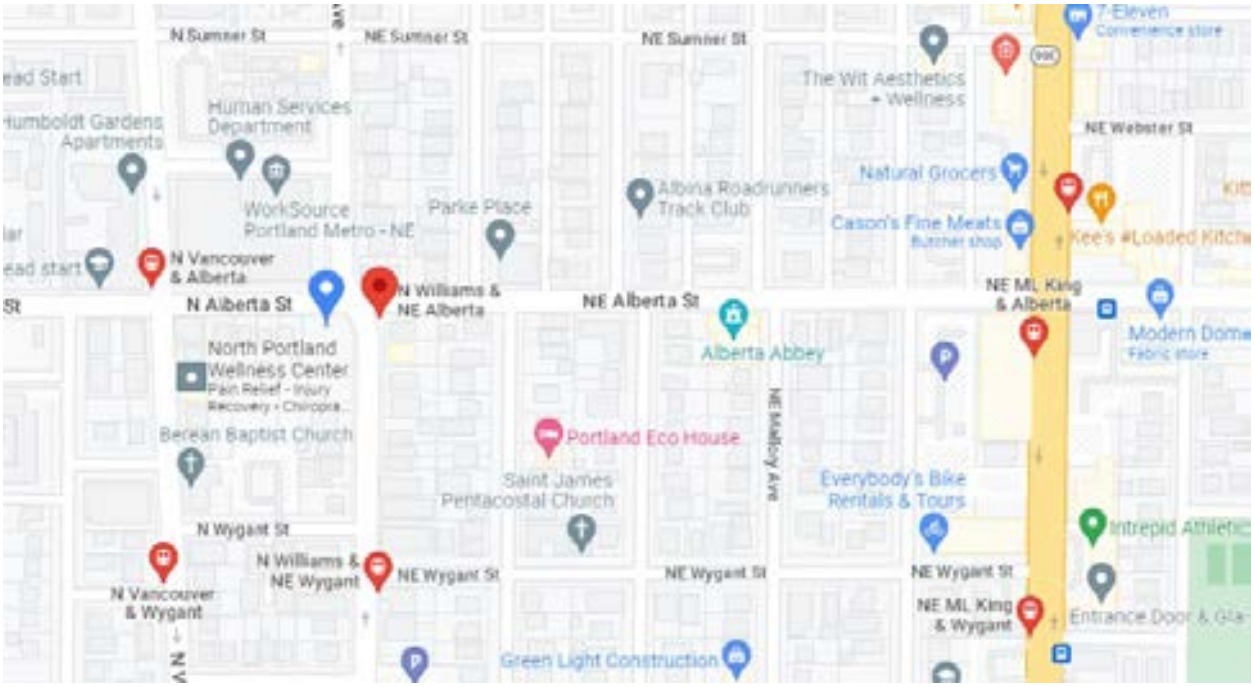
The sites are near ample retail businesses and services on major commercial streets including MLK Jr. Blvd., Alberta Street, Killingsworth Street, and Interstate Avenue. Legacy Emanuel and Kaiser Interstate medical campuses are 1.2 and 1.4 miles from the sites, respectively.

In addition to these essential services, the area is home to many places of cultural and community importance to the African American community, including many churches along the Williams/Vancouver corridor, Dawson Park, SEI's campus, Urban League of Portland, and Matt Dishman Community Center.

Site

The Strong property is zoned CM2d, a mixed-use zone with a design review overlay. Properties to the west and north are also CM2d - these consist of a mix of single family, multi-family and commercial uses. The Oregon Department of Human Services (DHS) building is directly to the north of the property. Properties to the east and south are zoned CM1 and RM2, respectively, and are mostly single-family homes.

The Strong property is located within a design overlay zone, which requires the project to go through Design Review or to utilize the City's Design Standards. The team reviewed the project against the Design Standards scorecard and determined that option to be the most cost and time efficient pathway. The project received Design Commission approval in February 2024.



Project Financing

Source of funds	Total Amount
4% LIHTC Equity	$18,688,807
PHB - Metro Housing Bond	$3,150,000
PHB – ICURA TIF	$8,250,000
Deferred Developer Fee	$2,545,305
Perm Loan	$7,100,000
ETO Grant	$35,000
PCEF Funds	$2,956,571
Solar ITC Tax Credit Equity	$99,335
OR-MEP Weatherization	$200,000
GP Equity	$200
Total Permanent Sources	**$43,025,218**

Uses	Total Amount
Acquisition	$6,750
Construction/Hard Costs	$29,935,661
Development/ Soft Costs	$7,162,026
Developer Fee	$5,350,000
Reserves	$570,781
Total Uses	**$43,025,218**

The Strong project budget includes hard costs hard bid COLAS in May 2024.

Operating expenses are projected at $8,651 per unit per year. Operating expenses are based on CDP's current portfolio expense data. Operating expenses include resident services at $85,000 per year. Management staffing assumes 1 FTE Manager and 1 FTE Maintenance staff.

Debt terms include a 6.4% permanent loan interest rate, and 40-year amortization schedule per the final terms of our permanent lender, Citibank. Construction debt will be provided by Chase and is priced at 7.22% (current rate plus 0.5% cushion). LIHTCs are priced at $0.895 – the price received from Hudson Housing LLC, the project's LIHTC investor.

Cost-efficient design, construction, and operations:
The apartment building will include stacked units for ease in construction and to minimize mechanical, electrical, and plumbing stacks and runs. The simple building massing keeps costs down and reduces the opportunities for weak points in the envelope.

To keep operating costs down and tenant utility bills low the building includes systems that are energy efficient and user-friendly. These include central heat pump hot water heaters and in-unit mini-split heat pumps that provide heating and cooling.

The building will also have a 105.5 kW PV array on the roof to help offset common area electrical costs (like corridor lighting, elevator, offices, etc). There will be 17 EV ready parking stalls 4 EV charging stations installed.

Development Team

CDP and SEI have formed a co-developer and co-sponsor partnership to address the Black, Indigenous, and Person of Color (BIPOC) housing disparity crisis currently prevalent throughout Portland. CDP and SEI have been working together since 2019 on a shared vision called Alberta Alive, which aims to bring Black families back to N/NE Portland. Alberta Alive is culturally specific, affordable housing at the historical heart of N/NE Portland's African American community that serves families, veterans, and displaced/long-term residents with a strong focus on the neighborhood, community, and resident homes.

CDP and SEI recently completed the first two Alberta Alive. Alberta Alive Phase I is a two-building development, the Ronnie Herndon Building (21 units of family housing at 510 NE Alberta) and the Paul and Geneva Knauls Building (31 units of PSH housing for Veterans at 780 NE Alberta). Alberta Street Phase II – the Dr. Darrell Millner Building is a 63 unit building for families. The SEI/CDP Partnership stakes out a different model for the African American community and puts a Black-led organization in an ownership role.

Working together on the Strong Property provides an opportunity to further build real estate capacity for SEI, one of the longest running and most effective organizations serving Portland's Black community, giving them an entry into real estate development and long-

term asset building in the heart of the City's historic African American neighborhoods. For the Strong property, the developer fee and cash flow split will be 80% CDP, 20% SEI. This represents an increase over Alberta Alive Phase I (where the split was 85%/15%). SEI also has a right of first refusal to purchase the property at Year 15 in Alberta Alive Phase II and the Strong property, if awarded.

- **Self-Enhancement Inc.** (Co-Developer & Co-Sponsor/Resident Service Provider)
  SEI is Oregon's largest African American-led nonprofit multi-service organization, and second-largest minority-operated employer. In 2018-19, SEI's comprehensive services benefited over 16,300 K-12 students, youth ages 18-25, families, and individuals across the City of Portland and Multnomah County. SEI's organizational philosophy and service delivery model are rooted in self-actualization and trauma-informed practices with the goal of overcoming persistent race-based disparities. SEI's Relationship Model and comprehensive service continuum are culturally specific for African Americans and culturally responsive for other populations.

  With 150 full-time and 46 part-time staff members; 75% African American and 89% from communities of color, SEI partners with 23 public schools in five districts across Multnomah County: Portland, Reynolds, Parkrose, David Douglas, Centennial. SEI's network throughout the Portland Black community is unrivaled and will be at the center of the project's success in attracting the BIPOC community to apply for units within the development. Alongside CDP, SEI will also lead all community engagement activities and represent the development team when meeting with community stakeholders such as the N/NE Oversight Committee.

  The project lead for SEI is Sahaan McKelvey. Sahaan is the Director of Community and Family Programs at SEI. Sahaan is also the SEI lead for Alberta Alive Phases I and II.

- **Community Development Partners** (Co-Developer & Co-Sponsor/Asset Manager)
  CDP's mission is to create life-enhancing housing that transcends the fundamental goal of providing high quality homes by building innovative and sustainable developments with a focus on long-term community engagement.
  As a mission-driven, for-profit organization, CDP is focused exclusively on creating vibrant affordable housing communities that incorporate art, public parks, gardens, fresh food, and cultural and social programming. CDP was formed in 2011 and in the relatively short time since, has successfully built or preserved over 2,000 affordable housing units throughout Oregon, California, Nevada, and Arizona, and has done so in partnership with many jurisdictions, Housing Authorities and non-profit organizations. CDP prioritizes impact over profit and as a Certified B-Corporation, is dedicated to the highest standards of social and environmental stewardship, public transparency, and legal accountability. The company's executive leadership team has over 60 years of combined experience working with cities and public agencies to bring new investment into existing neighborhoods.

The project lead for the Strong Property Housing Development is Jessica Woodruff. Jessica is the Director of Development for CDP and leads CDP Oregon's efforts across all spectrums of the development cycle. With over 18 years of affordable housing experience, Jessica is dedicated to the creation and preservation of affordable housing. CDP has a robust, capable and experienced development team. We have developed 10 affordable housing projects in Oregon, 4 of which are in the City of Portland. Additionally, we have 3 projects currently under development in Portland.

- **Holst** (Architect)
  Now entering its 30th year, Holst is an award winning, certified women-owned architecture firm based in Portland, Oregon, and led by partners Dave Otte, Renée Strand, Kevin Valk, and Kim Wilson. Holst's reputation in the community and among its peers is founded on their design acumen, as well as their team's ability to consistently deliver projects on time and on budget. They create innovative buildings tailored to each client's needs, while expressing the highest environmental, social, and aesthetic ideals. Holst works with its clients' budgets without compromising craft, each project reflecting a pursuit of clarity, balance, and authenticity. From conception to completion, they oversee all aspects of the planning, design, and construction processes to ensure that their projects are functional, efficient, financially responsible, and a source of creative inspiration for their client, end user, and the communities in which they reside.

  Holst has been a leader in creating the most innovative multi-family housing in Portland for the past fifteen years. From groundbreaking condominium projects to permanent supportive housing that has raised the bar, they know how to balance the typically narrow margins of housing projects to ensure that they meet the budget and schedule while squeezing every inch of design out of each opportunity. The firm has designed and built over 400 new units of affordable housing in the Portland metro region over the past ten years, with more than 400 more currently in design or under construction. Because Holst works with both market-rate and affordable housing developers on a regular basis, they leverage their varied experience to bring together the best of both worlds.

- **COLAS** (General Contractor)
  COLAS Construction is one of the largest Black-owned construction firms on the West Coast and brings sizable project experience with a proven track record of exceeding expectations in construction. As a 2nd generation, family-owned and operated BIPOC Prime Contractor (BPC), COLAS constructs value-based projects that create jobs and advance careers that reflect our community. COLAS Construction centers the highest standards by providing a commitment to hard work and the inherent value of equity, inclusion for diversity in every aspect.

  Founder, Hermann COLAS, Jr., arrived with his American dream from Port-Au-Prince, Haiti. He settled in Portland, after serving six years in the U.S. military. Hermann established COLAS to build legacies and strengthen communities. As a BIPOC Prime Contractor (BPC), COLAS is a pioneer in building quality projects that directly impact

marginalized communities; for each project they build, diverse and inclusive vantage points strengthen an unparalleled approach, adding value in tangible ways for the local community.

- Partnership Structure.
    a. The Project will be developed and owned by Strong AA Limited Partnership pursuant to an Agreement of Limited Partnership of the Partnership (the "Partnership Agreement"), in which SEI will own a .0049% interest and will act as the Co-General Partner. CDP will own a .0051% interest and will act as the Administrative General Partner. An investment limited partner not affiliated with or related to SEI or CDP will also be admitted to the Partnership (the "Investment Limited Partner") as the tax credit investor. SEI will also be credited with being the Co-Developer of the Project in all funding applications.

- Financial Participation.
    a. Developer Fee. The Partnership will pay CDP, as the Developer, a fee for services in the form of a Developer Fee from which SEI will receive a fee in the amount equal to 20% of the amount of Developer Fee paid to CDP. SEI's portion of the Developer Fee will be paid within 5 days of CDP receiving the Developer Fee payment. For the portion of Developer Fee that is deferred, SEI will also receive their portion at the time that CDP is paid which is anticipated to occur on an annual basis based on available cash flow from the operating properties.

    b. Partnership Fee. Commencing in the first full year of property operations after the conversion from the construction to the permanent loan and continuing every January 1st thereafter, in consideration for acting as the Co-General Partner of the Partnership and preparing the annual property tax exemption filing, SEI shall receive a partnership fee of $5,000 per year, unless SEI makes a 168(h) election in which case SEI shall receive a partnership fee of $10,000 per years (the "Co-GP Fee"), which shall be payable in whole or in part from net cash flow from operations of the Project and which is payable annually and will be increased each January 1st by 3%.

    c. Net Cash Flow and Sale or Refinancing Proceeds. Net cash flow and sale or refinancing proceeds available for distribution shall be distributed to the partners of the Partnership as described in the Partnership Agreement in effect at the time of distributions. SEI will receive 20% of the annual cash flow that is distributable and distributed to the general partners on an annual basis once the construction loan has converted to the permanent loan.

- Option Agreement.
    a. Pursuant to the terms of the Partnership Agreement, the General Partners have been given an option to acquire either the Limited Partner's partnership interests or the Project, and the Managing General Partner has been given a right of first refusal ("RFR") to purchase the Project. No later than ninety (90) days

prior to commencement of the period during which the Option can be exercised (the "Option Period"), the parties shall confer as to how they wish to participate in exercising the Option or in the alternative the Right of First Refusal. CDP will confer with SEI with respect to the negotiations. Neither party shall have the right to exercise the Option without the consent of the other except as stated below.

In the event both parties desire to participate in the ongoing ownership and operation of the Project, they shall mutually exercise the Option or ROFR and the parties shall mutually agree upon allocation of ownership interests and purchase price. In the event that the Parties cannot agree upon allocation of ownership and purchase price, SEI shall have the rights under section 3(3) below.

- Guaranties.
    a. CDP or another entity specified by CDP will provide all guaranties required in connection with the Project. SEI shall have no responsibility or obligation to provide guaranties or to fund any amounts in connection with the Project.

- Limited Liability.
    a. SEI and its partners, directors, officers, agents and employees shall have no personal liability with regard to any debt or obligation of the Partnership.

- Reimbursements.
    a. CDP will be responsible for payment of all pre-development expenses; provided, that all pre-development expenses incurred by CDP shall be reimbursed by the Partnership. SEI shall have no responsibility or obligation to fund pre-development expenses.

- Roles and Responsibilities.
    a. CDP will be primarily responsible for management of the development and construction of the Project.

Community Engagement

For housing projects to be accessible to everyone, outreach and marketing must be both wide-ranging and able to be tailored to specific populations. Coordination between SEI, PHB, the N/NE Oversight Committee, and community organizations is crucial to ensure that historically marginalized populations who are often least likely to apply are aware of these housing opportunities.

The backbone of SEI's involvement as a co-owner/co-developer in the Alberta Alive properties is their connection to BIPOC communities and specifically the Black community in Portland. SEI has deep and wide connections within this historically African American neighborhood, including local schools, faith-based organizations, advocacy groups, and other culturally specific service providers with whom we communicate about Alberta Alive

to build trust and interest in the projects. This reputation affords SEI the ability to interact with its community to receive ongoing feedback that informs our service delivery approach and has informed our design across all Alberta Alive phases.

SEI and CDP have organized focus groups where we have consulted with community members about what they as prospective residents would like to see in their Alberta Alive community and their home. These community members were compensated for their time and provided food and childcare. Our team places a high value on the input of our community members regarding our housing development projects, including this one. That is why we will always provide a stipend to pay the participants of our focus groups for their time and the invaluable information they provide.

Feedback from the focus groups resulted in larger community spaces on the ground floor, the inclusion of heat pump heat/AC units in each dwelling unit, indoor and outdoor areas with play elements for children. Participants also provided feedback that has helped shape the resident services, programs and events that will be offered. This feedback included having more site based activities for children and youth, and improving/clarifying the roles and responsibilities of resident services and property management staff.

SEI's Community + Family Programs (CFP) department served over 6,000 individuals in FY 2022. This included 680 families in our Homeless Housing Programs and 873 families who received some form of housing assistance. SEI staff will be able to work specifically with these program participants to identify community members who are ready to move towards a goal of home ownership. SEI will work closely with identified families, walking them through the process of preparing for a homeownership opportunity by completing a Preference Policy application and maximizing their potential points in the Preference Policy application process.

There are over 5,500 SEI families that are enrolled in our programs, including Schools Uniting Neighbors (SUN), afterschool programming, domestic violence participants, and housing and energy assistance programs. 70% of these participants are people of color. We intend to reach out to these families to inform them of the opportunities this project will provide. This outreach will include a targeted effort to inform these families of the rental and homeownership opportunities, criteria, and resources available to assist them. All program participants will receive marketing materials and have the opportunity to meet with staff to discuss how they may participate.

Advancing Racial Equity

One way we approach serving BIPOC households is by securing sites for affordable housing and offering co-development and co-ownership opportunities for organizations led by communities of color. To date in Oregon, CDP has created co-ownership structures with the Native American Youth & Family Center (NAYA) on three developments, Hacienda CDC on two developments, and SEI on two developments. These partnerships offer organizations led by communities of color a meaningful stake in the project, support long-term stewardship for the BIPOC population served, and provide long-term financial benefits for

each organization involved. CDP is a partner with NAMC-Oregon to broaden efforts to reach minority contractors and increase diversity on each of our projects.

SEI is Oregon's largest African American led nonprofit multi-service organization, and second-largest minority-operated employer. In 2018-19, SEI's comprehensive services benefited over 16,300 K-12 students, youth ages 18- 25, families, and individuals across the City of Portland and Multnomah County. SEI's organizational philosophy and service delivery model are rooted in self-actualization, providing trauma-informed practices with the goal of overcoming persistent race-based disparities. SEI's Relationship Model and comprehensive service continuum are culturally specific for African Americans and culturally responsive for other populations.

With 150 full-time and 46 part-time staff members; 75% African American and 89% from communities of color, SEI partners with 23 public schools in five districts across Multnomah County: Portland, Reynolds, Parkrose, David Douglas, and Centennial. SEI's network throughout the Black community in Portland is unrivaled and will be at the center of the project's success in attracting the BIPOC community to apply for rental and homeownership opportunities.

The Strong Site (along with Abbey Townhomes) project is the next step in SEI and CDP's shared Alberta Alive development initiative that aims to celebrate and strengthen Portland's historically Black N/NE neighborhoods by providing affordable housing, supportive services, and a shared sense of community for underserved individuals and families. Phase I and II of the Alberta Alive development initiative recently completed construction along Alberta St., totaling over 100 units. They include housing choices from permanent supportive housing (PSH) for veterans to family-sized units available to households earning between 30% - 60% AMI.

Like Alberta Alive Phases I and II, SEI will serve as the lead Resident Services provider for Phase III (the Strong and Abbey Lot projects). SEI's Housing and Community + Family Program (CFP) staff members are well connected to numerous public/private stakeholders and have well-established community outreach and engagement mechanisms that will greatly bolster the project team's advertising efforts to minority and marginalized communities.

CDP and SEI's marketing and lease-up team will work closely with PHB to advance the N/NE Preference Policy. Alberta Alive Phase II (Dr. Darrell Millner Building) is also subject to the Preference Policy and that development will provide CDP and SEI staff to gain familiarity with the Policy, eligibility criteria for applicants, timelines, and processes.

- N/NE Preference Policy and Rentals:

Guardian will be managing Alberta Alive Phase II/Dr. Darrell Millner Building for CDP and SEI. That 63-unit property will be Guardian's first that is participating in the Preference Policy. It has already begun pre-leasing and will come online prior to the Strong property. Through that lease up, Guardian, CDP and SEI will receive training, gain experience, and

work closely with PHB on the Preference Policy, all of which will be able to be applied to this site.

Guardian also has significant experience with other formalized preferences at multiple CDP properties as well as other properties throughout their portfolio. Guardian staff is very familiar with the processes involved in setting up and implementing preferences, including writing Tenant Selection Plans (TSP) that meet OHCS and HUD compliance requirements, conducting marketing and lease up practices that comply with stated preferences and Fair Housing laws, and maintaining applicable waitlists for properties' stated preferences.

The project is committed to achieving PHB's aspiration MWESB goal of 30% participation. Internally, the team set a more ambitious goal of 40% for participation from COBID and non-COBID/BIPOC firms. We are currently exceeding that internal goal based on our bid results from the GMP bid process. Those results are detailed below (and may change slightly as the bidders/budget is finalized).

COBID Certified Firms
- ESB - 4.16%
- MBE - 23.19%
- WBE - 0.62%

Total COBID Certified = 27.97%

BIPOC/non-COBID Firms
14.6%

COBID and BIPOC = 42.57%

We are currently tracking a COBID participation rate of 62.5% for professional services for the project, well above PHB's aspirational rate of 20%.

The project is also subject to PHB's Apprentice and Workforce Diversity program. This program requires a minimum of 20% of the hours worked, by trade, on contracts that exceed $300,000 and jobsite work hours exceed 300 hours in any given trade, must be worked by state registered apprentices throughout the duration of the project.

PHB's Apprentice and Journey Level Aspirational Diversity Goals are below:
- A minimum of 22% of the total apprentice hours shall be worked by BIPOC individuals
- A minimum of 9% of the total apprentice hours shall be worked by women
- A minimum of 22% of the total journey level hours shall be worked by BIPOC individuals
- A minimum of 6% of the total journey level hours shall be worked by women

The team will report monthly on progress toward these targets, and is committed to meeting these aspirational goals. Historically, the team has had greater success in meeting

and exceeding the BIPOC categories that the women categories, which continue to be a persistent challenge across trades.

Partnerships and Services

Guardian Management (Guardian) will act as our on-site property manager. Guardian is an Oregon-based firm doing business in the Pacific Northwest. The company has evolved into a leading management, development, and investment firm. Defined by their deep commitment to the communities in which they invest, Guardian continues to advocate for housing across the entire spectrum.

Guardian has extensive experience in providing resident services and collaborating with service providers to deliver targeted services that meet the needs of the resident populations they serve. Guardian has piloted a multitude of prominent real estate projects including, mixed use and mixed income projects, historic preservation projects, affordable housing, senior housing, and conventional apartments and condominiums. Currently the company's portfolio is comprised of over 130 communities throughout 90 cities in four states. Guardian currently provides Property Management services across 80% of CDP's Oregon portfolio and is working with CDP and SEI at Alberta Alive Phase I and Phase II.

Livability and Accessibility

The project contains a 4-story elevator building, built with Type 5A construction. The building is 86,252 SF with a floor area ratio (FAR) of 2.05:1 and 34 parking spaces (a 0.45:1 parking ratio). The height is 45'-0" and 49'-0" with the roof parapet.

Building and site amenities include a 3,500 SF outdoor courtyard, a 2,000 SF private play area, shared laundry facilities to foster community, an indoor community room, as well as a generous lobby and front porch area at the intersection of N. Williams Avenue and Alberta Street. These amenities and gathering spaces are targeted at families and children, who will make up the majority of the building's occupants. They are intended to provide indoor and outdoor spaces outside of one's apartment where residents can gather for community events, classes, informal get-togethers, and recreation at the onsite play structures.

Unit amenities will include energy efficient heating and cooling systems, direct ducted, continuous ventilation to ensure healthy indoor air quality, LVT flooring, and efficient operable windows.

Additional building amenities include a 3,500 SF landscaped courtyard and a 2,000 SF play area for children, 34 onsite parking spaces, and indoor bike storage rooms. The building has one elevator and units will include a mix of Type A and Type B ADA units.

Climate Resilience and Sustainability

Environmental efficiency and resiliency are critically important to CDP and SEI. As the Portland region continues to see increasing effects of the climate crisis we need to ensure

that our new buildings are built to withstand impacts like heat waves and smoke events. We place special emphasis on measures that directly benefit residents through lower utility bills, healthy indoor air quality, and respect culturally specific lifestyle preferences and practices.
We are meeting the following criteria of the PHB Green Building Policy:

- We will be pursuing Earth Advantage and will be targeting a Platinum rating
- The projects will have a 105,5 kW solar PV installation
- The projects will be EV Ready at a minimum and include 4 EV charging stations
- The Strong project will be registered with the multifamily market solutions offering program administered by the ETO

We intend to employ the following features and strategies in order to reduce energy and provide a healthy and resilient building for residents:

- Bicycle parking and storage provided
- A reflective surfaced roof to reduce the heat-island effect
- Enhanced insulation installation practices
- Double-pane, insulated windows
- Highly efficient mechanical and lighting systems
- A tight building envelope (i.e., special attention to seal air leaks)
- Direct ducted intake and exhaust from unit bathrooms and kitchens
- Third-party performance testing will be conducted to confirm compliance with Earth Advantage criteria and to improve energy performance, reduce draftiness and ensure enhanced indoor air-quality

The sites are highly walkable community with amenities located a short walk from public transportation, bike routes, and other community resources.

Having worked on many PHB and OHCS funded projects, Holst and COLAS are also very experienced with PHB requirements, including the PHB Green Building Policy, accessibility standards, Air Conditioning Policy, as well as the Equity in Contracting, Section 3 and workforce requirements and reporting. While they have not yet worked on a N/NE Preference Policy project, Guardian has ample experience managing PHB funded properties and their staff is very familiar with the ongoing compliance and reporting requirements that accompany PHB funding.

Anticipated Timeline

Metro Concept Endorsement	**6/2023**
Plans Completed	**2/2024**
Financial Commitments	**5/2024**
PHB Housing Investment Committee Approval	**6/2024**
Building Permits/Fees	**7/2024**
Financial Closing	**8/2024**

Construction Start	**8/2024**
Construction Completed	**2/2026**
Lease-Up Completed	**8/2026**

600 NE Grand Ave.
Portland, OR 97232-2736
oregonmetro.gov

Metro Affordable Housing Bond Program

Final Approval

Project Name: The Dolores
Implementing Jurisdiction: City of Hillsboro
Metro IGA Contract Number: 936670
Anticipated construction start: September 2024
Anticipated construction completion: March 2026

Action:
Metro hereby provides the City of Hillsboro with Final Approval of $8,750,000.00 Metro Affordable Housing Bond eligible share funds and $1,750,000 Site Acquisition Program (SAP) funds for the development of The Dolores, a regulated affordable housing project located at 9985 NE Walker Road, Hillsboro. Metro staff findings are attached in Exhibit A, and a more detailed description of the Project, as provided by the City of Hillsboro, is attached as Exhibit B.

This Final Approval is based upon the information contained in the final approval request provided to Metro by the City of Hillsboro, including Project cost proformas and statements of sources and uses of funding needed to generate a Project with the following unit mix:

Number of Units	Bedroom type	AMI Level	Project Based Vouchers
10	One-bedroom	30%	2
10	One-bedroom	60%	0
6	Two-bedroom	30%	2
11	Two-bedroom	60%	0
12	Three-bedroom	30%	2
14	Three-bedroom	60%	0
2	Four-bedroom	30%	2
1	Four-bedroom	60%	0

Changes to the information contained in the final approval request provided by the City of Hillsboro could result in reevaluation of the Project's need for Metro Affordable Housing Bond Funds and changes to the staff findings and funding allocation to the Project before funding disbursement. Disbursement of funds for the Project will be processed in accordance with the terms and conditions set forth in the Affordable Housing Bond Measure Program Intergovernmental Agreement between Metro and the City of Hillsboro, and will occur within 10 days of Metro's receipt of the following items: a draft regulatory agreement

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meeting IGA requirements, a final sources and uses budget, a construction contract schedule of values, and an invoice from the City of Hillsboro including wiring or other instructions related to transfer of funds.

July 25, 2024

Marissa Madrigal

Date

Chief Operating Officer

Exhibit A: Metro staff findings and recommendations | Metro Affordable Housing Bond Final Approval request for The Dolores

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Drafted by: Jimmy Oporta, Senior Housing Program Coordinator and Alison Wicks, Housing Program Supervisor

Date: July 25, 2024

Criteria for funding approval

Metro will issue Final Approval to local implementation partner (LIP) upon Metro's determination that (a) the proposed Project reasonably contributes to the Unit Production Targets relative to the amount of the Eligible Share proposed to be used for the Project; and (b) the Project is consistent with the Local Implementation Strategy (LIS), the Work Plan, and the Bond Measure.

Staff recommendations

Staff recommends the Metro Chief Operating Officer (COO) provide Final Approval of funding for The Dolores. Findings from Metro's staff review are summarized below. Additional information about the project can be found in Exhibit B, the project narrative submitted by the City of Hillsboro.

Changes since Concept Endorsement

The project is being reviewed for Final Approval and has undergone changes since Concept Endorsement on May 10, 2023. Project development costs increased to $41.77 million, up $7.21 million (+20.9%) from the prior $34.56 million. Project funding sources have correspondingly increased $8.46 million. The Metro Housing Bond funding amount remains unchanged at $10,500,000, of which $8,750,000 will be from Hillsboro's eligible share of Housing Bond funds and $1,750,000 will be Metro Site Acquisition Program (SAP) funds. While the number of units affordable at 30% of AMI is unchanged at 30 (45.5% of total units), the affordability within the unit sizes has shifted: five one-bedroom units shifted from 30% to 60% of AMI affordability, two two-bedroom units shifted from 60% to 30% of AMI affordability, four three-bedroom units shifted from 60% to 30% of AMI affordability and one four-bedroom unit shifted from 30% to 60% of AMI affordability. Key project highlights include:

- Total development costs are $41.77 million and Metro Housing Bond funding is $10.5 million.
- Net cash developer fee is 6.58 % of developer fee basis. This amount is less than the Metro maximum of 10.0% for projects with 31-75 units and is within Metro's maximum of $3.0 million.
- Construction start date in September 2024 with completion anticipated in March 2026.

Contribution to unit production targets

The Dolores will utilize 39% ($10,500,000) of Hillsboro's total allocation of bond funds while delivering 66 units that meet the following unit production outcomes:

- 35% of Hillsboro's overall unit production target
- 39% of Hillsboro's target of units affordable to households making 30% or less of area median income (AMI);
- 49% of Hillsboro's family sized unit target

When combining this project with the City of Hillsboro's existing development portfolio, this puts the City on a path to have utilized 80% of total allocation of bond funds while delivering on the following cumulative unit production outcomes:

- 88% of Hillsboro's overall unit production target
- 90% of Hillsboro's target of units affordable to households making 30% or less of area median income (AMI)
- 123% of Hillsboro's family sized unit target

Eligibility and readiness to proceed

The City of Hillsboro has submitted and Metro staff have reviewed and evaluated submitted materials for evidence of project feasibility and readiness to proceed. These include:

- Updated project pro forma dated 5/31/2024
- Maul Foster Along, Phase I Environmental Site Assessment report, dated 2/2/2024
- Construction bid set drawings from Access Architecture, dated 6/30/2024
- Metro Site Acquisition Program approval letter, dated 6/9/2022 as evidence of developer site control
- CBRE, Inc. Appraisal Report, dated 5/10/2024
- Letters of intent from Beneficial State Bank, Red Stone Equity Partners, OHCS Multifamily Energy Program
- Development team resumes and developer schedule of real estate owned demonstrating a track record with housing development in Oregon
- Hacienda CDC Resident Services Plan
- Updated community engagement outcomes summary
- NWRECC Affirmative Fair Housing Marketing Plan, dated 5/31/2024

Staff have not identified any unusual risks to project feasibility and readiness and will continue to request updates from the City of Hillsboro regarding how work is proceeding.

Advancing racial equity

Metro staff have reviewed final project materials to confirm consistency with the racial equity elements of City of Hillsboro's approved local implementation strategy (LIS). Key findings include:

- **Location:** The Dolores is in a residential, commercial, and mixed-used neighborhood within the Tanasbourne area of Hillsboro. The site is near Magnolia Park, three grocery stores (Safeway, Trader Joes, Whole Foods Market), McKinley Elementary school, and public transit.
- **Transit access:** The project is served by the Cornell Road #48 bus line to the north, which is within walking distance of the site.
- **Diversity in contracting/hiring**: Hillsboro's Local Implementation Strategy calls for 20% of total project costs to be awarded to COBID-certified firms, with an aspirational goal to reach 30% COBID subcontractor participation. In addition, Hacienda has set an aspirational 30% goal for COBID professional services participation. Access Architecture is a minority-owned firm and consistently seeks out and contracts with certified firms in all areas of design and engineering. The project will be tracking workforce participation and will strive to meet or

exceed the aspirational goal of awarding 25% of workforce jobs to women and minority workers.

- **Access for historically marginalized communities:** Hacienda will partner with IRCO (Immigrant & Refugee Community Organization) to engage communities with diverse language and cultural needs throughout the marketing and lease-up process. Social media posts, flyers, television and radio ads will be designed and distributed in various languages across Washington County. Marketing will be primarily targeted to low income and BIPOC communities and will continue throughout the lease-up process. Three months before the project's application release date, Hacienda will invite community members, prospective tenants and community organizations to three information sessions presented in various languages and these will be offered both virtually and in-person. Within one week of the application release date, Hacienda will host an in-person event to provide technical assistance to future applicants and collect completed applications. Hacienda will work with Northwest Real Estate Capital Corporation (NWRECC) to ensure screening criteria are low barrier and consistent with Hillsboro's Local Implementation Strategy to increase access for historically marginalized communities.
- **Culturally appropriate services:** Hacienda will be providing culturally responsive, on-site services to support housing stability and promote the safety and wellbeing of residents. Hacienda's bilingual Resident Services Coordinator (RSC) will collaborate with property management staff in conducting site visits, sharing information to residents about community programs and resources, and review any possible lease violation matters to ensure actions are unbiased and appropriately documented. The RSC will also connect households with resources needed to stabilize their housing. These resources may include emergency rental assistance, food pantry, utility assistance, financial classes and provide medical or behavioral health referrals. Case management and wrap around services for the 12 PSH units will be provided by New Narrative. Dolores' PSH units will serve Population A and use Washington County's coordinated access system for resident referrals.
- **Cooling plan:** The Project will be designed to Earth Advantage Gold level certification. Air conditioning will be provided through mini-split HVAC systems in all units and community spaces.

Community engagement to inform project implementation

Metro staff have reviewed the narrative to confirm consistency with the community engagement elements of City of Hillsboro's approved Local Implementation Strategy (LIS). Key findings include:

- **Strategies for ensuring ongoing engagement around project implementation reaches communities of color and other historically marginalized community members:**

  In partnership with Access Architecture, Hacienda led two community engagement groups to gain feedback and input on building program services and design elements. To support engagement, an Advisory Round Table was convened, along with three separate resident focus groups. The Advisory Round Table was composed of community leaders representing a variety of organizations and met on three occasions over a five-month period. The Advisory Round Table focused on coordinating future community engagement activities, discussed design direction and feedback and brainstormed ideas for artwork and murals for the project. The resident focus groups also met on three occasions over a five-month period. The first group focused on design elements including courtyard layout, separation between private and public spaces and integration of permanent supportive housing residents into

the larger community. The second resident focus group reviewed interior common areas and layouts and provided feedback on connecting residents with each other though shared community spaces at the project. The third resident focus group came together to provide feedback on interior design finishes, materials, and color choices. The development team has agreed to conduct construction site tours with members of both the advisory round table and resident focus groups.

Major themes gathered from community engagement included:

- Developing separation between private and public realms (community spaces)
- Importance of covered outdoor seating areas
- Arranging children's play areas throughout the community
- Developing socializing nodes at various locations throughout the community to invite neighbors to connect with each other
- Using wood and nature-inspired colors at eye-level, which can be calming and grounding
- Increased amounts of natural light throughout the building

Major design feedback heard from community engagement included:

- Widening of corridors at unit entries and common areas for easier maneuvering
- Multi-purpose spaces with flexible seating for a wide variety of body types and abilities
- Clear and consistent wayfinding system to guide residents and visitors throughout the building
- Two elevators to increase access and minimize wait times for residents and visitors
- All-gender restrooms that accommodate all, regardless of gender identity or expression
- Integration of unit storage at all reach ranges, including full-height pantries wherever possible

Dolores – City of Hillsboro

Final Approval Project Narrative

Project Overview

The Dolores is a 3-story, elevator-served affordable housing development proposed on two parcels at 9965 NE Walker Rd. in Hillsboro. Named after labor activist Dolores Huerta, it provides 67 total units ranging from 1-bedrooms to 4-bedrooms, of which 66 affordable units will serve households making between 30% AMI and 60% AMI. The development dedicates 12 units to Permanent Supportive Housing (PSH), which will receive case management services through New Narrative. Hacienda CDC will be developer, owner, and resident services provider. The site is approximately 2.33 acres total gross with 1.95 acres net developable. The two parcels comprising the site are currently owned by Metro and will be conveyed to the developer at financial closing of the project.

Total project cost is estimated at $41.8 million and includes the following sources:

- $10.5 million in requested Metro Bond Funding
- $16.7 million in 4% LIHTC Equity,
- $8.7 million in Permanent Debt
- $2.3 million in Deferred Developer Fee
- $637,715 in Sponsor Loan
- $172,860 in Energy Credits
- $200,000 in energy incentives from ORMEP
- $20,000 in energy incentives from ETO

Changes between Concept Endorsement and Final Approval

1. **Total Development Cost:** increased from $34.6 Million to $41.8 Million, an increase of $7.2 Million, due to $5 million in additional construction hard costs associated with developed design, required offsite improvements to Walker Road and 101st, other infrastructure and construction costs, $500,000 in soft costs, approximately $500,000 in increased fees for financing, and an approximately $900,000 increase to developer fee.

2. **Increase in Developer Fee:** Increased development costs also resulted in an adjustment to the developer fee from $4,442,960 to $5,335,351 with the net cash fee adjustment from $1,805,985 to $2,362,285, accounting for a sponsor cash loan and any other sponsor equity contribution. Gross cash fee is estimated at $3 Million. See table below:

	Concept Endorsement	Current Budget
Gross Developer Fee	$4,442,960	$5,335,351
Gross Fee as % of TDC	15%	12.77%
Deferred Developer Fee	$1,286,975	$2,335,351
Gross Cash Fee	$3,155,985	$3,000,000
Sponsor Cash Loan	$690,000	$637,715
Sponsor Equity Contribution	$1,350,000	$0
Net Cash Fee	$1,805,985	$2,362,285

3. **Building Square Footage:** was reduced slightly due to site conditions and setback requirements. Square footages under OHCS requirements have been requested as variance in the project's NOFA applications and are under review.

4. **Parking**: was reduced by 2 stalls due to existing tree root boundaries, required setbacks and site constraints.

5. **Unit, Rent and Income Mix:** Two additional PSH units were dedicated to the project to receive additional rent subsidy grants from Washington County, which requires projects dedicate 30% of units to be vouchered in order to receive funds. Unit square footages have been adjusted per site conditions and building design. Rents were also increased to 2024 maximums.

6. **Property Management:** Changed to Northwest Real Estate Capital Corp.

7. **Community Engagement:** Efforts continued after Concept Endorsement and an updated summary of activities and results is included in this narrative.

8. **Project Schedule:** Financial close and property conveyance dates revised as shown in project schedule section. Construction period revised per LMC review of developed design drawings and required offsite improvements. Lease up and conversion schedule revised per extended construction timeline.

Preliminary Development Program

The development program of the Dolores includes 66 affordable units, with a total of 30 units provided at 30% of Area Median Income (AMI). The project features 46 family-size units of two-bedrooms or more, comprising nearly 70% of the project, and includes 26 three-bedroom units and 3 four-bedroom units. Ten units will be dedicated to Permanent Supportive Housing (PSH). The single 3-story building will total 75,209 square feet. Project amenities include a community room, bike room, laundry rooms on each floor, exterior courtyard with covered seating, playground, community garden and property management and resident services offices. The Dolores will provide 72 stalls of off-street parking, at a ratio of over one space per unit.

The preliminary development program unit mix, income and rent table follows below:

Unit size (no. of bedrooms)	No. of units	AMI %	PBVs	RLRA Vouchers	Square feet/unit	Gross monthly rent/unit[1]
2 Bed	1	Unrestricted Manager			800	$0
Studio	0					
1 Bed	2	30%	2		591 - 671	$663[2]
1 Bed	8	30%		8	591 - 671	$663[3]
1 Bed	10	60%			591 - 671	$1,327
2 Bed	2	30%	2		791	$796[2]
2 Bed	4	30%		4	791	$796[3]
2 Bed	11	60%			791	$1,593
3 Bed	2	30%	2		996 -1032	$920[2]
3 Bed	10	30%			996 -1032	$920
3 Bed	14	60%			996 -1032	$1,841
4 Bed	2	30%	2		1,335 - 1386	$1,026[2]
4 Bed	1	60%			1,335 - 1386	$2053
Total	67					

1 Maximum gross rents at time of execution of this Agreement. Maximum gross rents will be adjusted annually based on change in AMI published by HUD.

2 Current maximum gross rent that would be paid by residents in units with Project-Based Vouchers (PBVs). As long as units have PBVs, the gross rent is determined by the formula set by the Housing Services Office of Washington County for Project-Based Section 8. In the case of a loss of subsidy, the AMI will be increased up to 60% AMI.

3 Current maximum gross rent that would be paid by residents in units with Regional Long Term Assistance (RLRA) Vouchers. As long as units have RLRA vouchers, the gross rent is determined by Washington County Supportive Housing Services. In the case of a loss of subsidy, the AMI will be increased up to 60% AMI.

Project Image

Background

The City of Hillsboro, in partnership with Metro, issued a Request for Proposals (RFP) for affordable housing in late September 2022 to competitively bid disposition and development of the Metro-owned 2-acre property on NE Walker Rd. in Tanasbourne. The RFP resources also included up to $11 Million of Regional Housing Bond funds available for the project.

The following minimum requirements were identified in the RFP for the Walker Rd. site:

- 60 affordable housing units minimum
- Minimum 40% of total units regulated at or below 30% AMI
- Minimum 40% of total units at two bedrooms or more
- Racial Equity, Resident Services and Community Engagement plans
- Cooling plan providing for A/C in each unit

In addition, the following preferences were included in the RFP:

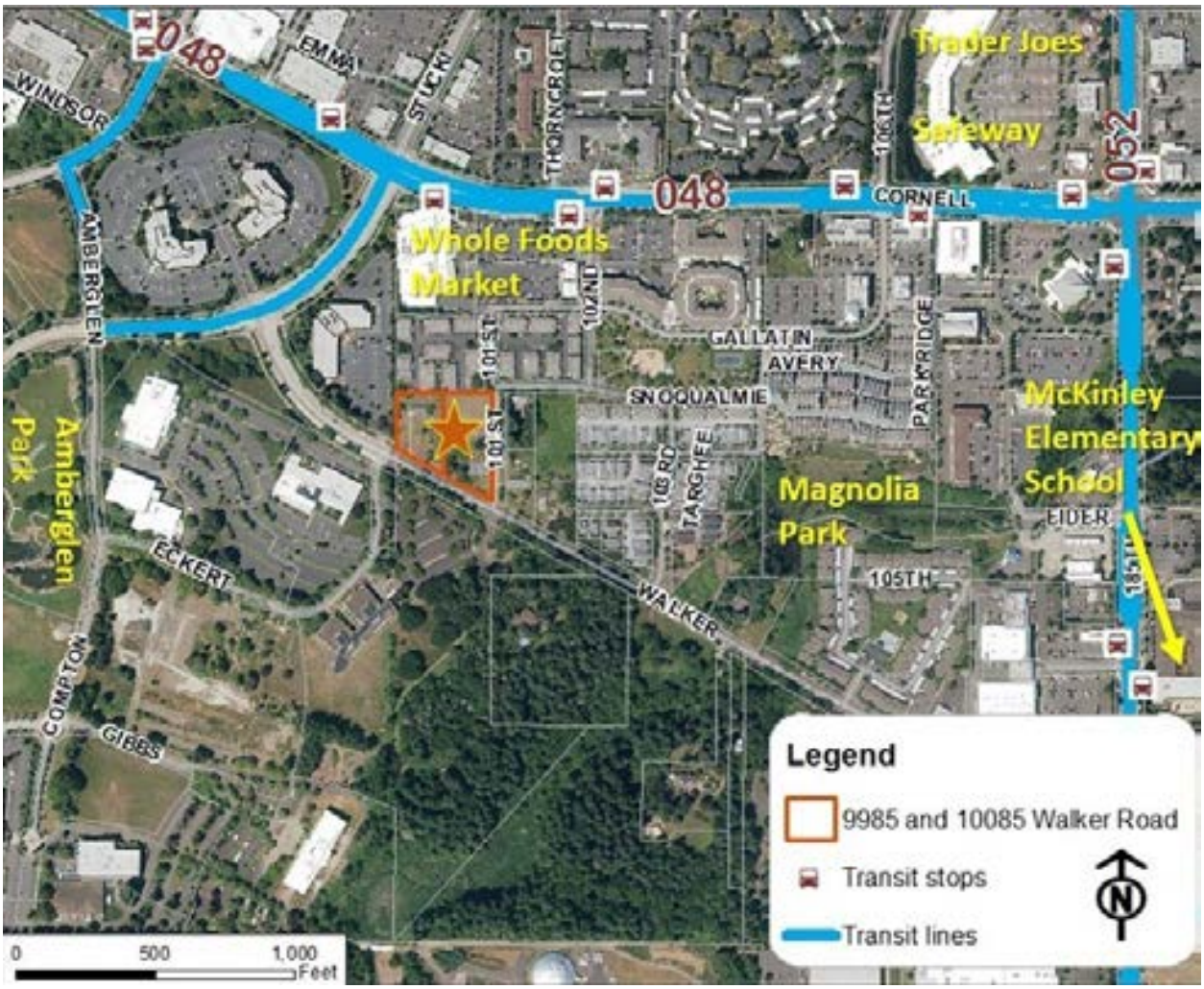
- Proposals with more than the minimum-required units
- Proposals that included dedicated Permanent Supportive Housing (PSH) units
- Diversity contracting utilization greater than 20% of total project costs
- Voluntary workforce tracking and reporting

At the December 2022 deadline, the City received three project proposals from affordable housing developers. The City and Metro formed an evaluation committee to review and score the proposals, informing the City Staff-recommended project. The committee met three times throughout the project evaluation period and submitted scores evaluating each proposal. The committee scored the Hacienda CDC proposal highest amongst the three proposals. After an interview with the Hacienda CDC development team and further project vetting, City Staff recommended selection of the Dolores project in accordance with the recommendation of the evaluation committee. Hillsboro City Council approved the selection and granted Concept Endorsement of Dolores on March 21, 2023.

The Metro Site Acquisition Program purchased the NE Walker Rd. properties in late June and early July 2022 working closely with the City. Due diligence conducted to-date includes Phase I and II Environmental Site Assessment (ESA) reports, a Contaminated Media Management Plan and a Geotech report. Metro also contracted with 3J Consultants for site development feasibility analysis and concept planning.

Location and Neighborhood

The Dolores project site is in a residential, commercial and mixed-use neighborhood proximate to a wide range of amenities, shopping, and services. Magnolia Park is a short walk away, the site is proximate to three grocery stores (directly abutting Whole Foods parking lot), McKinley Elementary school is a short distance to the south; the #48 bus line and stop on Cornell is walking distance and there are new market rate apartments being built directly south of the site. The addition of affordable housing at this location will help to create a vibrant mixed-income neighborhood within the Tanasbourne area of Hillsboro.



Site

The site is comprised of two abutting tax lots totaling 2.33 acres, with approximately 1.95 acres estimated as net developable after the required right-of-way dedications for 101st Ave and NE Walker Rd. As previously mentioned, the site is owned by Metro with disposition to Hacienda CDC anticipated through a future Disposition and Development Agreement (DDA). A single-family home on the western parcel has already been demolished and the home on the east lot has a tenant who will rent from Metro until July of this year. After relocation, that home will also be demoed to make way for the affordable housing project.

The Phase I and II Environmental Site Assessment (ESA) reports and a Contaminated Media Management Plan had the following findings:

- Decommissioned heating oil tank at 9985 Walker
    - DEQ closure letter issued June 2022
    - Contaminated Media Management Plan prepared by Maul Foster
- Electromagnetic scan found no other heating oil tanks
- Surface soil sampling found pesticides below levels of concern for human well being

- HazMat studies to be conducted on residential properties before demo by Metro/consultant
- No further action recommended.

A Geotech report was also completed. Analysis noted:

- Moisture sensitive soils
- Unconsolidated silts
- Unknown groundwater depth
- Site deemed suitable for shallow foundation construction with no underground parking
- Further pre-construction borings recommended

Metro also contracted with 3J Consultants on a site development feasibility analysis with the following findings:

- The sites contain a mix of Multi-Unit Residential (MR-2) and Mixed-Use Neighborhood (MU-N) zones
- Maximum allowed density with SB 8 bonus applied is 67 units
- A conceptual site study achieved 60 units with 60 parking spaces (1:1 parking ratio)
- An expired Planned Unit Development (PUD) approval defines re-alignment of 101st Avenue desired by City
- Required off-site improvements were estimated at $1 million

Project Financing

Total development costs for the Dolores are estimated at $41,766,813 or $623,385 per unit, and $286,073 per bedroom. The requested Metro bond funding amount for gap financing is $10.5 Million, equaling a subsidy of $159,091 per unit or $72,917 per bedroom.

Sources of proposed financing include:

- Metro Bond financing in the amount of $10,500,000, of which approximately $8,750,000 will be from Hillsboro's eligible share of Affordable Housing Bond funds and approximately $1,750,000 will be from Metro's Site Acquisition Program (SAP) funds.
- Total LIHTC equity of $16,777,179 based on pricing of $0.83 per available credit.
- Permanent mortgage of $8,724,086, based on terms provided by Beneficial State Bank
- Federal Energy Tax credits of $154,347, based on 30% of solar facility installation costs of $584,649.
- Sponsor cash loan of $637,715.
- Deferred Developer fee of $2,335,351.
- Energy Trust of Oregon rebates of $20,000 for installation of the solar facility.
- Oregon Multifamily Energy Program rebates of $200,000 for installation of energy efficient systems including heat pump water heaters and mini split systems.

Beneficial State Bank will make a direct purchase of the OHCS-issued private activity bonds (PABs) in an amount not to exceed $20,730,000.

The project is expected to apply and qualify for Hillsboro's Nonprofit-Owned Low-Income Housing Property Tax Exemption program.

A sources and uses table follows below:

Sources	Total	per Unit
LIHTC Equity	16,777,179	250,406
Federal Energy Credits	172,860	2,580
Permanent Loan	8,724,086	130,210
ORMEP	200,000	2,985
Energy Trust of Oregon	20,000	299
Sponsor Loan	637,715	9,518
OHCS LIFT	2,399,522	35,814
Metro Bond	10,500,000	156,716
Deferred Developer Fee	2,335,351	34,856
TOTAL SOURCES	**41,016,813**	**623,383**

Uses	Total	per Unit
Acquisition	100	0
Construction	28,608,023	426,985
Soft Costs	5,040,406	75,230
Financing Costs	2,226,166	33,226
Reserves	556,767	8,310
Developer Fee	5,335,351	79,632
TOTAL USES	**41,016,813**	**623,383**

As cited previously, the Gross developer fee is $5,335,351, or 12.77% of total development costs per City of Hillsboro underwriting guidelines. The gross cash developer fee is $3 Million. Taking into account contributed fees (sponsor loan), and general partner note contributions, the net cash fee to Hacienda CDC will be $2,362,285.

In November 2022, Hacienda submitted an RFI response to Washington County SHS requesting rent assistance contingency funding for rent assistance beyond the availability of SHS funding in June 2032 for the 12 dedicated PSH Units. Washington County SHS has agreed to fund a minimum of $1,540,673 ($154,067 per unit) for 15-year rent subsidy, with an option for reapplication for additional funding. Hacienda is currently coordinating reapplication efforts to obtain this additional funding. Hacienda continued correspondence with SHS, working with the department to develop a unique financing structure to ensure PSH units will be subsidized beyond the sunset date for RLRA vouchers. Hacienda and SHS are currently reviewing and negotiating a rental subsidy agreement for a total of $6,079,335.

The Dolores will contain 12 PSH units with services provided by New Narrative. The project is sponsored and will be owned solely by Hacienda CDC, a culturally specific developer with an exceptional track record of serving communities of color.

Development Team

Developer – Hacienda Community Development Corporation
Hacienda CDC (Hacienda) is the project sponsor, developer, owner, and resident services provider. Hacienda is a Latino Community Development Corporation that strengthens families by providing affordable housing, homeownership support, economic advancement, and educational opportunities. Since inception in 1986, Hacienda has worked to promote the wellbeing of low-income individuals and families, with expertise and focus on the Latino community. With a combination of affordable housing and services for residents and the community at-large, Hacienda has worked to improve the lives of residents, helping children stay in school and families thrive, and continues to strategically transform the neighborhoods in which they operate.

Hacienda Real Estate Development builds quality, affordable housing where families can live and thrive in safe, supportive, community-centered environments. Hacienda has rehabilitated or built 381 units of affordable housing in some of the most depressed areas of North and Northeast Portland and Molalla. In addition, Hacienda and Community Development Partners (CDP) co-developed Rockwood Village, 224 new units of affordable housing in Gresham, which opened this past summer, and are in construction on a new co-development venture, Maple in Oregon City (171 units). Both developments include Metro Bond funding. Hacienda has also completed construction on Las Adelitas, 142 new affordable homes in Portland's Cully neighborhood. Hacienda has also developed three community benefit commercial properties, the Ortiz Center, Hacienda CDC Administrative headquarters; and the Portland Mercado.

Hacienda Resident Services provides culturally responsive, on-site services for residents to support their housing stability, to build community, and to promote safety and wellbeing of residents. The Resident Services team is part of the Youth and Family Services Department and works to connect residents with resources and programs in the community and to Hacienda's programs and services.

Architect – Access Architecture
Using informed design and community engagement to foster meaningful connections. Access Architecture will facilitate the design of the project rooted in their commitment to quality housing for all and culturally responsive community engagement. Founded in 2018, Access Architecture, LLC is a mission-driven, minority owned, full service architectural and planning firm. Access Architecture provides professional services ranging from feasibility studies and funding packages to construction contract administration and post-occupancy evaluations.

Through an innovative Outcome-Based Design process, community engagement is paired with academic research to create designs that are better informed and more effective. Access Architecture is also committed to community involvement, utilizing its 5+ Project to devote time towards volunteer efforts.

With a combined 30+ years of experience working in affordable housing design, Access Architecture is well versed in projects obtaining local, state, and federal funding. They are intimately knowledgeable with public funding streams and understand the often-complex framework of requirements that apply to a project based on building typology, local jurisdictions, and project funding sources.

General Contactor – LMC Construction

LMC Construction will be the General Contractor on the Project. Founded in 2004, LMC Construction (LMC) is one of the leading General Contractors in Oregon & SW Washington. At LMC, they believe in building relationships, a commitment to quality, and developing communities that foster connections and enrich the lives of the residents who call the communities they build home.

Over the past 18 years, LMC's focus has been on projects that include affordable & market-rate housing, commercial buildings, expansions, ground-up, multi-family housing, renovations, and tenant improvements. Their extensive range of services begins well before a design has been conceived and continues long after construction is complete. At LMC, they pair the capacity and experience of a prominent, established builder with the accessibility and connectivity of a smaller, local company.

Property Manager – Northwest Real Estate Capital Corp

Northwest Real Estate Capital Corp. (NWRECC) is a nonprofit 501(c)(3) company established in 1999 whose mission is preserving affordable housing, enabling life with dignity for residents and creating a quality work environment for our employees. NWRECC fulfills its mission through property management, new construction and renovation of HUD/Section 8, Rural Development, and Tax Credit Housing. NWRECC currently manages 90 properties with 3,222 units in 8 States. Overall, NWRECC manages a diverse portfolio of properties and complies with income restrictions such as Section 8, LIHTC, LIHTC/Section 8, Section 236, Section 202, Section 811, HOME, Rural Development, and Supportive Housing for the Homeless.

PSH Case Management Provider – New Narrative

New Narrative is a licensed provider of mental health, alcohol and drug, and dual diagnosis services governed by contracts with city, county, State and Federal government. The strong, collaborative relationships with these entities is the foundation of their successful program development. New Narrative has consistently held contracts with Washington County since 1978 and Multnomah County since 2002 for services including outpatient and rehab-level mental health treatment, homeless outreach, peer services, and many other mental health related needs.

New Narrative employs a multi-disciplinary team including medical staff (M.D. and Psychiatric Nurse Practitioner), Mental Health Clinicians (QMHA & QMHP) trained in a variety of treatment methods, Residential Counselors, Skill Trainers, Peer Support Specialists, Housing Specialists, Nurses, Pharmacist and Pharmacy Technician, and a Representative Payee.

Their services are designed to meet the wide-ranging needs of individuals with varying types of mental health diagnoses and traumatic life experiences. New Narrative strongly believes in supporting each participant's overall well-being and quality of life. A full continuum of care at multiple levels provides individualized, holistic support. They endorse a trauma-informed organizational model that strives to protect the physical, psychological, social, cultural and medical safety of all participants and staff. Comprehensive delivery of services can involve multiple elements based on individual need including behavioral health counseling in both group and one-on-one settings, skills training, case management, employment assistance, obtaining benefits, prescriber services, medication consultation and management, medical coordination, connection to social supports and community resources. Services are delivered in the least-restrictive environment that is clinically appropriate.

Community Engagement

In Partnership with Access architecture, Hacienda led two community engagement groups with each project milestone to gain feedback and input on building program, design, community outreach and local programs.

Dolores Engagement Plan

The Dolores engagement effort is focused on informing, consulting, and involving members of the public in a transparent process to capture input effectively. The project team has designed an twofold engagement plan that a) aims to build relationships with stakeholders and potential partners in the Hillsboro community and b) seeks design feedback from residents, property managers, and community members with lived experience to ensure the project design aligns with community needs and aspirations.

Elements of the Engagement Plan include: the Engage with Dolores Website and Community Insights Web-Based Survey.

Advisory Round Table

- The engagement team kicked off the Advisory Round Table series on August 18. The group, composed of community leaders representing a variety of partner organizations, convened to discuss opportunities for collaboration, to share "lessons learned," to introduce Hacienda CDC to the Hillsboro community, and to strategize ways to support the Dolores development and its future residents. Future engagement opportunities include tabling at local events and other upcoming outreach activities.
- The second Advisory Round Table meeting was held virtually on October 13. The Hacienda team provided updates from the Resident Focus Group, with a focus on design direction and feedback shared by participants. The advisory group discussed upcoming engagement activities, including virtual presentations to community and neighborhood organizations.
- The third Advisory Round Table meeting was held at the Hillsboro Public Library on December 8. Attendees representing a range of community organizations, including Centro Cultural, Adelante Mujeres, Washington County, METRO, Community Action of Washington County, Hillsboro School District, New Narrative, Hillsboro Public Library, and more gathered to enjoy pan dulce and to brainstorm ideas for artwork and murals at the new Dolores development. A range of local artists and potential subjects were identified, as well as some funding and grant opportunities.

Resident Focus Group

- The first resident focus group met virtually on August 17, and focused on schematic and site design elements including the central courtyard, separation between private and public realms, culturally informed design, and integration of permanent supportive housing residents into the larger community. Key design takeaways included the importance of covered outdoor seating areas, the arrangement of children's play areas, and the expression of the wall element defining the courtyard edge.
- The second resident focus group met in person at Las Adelitas Event Space on October 2. Over light refreshments, participants took part in a robust design discussion, reviewed interior common areas and layouts, and provided feedback on a range of precedent images. Key takeaways for the design team included the importance of developing activity/socializing nodes at various locations throughout the building (such as the lobby, laundry rooms, and other public areas) to invite neighbors to connect with each other and build community.
- The third resident focus group met in person at Las Adelitas Event Space on December 6. Over a dozen participants, mainly residents of Hacienda properties as well as New

Narrative clients, came together to provide feedback on a range of interior design finishes and materials in a lively workshop focused on interior unit design. Attendees divided into two groups, each of which discussed the merits of the material samples on view and made recommendations to the design team. The winning selections informed unit finish plans and color choices.

With the design phase wrapping up with submittal for permit in April 2024, future touchpoints with both the Advisory Round Table and the Resident Focus Group will take place at the Groundbreaking and Grand Opening ceremonies, both of which are in the early planning stages. Construction site tours will also be offered to members of each group.

Advancing Racial Equity

Hillsboro is home to a racially and ethnically diverse population, with two in five people identifying as communities of color and a quarter of residents identifying as Hispanic or Latinx. A majority of those living below the poverty line in Washington County are people of color, and more than half of Black, Latino, Filipino, Middle Eastern, and North African residents are considered rent burdened.

As described previously under site considerations, the location of the Dolores in the Tanasbourne area of Hillsboro provides an amenity-rich, well-served and well-connected location with ample access to employment, healthcare, retail, and educational services and opportunities. The addition of the Dolores provides much needed regulated affordable housing in the Tanasbourne area and will help create a more racially diverse, mixed-income community in the immediate neighborhood.

The Dolores contains many features that advance racial equity, starting with Hacienda CDC as a culturally specific owner and resident services provider, the Latinx-inspired building design, trauma-informed building features and many other components.

When working with communities with diverse language and cultural needs, Hacienda engages interpretation and service delivery partners like IRCO. Nearly 30 years of experience with outreach to low income and BIPOC communities has informed their practices for the lease-up process, which can be daunting for applicants. Hacienda's affirmative marketing and lease up plan contains three main elements:

- Marketing - Social media posts, flyers, television and radio ads will be designed and distributed in various languages across Washington County and beyond once construction timelines are clear. Marketing will be primarily targeted to low income and BIPOC communities and will continue throughout the lease-up process.
- Community Info Sessions - Hacienda will invite community members, prospective tenants and community organizations to attend three info sessions presented in various languages three months before the application release date. These sessions will be a mix of virtual and in-person. There will be a brief presentation on the new development and lease up process. The remainder of the time will be reserved for questions and answers.
- Lease-up Event - After the Interested Parties List is opened and within the first week of the application release date, Hacienda will host an in-person event to provide technical assistance and collect completed applications. Again, Hacienda will decrease barriers by providing access to interpretation and provide support for those who have challenges with reading or writing.

Hacienda works collaboratively with NWRECC to ensure that all applicants receive a fair, low-barrier screening process. NWRECC's screening criteria are low-barrier consistent with the City of Hillsboro Local Implementation Strategy guidelines and are designed to directly respond to the inequities that have historically been tied to screening processes.

Hacienda's work is intentionally designed to mitigate the systemic barriers facing people of color, that prevent equal access to housing, education, economic success and asset-building opportunities. Hacienda has a zero-tolerance policy for discrimination based on protected classes, including race, color, sex, religion, national origin, familial status, disability, source of income, marital status, age, sexual orientation, and gender identity. All applicants of Hacienda properties

receive a fair, low-barrier screening process which includes income verification of disability, passing a criminal background check, and passing a landlord reference check. If an applicant is denied housing based upon screening criteria, they can request an appeal meeting to discuss the reason(s) for the denial. In most cases, property management staff are able to overturn the denial, at times in consultation and planning with Resident Services staff.

Hillsboro's Local Implementation Strategy calls for 20% of total project costs to be awarded to COBID-certified firms. The Dolores project will meet or exceed this goal with the following approaches taken by Hacienda and the development team.

Hacienda's team has set a voluntary minimum 30% goal for COBID professional services participation (soft costs). Access Architecture is minority-owned and consistently seeks out and contracts with certified firms in all areas of design and engineering. Hacienda will regularly monitor the State's list of COBID certified firms to look for potential new partners.

Hacienda has set a voluntary goal of 30% COBID subcontractor participation, with a minimum 20% of participation by minority or women owned companies during construction (hard costs). Hacienda's plan to achieve this goal includes: holding pre-bid outreach meetings allowing bidders to plan for the bid period and respond in a timely fashion; encouraging larger firms to utilize DMWESB-SDV firms as second-tier subcontractor and suppliers; conducting an exhaustive process of outreach to target businesses and the community; and encouraging prospective bidders to schedule one- on-one meetings with the team to review the requirements of the project to gain a full understanding of its scope.

Hacienda is also committed to achieving a minimum 20% of operations contract awards to qualified DMWESB/SDV firms. Further, NWRECC is equipped to track MWESB goals for operational suppliers and vendors through an automated vendor management system, allowing outcomes to be reported periodically for refinement.

As standard practice, Hacienda requires that 25% of workforce jobs created are completed by women or minorities on all development projects. They require that the general contractors provide updates regarding their equity progress prior to executing subcontract awards, midway through construction, an at project completion. These efforts allow the contractors to improve outreach and monitor progress regarding equity efforts in real time. Workforce utilization will therefore be tracked for Dolores with the 25% goal cited above.

Partnerships and Services

Hacienda has over 29 years of experience providing culturally specific services related to language, health navigation, food access, transportation, and basic resident stability. They work 1:1 with residents to maintain their housing stability, understand their needs, and work directly with partner organizations to enhance on-site services and connection to off-site services. Hacienda tracks success in resident services programming through social-emotional indicators. They recently launched a new survey to affordable housing residents that ask questions around: residents' feelings of safety in their home and neighborhood, financial security, health and wellness, and access to resources. These questions help Hacienda assess overall resident satisfaction and the changes they can make to program offerings. For the Dolores, Hacienda plans to do this survey annually.

Hacienda CDC's bilingual Resident Services Coordinator is continuously engaged in educating and collaborating with the third-party management staff about its mission driven services and

methods of implementation, including assertive engagement and trauma responsive communication. The coordinator meets almost daily with management staff, conducts site visits and ensures residents have their contact information and they regularly share information about various programs, along with community resources. Regular documentation of housing stability services provided also helps inform resident services needs.

The Coordinator is notified about any lease violation matter and will receive all adverse notices/ actions and review them with property management to ensure all actions are unbiased, appropriately documented and meet legal requirements. In addition, the Coordinator engages residents individually or together with property management staff and /or other residents, as appropriate to ensure all actions are culturally appropriate and meet procedural and legal requirements. The Coordinator will also connect the household with any needed resources that will stabilize their housing. These resources may include emergency rental assistance, food pantry, utility assistance, financial fitness class, or a medical or behavioral healthcare referral.

The Director of Youth and Family services working closely with the Resident Services Manager, Coordinator, and other support staff continuously review and evaluate the effectiveness of Hacienda programs and services. The Director also evaluates the collaboration between property management staff and the Resident Services Program staff to ensure residents needs are being met in a culturally appropriate manner.

Dolores' PSH units will serve Population A in the Metro/Washington County Supportive Housing Services (SHS) program definition: extremely low-income (30% or below as defined by HUD or by local definitions), have one or more disabling conditions, and who are experiencing or at imminent risk of experiencing long-term or frequent episodes of literal homelessness. The project intends to use Washington County's coordinated access system for resident referrals.

Livability and Accessibility

Accessibility, equity, and their intersection will be central to the design of the Dolores. Some of the ways these principles will manifest include:

Building Design:
• Regular widening of corridors at unit entries and common area nodes for easier maneuvering.
• Generous clearances and turning space throughout the facility.
• Increased amounts of natural light throughout the building compared to traditional multifamily housing, with a specific focus on circulation space.
• Multi-purpose spaces with flexible seating for a wide variety of body types and abilities.
• Comprehensive, clear and consistent wayfinding system to guide residents and visitors throughout the building.
• Integration of acoustic ceiling treatments to absorb sound and eliminate reverberation in large, open spaces.
• All-gender restrooms that accommodate all, regardless of their gender-identity or expression.
• Two elevators to increase access and minimize wait times.
• Designing with a trauma-informed lens - which includes:
    - Designing spaces with clear sight lines, multiple exits, and minimal barriers, which can help people feel safe and secure.
    - Using wood and nature-inspired colors at eye-level, which can be very calming and grounding.

Unit Design:

- Generous maneuvering clearances for all units, not just those designated as accessible.
- All unit types designed for ease of use.
- More audio/visual units than required by Code.
- Integration of unit storage at all reach ranges, including full-height pantries wherever possible.
- All electric appliances (no gas).
- Stoves will have smart burners that automatically turn off when not used.

As previously mentioned, the Dolores project amenities will also include a courtyard with playground, covered outdoor seating and gathering spaces.

Climate Resilience and Sustainability

Certification: This project will be designed to meet or exceed Earth Advantage Gold certification through specific strategies for the building envelope, energy, water, and indoor air quality.

Energy Modeling: Working with both Earth Advantage and MEP consultants, the project team will utilize advanced energy modeling through all phases of the project to assist with intentional decisions around building systems and initial costs vs long term savings

Energy Efficiency: Passive design strategies for Dolores include massing, orientation, strategic use of windows, daylighting, natural ventilation, and a well-insulated air-tight building enclosure. A highly efficient building envelope with a continuous air barrier will reduce energy loss and cut both heating and cooling costs. Compact and efficient unit layouts minimize the energy needed to heat and ventilate dwelling unit's spaces. The team will use highly efficient systems, including LED lighting, occupancy sensor controls, in-unit energy recovery ventilation, mini-splits, and energy efficient appliances. HVAC zoning and programmable thermostats will help optimize efficiency.

Water Efficiency: Low flow water-saving fixtures are incorporated to save water and energy through a reduced need for hot water. To achieve additional energy savings, the project will include a highly efficient central hot water production system. Hacienda will use water saving irrigation systems and plant selection in the Dolores's landscape design.

Managing Stormwater: The project will be designed to meet or exceed city standards by first looking to infiltrate all stormwater on site.

Renewable Energy & Resilience Strategies: Dolores will house a robust roof-top solar array and 10% of the on-site parking spaces will be EV ready. In addition, the team will explore the potential and available incentives for on-site renewable energy and seek incentives, grants, or third-party financing to support the implementation of renewable energy.

Indoor Air Quality: The project will include 100% outside air heat recovery ventilation, use interior materials that do not contain added urea-formaldehyde, and finishes, adhesives, and other materials will have zero or low VOCs (Volatile Organic Compounds).

Cooling/AC: With Oregon's summer temperatures breaking records for multiple years and heat crises disproportionately affecting low-income individuals and families of color, the Dolores will include mini-split HVAC systems in all units and community spaces. These systems were selected to provide programmable heating and cooling and air circulation without exposing residents to outside noise and pollutants. System costs are to-be-determined.

Anticipated Timeline

Proposed Project Schedule

Action	Proposed Date (Month/Year)
Design	
Complete Schematic Design	May 2023 **(Complete)**
Complete Design Development	November 2023 **(Complete)**
Complete Construction Drawings	February 2024 **(Complete)**
Land Use Approvals and Permits	
Submit Land Use Application (if applicable)	October 2023 **(Complete)**
Submit Site Development Permit Application	February 2024 (**Complete)**
Submit Building Permit Application	February 2024 **(Complete)**
Obtain Land Use Approval	January 2024 **(Complete)**
Obtain Site Development Permits	July 2024
Obtain Building Permits	July 2024
Financing	
Submittal of LIHTC Pre-application to OHCS (if applicable)	October 2023 **(Complete)**
Issue Solicitations for Financing (LIHTC, Construction Loan, and Permanent Loan)	February 2023 **(Complete)**
Select Financing Providers	April 2023 **(Complete)**
Obtain Financing Commitments	April 2023 **(Complete)**
Negotiate Substantially Final Form of LIHTC Syndication/Partnership Agreement	August 2024
Construction Agreement	
Select General Contractor	December 2023 **(Complete)**
Obtain All Needed Bids for Construction	July 2024
Finalize Construction Agreement with Guaranteed Maximum Price	July 2024
Disposition and Development Agreement (Metro) and Financing Agreements with City	
Finalize Disposition and Development Agreement (DDA) and Financing Agreements	July 2024
Development	
Closing of Property Conveyance	August 2024
Closing of Financing	August 2024
Begin Construction	September 2024
Complete Construction	March 2026
Obtain Certificate of Occupancy	March 2026
Lease-up and Operations	
Begin Lease-up	December 2025
Complete Lease-up	March 2026
Conversion to Permanent Financing	January 2027

OREGON DEPARTMENT OF EDUCATION

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OREGON AT-A-GLANCE SCHOOL PROFILE

Sherwood High School

PRINCIPAL: Adam Mitchell | GRADES: 9-12 | 18800 SW Haide Road, Sherwood 97140 | 503-825-6000

2022-23

Students We Serve

1,636
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native		
	Students	1%
	Teachers	1%
Asian		
	Students	3%
	Teachers	3%
Black/African American		
	Students	1%
	Teachers	0%
Hispanic/Latino		
	Students	11%
	Teachers	2%
Multiracial		
	Students	6%
	Teachers	5%
Native Hawaiian/Pacific Islander		
	Students	1%
	Teachers	0%
White		
	Students	78%
	Teachers	88%

6% Ever English Learners

29 Languages Spoken

11% Students with Disabilities

96% Required Childhood Vaccinations

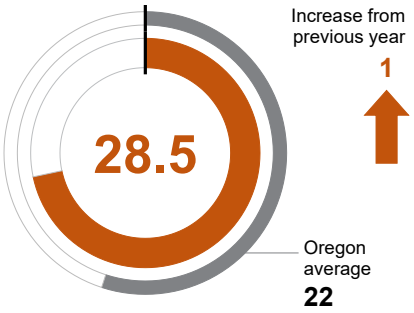
14% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

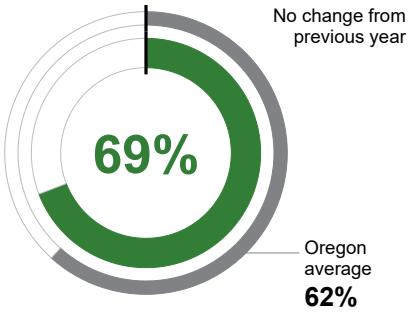
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

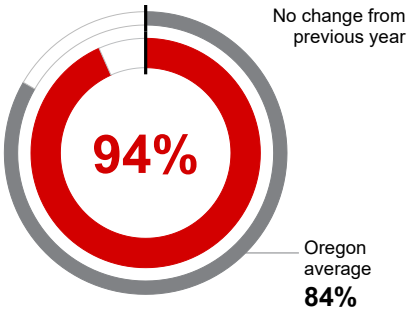
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

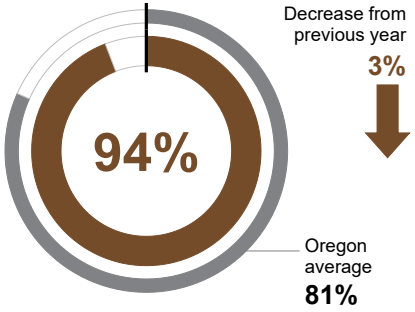
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

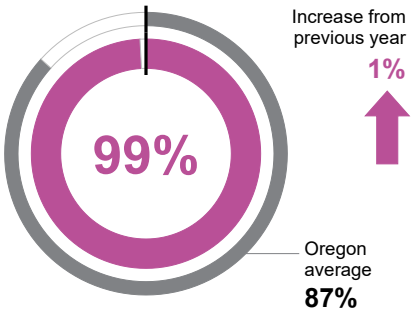
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



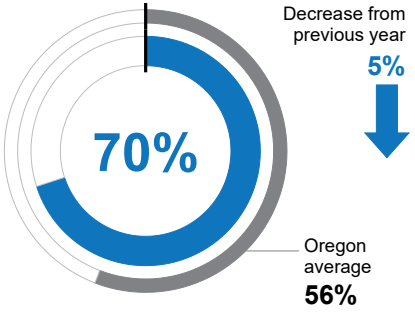
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

This year our school will focus on the following goals:

· All PLCs engage in collaborative PDSA cycles that include refinement of instructional practices based on team analysis of a variety of student data.

· All staff will engage in course-specific work that contributes to school-wide implementation of Standards-Based Grading.

· All activities within the school will be planned and implemented with intentional focus on fostering an inclusive and healthy environment through innovation and self-growth, empowering all learners to thrive.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

· Comprehensive school safety plan

· Defined emergency procedures/regular drills

· advisory program for culture, college, and career

· LINK Crew program for freshmen and new students

· SafeOregon school

· Mental health support

· Implementation of restorative practices

· Comprehensive anti-bullying policies and procedures

School Website: shs.sherwood.k12.or.us/

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

OREGON DEPARTMENT OF EDUCATION

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Sherwood High School

2022-23

Our Staff (rounded FTE)

73 Teachers

13 Educational assistants

6 Counselors/ Psychologists/ Social Workers

92% Average teacher retention rate over the past three years

90% % of licensed teachers with more than 3 years of experience

No Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Asian	85%	>95%	>95%
Black/African American	82%	<10 students or data unavailable	<10 students or data unavailable
Hispanic/Latino	60%	87%	88%
Multiracial	76%	>95%	>95%
Native Hawaiian/Pacific Islander	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
White	69%	94%	95%
Free/Reduced Price Lunch	54%	85%	86%
Ever English Learner	56%	79%	82%
Students with Disabilities	64%	81%	74%
Migrant	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Homeless	23%	<10 students or data unavailable	50%
Students in Foster Care	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Military Connected	46%	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	73%	>95%	>95%
Female	65%	>95%	>95%
Male	72%	92%	91%
Non-Binary	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable

About Our School

ADVANCED COURSEWORK

· 13 Advanced Placement Courses

· Expanded Options partnership with Portland Community College

· Dual credit partnerships with 5 colleges

· Students earned over 6,000 college credits last year

CAREER & TECHNICAL EDUCATION

· Agricultural Science

· Business

· Computer Science

· Construction/Woodworking

· Culinary Arts

· Engineering/Architecture

· Metal Fabrication

· and more

EXTRACURRICULAR ACTIVITIES

· 23 Interscholastic athletics

· Comprehensive activity program: Band, Choir, Drama, and more

· 50 + School-based Clubs

· After-school Activity Bus

PARENT & COMMUNITY ENGAGEMENT

· Parent-Teacher Conferences

· Parent Support Organization (PSO)

· Parent access to Canvas/ParentVue

· Booster Clubs: Athletics, Band, and Performing Arts

· Parent Volunteer Program

· Community/business partnerships

· Sherwood Education Foundation

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

Sherwood School District

Sherwood, Oregon

10-Year
Student Population Projections
By Residence

Fall 2016-2025
(Based on Fall 2015 Data)

May 11, 2016

Prepared by

DAVIS DEMOGRAPHICS & PLANNING, INC.
Demography schools can plan on.

11850 Pierce Street, Suite 200
Riverside, California 92505
Phone: (951)-270-5211
Fax: (951) 270-5212
www.DavisDemographics.com

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INTRODUCTION

The Sherwood School District has contracted with Davis Demographics & Planning, Inc. (DDP) to develop and analyze demographic data relevant to the District's facility planning efforts. The scope of contracted work includes: mapping the District, address matching the current student file, developing and researching pertinent demographic data, identifying future residential development plans and developing a ten year student population projection. DDP will then assist the District in developing solutions for housing future student population. Additionally, this study was prepared to assist the District's efforts in evaluating future site requirements and attendance area changes.

The purpose of this report is to identify and inform the District of current trends occurring in the community; how these trends may affect future student population; and to assist in illustrating facility adjustments that may be necessary to accommodate the potential student population shifts. The District can then use this information to better plan for the need, location and timing of facility or boundary adjustments.

The **Sources of Data** section details where the two sources of data, geographic and non-geographic, are collected and how each data item is used in the ten year student population projection model.

The **Ten Year Projection Methodology** section discusses in detail how the factors used in the study were calculated and why they were used. These factors include the calculation of incoming kindergarten classes, additional students from new housing (referred to as student yield), the effects of student mobility, and a detailed review of planned residential development within the District.

While reading this report, it is important to remember that this is a snapshot of current (October 2015) and potential student population based upon data gathered in Spring 2015. DDP uses known residential housing projects that have been filed with the City or County and estimates future annual phasing of only these projects. DDP does not estimate any additional units beyond the "known" filed projects and therefore it is possible that more units could be built during this ten year timeframe. Population demographics, development plans, funding opportunities and district priorities can all change, and therefore, new projections and adjustments to the overall Master Plan will continue to be necessary in the future.

EXECUTIVE SUMMARY

Davis Demographics & Planning, Inc. is assisting the Sherwood School District in planning for future student population changes. By factoring current and historical student data with demographic data and planned residential development, DDP calculated a ten year student population projection. This projection is based upon residence of the students and is designed to alert the District as to when and where student population shifts will occur.

The Sherwood School District has seen constant growth from 2012 to 2014. The current 2015/2016 school year saw a significant gain of about 137 K-12 students. Over the next ten years, the projections show that the Sherwood School District should continue to grow through 2025. As of October 2015, the District stood at 5,067 K-12 students, and by fall 2025 that figure could be closer to 6,535, a net increase of 1,468 K-12 students.

ELEMENTARY SCHOOL CONCLUSIONS

The Sherwood School District is projected to experience overall growth in its resident student population among the elementary grades over the next ten years. The resident student population is at 2,196 and could rise to 2,594 (a net gain of 398 K-5 students) by fall of 2025. It is important to note that the projected growth amongst the elementary attendance areas is most likely a result of new residential construction. The attendance areas with the biggest projected resident K-5 student population gains over the ten year projection period include Archer Glen ES (+198 K-5 Students) and Hopkins ES (+201 K-5 Students). On the other end of the spectrum is the attendance area with an anticipated net decrease in K-5 student population, Edy Ridge ES (-28 K-5 Students). The decline is a result of smaller projected incoming kindergarten classes that are due to enter the District and replace the bigger class size bubbles, which are graduating on through to the middle school grades. The projected smaller kindergarten class sizes are mostly a result of the declining birthrates.

Based on the K-5 ten year projections, boundary adjustments may be needed for most attendance areas based on declining enrollment, major growth, or non-contiguous boundaries. The Hopkins attendance area should be monitored as it is expected to exceed its current capacity of 675 by fall 2022. The District may also have to keep an eye on the Archer Glen attendance area due to anticipated growth exceeding its capacity. The monitoring of any potential future residential development will continue to be necessary, as this will play an important role to any potential resident population changes in the coming years.

MIDDLE SCHOOL CONCLUSIONS

The Sherwood School District has two comprehensive 6-8 middle schools, each with a distinct attendance area: Laurel Ridge Middle School and Sherwood Middle School. Overall growth for the middle school 6-8 student population is expected to grow by an additional 425 resident students by 2025. Laurel Ridge attendance area should experience most of this growth with a projected net increase of 352 resident grade 6-8 students. The resident 6-8 student population for the Laurel Ridge attendance area should remain relatively stable with a projected net gain of only 73 students by 2025.

With a total projected growth of 425 6th-8th grade students by fall of 2025, the District may need to consider adding portable classrooms. Therefore, no boundary re-alignments among the Middle School attendance areas may be necessary within the next ten years. However, the District should closely monitor the Laurel Ridge area since it does look like its resident counts may be approaching its designed capacity of 550 in 2018. However, from fall 2021 to fall 2025 the school may stabilize around 550 students. Most of the growth in Sherwood MS attendance area is a result of residential development from the specific planning areas within the boundary.

HIGH SCHOOL CONCLUSIONS

The Sherwood School District has experienced growth in the high school resident student population over the last four years with an enrollment of 1,537 as of fall 2015. A 39.8% net growth for the high school population is expected within the next ten years, which equates to a net gain of 645 9-12. The high school residential totals are currently exceeding the capacity of 1,550. With this large growth, the District should consider opening a new high school. By fall 2025 the District is expected to have a high school 9-12 student population surpass the 1,550 capacity mark by 715 students.

SOURCES OF DATA

Geographic Map Data

Five geographic data layers were created for use in the ten year student population projections:

1. Street Centerline Database
2. Study Areas
3. Schools
4. Students – Historical and Current
5. Planned Residential Development

1) Street Centerline Data

The street database has associated attributes that contains but are not limited to, the following fields: full street name, address range and street classification.

The main function of the streets is in the geo-coding process of the student data. Each student is address-matched to the streets by their given address. The geo-coding process places a point on the map for every student in the exact location that student resides. This enables DDP to analyze the student data in a geographic manner.

Another vital utilization of the digital street database is in the construction of study areas. Freeways, major streets, and neighborhood streets are used as boundaries for the study areas.

2) Study Areas

Study areas are small geographic areas and the building blocks of a school district; they are similar to neighborhoods. Study areas are geographically defined following logical boundaries of the neighborhood, such as freeways, streets, railroad tracks, rivers, etc. Each study area is then coded with the elementary, middle, and high school that area is assigned to attend. By gathering information about the District at the study area level, you can closely monitor growth and demographic trends in particular regions and spot potential need for boundary changes or new facilities. There are 104 study areas created for the Sherwood SD.

3) Schools

The District provided school detailed information to DDP for mapping the District facilities.

4) Student Data

a. **Historical Student Data** - Historical enrollment is used to compare past student population growth and trends as well as the effects of mobility (move in, move out from existing housing) throughout the District. DDP utilized the last three years (2012, 2013, and 2014) of student enrollment data for each October from fall 2012 through fall 2014.
b. **Current Student Data** - A student data file representing October 2015 (received by DDP as a computer data file from the School District) summarized by grade level and by study area is used as a base for enrollment projections. Existing students were categorized by study area through the address-matching process that locates each student

within a particular area based upon their given address. The projections run each of the next ten years from fall 2016 through fall 2025.

The Student Accounting Summary (Table 1) indicates the total student enrollment as of October 2015 and the number of students used in the ten year student population projections. The projection model is based upon student residence and excludes students residing outside of the District's boundary, students with Grades = 13, Special Education students, independent study students, prekindergarten students and students in which DDP was unable to match. Special Education students were excluded from the projections (due to different classroom loading standards and not all of the District's elementary schools housed Special Education Students).

Table 1– Student Accounting Summary

Fall 2015 Actual Enrollment (Representing October 8, 2015)

Total Students Provided by the District to DDP	5,108
Students Living outside of District boundary	- 108
Students with Grades = 13	-13
Special Ed Students	-27
Prekindergarten Students	-28
STUDENTS USED IN PROJECTIONS	**4,932**

5) Planned Residential Development - This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries, and planning officials from the cities of Sherwood and Tualatin. Data includes, when available, development name, developer/owner, location, housing type, total number of units, and projected move-in dates (phasing estimates). Phasing for planned housing is factored into the ten year projections. (See Section Two for a detailed listing of the planned residential development). In the student population projection, DDP includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the projection timeframe. The planned residential development information and phasing estimates show a snapshot of the District at the time of this study. Any of the residential development information contained within this report may change and should therefore, be updated at least annually.

Non-Geographic Data

Two basic sets of non-geographic data were compiled and reviewed for use in the ten year student population projections by residence:

1. Births by Zip Code
2. Mobility Factors

1) Births by Zip Code Data - Birth data by postal zip code was obtained from the Oregon State Center for Health Statistics, for the years 2003-2014 and roughly correlated to the Sherwood School District's boundary. Past changes in historical birthrates are used to estimate incoming kindergarten student population from existing housing.

2) Mobility Factors - Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). Mobility, similar to a cohort, is applied as a percentage of increase/decrease among each grade for every year of the projections. The Mobility Factors help account for apartment movement, housing resales, and dropout rates at the high school level.

TEN YEAR "RESIDENCE" PROJECTION METHODOLOGY

The projection methodology used in this study combines historical student population figures, and past and present demographic characteristics to forecast future student population at the study area level. District-wide projections are summarized from the individual study area projections. **These projections are based upon where the students reside and where they should be attending school. DDP uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate estimate of where future school facilities should be located.** The best way to plan for future student population shifts is to know where the next group of students will be residing. The following details the methodology used in preparing the student population projections by residence.

Ten Year Projections

Projections are calculated out ten years from the date of projection for several reasons. The planning horizon for any type of facility is typically no less than five years, often longer. Ten years is sufficient to adequately plan for any facility. It is a short to mid-term solution for planning needs. Projections beyond ten years are based upon speculation due to the lack of reliable information on birthrates, new home construction, economic conditions etc.

Why Projections are Calculated by Residence

Typically, school district projections are based on enrollment by school. However, this method is inadequate when used to locate future school facility needs because the location of the students is not taken into consideration. A school's enrollment can fluctuate due to variables in the curriculum, program changes, school administration, and open enrollment policies. These variables can skew the apparent need for new or additional facilities in an area.

The method used by DDP is unique because it modifies a standard cohort projection with demographic factors and actual student location. **DDP bases its projections on the belief that school facility planning is more accurate when facilities are located where the greatest number of students reside.**

The best way to plan for future schools is to know where the next group of students will be coming from. The following details the methodology used in preparing the student population projections.

1) Progression - Each year of the projections, 12th grade students graduate and continuing students progress through to the next grade level. This normal progression of students is modified by the following factors:

2) Incoming Kindergarten – Live birth data is reported to the Oregon State Center for Health Statistics, by the resident postal zip code of the mother. DDP uses birth data by zip code so, if need be, a different birth factor can be applied to various areas of the District.

Incoming kindergarten classes, for existing homes, are estimated by comparing changes in past births and birthrates. Table 2 shows the total births for the two main zip codes in the Sherwood School District area from 2003 to 2014. Incoming kindergarten classes are determined by multiplying the existing kindergarten class (2015) by the percent increase/decrease in the birthrate for the year the kindergarten class was born (2010). Assuming that the fall 2015 kindergarten class was born in 2010, DDP compared the total births in 2010 to the total births in 2011, to determine a factor for next year's kindergarten class (Fall 2016). Similarly, 2010 was compared to 2012 (Fall 2017 K class), 2010 to 2013 (Fall 2018 K class) and 2010 to 2014 (Fall 2019 K class).

Split between 2 counties Washington and Clackamas

	Washington 97140	Clackamas 97140	Combined	Real Birthrate	Birthrates used by DDP	Year of Projection
2003	317	5	322			
2004	299	7	306			
2005	316	0	316			
2006	351	0	351			
2007	318	2	320			
2008	311	14	325			
2009	269	13	282			
2010	**266**	**11**	**277**	**BASE YEAR**		
2011	**231**	**10**	**241**	87.0%	**92.0%**	2016
2012	**255**	**9**	**264**	95.3%	**100.3%**	2017
2013	**240**	**11**	**251**	90.6%	**95.6%**	2018
2014	**225**	**7**	**232**	83.8%	**88.8%**	2019
				89.9%	**94.9%**	2020
				88.1%	**93.1%**	2021
				87.2%	**92.3%**	2022
				88.4%	**93.4%**	2023
				87.9%	**92.9%**	2024
				87.9%	**92.9%**	2025

= PEAK YEAR

Source: State of Oregon Center for Health Statistics

Table 2– Birth Data by Zip Code

According to Table 2, the birth data for zip code 97140 shows a decrease of births from 2006 to 2010 with total births in 2010 of 277 (for 97140 combined). Births for 97140 have not shown any kind of consistent trend. Births have been relatively unstable with average births from 2003 to 2010 of 312. There was a peak in births in 2006 of 351 live births for 97140 combined. The births then experienced an overall decline from 2010 through 2014. Birth factors for 2020-2025 are an average of the previous three years, and is conducted this way because the birth data is not yet available or the children have not been born; DDP elects to follow this common practice because it doesn't want to over or under project incoming kindergarteners.

3) Student Mobility Factors - Student mobility factors further refine the ten year student population projections. Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). This factor takes into account the apartment movement within the District, as well as housing resales and dropout rates at the high school level. Mobility, similar to a cohort, is applied as a percentage of increase/decrease to each grade for every year of the projections. DDP used

the District's historical student data (representing data taken from the Fall timeframe) for calculating these factors.

A net increase or decrease of zero students over time is represented by a factor of 100%. A net student loss is represented by a factor less than 100% and a net gain by a factor greater than 100% (see the example below).

Example: 100 K grade students in the Archer Glen ES area for fall 2015
X 119.0% (the K-1 Archer Glen ES area Mobility Factor)
119.0 1st grade students in fall 2016 for that area in Archer Glen

The sampling used was taken over a four-year period (student data from 2012 through 2015) and three yearly groupings were calculated. For example, a comparison was made for the fall 2012 K student population to the fall 2013 1st grade students. This comparison was also conducted for the fall 2013 & fall 2014 and fall 2014 & Fall 2015 groupings. Table 3, below, shows the Mobility Factors that were used for this year's report.

Table 3-Mobility Factors

Using Fall 2012 through 2015 Student Data (3 Years of Change) by Elementary Attendance Area

Sherwood School District Mobility (Using Fall 2012 through Fall 2015 Student Data)

(Excluding Study Areas that Have Had Development and Ones that Contain Low Student Counts)

	K to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12
Archer Glen ES	1.190	0.990	1.070	1.020	1.010	1.060	1.040	1.030	1.100	0.960	0.970	0.960
Edy Ridge ES	1.140	1.110	1.070	1.000	1.020	1.110	1.010	1.030	1.080	0.980	0.990	0.990
Hopkins ES	1.160	1.050	1.050	1.070	1.040	1.080	1.050	1.030	0.990	1.020	0.990	0.960
Middleton ES	1.090	1.060	1.040	1.010	1.050	1.020	0.990	1.010	1.020	0.980	0.990	0.970

Based upon DDP's experience with many other school districts' data, the figures in Table 3 are very typical of communities like Sherwood SD. Archer Glen ES's K to 1 Mobility Factor is 119.0%. That means that for Archer Glens' area, as students transition from Kindergarten to 1st grade (K to 1st) there is an average student increase of 19%. Since kindergarten is not a required grade, many parents choose to keep their children in daycare facilities through kindergarten and then bring them into 1st grade at the public school. This accounts for the high K to 1 rates. Most of the Districts mobility factors are green (greater than 1.00). This means that parents are choosing to move into the Sherwood School District, specifically to enroll their children in their schools. The only losses (red) seen above are some very slight high school dropout rates.

4) Student Yield Factors (SYF'S) – Ten-Year Projections - The Student Yield Factors, when applied to planned residential development units, determine how many additional students will be generated from new housing construction within the District (see **Section Two** for details on planned residential development schedules). Student Yield Factors are sometimes referred to as Student Generation Rates (SGR's). DDP has elected to use student yield factors from Sherwood School District neighbors, West-Linn Wilsonville. Sherwood School District did not have a large enough sample size of new housing units to accurately create student yield factors.

Table 4- Student Yield Factors

Single-Family Detached (SFD) Units				
Grade Ranges	K-5	6-8	9-12	K-12
Student Yield Factor	0.285	0.142	0.135	0.562

Multi-Family Units (MFA) (apartments, condos, townhomes, etc)				
Grade Ranges	K-5	6-8	9-12	K-12
Student Yield Factor	0.096	0.048	0.061	0.205

Before the SYF's can be applied to the current housing units, the year of construction for each housing type must be analyzed. In general, new housing attracts young families with elementary school aged children. Over the next 12 to 15 years, the children grow older and pass through the grades. This cycle is then repeated throughout the life of the home. Analyzing the year of construction for new housing units can help estimate the number of facilities needed to accommodate new students.

5) Planned Residential Development and Student Yield Factors - Closely related to the Student Yield Factors (SYF) are planned residential development units. Planned residential development data is collected to determine the number of new residential units that will be built over the ten year period of the student population projections. The units built within the next ten years will have the appropriate SYF applied to it to determine the number of new students the planned residential development will yield.

This residential development data was obtained through the District, developers that have current or future projects within District boundaries, and planning officials from the cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. (see **Section Two** for details on planned residential development occupancy).

In the resident student projections, DDP includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the projection timeframe. The planned residential development information and phasing estimates is a snapshot of the District at the time of this study. The residential development information changes quite often and should be updated at least on an annual basis.

APPLYING THE VARIABLES TO GENERATE THE PROJECTIONS

The following paragraphs summarize how DDP uses the factors to determine the student population projections. Remember that these projections are based on residence.

The Sherwood School District has been broken up into 104 study areas and each are coded for each of the District's elementary, middle and high school, depending upon what attendance area they fall in. The residential projections are calculated at the study area level. This means that DDP conducts 104 individual projections that are based upon the number of students residing in each study area.

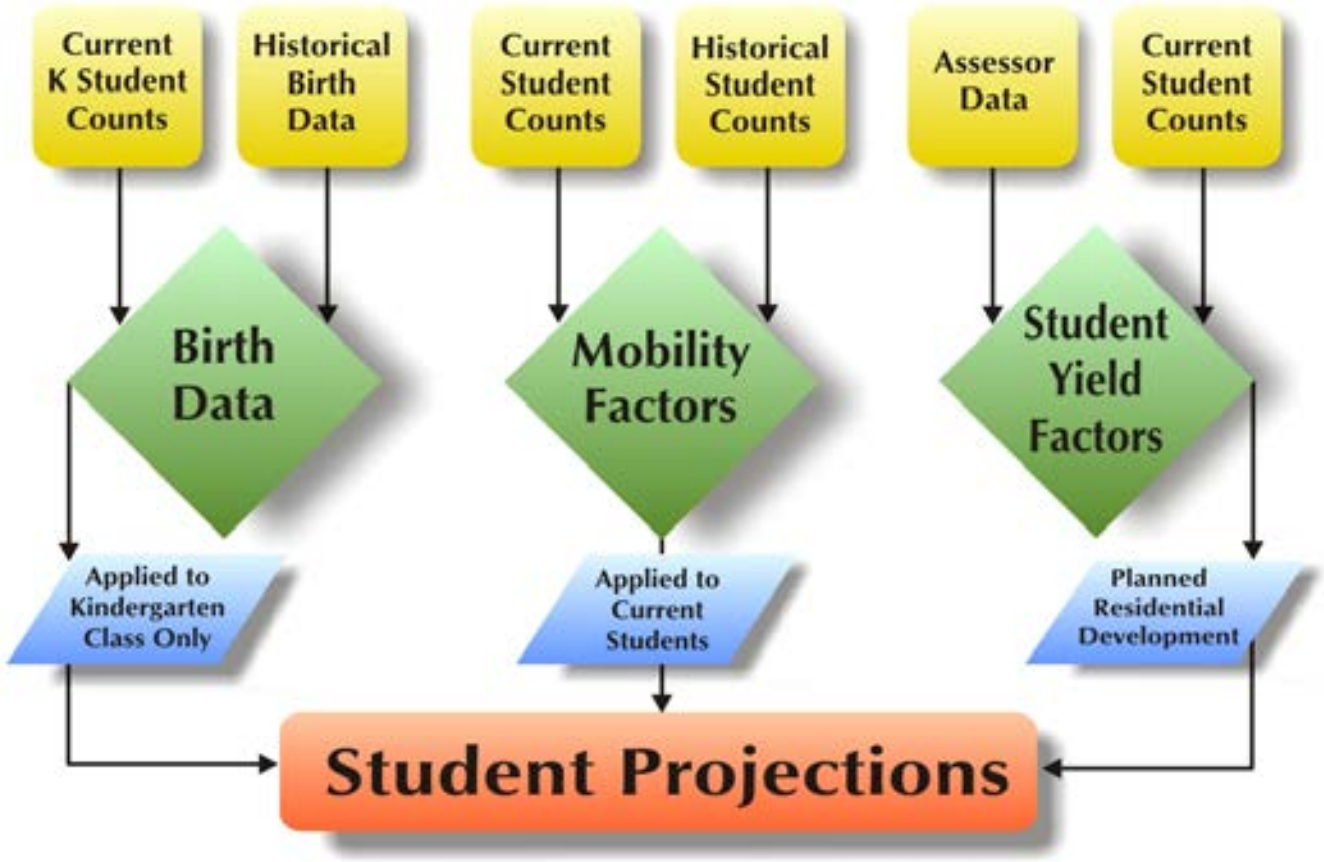
The first step in running these projections involves listing the number of students that live in a particular study area by each individual grade (Kindergarten through 12th grade). The current student base (Fall 2015) is then passed onto the next year's grade (2015's K become 2016's 1st graders, 2015's 1st graders become 2016's 2nd graders, and so on). After the natural progressions of students through the grades are applied, Birth Factors are then multiplied to the current Kindergarten class to generate a base for the following year's Kindergarten class. (*Section One*)

Next, a Mobility Factor is applied to all grades. Again, these factors take into account the natural in/out migration of students throughout the District. A specific Mobility Factor was calculated for each grade transition (K to 1st, 1st to 2nd, etc.) within each elementary attendance area and is applied to the appropriate grade (and school area) to estimate the next year's progressed students.

The last essential layer applied to the projections deals with additional students from planned residential development (*Section Two*). This is a simple calculation, again conducted at the study area level, where the estimated number of new housing units for a particular year is multiplied by the appropriate Student Yield Factors. For example, if 100 single-family detached (SFD) units are to be built in a specific study area in a given year, then you would multiply this number (100 units, for example) by the SFD K-5 Student Yield Factor (.285) and the resulting number (29 K-5 students) is divided evenly among the six grades. (*Section One*)

To finish generating the projections by residence, the same process is conducted for each of the 104 study areas. Once the projections have been run at the study area level, then it is simple addition to determine projections for each of the District's attendance areas or for a district-wide summary. For example, the residential projections for Archer Glen Elementary School are simply the summary of all of the study areas that make up this specific attendance area (see *Section Five* for the projections of each elementary attendance area). The District Summary for the "residence" projections (*Section Four)* is a total summary of all 104 study areas, which excludes all of the students that attend a district school and live outside of the District's boundaries and students unable to be mapped. Then out-of-district students are factored back into the projections by simply adding the existing totals in at the bottom of the projections (please see the Attendance Matrices in *Section Three* for a breakdown of the out-of-district students by school). DDP adds the current total out-of-district to each year of the projections because there is no accurate way to forecast these students in the future.

DDP Student Projection Model



PLANNED RESIDENTIAL DEVELOPMENT

This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries, and planning officials from the Cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. Please see the next page (page 11) for a map of the known residential projects in the Sherwood School District area. Following the map (on page 12) is a breakdown of the estimated occupancy date for new housing units over the next ten years (from Fall 2016 through Fall 2025) by Study Area and by the three main housing types (single family detached – SFD – units; multi-family attached – MFA – units; and apartments – APT – units). This document is referred to as the District-Wide Residential Development Summary. In addition, DDP has included a Residential Development List (page 12), which is sorted by Study Area and is an inventory of all known residential projects that are expected to be active over the next ten years.

DDP estimates that as many as 1,155 Single-Family Detached units, 189 multi-family units, and 207 Apartment units could be built within the Sherwood District boundary over the next ten years. This amount of units is definitely possible and is not unprecedented. Most of these units are estimated to be constructed within the ten year period, with the fall 2021 and fall 2022 school years having the most units being built with 235 each year.

Please note that all phasing schedules are based on occupancy, all Approved and Tentative maps plus proposed and potential development are included on these lists, the Summary only includes units that may be occupied in the ten year timeframe of the projections and are based upon data gathered during the Spring of 2016 and may not reflect recent changes.

Sherwood School District

Active and Future Residential Development

Roshun Village Townhomes
14 MFA Units

Mandel Farms Subdivision
86 SFD Units

Sherwood Plaza Apartments
82 APT Units

Cedar Brook PUD
15 SFD Units

Cedar Brook PUD
50 MFA Units

Sherwood West
Mostly SFD Units
Not Included in Ten Year Projection

Timber Crossing
18 SFD Units

28 SFD Units

Brookman Road Concept Plan
726 SFD Units

Brookman Road Concept Plan
362 SFD Units

Basalt Creek Planning Area
162 MFA Units

Basalt Creek Planning Area
324 SFD Units

Basalt Creek Planning Area
162 APT Units

PACIFIC HIGHWAY
SCHROEDER LANE
ELWERT ROAD
CONZELMANN ROAD
EDY ROAD
EASTVIEW ROAD
PROPOSED ROAD
GALBREATH DRIVE
TUALATIN-SHERWOOD ROAD
12TH STREET
HANDLEY STREET
DEWEY DRIVE
VILLA ROAD
STELLAR DRIVE
FITCH DRIVE
SUNSET BLVD
OLD PACIFIC HIGHWAY
KRUGER ROAD
BROOKMAN ROAD
OBERST ROAD
SQUIRREL LANE
OBERST LANE
MCCONNELL ROAD
PLEASANT HILL ROAD
WILLAMETTE STREET
DIVISION STREET
FOREST AVENUE
PINE STREET
SMOCK STREET
HIGH POINT DRIVE
MCKINLEY DRIVE
STONEHAVEN STREET
MURDOCK ROAD
BAKER ROAD
MORGAN LANE
MORGAN ROAD
ALESCA LN
BAKER RD
DAHLKE LN
TONQUIN ROAD
CIPOLE ROAD
129TH AVENUE
124TH AVENUE
120TH AVENUE
115TH AVENUE
109TH AVENUE
MYSLONY ST
INDUSTRIAL WAY
TETON AVENUE
95TH AVENUE
93RD AVENUE
BOONES FERRY
86TH AVENUE
AVERY STREET
SILETZ DRIVE
OCHOCO DRIVE
UMATILLA STREET
ARAPAHO ROAD
SIUSLAW LANE
PAULINA DRIVE
ALSEA DRIVE
BLAKE STREET
DAKOTA DRIVE
91ST AVENUE
109TH TERRACE
107TH AVENUE
106TH AVENUE
IBACH STREET
TAYLORS DRIVE
104TH AVENUE
ONEIDA STREET
BROWN STREET
106TH AVENUE
MANDAN DRIVE
TONQUIN LOOP
TONQUIN ROAD
WALDO WAY
GREENHILL LANE
82ND AVENUE
DAY ROAD
CAHALIN ROAD
GRAHAMS FERRY ROAD
WHEATLAND DRIVE
SALISH LANE

1 2 3 4 5 6 7 8 9 10 11A 12 13 15 20 21 22 23A 23B 24A 24B 25A 25B 26 27 30 31 32 33A 34 35 38 39 40 41 42 43 44 45 46A 46B 46C 47 48 49 50 51 53 54 55 56 57 58 59 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82A 82B 82C 83 84 85B 86A 86C 86D 87

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0 0.4 0.8 Miles

New Housing Development
Streets
Study Areas

Total SFD = 1155 Total MFA = 189 Total APT = 207 Total OTHER = 0

Study Area	10/2015 - 10/2016			10/2016 - 10/2017			10/2017 - 10/2018			10/2018 - 10/2019			10/2019 - 10/2020			10/2020 - 10/2021			10/2021 - 10/2022			10/2022 - 10/2023			10/2023 - 10/2024			10/2024 - 10/2025			Total	Study Area	Elementary School	Middle School	High School
	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT					
8	9	0	0	38	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	8	Edy Ridge ES	Laurel Ridge MS	Sherwood HS
9	5	20	0	10	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	9	Edy Ridge ES	Laurel Ridge MS	Sherwood HS
20	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	20	Edy Ridge ES	Laurel Ridge MS	Sherwood HS
26	0	0	0	0	0	60	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	26	Hopkins ES	Sherwood MS	Sherwood HS
37	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	37	Hopkins ES	Sherwood MS	Sherwood HS
42	0	0	0	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	42	Middleton ES	Sherwood MS	Sherwood HS
46C	0	0	0	0	0	0	25	0	0	35	0	0	35	0	0	35	0	0	35	0	0	35	0	0	28	0	0	0	0	0	228	46C	Middleton ES	Laurel Ridge MS	Sherwood HS
82B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	25	25	75	25	25	75	25	25	75	25	25	69	25	25	574	82B	Hopkins ES	Sherwood MS	Sherwood HS
86D	0	0	0	0	0	0	50	0	0	75	0	0	75	0	0	75	0	0	75	0	0	75	0	0	31	0	0	0	0	0	456	86D	Archer Glen ES	Sherwood MS	Sherwood HS
Total	14	34	0	48	30	60	123	0	22	133	0	0	124	0	0	140	25	25	185	25	25	185	25	25	134	25	25	69	25	25	Total				
	Total 15 / 16		48	Total 16 / 17		138	Total 17 / 18		145	Total 18 / 19		133	Total 19 / 20		124	Total 20 / 21		190	Total 21 / 22		235	Total 22 / 23		235	Total 23 / 24		184	Total 24/ 25		119					

Contact/Owner Developer	Project/Area	Study Area	Total Units	Type of Units	Left to Build	Comments
City of Sherwood	Unknown	42	28	SFD	All	Talking about starting up again
City of Tualitan	Basalt Creek Planning Area	82B	162	APT	All	Talk to Cities of Tualatin & Wilsonville (162 APT)
City of Tualitan	Basalt Creek Planning Area	82B	324	SFD	All	Talk to Cities of Tualatin & Wilsonville (324 SFD)
City of Tualitan	Basalt Creek Planning Area	82B	162	MFA	All	Talk to Cities of Tualatin & Wilsonville (162 MFA)
City of Sherwood	Brookman Road Concept Plan	86D	726	SFD	All	Outside of City - Could be Annexed soon?
City of Sherwood	Brookman Road Concept Plan	46C	362	SFD	All	Outside of City - Could be Annexed soon?
DR Horton	Cedar Brook PUD	9	15	SFD	All	50 townhomes & 15 SFD, Currently in progress
DR Horton	Cedar Brook PUD	9	50	MFA	All	50 townhomes & 15 SFD, Currently in progress
Venture Properties	Mandel Farms Subdivision	8	86	SFD	All	1st 9 units by Fall 2016, Currently in progress
Roshun Village	Roshun Village Townhomes	20	14	MFA	All	14 Townhomes, Currently in progress
Mercury Development	Sherwood Plaza Apartments	26	82	APT	All	82 Apts const in Jan 2017
City of Sherwood	Sherwood West	4	4400	SFD	All	Four distinct regions/A ways off 7+ yrs, still in planning
City of Sherwood	Timber Crossing	37	18	SFD	All	17-20 possible lots

= Projects in progress

THE K-5 ATTENDANCE MATRIX

An Elementary (K-5) Attendance Matrix has been included to provide a better understanding of where students reside and where they attend school. This matrix helps to see a "snapshot" of the District's current Open Enrollment patterns. DDP has also created a Middle and High Attendance Matrix on the following pages.

The attendance matrix acts as a checks and balance for student accounting. It shows where the students reside (what is their School of Residence) based upon our address matching capabilities and what school they attend (School of Attendance) based upon data in the student file supplied by the District. The inclusion of this matrix is essential to showing how the students used in the projections match up to the District's records of enrollment for each school. The best way to plan for future facilities is to know where the next group of students will be coming from, not necessarily which school they are currently attending.

Remember, DDP's projections are based upon where the students reside, not where they attend school. DDP uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate depiction of where future facilities (if necessary) should be located. Therefore, since the projections are based upon where the students reside, the figures DDP uses as a base for each school's resident projection may be slightly higher or lower than the actual reported enrollment for each school.

READING THE MATRIX

Looking at the K-5 Elementary School Attendance Matrix on page 15, let us begin with Archer Glen ES as an example. Following down the second column with the "Archer Glen ES" heading, on the first row you see that there are 486 K-5 grade students attending Archer Glen ES and residing in the Archer Glen ES attendance area. Continuing downward, four students attend Archer Glen ES, but reside in the Edy Ridge ES attendance area. Next, it shows that 17 students attend Archer Glen ES and reside in the Hopkins ES attendance area, and so on.

The row named "PK" refers to all prekindergarten students enrolled with the District. There are 0 prekindergarten students that attend Archer Glen ES. The row named "Special Education" refers to all elementary level Special Education students attending the District. No special education students attend Archer Glen ES. The item entitled "Out-of-District" refers to students living outside of the Sherwood School District but attending one of the District's schools. There are seven Out-of-District students attending Archer Glen ES. The "K-5 Totals" row shows the total number of K-5 students attending a school regardless of where they reside; this should reflect the District's enrollment counts for each school as of October 2015. There were 525 students attending Archer Glen ES as of October 2015. At the bottom of the matrix, DDP lists the District's "Open Enrollment Percentage," a figure that lists the total number of students attending the particular school but live outside of the designated boundary. There were 39 such students attending Archer Glen ES, calculating a percentage of 7.5%, which means that as of October 2015, 7.5% of Archer Glen ES's students came from outside of its current boundary.

The next step is to read across the matrix, beginning with the Archer Glen ES attendance area row. It is now understood that the 486 represent the total number of K-5 grade

students that reside in the Archer Glen ES attendance area and attend Archer Glen ES. The next column, titled "Edy Ridge ES", lists the number of K-5 grade students that reside in the Archer Glen ES attendance area, but attend Edy Ridge ES. There were six K-5 students who resided in the Archer Glen ES attendance area but attend Edy Ridge ES as of October 2015.

The K-5 Students column in the beginning represents the total number of students living in that particular attendance area. There are 507 K-5 students residing in the Archer Glen ES attendance area. Reading down the Totals column, you will find the number of K-5 students used in the fall 2015 projections - - 2,196 K-5 students (excluding Prekindergarten, Special Ed., and Out-of-District).

The Middle Matrix (on page 16) is read in the same manner as the Elementary School Matrix.

Fall 2015/2016 K-5 (Elementary School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS)		SCHOOL OF ATTENDANCE				
Attendance Area	K-5 Students	Archer Glen ES	Edy Ridge ES	Hopkins ES	Middleton ES	Transfer Out Rates
Archer Glen ES	**507**	**486**	6	10	5	4.1%
Edy Ridge ES	**534**	4	**517**	9	4	3.2%
Hopkins ES	**549**	17	5	**510**	17	7.1%
Middleton ES	**606**	11	6	3	**586**	3.3%
K-5 Sub-Totals:	**2,196**	**518**	**534**	**532**	**612**	
PK	**28**	0	0	28	0	
Special Education:	**4**	0	0	0	4	
Out of District:	**24**	7	5	7	5	
K-5 Totals:	**2,252**	**525**	**539**	**567**	**621**	
# Enrolled, But Not Living in Attendance Area:	**121**	**39**	**22**	**29**	**31**	
Open Enrollment % ("Transfer In" %):	**5.5%**	**7.5%**	**4.1%**	**5.5%**	**5.1%**	
	District-wide					

Fall 2015/2016 6-8 (Middle School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS) — Attendance Area	6-8 Students	SCHOOL OF ATTENDANCE: Laurel Ridge MS	SCHOOL OF ATTENDANCE: Sherwood MS	Transfer Out Rates
Laurel Ridge MS	**481**	**464**	17	3.5%
Sherwood MS	**718**	19	**699**	2.6%
6-8 Sub-Totals:	**1,199**	**483**	**716**	
Special Education:	**5**	1	4	
Out of District:	**19**	5	14	
6-8 Totals:	**1,223**	**489**	**734**	
# Enrolled, But Not Living in Attendance Area:	**55**	**24**	**31**	
Open Enrollment % ("Transfer In" %):	**4.6%**	**5.0%**	**4.3%**	
	District-wide			

DISTRICT-WIDE STUDENT PROJECTIONS (BY "RESIDENCE")

The student population is projected out ten years for each of the study areas and for the entire Sherwood School District. The District-Wide Summary enables the District to see a broad overview of future growth and what impact this growth will have on existing facilities. The study area listings enable the District to monitor student population growth or decline in smaller geographic areas within the District (please see *Appendix A* for the individual 104 Study Area projections).

At any point in time, study areas and their projected resident students can be shifted between schools to assist in balancing enrollment growth. Together, these projection summaries present the means for identifying the timing of additional student arrival and overall facility requirements and location to accommodate the District's expected growth.

The following page shows the District-Wide Projections by "Residence" using the fall 2015 (mid-October) student data as the base and fall 2013 and fall 2014 listed for reference. Ten consecutive years are then projected from fall 2016 through fall 2025 with the Out-of-District, Unmatched, and Special Ed students separated from the sub-totals. The Out-of-District, Unmatched, and Special Ed student records are added back in for each projection year (after the sub-totals) using the same fall 2015 figures. At the bottom of the District-Wide Projection, a projected annual change is listed.

For an exact breakdown of how many Out-of-District, Special Ed and Unmatched students there were for each elementary school as of fall 2015, please see the K-5 Attendance Matrix on page 15 and the 6-8 Middle School Matrix on page 16.

District-Wide 10-Year Forecast

Projection Date 10/7/2015

		Actual Fall 2013	Actual Fall 2014	"Current" Fall 2015	Projected Resident Student Counts Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025
	K	303	302	337	311.2	342.4	331.0	311.5	335.1	333.7	337.2	346.0	347.1	347.9
	1	338	345	344	387.4	360.7	399.3	386.4	363.6	392.5	393.5	397.5	404.9	402.6
	2	371	355	371	364.2	410.2	384.9	425.2	411.0	388.5	420.9	421.8	423.5	428.1
	3	331	380	386	393.4	389.2	440.2	413.6	455.7	442.3	420.8	455.0	453.4	451.9
	4	346	347	391	396.7	406.2	405.3	458.2	430.4	475.3	463.9	442.0	474.8	470.2
	5	379	356	367	404.1	413.1	424.9	423.8	478.0	451.0	499.4	487.7	462.7	493.3
	6	393	406	380	391.9	435.0	447.2	459.4	459.9	517.5	490.9	542.5	527.3	497.4
	7	401	400	411	389.2	403.5	451.1	463.0	475.0	478.2	540.0	512.9	563.3	544.7
	8	386	408	408	422.2	402.6	419.6	469.0	480.5	494.3	500.4	563.6	533.3	581.9
	9	381	397	428	427.6	444.1	424.9	442.8	495.7	507.5	525.4	531.0	594.7	560.5
	10	350	382	399	422.8	423.9	441.7	423.3	440.3	493.3	507.2	523.7	528.8	589.2
	11	362	343	375	394.0	419.6	422.2	439.4	421.3	439.4	492.6	506.8	520.9	524.0
	12	314	348	335	364.6	385.0	411.4	414.1	429.8	414.2	433.1	484.5	496.8	508.2
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Sub Total of Resident Students:	K-5	2,068	2,085	2,196	2,257.0	2,321.8	2,385.6	2,418.7	2,473.8	2,483.3	2,535.7	2,550.0	2,566.4	2,594.0
	6-8	1,180	1,214	1,199	1,203.3	1,241.1	1,317.9	1,391.4	1,415.4	1,490.0	1,531.3	1,619.0	1,623.9	1,624.0
	9-12	1,407	1,470	1,537	1,609.0	1,672.6	1,700.2	1,719.6	1,787.1	1,854.4	1,958.3	2,046.0	2,141.2	2,181.9
	K-12	4,655	4,769	4,932	5,069.3	5,235.5	5,403.7	5,529.7	5,676.3	5,827.7	6,025.3	6,215.0	6,331.5	6,399.9
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Special Education Students:	K-5	8	6	4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	6-8	13	10	5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	9-12	13	16	18	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
	K-12	34	32	27	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Out-of-District Students:	K-5	58	40	24	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
	6-8	36	28	19	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
	9-12	91	82	65	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
	K-12	185	150	108	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Unmatched Students:	K-5	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6-8	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9-12	2	2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	K-12	4	2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Change from 2015-2025 #	Change from 2015-2025 %
Totals:	**K-5**	**2,136**	**2,131**	**2,224**	**2285.0**	**2349.8**	**2413.6**	**2446.7**	**2501.8**	**2511.3**	**2563.7**	**2578.0**	**2594.4**	**2622.0**	**398.0**	**17.9%**
	6-8	**1,229**	**1,252**	**1,223**	**1227.3**	**1265.1**	**1341.9**	**1415.4**	**1439.4**	**1514.0**	**1555.3**	**1643.0**	**1647.9**	**1648.0**	**425.0**	**34.8%**
	9-12	**1,513**	**1,570**	**1,620**	**1692.0**	**1755.6**	**1783.2**	**1802.6**	**1870.1**	**1937.4**	**2041.3**	**2129.0**	**2224.2**	**2264.9**	**644.9**	**39.8%**
	K-12	**4,878**	**4,953**	**5,067**	**5204.3**	**5370.5**	**5538.7**	**5664.7**	**5811.3**	**5962.7**	**6160.3**	**6350.0**	**6466.5**	**6534.9**	**1,467.9**	**29.0%**

		From '13 to '14	From '14 to '15	From '15 to '16	From '16 to '17	From '17 to '18	From '18 to '19	From '19 to '20	From '20 to '21	From '21 to '22	From '22 to '23	From '23 to '24	From '24 to '25
% Change:	**K-5 Annual Change:**	-0.2%	4.2%	2.7%	2.8%	2.6%	1.4%	2.2%	0.4%	2.0%	0.6%	0.6%	1.1%
	6-8 Annual Change:	1.8%	-2.4%	0.4%	3.0%	5.7%	5.2%	1.7%	4.9%	2.7%	5.3%	0.3%	0.0%
	9-12 Annual Change:	3.6%	3.1%	4.3%	3.6%	1.5%	1.1%	3.6%	3.5%	5.1%	4.1%	4.3%	1.8%
	K-12 Annual Change:	1.5%	2.2%	2.6%	3.1%	3.0%	2.2%	2.5%	2.5%	3.2%	3.0%	1.8%	1.0%

The above projections are based upon a student data file provided to DDP by the Sherwood School District representing early October 2015.

13 students with a grade = 13 and 28 PreK students were given to DDP in the original student data file and were excluded from the above projections.

District Wide Student Population Projection Trends ("Residence" Method)

The Sherwood School District has experienced growth in resident student population since 2012. The District seemed to have experienced a big jump in its K-12 Student population from fall 2014 to fall 2015. According to the projections, the Sherwood School District could continue to see a gradual K-12 student population growth over the next ten years. A K-12 student population of 6,400 is projected by fall of 2025. The District may experience an average gain of about 147 students starting fall 2016 through fall 2025. This represents an overall net gain of 1,468 K-12 students or a 29% student population increase for the District by fall 2025.

According to the projections, the K-5 resident student population is expected to see growth throughout the ten years. The K-5 resident student population for 2015 is 2,196 and may reach 2,594 by fall of 2025 (2,594), a net gain of about 398 resident K-5. The K-5 resident student population is expected to grow by 65 (+2.8%) students between fall 2016 to fall 2017. By the fall of 2023, growth may start to slow down and level out from an average growth of 2% between fall 2016 through fall 2022 to an average growth of 0.7% between fall 2023 to fall 2025.

The middle school grades are expected to grow throughout the ten-year time frame. Gradual growth is expected for the middle school grades from fall 2016 through fall 2023, due mainly to high mobility factors. As of fall 2015, the District had a middle school population of 1,223 students. A total middle school population of 1,648 students is projected by fall 2025. This represents a net gain of 425 middle school students or a 34.8% growth for these grade ranges. By fall 2023 the 6-8 resident student population may stabilize around 1,648.

The Sherwood School District may experience the most growth in the high school grade levels. Over the ten-year timeframe, the District is expected to have a net gain of about 645 high school students. Currently (2015), the District has 1,620 9-12 students and the projections show that the district's 9-12 student population could reach 2,265 by 2025. Fall 2022 may be the year with the largest year-to-year growth. For fall 2021 resident 9-12 student population is projected to be 1,854 and in fall 2022 it is expected to grow to 1,958 (growth of 104 9-12 students or 5.6%).

Sherwood School District

Elementary School
Attendance Boundaries
and
Resident Student Projections

Edy Ridge
K-5 Projections
Current Year: 534
2016: 546
2020: 527
2025: 506

Hopkins ES
K-5 Projections
Current Year: 549
2016: 574
2020: 652
2025: 750

Middleton ES
K-5 Projections
Current Year: 606
2016: 595
2020: 624
2025: 633

Archer Glen ES
K-5 Projections
Current Year: 507
2016: 541
2020: 670
2025: 705

N

Map Prepared by

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Demography schools can plan on.

May 11, 2016

0 0.75 1.5 Miles

- Archer Glen ES
- Edy Ridge ES
- Hopkins ES
- Middleton ES
- Schools
- Streets

Sherwood School District

Elementary School
Net Enrollment Changes
2015 through 2025 by Study Area

Edy Ridge ES
Hopkins ES
Middleton ES
Archer Glen ES

N

Schools
Streets

-25.0 - -12.5
-12.5 - -0.9
No change
0.9 - 60.0
60.0 - 120.0

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May 11, 2016

0 0.75 1.5 Miles

Elementary School Attendance Area Projections (by "Residence")

Attendance Area Archer Glen ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	89.0	81.9	89.3	87.5	83.9	91.2	91.5	92.7	95.6	95.0	94.3
1	79.0	105.9	97.4	109.0	108.3	104.0	112.8	113.1	114.6	115.5	113.1
2	90.0	78.2	104.9	98.8	111.5	110.7	106.5	115.2	115.5	114.9	114.4
3	77.0	96.3	83.7	114.7	109.5	123.1	122.3	117.8	127.0	125.2	122.9
4	99.0	78.5	98.2	87.8	120.7	115.4	129.2	128.4	123.8	131.1	127.7
5	73.0	100.0	79.3	101.6	92.2	125.4	120.1	134.1	133.3	126.5	132.4
K-5	507.0	540.8	552.8	599.4	626.1	669.8	682.4	701.3	709.8	708.2	704.8

Attendance Area Edy Ridge ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	69.0	64.7	72.6	69.9	64.4	68.6	67.4	66.8	67.6	67.2	67.2
1	94.0	80.0	76.9	84.9	79.7	73.4	78.2	76.8	76.2	77.0	76.6
2	91.0	105.7	91.9	87.4	94.2	88.5	81.5	86.8	85.2	84.6	85.5
3	100.0	98.7	116.0	100.3	93.5	100.8	94.7	87.2	92.9	91.2	90.5
4	93.0	101.2	101.4	117.9	100.3	93.5	100.8	94.7	87.2	92.9	91.2
5	87.0	96.1	106.0	105.3	120.2	102.3	95.4	102.8	96.6	88.9	94.8
K-5	534.0	546.4	564.8	565.7	552.3	527.1	518.0	515.1	505.7	501.8	505.8

Attendance Area Hopkins ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	90.0	82.8	91.2	87.3	81.3	86.6	87.2	89.8	93.1	95.0	97.1
1	92.0	104.4	97.2	106.7	101.8	94.3	103.0	106.2	109.2	113.1	115.0
2	81.0	96.6	110.6	102.8	112.5	106.9	101.3	112.7	116.1	119.2	123.0
3	97.0	85.0	102.4	117.0	108.4	118.1	114.6	111.0	122.9	126.4	129.5
4	98.0	103.8	92.0	110.4	125.6	116.0	128.8	127.3	123.4	136.2	139.7
5	91.0	101.9	108.9	96.5	115.3	130.6	123.0	138.5	136.9	132.9	145.9
K-5	549.0	574.5	602.3	620.7	644.9	652.5	657.9	685.5	701.6	722.8	750.2

Attendance Area Middleton ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	89.0	81.9	89.3	86.3	82.0	88.7	87.7	87.8	89.7	89.8	89.2
1	79.0	97.0	89.2	98.6	96.6	91.9	98.5	97.4	97.6	99.2	97.9
2	109.0	83.7	102.8	95.9	107.0	104.8	99.2	106.1	105.0	104.8	105.2
3	112.0	113.4	87.1	108.2	102.1	113.7	110.7	104.9	112.1	110.5	109.0
4	101.0	113.1	114.5	89.2	111.6	105.5	116.5	113.5	107.6	114.6	111.6
5	116.0	106.1	118.8	121.5	96.1	119.6	112.5	124.0	120.9	114.4	120.3
K-5	606.0	595.2	601.7	599.7	595.4	624.2	625.1	633.7	632.9	633.3	633.2

Above projections EXCLUDE Out-of-District students and Special Education students. For a breakdown of Out-of-District students and Special Education students per school, then please refer to the Elementary School K-5 Attendance Matrix on page 15.

Projection Trends for the District's Elementary School (K-5) Attendance Areas ("Residence" Projections)

The Sherwood School District is projected to experience overall growth in its resident student population among the elementary grades. The resident student population is at 2,196 and could reach 2,594 (a net gain of 398 K-5 students) by fall of 2025. It is important to note that the projected growth amongst the elementary attendance areas is most likely a result of new residential construction and high mobility. The attendance areas with the biggest projected resident K-5 student population gains over the ten year projection period include Hopkins ES (+201 K-5) and Archer Glen ES (+198 K-5). The Hopkins boundary area does have a potential for 674 new housing units over the next ten years, and the Archer Glen area has potential for 456 new housing units. On the other end of the spectrum are those attendance areas with the largest anticipated net decreases in K-5 student population. This includes Edy Ridge ES (-28 K-5 Students). The decline is a result of smaller projected incoming kindergarten classes that are due to enter the District and replace the bigger class size bubbles, which are graduating on through to the middle school grades. In fact, these smaller kindergarten classes have already hit some attendance areas as of fall 2015. The projected smaller kindergarten class sizes are mostly a result of the declining birthrates for the next three years.

INDIVIDUAL ELEMENTARY SCHOOL ATTENDANCE AREA ANALYSIS

The **Hopkins Elementary School** attendance area has the largest projected growth among the District's four elementary boundaries. Gradual growth is expected for this attendance area over the next ten years. A total of 750 K-5 students is expected for this area by the end of the projection period in 2025 (201 more K-5 students). This represents a net growth of 36%. The high mobility factors indicate that the Hopkins Elementary attendance area is a very desirable location for families to settle. Scheduled residential development will also play an important role in the projected elementary grade population for this attendance area. There are 342 single-family, 125 multi-family, and 207 apartment units scheduled to be built within this attendance area over the next ten year timeframe. With an actual enrollment of 567 PK-5 students as of fall 2015, this anticipated growth may place this school beyond its designated capacity. With the neighboring schools at or near capacity, the District may want to consider adding portables to Hopkins Elementary or expanding the facility to accommodate this projected growth. The Hopkins ES attendance area will definitely continue to experience significant growth in its resident K-5 student population and the District will need to look at options on how to properly house these additional students.

The **Archer Glen Elementary School** attendance area is expected to experience the second largest projected growth in elementary grade resident student population. As of fall 2015, this attendance area had 507 resident K-5 students living within its boundaries. It is projected that the attendance area could see as many as 705 K-5 resident students by fall of 2025. This represents a net growth of 198 resident K-5 students (39% growth) which amounts to about 6-7 classrooms worth of students. This growth is mainly due to the scheduled residential development that is due to be constructed within this area, a total of 456 new residential units over the next ten years. The development is focused within the city of Sherwood's Brookman Road Concept Plan. Along with the development, Archer Glen also has a high mobility rate with an average gain of 5% from kindergarten to fifth grade. Archer Glen ES has a current enrollment count of 525 K-5 students. The District will need

to closely monitor the residential development activity to get a better grasp on what is truly going to occur within this attendance area in the future and to determine whether or not the school can handle the amount of growth. Archer Glen has a capacity of 650 and by fall 2019 the school may be near that number with resident population of 626 and by fall 2020 a resident K-5 total of 670.

The **Edy Ridge Elementary School** attendance area is projected to be the only school to experience a net decrease over the projection window. As of fall 2015, there were 534 resident K-5 students living within the Edy Ridge attendance area and is projected to contain 506 resident K-5 students by fall 2025 (a net loss of 28 students or a 5.3% net decrease). The attendance area may experience a peak enrollment in 2018 with 566 resident K-5 students. This population decrease should start around 2019 when the larger student class sizes begin to graduate on through to the middle school grades. Smaller resident kindergarten class sizes have contributed to recent declining resident counts and similar sized K classes are anticipated for this attendance area for the next ten years. Kindergarten classes are expected to be around 65 resident students and graduating 5th graders are expected to be about 100 resident students.

The attendance area that is projected to stay relatively stable is **Middleton Elementary School** attendance area. In fall 2015, this attendance area had 606 K-5 students. By fall 2025, this attendance area could have 633 resident students, which indicates a net increase of 27 resident K-5 students over the next ten years (a net increase of 4.3%). The beginning years of the projection may not see much growth. Development in the area is not expected to begin until 2018 with a piece of the Brookman Road Concept Plan. From fall 2016 through fall 2019 the attendance area may experience a decline of 11 resident K-5 students. The year with the largest growth may be in 2020 with a growth of 29 students and a resident total of 624 K-5 students The Middleton attendance area currently has a non-contagious boundary, with 470 resident K-5 students living in the larger central part of the attendance area and 136 resident K-5 students living in the smaller northern part. Of the 136 resident K-5 students living in the smaller northern part of the Middleton attendance area, two students do not attend Middleton, they transfer to Edy Ridge. If possible, the District may consider boundary adjustments with Edy Ridge. This may help Edy Ridge with declining enrollment as well as alleviate funds being used to transport students living in the non-contiguous area of Middleton.

ELEMENTARY SCHOOL CONCLUSIONS

Based on the K-5 ten year projections, some boundary adjustments may need to be done for most attendance based on declining enrollment, major growth, or non-contiguous boundaries. With the projected growth for the Hopkins attendance area, the District may have to consider expansion options or programmatic changes to the Hopkins Elementary School, which could be nearing. The same could be said for the Archer Glen ES area which may see large growth throughout the ten years. The District may also consider adjusting boundaries for Middleton to help alleviate transportation costs in the non-contiguous area. The monitoring of any potential future residential development will continue to be necessary, as this will play a very important role to any potential resident population changes in the coming years.

Sherwood School District

Middle School
Attendance Boundaries
and
Resident Student Projections

Laurel Ridge MS
6-8 Projections
Current Year: 481
2016: 487
2020: 584
2025: 554

Sherwood MS
6-8 Projections
Current Year: 718
2016: 716
2020: 831
2025: 1,070

Laurel Ridge MS
Sherwood MS
Schools
Streets

N

0 0.75 1.5 Miles

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Sherwood School District

Middle School
Net Enrollment Changes
2015 through 2025 by Study Area

Laurel Ridge MS
Sherwood MS

-15.0 - -7.5
-7.5 - -0.9
No change
0.9 - 41.0
41.0 - 82.0

Schools
Streets

N

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0 0.75 1.5 Miles

Middle School Attendance Area Projections (by "Residence")

Attendance Area Laurel Ridge MS Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	121.0	112.5	124.8	120.8	112.9	121.2	119.9	119.8	122.0	122.0	121.4
1	140.0	136.7	129.0	143.0	137.0	128.1	137.3	135.8	135.7	137.8	136.3
2	149.0	154.4	152.0	143.9	157.6	151.0	141.2	151.2	149.6	149.1	149.9
3	169.0	159.0	166.7	164.0	154.0	168.5	161.4	151.0	161.6	159.5	157.6
4	158.0	170.9	162.3	170.3	166.3	156.3	170.8	163.8	153.3	163.6	160.2
5	156.0	164.3	179.2	170.5	177.0	173.4	163.1	178.1	170.9	159.8	169.0
6	159.0	168.3	179.3	195.6	185.1	193.1	187.8	176.6	192.6	184.3	171.0
7	154.0	160.6	171.4	182.8	197.7	187.3	195.5	189.8	178.6	194.3	184.6
8	168.0	158.4	167.0	178.2	188.5	203.8	193.2	201.8	195.7	183.9	198.5
6-8	481.0	487.3	517.7	556.6	571.3	584.2	576.5	568.2	566.9	562.5	554.1

Attendance Area Sherwood MS Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	216.0	198.7	217.6	210.2	198.7	213.9	213.9	217.4	224.0	225.1	226.5
1	204.0	250.6	231.7	256.2	249.4	235.6	255.2	257.7	261.8	267.1	266.3
2	222.0	209.8	258.2	241.0	267.6	260.0	247.3	269.6	272.2	274.4	278.1
3	217.0	234.4	222.5	276.2	259.6	287.2	280.9	269.8	293.4	293.9	294.3
4	233.0	225.8	243.8	235.0	291.8	274.1	304.4	300.1	288.7	311.1	310.0
5	211.0	239.7	233.9	254.4	246.8	304.6	287.9	321.3	316.8	302.9	324.3
6	221.0	223.6	255.7	251.6	274.2	266.8	329.8	314.3	349.9	343.0	326.4
7	257.0	228.7	232.1	268.4	265.3	287.7	282.7	350.2	334.2	369.1	360.1
8	240.0	263.7	235.6	241.4	280.4	276.7	301.1	298.6	367.9	349.4	383.4
6-8	718.0	716.0	723.4	761.4	819.9	831.2	913.6	963.1	1052.0	1061.5	1069.9

Above projections EXCLUDE Out-of-District students and Special Education students. For a breakdown of Out-of-District students and Special Education students per school, then please refer to the Middle School 6-8 Attendance Matrix on page 16.

Projection Trends for the District's Middle School (6-8) Attendance Areas ("Residence" Projections)

The Sherwood School District has two comprehensive 6-8 middle schools, each with a distinct attendance area: Laurel Ridge Middle School and Sherwood Middle School. Both attendance areas feed directly into Sherwood's one high school, Sherwood HS. Overall growth for the middle school 6-8 student population is expected. A net increase of 425 6-8 students and a total of 1,648 6-8 students is expected by 2025. The Sherwood MS may experience the most growth. By 2025 Laurel Ridge may have 15.2% growth and Sherwood MS may have 49% growth.

Sherwood Middle School attendance area is expected to grow the most over the next ten years. Although a slight decline of two 6-8 resident students is expected for this attendance area by fall 2016, steady growth is expected for this area beyond 2016. As of fall 2015, Sherwood's attendance area had 718 6-8 students living within it and is projected to reach around 1,070 students by 2025. That is a net increase of 352 6-8 students when comparing 2015 to 2025 (+49%). The growth is mainly due to the anticipated construction of the Brookman Road Concept Plan and the Basalt Creek planning area. Both plans are still under review. However, the City of Sherwood still expects construction to start in 2018 for Brookman Road and 2020 for Basalt Creek. Currently, Sherwood MS gains 31 6-8 students (gain 4.3%) from outside its boundary, it loses 17 6-8 students (lose 3.5%) to Laurel Ridge. Sherwood MS's area is expected to see a large growth within the ten year timeframe and it appears that the school may approach its capacity of 1,090 by 2025. However, the District should closely monitor the Brookman Road Concept Plan and the Basalt Creek planning area; Sherwood MS's growth is closely tied to these projects.

As of fall 2015, the **Laurel Ridge Middle School** attendance area had 481 resident 6-8 students living within this attendance area. It is projected that Laurel Ridge MS's attendance area could experience an increase of about 73 grade 6-8 students by fall 2025, potentially giving it a total population of about 554 6-8 students. Laurel Ridge is expected to see a total of 393 residential units built within the ten year timeframe. Of the 393 units; DR Horton is expected to construct 15 single family and 50 multi-family units in the Cedar Brook development, Venture properties is expected to build 86 single family homes in the Mandel Farms subdivision, and Roshun Village is expected to build 14 townhomes in the Roshun Village Townhome development. Although most of the Brookman Road Concept Plan is located in the Sherwood MS boundary part of it falls within Laurel Ridge. Within the Laurel Ridge the plan is expected to yield 228 single family homes. It is also important to note that the Sherwood West planning area is expected to be within the Laurel Ridge attendance area. This planning area is not expected to be developed within the ten year window, however the District may want to follow the status of this development as it may possibly yield 4,400 units. The District will need to monitor Laurel Ridge because it may reach its designed capacity of 550 by fall 2018 with a resident 6-8 population of 557.

MIDDLE SCHOOL CONCLUSIONS

With a total projected growth of 425 6^{th}-8^{th} grade students by fall of 2025, the District may need to consider adding portable classrooms to the two middle schools. Most of the growth in resident middle school student population is a result of the parts of specific plans

expected to begin within the ten-year projection timeframe. Therefore, the District will need to closely monitor planning area and concept plan developments within the District area since those developments may potentially yield a large number of housing units.

Sherwood School District

High School Attendance Boundaries and Resident Student Projections

Sherwood HS
9-12 Projections
Current Year: 1,537
2016: 1,609
2020: 1,787
2025: 2,182

N

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0 0.75 1.5 Miles

Sherwood HS
Schools
Streets

Sherwood School District

High School
Net Enrollment Changes
2015 through 2025 by Study Area

Sherwood HS

-13.0 - -6.5
-6.5 - -0.9
No change
0.9 - 50.5
50.5 - 101.0

Schools
Streets

N

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0 0.75 1.5 Miles

High School Attendance Area Projections (by "Residence")

Attendance Area Sherwood HS Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	337.0	311.2	342.4	331.0	311.5	335.1	333.7	337.2	346.0	347.1	347.9
1	344.0	387.4	360.7	399.3	386.4	363.6	392.5	393.5	397.5	404.9	402.6
2	371.0	364.2	410.2	384.9	425.2	411.0	388.5	420.9	421.8	423.5	428.1
3	386.0	393.4	389.2	440.2	413.6	455.7	442.3	420.8	455.0	453.4	451.9
4	391.0	396.7	406.2	405.3	458.2	430.4	475.3	463.9	442.0	474.8	470.2
5	367.0	404.1	413.1	424.9	423.8	478.0	451.0	499.4	487.7	462.7	493.3
6	380.0	391.9	435.0	447.2	459.4	459.9	517.5	490.9	542.5	527.3	497.4
7	411.0	389.2	403.5	451.1	463.0	475.0	478.2	540.0	512.9	563.3	544.7
8	408.0	422.2	402.6	419.6	469.0	480.5	494.3	500.4	563.6	533.3	581.9
9	428.0	427.6	444.1	424.9	442.8	495.7	507.5	525.4	531.0	594.7	560.5
10	399.0	422.8	423.9	441.7	423.3	440.3	493.3	507.2	523.7	528.8	589.2
11	375.0	394.0	419.6	422.2	439.4	421.3	439.4	492.6	506.8	520.9	524.0
12	335.0	364.6	385.0	411.4	414.1	429.8	414.2	433.1	484.5	496.8	508.2
9-12	1537.0	1609.0	1672.6	1700.2	1719.6	1787.1	1854.4	1958.3	2046.0	2141.2	2181.9

Above projections EXCLUDE Out-of-District students and Special Education students. For a breakdown of Out-of-District students and Special Education students per school, then please refer to the High School 9-12 Attendance Matrix on page 16.

Projection Trends for the District's High School (9-12) Attendance Area ("Residence" Projections)

The Sherwood School District has one high school, Sherwood HS. The high school has experienced growth within the 9-12 resident student population over the last four years with a total of 1,537 students as of fall 2015. A 39.8% net growth for the high school population is expected within the next ten years, which equates to a net gain of 645 9-12. By the end of the ten-year projections the resident 9-12 total may be about 2,182. Currently, the capacity for Sherwood HS is 1,550 and it may pass that figure by next year. It is anticipated that by 2025 the District may have 2,182 resident 9-12 students. The District may need to add portables to house students within the near future. However, the District should immediately start to look into how it plans on housing these additional high school students. Permanent expansion of the existing Sherwood HS site may be needed or a second high school site should be considered.

School Codes and School Assignments by Study Area

The Sherwood School District has assigned each school a code and DDP has incorporated these same codes in the databases and data layers that they have created/maintained for the district. Each study area is then coded with the elementary, middle and high school that the area is assigned to attend.

ELEMENTARY SCHOOLS (K-5)

Only Schools with assigned attendance areas are listed

School Code	Elementary School Name	Study Areas for Each Attendance Area
1334	Archer Ridge ES **24 Study Areas**	58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 78, 79, 80, 81, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
4730	Edy Ridge ES **20 Study Areas**	1, 10, 11A, 11B, 12, 13, 14, 15, 19, 2, 20, 21, 3, 4, 45, 5, 6, 7, 8, 9
1191	Hopkins ES **33 Study Areas**	22, 23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37, 70, 71, 72, 73, 74, 75, 76, 77, 82A, 82B, 82C, 83
3222	Middleton ES **27 Study Areas**	16, 17A, 17B, 18A, 18B, 18C, 38, 39, 40, 41, 42, 43, 44, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57
	4 Elementary Schools	**104 Study Areas**

School Codes and School Assignments by Study Area (continued)

MIDDLE SCHOOLS (6-8)

Only Schools with assigned attendance areas are listed :

School Code	Middle School Name	Study Areas for Each Attendance Area
4731	Laurel Ridge MS **37 Study Areas**	1, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 2, 20, 21, 3,4, 44, 45, 46A, 46B, 46C, 47, 48, 49, 5, 50, 53, 54, 55, 6, 7, 8, 9
1192	Sherwood MS **67 Study Areas**	22, 23A, 23B,24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 51, 52, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
	2 Middle Schools	**104 Study Areas**

*All 104 Study Areas compose the District's one high school "Sherwood HS."

Sherwood School District

Study Areas

Edy Ridge ES
Hopkins ES
Middleton ES
Archer Glen ES

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0 0.5 1 Miles

N

Schools
Streets
Study Areas

Study Area 1 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.0	3.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1.0	1.0	3.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1.0	1.0	1.0	3.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0
6	1.0	1.1	1.1	1.1	3.6	2.7	0.0	0.0	0.0	0.0	0.0
7	5.0	1.0	1.1	1.1	1.1	3.7	2.7	0.0	0.0	0.0	0.0
8	4.0	5.1	1.0	1.2	1.2	1.2	3.8	2.8	0.0	0.0	0.0
9	4.0	4.3	5.6	1.1	1.2	1.3	1.3	4.1	3.0	0.0	0.0
10	4.0	3.9	4.2	5.5	1.1	1.2	1.2	1.2	4.0	3.0	0.0
11	4.0	4.0	3.9	4.2	5.4	1.1	1.2	1.2	1.2	4.0	2.9
12	6.0	4.0	3.9	3.8	4.1	5.3	1.1	1.2	1.2	1.2	3.9
K-5	8.0	7.4	6.6	5.7	2.4	0.0	0.0	0.0	0.0	0.0	0.0
6-8	10.0	7.2	3.2	3.4	5.9	7.6	6.5	2.8	0.0	0.0	0.0
9-12	18.0	16.2	17.6	14.6	11.8	8.9	4.8	7.7	9.4	8.2	6.8
K-12	36.0	30.8	27.4	23.7	20.1	16.5	11.3	10.5	9.4	8.2	6.8

Study Area 2 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	8.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	5.0	8.9	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	6.0	5.4	9.5	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	6.0	6.0	5.4	9.5	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	6.0	6.1	6.1	5.5	9.7	1.4	1.3	1.4	1.3	1.2	1.3
6	3.0	6.7	6.8	6.8	6.1	10.8	1.5	1.4	1.5	1.5	1.4
7	7.0	3.0	6.7	6.9	6.9	6.1	10.9	1.5	1.4	1.6	1.5
8	5.0	7.2	3.1	6.9	7.1	7.1	6.3	11.2	1.6	1.5	1.6
9	9.0	5.4	7.8	3.4	7.5	7.6	7.6	6.8	12.1	1.7	1.6
10	3.0	8.8	5.3	7.6	3.3	7.3	7.5	7.5	6.7	11.8	1.7
11	3.0	3.0	8.7	5.2	7.6	3.3	7.3	7.4	7.4	6.6	11.7
12	4.0	3.0	2.9	8.6	5.2	7.5	3.2	7.2	7.3	7.3	6.5
K-5	32.0	28.4	24.3	19.7	15.6	7.1	7.1	7.1	7.0	7.0	7.0
6-8	15.0	16.9	16.6	20.6	20.1	24.0	18.7	14.1	4.5	4.6	4.5
9-12	19.0	20.2	24.7	24.8	23.6	25.7	25.6	28.9	33.5	27.4	21.5
K-12	66.0	65.5	65.6	65.1	59.3	56.8	51.4	50.1	45.0	39.0	33.0

Study Area 3 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.4	3.1	3.4	3.3	3.0	3.2	3.2	3.2	3.2	3.2
2	5.0	2.2	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5	3.5
3	7.0	5.4	2.4	4.1	3.7	4.1	3.9	3.6	3.9	3.8	3.7
4	8.0	7.0	5.4	2.4	4.1	3.7	4.1	3.9	3.6	3.9	3.8
5	5.0	8.2	7.1	5.5	2.4	4.1	3.8	4.2	4.0	3.7	3.9
6	7.0	5.6	9.1	7.9	6.1	2.7	4.6	4.2	4.6	4.4	4.1
7	5.0	7.1	5.6	9.1	8.0	6.1	2.7	4.6	4.3	4.7	4.4
8	9.0	5.1	7.3	5.8	9.4	8.2	6.3	2.8	4.8	4.4	4.8
9	7.0	9.7	5.6	7.9	6.2	10.2	8.9	6.8	3.0	5.2	4.8
10	3.0	6.9	9.5	5.5	7.7	6.1	10.0	8.7	6.7	3.0	5.1
11	7.0	3.0	6.8	9.4	5.4	7.6	6.0	9.9	8.6	6.6	2.9
12	6.0	6.9	2.9	6.7	9.3	5.3	7.6	6.0	9.8	8.6	6.5
K-5	30.0	29.0	24.8	21.8	20.0	21.3	21.2	21.3	21.0	20.9	20.9
6-8	21.0	17.8	22.0	22.8	23.5	17.0	13.6	11.6	13.7	13.5	13.3
9-12	23.0	26.5	24.8	29.5	28.6	29.2	32.5	31.4	28.1	23.4	19.3
K-12	74.0	73.3	71.6	74.1	72.1	67.5	67.3	64.3	62.8	57.8	53.5

Study Area 4 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	6.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	6.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	2.0	6.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	3.1	2.0	6.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0
6	4.0	2.2	3.4	2.3	7.3	4.0	0.0	0.0	0.0	0.0	0.0
7	5.0	4.0	2.2	3.4	2.3	7.3	4.1	0.0	0.0	0.0	0.0
8	5.0	5.1	4.2	2.3	3.5	2.4	7.6	4.2	0.0	0.0	0.0
9	3.0	5.4	5.6	4.5	2.5	3.8	2.5	8.2	4.5	0.0	0.0
10	3.0	2.9	5.3	5.5	4.4	2.4	3.7	2.5	8.0	4.4	0.0
11	6.0	3.0	2.9	5.2	5.4	4.4	2.4	3.7	2.5	7.9	4.4
12	5.0	5.9	2.9	2.9	5.2	5.3	4.3	2.4	3.7	2.4	7.8
K-5	16.0	14.8	12.0	10.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0
6-8	14.0	11.3	9.8	8.0	13.1	13.7	11.7	4.2	0.0	0.0	0.0
9-12	17.0	17.2	16.7	18.1	17.5	15.9	12.9	16.8	18.7	14.7	12.2
K-12	47.0	43.3	38.5	36.2	34.2	29.6	24.6	21.0	18.7	14.7	12.2

Study Area 5 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	8.0	10.3	9.4	10.3	9.8	9.1	9.7	9.6	9.5	9.6	9.5
2	5.0	8.9	11.4	10.5	11.4	10.9	10.1	10.8	10.6	10.5	10.6
3	4.0	5.4	9.5	12.2	11.2	12.2	11.6	10.8	11.6	11.3	11.2
4	8.0	4.0	5.4	9.5	12.2	11.2	12.2	11.6	10.8	11.6	11.3
5	9.0	8.2	4.1	5.5	9.7	12.4	11.4	12.5	11.9	11.0	11.8
6	11.0	10.0	9.1	4.5	6.1	10.8	13.8	12.7	13.8	13.2	12.3
7	3.0	11.1	10.1	9.1	4.6	6.1	10.9	13.9	12.8	14.0	13.3
8	4.0	3.1	11.4	10.4	9.4	4.7	6.3	11.2	14.4	13.2	14.4
9	4.0	4.3	3.3	12.4	11.2	10.2	5.1	6.8	12.1	15.5	14.3
10	6.0	3.9	4.2	3.3	12.1	11.0	10.0	5.0	6.7	11.8	15.2
11	6.0	5.9	3.9	4.2	3.2	12.0	10.9	9.9	4.9	6.6	11.7
12	5.0	5.9	5.9	3.8	4.1	3.2	11.9	10.8	9.8	4.9	6.5
K-5	43.0	45.1	48.8	56.6	62.3	64.3	63.4	63.6	62.8	62.4	62.8
6-8	18.0	24.2	30.6	24.0	20.1	21.6	31.0	37.8	41.0	40.4	40.0
9-12	21.0	20.0	17.3	23.7	30.6	36.4	37.9	32.5	33.5	38.8	47.7
K-12	82.0	89.3	96.7	104.3	113.0	122.3	132.3	133.9	137.3	141.6	150.5

Study Area 6 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	3.0	3.4	3.1	3.4	3.3	3.0	3.2	3.2	3.2	3.2	3.2
2	5.0	3.3	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5	3.5
3	7.0	5.4	3.6	4.1	3.7	4.1	3.9	3.6	3.9	3.8	3.7
4	5.0	7.0	5.4	3.6	4.1	3.7	4.1	3.9	3.6	3.9	3.8
5	8.0	5.1	7.1	5.5	3.6	4.1	3.8	4.2	4.0	3.7	3.9
6	4.0	8.9	5.7	7.9	6.1	4.0	4.6	4.2	4.6	4.4	4.1
7	4.0	4.0	9.0	5.7	8.0	6.1	4.1	4.6	4.3	4.7	4.4
8	5.0	4.1	4.2	9.2	5.9	8.2	6.3	4.2	4.8	4.4	4.8
9	8.0	5.4	4.4	4.5	10.0	6.4	8.9	6.8	4.5	5.2	4.8
10	5.0	7.8	5.3	4.4	4.4	9.8	6.2	8.7	6.7	4.4	5.1
11	3.0	4.9	7.8	5.2	4.3	4.4	9.7	6.2	8.6	6.6	4.4
12	3.0	3.0	4.9	7.7	5.2	4.3	4.3	9.6	6.1	8.6	6.5
K-5	31.0	27.0	26.0	23.0	21.2	21.3	21.2	21.3	21.0	20.9	20.9
6-8	13.0	17.0	18.9	22.8	20.0	18.3	15.0	13.0	13.7	13.5	13.3
9-12	19.0	21.1	22.4	21.8	23.9	24.9	29.1	31.3	25.9	24.8	20.8
K-12	63.0	65.1	67.3	67.6	65.1	64.5	65.3	65.6	60.6	59.2	55.0

Study Area 7 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	5.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	4.0	5.6	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	5.0	4.3	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	1.0	5.0	4.3	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	7.0	1.0	5.1	4.4	6.1	1.4	1.3	1.4	1.3	1.2	1.3
6	7.0	7.8	1.1	5.7	4.8	6.7	1.5	1.4	1.5	1.5	1.4
7	7.0	7.1	7.8	1.1	5.7	4.9	6.8	1.5	1.4	1.6	1.5
8	5.0	7.2	7.3	8.1	1.2	5.9	5.0	7.0	1.6	1.5	1.6
9	1.0	5.4	7.8	7.9	8.7	1.3	6.4	5.4	7.6	1.7	1.6
10	4.0	1.0	5.3	7.6	7.7	8.6	1.2	6.2	5.3	7.4	1.7
11	6.0	4.0	1.0	5.2	7.6	7.6	8.5	1.2	6.2	5.3	7.3
12	3.0	5.9	3.9	1.0	5.2	7.5	7.6	8.4	1.2	6.1	5.2
K-5	23.0	17.9	18.6	15.0	12.0	7.1	7.1	7.1	7.0	7.0	7.0
6-8	19.0	22.1	16.2	14.9	11.7	17.5	13.3	9.9	4.5	4.6	4.5
9-12	14.0	16.3	18.0	21.7	29.2	25.0	23.7	21.2	20.3	20.5	15.8
K-12	56.0	56.3	52.8	51.6	52.9	49.6	44.1	38.2	31.8	32.1	27.3

Study Area 8 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.9	9.1	9.7	8.4	8.8	8.7	8.7	8.7	8.7	8.7
1	4.0	8.5	9.9	12.4	11.1	9.6	10.1	9.9	9.9	10.0	9.9
2	4.0	4.9	11.4	13.0	13.8	12.3	10.6	11.2	11.0	11.0	11.1
3	4.0	4.7	7.2	14.2	13.9	14.8	13.2	11.4	12.0	11.8	11.7
4	5.0	4.4	6.5	9.0	14.2	13.9	14.8	13.2	11.4	12.0	11.8
5	3.0	5.5	6.4	8.6	9.2	14.5	14.2	15.1	13.5	11.6	12.2
6	4.0	3.8	8.1	9.1	9.5	10.2	16.0	15.8	16.7	14.9	12.9
7	4.0	4.5	5.7	10.1	9.2	9.6	10.3	16.2	15.9	16.9	15.1
8	1.0	4.6	6.5	7.7	10.4	9.5	9.9	10.6	16.7	16.4	17.4
9	4.0	1.4	6.3	8.4	8.4	11.2	10.2	10.7	11.5	18.0	17.7
10	0.0	4.2	2.6	7.5	8.2	8.2	11.0	10.0	10.5	11.3	17.7
11	0.0	0.3	5.4	3.9	7.4	8.2	8.1	10.9	9.9	10.4	11.2
12	1.0	0.3	1.6	6.7	3.9	7.3	8.1	8.0	10.8	9.8	10.2
K-5	27.0	34.9	50.5	66.9	70.6	73.9	71.6	69.5	66.5	65.1	65.4
6-8	9.0	12.9	20.3	26.9	29.1	29.3	36.2	42.6	49.3	48.2	45.4
9-12	5.0	6.2	15.9	26.5	27.9	34.9	37.4	39.6	42.7	49.5	56.8
K-12	41.0	54.0	86.7	120.3	127.6	138.1	145.2	151.7	158.5	162.8	167.6

Study Area 9 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	7.0	8.3	7.5	7.0	7.5	7.3	7.3	7.4	7.3	7.3
1	8.0	8.6	9.1	9.4	8.6	8.0	8.5	8.4	8.3	8.4	8.3
2	3.0	9.5	10.6	10.1	10.5	9.5	8.9	9.4	9.3	9.2	9.3
3	8.0	3.8	11.2	11.4	10.8	11.2	10.2	9.5	10.1	9.9	9.8
4	5.0	8.6	4.8	11.2	11.4	10.8	11.2	10.2	9.5	10.1	9.9
5	6.0	5.7	9.7	4.9	11.4	11.6	11.0	11.4	10.4	9.7	10.3
6	9.0	7.3	7.4	10.8	5.4	12.7	12.9	12.2	12.7	11.5	10.8
7	8.0	9.7	8.3	7.4	10.9	5.4	12.8	13.0	12.3	12.8	11.6
8	7.0	8.8	10.9	8.6	7.6	11.2	5.6	13.2	13.4	12.7	13.2
9	7.0	8.1	10.4	11.8	9.3	8.3	12.1	6.1	14.2	14.5	13.7
10	8.0	7.3	8.7	10.2	11.6	9.1	8.1	11.9	5.9	13.9	14.2
11	8.0	8.4	8.0	8.6	10.1	11.4	9.0	8.0	11.7	5.9	13.8
12	5.0	8.4	9.1	8.0	8.5	10.0	11.3	8.9	7.9	11.6	5.8
K-5	37.0	43.2	53.7	54.5	59.7	58.6	57.1	56.2	55.0	54.6	54.9
6-8	24.0	25.8	26.6	26.8	23.9	29.3	31.3	38.4	38.4	37.0	35.6
9-12	28.0	32.2	36.2	38.6	39.5	38.8	40.5	34.9	39.7	45.9	47.5
K-12	89.0	101.2	116.5	119.9	123.1	126.7	128.9	129.5	133.1	137.5	138.0

Study Area 10 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	8.0	5.7	5.2	5.7	5.4	5.1	5.4	5.3	5.3	5.3	5.3
2	9.0	8.9	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8	5.9
3	5.0	9.6	9.5	6.8	6.2	6.8	6.5	6.0	6.4	6.3	6.2
4	8.0	5.0	9.6	9.5	6.8	6.2	6.8	6.5	6.0	6.4	6.3
5	11.0	8.2	5.1	9.8	9.7	6.9	6.4	6.9	6.6	6.1	6.6
6	5.0	12.2	9.1	5.7	10.9	10.8	7.7	7.1	7.7	7.3	6.8
7	2.0	5.1	12.3	9.1	5.7	11.0	10.9	7.7	7.1	7.8	7.4
8	7.0	2.1	5.2	12.7	9.4	5.9	11.3	11.2	8.0	7.3	8.0
9	8.0	7.6	2.2	5.6	13.7	10.2	6.4	12.2	12.1	8.6	7.9
10	8.0	7.8	7.4	2.2	5.5	13.4	10.0	6.2	12.0	11.8	8.4
11	5.0	7.9	7.8	7.3	2.2	5.5	13.3	9.9	6.2	11.9	11.7
12	6.0	4.9	7.8	7.7	7.3	2.1	5.4	13.2	9.8	6.1	11.8
K-5	46.0	42.0	40.7	42.4	38.8	35.7	35.4	35.3	34.9	34.5	34.9
6-8	14.0	19.4	26.6	27.5	26.0	27.7	29.9	26.0	22.8	22.4	22.2
9-12	27.0	28.2	25.2	22.8	28.7	31.2	35.1	41.5	40.1	38.4	39.8
K-12	87.0	89.6	92.5	92.7	93.5	94.6	100.4	102.8	97.8	95.3	96.9

Study Area 11A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	3.0	5.7	5.2	5.7	5.4	5.1	5.4	5.3	5.3	5.3	5.3
2	5.0	3.3	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8	5.9
3	3.0	5.4	3.6	6.8	6.2	6.8	6.5	6.0	6.4	6.3	6.2
4	5.0	3.0	5.4	3.6	6.8	6.2	6.8	6.5	6.0	6.4	6.3
5	3.0	5.1	3.1	5.5	3.6	6.9	6.4	6.9	6.6	6.1	6.6
6	6.0	3.3	5.7	3.4	6.1	4.0	7.7	7.1	7.7	7.3	6.8
7	3.0	6.1	3.4	5.7	3.4	6.1	4.1	7.7	7.1	7.8	7.4
8	2.0	3.1	6.2	3.5	5.9	3.5	6.3	4.2	8.0	7.3	8.0
9	3.0	2.2	3.3	6.7	3.7	6.4	3.8	6.8	4.5	8.6	7.9
10	5.0	2.9	2.1	3.3	6.6	3.7	6.2	3.7	6.7	4.4	8.4
11	5.0	4.9	2.9	2.1	3.2	6.5	3.6	6.2	3.7	6.6	4.4
12	8.0	4.9	4.9	2.9	2.1	3.2	6.5	3.6	6.1	3.7	6.5
K-5	24.0	27.1	28.6	32.2	32.7	35.7	35.4	35.3	34.9	34.5	34.9
6-8	11.0	12.5	15.3	12.6	15.4	13.6	18.1	19.0	22.8	22.4	22.2
9-12	21.0	14.9	13.2	15.0	15.6	19.8	20.1	20.3	21.0	23.3	27.2
K-12	56.0	54.5	57.1	59.8	63.7	69.1	73.6	74.6	78.7	80.2	84.3

Study Area 11B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	1.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	3.0	1.1	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	3.0	3.2	1.2	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	3.0	3.0	3.2	1.2	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	5.0	3.1	3.1	3.3	1.2	1.4	1.3	1.4	1.3	1.2	1.3
6	3.0	5.6	3.4	3.4	3.6	1.3	1.5	1.4	1.5	1.5	1.4
7	4.0	3.0	5.6	3.4	3.4	3.7	1.4	1.5	1.4	1.6	1.5
8	2.0	4.1	3.1	5.8	3.5	3.5	3.8	1.4	1.6	1.5	1.6
9	1.0	2.2	4.4	3.4	6.2	3.8	3.8	4.1	1.5	1.7	1.6
10	3.0	1.0	2.1	4.4	3.3	6.1	3.7	3.7	4.0	1.5	1.7
11	1.0	3.0	1.0	2.1	4.3	3.3	6.0	3.7	3.7	4.0	1.5
12	1.0	1.0	2.9	1.0	2.1	4.3	3.2	6.0	3.7	3.7	3.9
K-5	16.0	12.4	10.8	9.2	7.1	7.1	7.1	7.1	7.0	7.0	7.0
6-8	9.0	12.7	12.1	12.6	10.5	8.5	6.7	4.3	4.5	4.6	4.5
9-12	6.0	7.2	10.4	10.9	15.9	17.5	16.7	17.5	12.9	10.9	8.7
K-12	31.0	32.3	33.3	32.7	33.5	33.1	30.5	28.9	24.4	22.5	20.2

Study Area 12 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	5.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	7.0	5.6	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	5.0	7.5	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	7.0	5.0	7.5	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	3.0	7.1	5.1	7.6	6.1	1.4	1.3	1.4	1.3	1.2	1.3
6	3.0	3.3	7.9	5.7	8.5	6.7	1.5	1.4	1.5	1.5	1.4
7	3.0	3.0	3.4	8.0	5.7	8.6	6.8	1.5	1.4	1.6	1.5
8	3.0	3.1	3.1	3.5	8.2	5.9	8.8	7.0	1.6	1.5	1.6
9	7.0	3.2	3.3	3.4	3.7	8.9	6.4	9.5	7.6	1.7	1.6
10	6.0	6.9	3.2	3.3	3.3	3.7	8.7	6.2	9.3	7.4	1.7
11	8.0	5.9	6.8	3.1	3.2	3.3	3.6	8.6	6.2	9.2	7.3
12	3.0	7.9	5.9	6.7	3.1	3.2	3.2	3.6	8.6	6.1	9.2
K-5	28.0	27.2	21.8	18.2	12.0	7.1	7.1	7.1	7.0	7.0	7.0
6-8	9.0	9.4	14.4	17.2	22.4	21.2	17.1	9.9	4.5	4.6	4.5
9-12	24.0	23.9	19.2	16.5	13.3	19.1	21.9	27.9	31.7	24.4	19.8
K-12	61.0	60.5	55.4	51.9	47.7	47.4	46.1	44.9	43.2	36.0	31.3

Study Area 13 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	2.0	6.8	6.3	6.9	6.5	6.1	6.5	6.4	6.3	6.4	6.4
2	4.0	2.2	7.6	7.0	7.6	7.3	6.7	7.2	7.1	7.0	7.1
3	5.0	4.3	2.4	8.1	7.5	8.1	7.8	7.2	7.7	7.6	7.5
4	3.0	5.0	4.3	2.4	8.1	7.5	8.1	7.8	7.2	7.7	7.6
5	3.0	3.1	5.1	4.4	2.4	8.3	7.6	8.3	7.9	7.4	7.9
6	1.0	3.3	3.4	5.7	4.8	2.7	9.2	8.5	9.2	8.8	8.2
7	4.0	1.0	3.4	3.4	5.7	4.9	2.7	9.3	8.5	9.3	8.9
8	0.0	4.1	1.0	3.5	3.5	5.9	5.0	2.8	9.6	8.8	9.6
9	2.0	0.0	4.4	1.1	3.7	3.8	6.4	5.4	3.0	10.3	9.5
10	3.0	2.0	0.0	4.4	1.1	3.7	3.7	6.2	5.3	3.0	10.1
11	0.0	3.0	1.9	0.0	4.3	1.1	3.6	3.7	6.2	5.3	2.9
12	0.0	0.0	2.9	1.9	0.0	4.3	1.1	3.6	3.7	6.1	5.2
K-5	23.0	26.9	31.7	34.5	37.4	43.0	42.3	42.4	41.8	41.7	42.1
6-8	5.0	8.4	7.8	12.6	14.0	13.5	16.9	20.6	27.3	26.9	26.7
9-12	5.0	5.0	9.2	7.4	9.1	12.9	14.8	18.9	18.2	24.7	27.7
K-12	33.0	40.3	48.7	54.5	60.5	69.4	74.0	81.9	87.3	93.3	96.5

Study Area 14 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	4.0	5.7	5.2	5.7	5.4	5.1	5.4	5.3	5.3	5.3	5.3
2	4.0	4.4	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8	5.9
3	7.0	4.3	4.8	6.8	6.2	6.8	6.5	6.0	6.4	6.3	6.2
4	6.0	7.0	4.3	4.8	6.8	6.2	6.8	6.5	6.0	6.4	6.3
5	3.0	6.1	7.1	4.4	4.8	6.9	6.4	6.9	6.6	6.1	6.6
6	4.0	3.3	6.8	7.9	4.8	5.4	7.7	7.1	7.7	7.3	6.8
7	6.0	4.0	3.4	6.9	8.0	4.9	5.4	7.7	7.1	7.8	7.4
8	8.0	6.2	4.2	3.5	7.1	8.2	5.0	5.6	8.0	7.3	8.0
9	5.0	8.6	6.7	4.5	3.7	7.6	8.9	5.4	6.0	8.6	7.9
10	7.0	4.9	8.5	6.5	4.4	3.7	7.5	8.7	5.3	5.9	8.4
11	2.0	6.9	4.9	8.4	6.5	4.4	3.6	7.4	8.6	5.3	5.9
12	2.0	2.0	6.9	4.8	8.3	6.4	4.3	3.6	7.3	8.6	5.2
K-5	29.0	32.1	32.7	32.3	33.9	35.7	35.4	35.3	34.9	34.5	34.9
6-8	18.0	13.5	14.4	18.3	19.9	18.5	18.1	20.4	22.8	22.4	22.2
9-12	16.0	22.4	27.0	24.2	22.9	22.1	24.3	25.1	27.2	28.4	27.4
K-12	63.0	68.0	74.1	74.8	76.7	76.3	77.8	80.8	84.9	85.3	84.5

Study Area 15 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	7.0	4.6	4.2	4.6	4.4	4.0	4.3	4.2	4.2	4.3	4.2
2	1.0	7.8	5.1	4.7	5.1	4.8	4.5	4.8	4.7	4.7	4.7
3	4.0	1.1	8.3	5.4	5.0	5.4	5.2	4.8	5.1	5.0	5.0
4	3.0	4.0	1.1	8.3	5.4	5.0	5.4	5.2	4.8	5.1	5.0
5	1.0	3.1	4.1	1.1	8.5	5.5	5.1	5.5	5.3	4.9	5.2
6	5.0	1.1	3.4	4.5	1.2	9.4	6.1	5.6	6.2	5.9	5.4
7	1.0	5.1	1.1	3.4	4.6	1.2	9.5	6.2	5.7	6.2	5.9
8	8.0	1.0	5.2	1.2	3.5	4.7	1.3	9.8	6.4	5.9	6.4
9	3.0	8.6	1.1	5.6	1.2	3.8	5.1	1.4	10.6	6.9	6.3
10	2.0	2.9	8.5	1.1	5.5	1.2	3.7	5.0	1.3	10.4	6.8
11	2.0	2.0	2.9	8.4	1.1	5.5	1.2	3.7	4.9	1.3	10.3
12	5.0	2.0	2.0	2.9	8.3	1.1	5.4	1.2	3.7	4.9	1.3
K-5	20.0	24.3	26.8	27.9	32.0	28.5	28.2	28.2	27.8	27.7	27.8
6-8	14.0	7.2	9.7	9.1	9.3	15.3	16.9	21.6	18.3	18.0	17.7
9-12	12.0	15.5	14.5	18.0	16.1	11.6	15.4	11.3	20.5	23.5	24.7
K-12	46.0	47.0	51.0	55.0	57.4	55.4	60.5	61.1	66.6	69.2	70.2

Study Area 16 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	0.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	6.0	0.0	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	3.0	6.2	0.0	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	10.0	3.0	6.3	0.0	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	6.0	10.5	3.2	6.6	0.0	7.6	7.0	7.7	7.3	6.8	7.3
6	6.0	6.1	10.7	3.2	6.7	0.0	7.8	7.2	7.8	7.5	6.9
7	5.0	5.9	6.1	10.6	3.2	6.7	0.0	7.7	7.1	7.7	7.4
8	8.0	5.1	6.0	6.1	10.7	3.2	6.7	0.0	7.8	7.2	7.8
9	6.0	8.2	5.2	6.1	6.2	10.9	3.3	6.9	0.0	8.0	7.3
10	8.0	5.9	8.0	5.0	6.0	6.1	10.7	3.2	6.7	0.0	7.8
11	8.0	7.9	5.8	7.9	5.0	5.9	6.1	10.6	3.2	6.7	0.0
12	1.0	7.8	7.7	5.6	7.7	4.8	5.8	5.9	10.3	3.1	6.5
K-5	31.0	31.7	28.4	32.5	32.5	39.6	39.2	39.3	38.7	38.5	39.0
6-8	19.0	17.1	22.8	19.9	20.6	9.9	14.5	14.9	22.7	22.4	22.1
9-12	23.0	29.8	26.7	24.6	24.9	27.7	25.9	26.6	20.2	17.8	21.6
K-12	73.0	78.6	77.9	77.0	78.0	77.2	79.6	80.8	81.6	78.7	82.7

Study Area 17A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	1.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	5.0	1.1	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	4.0	5.2	1.1	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	2.0	4.0	5.3	1.1	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	5.0	2.1	4.2	5.5	1.2	3.8	3.5	3.8	3.7	3.4	3.6
6	2.0	5.1	2.1	4.3	5.6	1.2	3.9	3.6	3.9	3.7	3.5
7	4.0	2.0	5.0	2.1	4.3	5.6	1.2	3.9	3.6	3.9	3.7
8	3.0	4.0	2.0	5.1	2.1	4.3	5.6	1.2	3.9	3.6	3.9
9	3.0	3.1	4.1	2.0	5.2	2.2	4.4	5.7	1.2	4.0	3.7
10	2.0	2.9	3.0	4.0	2.0	5.1	2.1	4.3	5.6	1.2	3.9
11	3.0	2.0	2.9	3.0	4.0	2.0	5.0	2.1	4.3	5.6	1.2
12	2.0	2.9	1.9	2.8	2.9	3.9	1.9	4.9	2.1	4.2	5.4
K-5	20.0	18.5	20.1	19.6	17.4	19.7	19.6	19.6	19.3	19.4	19.3
6-8	9.0	11.1	9.1	11.5	12.0	11.1	10.7	8.7	11.4	11.2	11.1
9-12	10.0	10.9	11.9	11.8	14.1	13.2	13.4	17.0	13.2	15.0	14.2
K-12	39.0	40.5	41.1	42.9	43.5	44.0	43.7	45.3	43.9	45.6	44.6

Study Area 17B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	7.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	5.0	7.4	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	6.0	5.2	7.7	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	3.0	6.1	5.3	7.8	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	4.0	3.1	6.4	5.5	8.2	2.5	2.3	2.6	2.4	2.3	2.4
6	4.0	4.1	3.2	6.5	5.6	8.3	2.6	2.4	2.6	2.5	2.3
7	4.0	4.0	4.0	3.2	6.4	5.6	8.3	2.6	2.4	2.6	2.5
8	1.0	4.0	4.0	4.1	3.2	6.5	5.6	8.3	2.6	2.4	2.6
9	1.0	1.0	4.1	4.1	4.2	3.3	6.6	5.7	8.5	2.7	2.4
10	0.0	1.0	1.0	4.0	4.0	4.1	3.2	6.5	5.6	8.3	2.6
11	5.0	0.0	1.0	1.0	4.0	4.0	4.0	3.2	6.4	5.6	8.3
12	1.0	4.9	0.0	0.9	1.0	3.9	3.8	3.9	3.1	6.2	5.4
K-5	27.0	25.8	25.7	21.9	19.0	13.1	13.1	13.0	13.0	12.8	13.0
6-8	9.0	12.1	11.2	13.8	15.2	20.4	16.5	13.3	7.6	7.5	7.4
9-12	7.0	6.9	6.1	10.0	13.2	15.3	17.6	19.3	23.6	22.8	18.7
K-12	43.0	44.8	43.0	45.7	47.4	48.8	47.2	45.6	44.2	43.1	39.1

Study Area 18A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	2.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	2.0	2.1	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	4.0	2.1	2.2	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	2.0	4.0	2.1	2.2	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	6.0	2.1	4.2	2.2	2.3	7.6	7.0	7.7	7.3	6.8	7.3
6	3.0	6.1	2.1	4.3	2.2	2.4	7.8	7.2	7.8	7.5	6.9
7	3.0	3.0	6.1	2.1	4.3	2.2	2.4	7.7	7.1	7.7	7.4
8	1.0	3.0	3.0	6.1	2.1	4.3	2.2	2.4	7.8	7.2	7.8
9	3.0	1.0	3.1	3.1	6.2	2.2	4.4	2.3	2.4	8.0	7.3
10	1.0	2.9	1.0	3.0	3.0	6.1	2.1	4.3	2.2	2.4	7.8
11	0.0	1.0	2.9	1.0	3.0	3.0	6.1	2.1	4.3	2.2	2.4
12	1.0	0.0	1.0	2.8	1.0	2.9	2.9	5.9	2.1	4.2	2.2
K-5	22.0	22.3	27.4	30.3	34.8	39.6	39.2	39.3	38.7	38.5	39.0
6-8	7.0	12.1	11.2	12.5	8.6	8.9	12.4	17.3	22.7	22.4	22.1
9-12	5.0	4.9	8.0	9.9	13.2	14.2	15.5	14.6	11.0	16.8	19.7
K-12	34.0	39.3	46.6	52.7	56.6	62.7	67.1	71.2	72.4	77.7	80.8

Study Area 18B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	6.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	3.0	6.4	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	4.0	3.1	6.6	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	6.0	4.0	3.2	6.7	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	5.0	6.3	4.2	3.3	7.0	3.8	3.5	3.8	3.7	3.4	3.6
6	4.0	5.1	6.4	4.3	3.4	7.2	3.9	3.6	3.9	3.7	3.5
7	4.0	4.0	5.0	6.4	4.3	3.3	7.1	3.9	3.6	3.9	3.7
8	2.0	4.0	4.0	5.1	6.4	4.3	3.4	7.2	3.9	3.6	3.9
9	4.0	2.0	4.1	4.1	5.2	6.6	4.4	3.4	7.3	4.0	3.7
10	5.0	3.9	2.0	4.0	4.0	5.1	6.4	4.3	3.4	7.2	3.9
11	5.0	4.9	3.9	2.0	4.0	4.0	5.0	6.4	4.3	3.3	7.1
12	3.0	4.9	4.8	3.8	1.9	3.9	3.8	4.9	6.2	4.2	3.2
K-5	27.0	25.9	23.5	23.0	23.2	19.7	19.6	19.6	19.3	19.4	19.3
6-8	10.0	13.1	15.4	15.8	14.1	14.8	14.4	14.7	11.4	11.2	11.1
9-12	17.0	15.7	14.8	13.9	15.1	19.6	19.6	19.0	21.2	18.7	17.9
K-12	54.0	54.7	53.7	52.7	52.4	54.1	53.6	53.3	51.9	49.3	48.3

Study Area 18C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1.0	2.0	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3.0	1.0	2.1	2.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6	2.0	3.1	1.1	2.2	2.2	1.2	0.0	0.0	0.0	0.0	0.0
7	2.0	2.0	3.0	1.1	2.1	2.2	1.2	0.0	0.0	0.0	0.0
8	1.0	2.0	2.0	3.1	1.1	2.2	2.2	1.2	0.0	0.0	0.0
9	0.0	1.0	2.1	2.0	3.1	1.1	2.2	2.3	1.2	0.0	0.0
10	0.0	0.0	1.0	2.0	2.0	3.1	1.1	2.2	2.2	1.2	0.0
11	0.0	0.0	0.0	1.0	2.0	2.0	3.0	1.1	2.1	2.2	1.2
12	2.0	0.0	0.0	0.0	1.0	1.9	1.9	2.9	1.0	2.1	2.2
K-5	9.0	6.2	5.3	3.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6-8	5.0	7.1	6.1	6.4	5.4	5.6	3.4	1.2	0.0	0.0	0.0
9-12	2.0	1.0	3.1	5.0	8.1	8.1	8.2	8.5	6.5	5.5	3.4
K-12	16.0	14.3	14.5	14.7	14.7	13.7	11.6	9.7	6.5	5.5	3.4

Study Area 19 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	5.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	2.0	5.6	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	4.0	2.1	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	4.0	4.0	2.1	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	4.0	4.1	4.1	2.2	6.1	1.4	1.3	1.4	1.3	1.2	1.3
6	5.0	4.4	4.5	4.5	2.4	6.7	1.5	1.4	1.5	1.5	1.4
7	3.0	5.1	4.5	4.6	4.6	2.4	6.8	1.5	1.4	1.6	1.5
8	6.0	3.1	5.2	4.6	4.7	4.7	2.5	7.0	1.6	1.5	1.6
9	6.0	6.5	3.3	5.6	5.0	5.1	5.1	2.7	7.6	1.7	1.6
10	7.0	5.9	6.4	3.3	5.5	4.9	5.0	5.0	2.7	7.4	1.7
11	7.0	6.9	5.8	6.3	3.2	5.5	4.8	4.9	4.9	2.6	7.3
12	6.0	6.9	6.9	5.8	6.2	3.2	5.4	4.8	4.9	4.9	2.6
K-5	20.0	17.8	15.4	12.8	12.0	7.1	7.1	7.1	7.0	7.0	7.0
6-8	14.0	12.6	14.2	13.7	11.7	13.8	10.8	9.9	4.5	4.6	4.5
9-12	26.0	26.2	22.4	21.0	19.9	18.7	20.3	17.4	20.1	16.6	13.2
K-12	60.0	56.6	52.0	47.5	43.6	39.6	38.2	34.4	31.6	28.2	24.7

Study Area 20 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	2.1	2.1	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0
1	5.0	2.5	2.4	2.4	2.3	2.2	2.3	2.3	2.2	2.3	2.3
2	3.0	5.8	2.8	2.6	2.7	2.6	2.4	2.6	2.5	2.5	2.5
3	5.0	3.4	6.2	3.0	2.8	2.9	2.8	2.6	2.7	2.7	2.7
4	5.0	5.2	3.4	6.2	3.0	2.8	2.9	2.8	2.6	2.7	2.7
5	1.0	5.3	5.3	3.5	6.3	3.1	2.9	2.9	2.8	2.6	2.8
6	3.0	1.4	5.9	5.9	3.9	7.0	3.4	3.2	3.3	3.1	2.9
7	0.0	3.3	1.4	6.0	6.0	3.9	7.1	3.4	3.2	3.3	3.1
8	6.0	0.2	3.4	1.4	6.2	6.2	4.1	7.3	3.5	3.3	3.4
9	3.0	6.7	0.2	3.6	1.5	6.6	6.6	4.4	7.9	3.8	3.6
10	3.0	3.1	6.6	0.2	3.5	1.5	6.5	6.5	4.3	7.7	3.8
11	4.0	3.2	3.1	6.5	0.2	3.5	1.5	6.4	6.4	4.3	7.7
12	2.0	4.2	3.1	3.1	6.4	0.2	3.5	1.5	6.4	6.4	4.2
K-5	21.0	24.3	22.2	19.7	19.0	15.6	15.3	15.2	14.8	14.8	15.0
6-8	9.0	4.9	10.7	13.3	16.1	17.1	14.6	13.9	10.0	9.7	9.4
9-12	12.0	17.2	13.0	13.4	11.6	11.8	18.1	18.8	25.0	22.2	19.3
K-12	42.0	46.4	45.9	46.4	46.7	44.5	48.0	47.9	49.8	46.7	43.7

Study Area 21 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	9.0	6.8	6.3	6.9	6.5	6.1	6.5	6.4	6.3	6.4	6.4
2	7.0	10.0	7.6	7.0	7.6	7.3	6.7	7.2	7.1	7.0	7.1
3	9.0	7.5	10.7	8.1	7.5	8.1	7.8	7.2	7.7	7.6	7.5
4	5.0	9.0	7.5	10.7	8.1	7.5	8.1	7.8	7.2	7.7	7.6
5	3.0	5.1	9.2	7.6	10.9	8.3	7.6	8.3	7.9	7.4	7.9
6	4.0	3.3	5.7	10.2	8.5	12.1	9.2	8.5	9.2	8.8	8.2
7	4.0	4.0	3.4	5.7	10.3	8.6	12.2	9.3	8.5	9.3	8.9
8	9.0	4.1	4.2	3.5	5.9	10.6	8.8	12.6	9.6	8.8	9.6
9	12.0	9.7	4.4	4.5	3.7	6.4	11.4	9.5	13.6	10.3	9.5
10	4.0	11.8	9.5	4.4	4.4	3.7	6.2	11.2	9.3	13.3	10.1
11	5.0	4.0	11.6	9.4	4.3	4.4	3.6	6.2	11.1	9.2	13.2
12	2.0	4.9	3.9	11.5	9.3	4.3	4.3	3.6	6.1	11.0	9.2
K-5	39.0	43.9	47.3	46.0	45.9	43.0	42.3	42.4	41.8	41.7	42.1
6-8	17.0	11.4	13.3	19.4	24.7	31.3	30.2	30.4	27.3	26.9	26.7
9-12	23.0	30.4	29.4	29.8	21.7	18.8	25.5	30.5	40.1	43.8	42.0
K-12	79.0	85.7	90.0	95.2	92.3	93.1	98.0	103.3	109.2	112.4	110.8

Study Area 22 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	7.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	4.0	7.3	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	4.0	4.2	7.7	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	1.0	4.3	4.5	8.3	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	4.0	1.0	4.5	4.7	8.6	4.3	3.9	4.3	4.1	3.8	4.1
6	3.0	4.3	1.1	4.8	5.0	9.3	4.6	4.2	4.6	4.4	4.1
7	4.0	3.1	4.5	1.2	5.0	5.3	9.7	4.8	4.5	4.9	4.6
8	2.0	4.1	3.2	4.7	1.2	5.2	5.5	10.0	5.0	4.6	5.0
9	2.0	2.0	4.1	3.2	4.6	1.2	5.1	5.4	9.9	4.9	4.5
10	3.0	2.0	2.0	4.2	3.3	4.7	1.2	5.3	5.5	10.1	5.0
11	3.0	3.0	2.0	2.0	4.1	3.2	4.7	1.2	5.2	5.5	10.0
12	5.0	2.9	2.9	1.9	1.9	4.0	3.1	4.5	1.2	5.0	5.2
K-5	23.0	23.1	26.6	26.6	25.9	21.3	21.0	21.1	20.7	20.8	20.8
6-8	9.0	11.5	8.8	10.7	11.2	19.8	19.8	19.0	14.1	13.9	13.7
9-12	13.0	9.9	11.0	11.3	13.9	13.1	14.1	16.4	21.8	25.5	24.7
K-12	45.0	44.5	46.4	48.6	51.0	54.2	54.9	56.5	56.6	60.2	59.2

Study Area 23A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	1.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	0.0	1.0	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1
3	0.0	0.0	1.1	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	2.0	0.0	0.0	1.2	1.4	1.3	1.4	1.3	1.2	1.3	1.3
5	0.0	2.1	0.0	0.0	1.2	1.4	1.3	1.4	1.4	1.3	1.4
6	2.0	0.0	2.2	0.0	0.0	1.3	1.5	1.4	1.5	1.5	1.4
7	0.0	2.1	0.0	2.4	0.0	0.0	1.4	1.6	1.5	1.6	1.5
8	2.0	0.0	2.2	0.0	2.4	0.0	0.0	1.4	1.7	1.5	1.7
9	1.0	2.0	0.0	2.1	0.0	2.4	0.0	0.0	1.4	1.6	1.5
10	0.0	1.0	2.0	0.0	2.2	0.0	2.5	0.0	0.0	1.4	1.7
11	1.0	0.0	1.0	2.0	0.0	2.2	0.0	2.4	0.0	0.0	1.4
12	0.0	1.0	0.0	1.0	1.9	0.0	2.1	0.0	2.3	0.0	0.0
K-5	4.0	5.2	4.4	5.8	7.0	7.1	7.0	7.0	6.9	6.9	7.0
6-8	4.0	2.1	4.4	2.4	2.4	1.3	2.9	4.4	4.7	4.6	4.6
9-12	2.0	4.0	3.0	5.1	4.1	4.6	4.6	2.4	3.7	3.0	4.6
K-12	10.0	11.3	11.8	13.3	13.5	13.0	14.5	13.8	15.3	14.5	16.2

Study Area 23B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	1.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0	0.0	0.0
9	2.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0	0.0
10	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0
11	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4
12	1.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.2	0.0
K-5	2.0	2.1	2.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	1.2	1.3	2.6	1.4	1.4	0.0	0.0	0.0
9-12	3.0	2.0	2.0	1.9	0.0	0.0	1.3	1.3	2.7	2.6	1.4
K-12	5.0	4.1	4.2	4.3	2.5	2.6	2.7	2.7	2.7	2.6	1.4

Study Area 24A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 24B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	1.0	1.0	1.1	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	0.0	0.0	1.3	1.4	1.4	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4
K-12	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.4	1.4	1.4

Study Area 25A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	3.0	2.1	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	3.0	3.1	2.2	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	3.0	3.2	3.4	2.4	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	0.0	3.1	3.3	3.5	2.5	4.3	3.9	4.3	4.1	3.8	4.1
6	6.0	0.0	3.4	3.6	3.8	2.7	4.6	4.2	4.6	4.4	4.1
7	2.0	6.3	0.0	3.5	3.8	4.0	2.8	4.8	4.5	4.9	4.6
8	3.0	2.1	6.5	0.0	3.6	3.9	4.1	2.9	5.0	4.6	5.0
9	1.0	3.0	2.0	6.4	0.0	3.6	3.9	4.1	2.8	4.9	4.5
10	4.0	1.0	3.0	2.1	6.6	0.0	3.7	3.9	4.1	2.9	5.0
11	2.0	4.0	1.0	3.0	2.1	6.5	0.0	3.6	3.9	4.1	2.9
12	3.0	1.9	3.8	1.0	2.9	2.0	6.2	0.0	3.5	3.7	3.9
K-5	14.0	17.8	18.8	19.5	19.8	21.3	21.0	21.1	20.7	20.8	20.8
6-8	11.0	8.4	9.9	7.1	11.2	10.6	11.5	11.9	14.1	13.9	13.7
9-12	10.0	9.9	9.8	12.5	11.6	12.1	13.8	11.6	14.3	15.6	16.3
K-12	35.0	36.1	38.5	39.1	42.6	44.0	46.3	44.6	49.1	50.3	50.8

Study Area 25B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	3.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	2.0	3.1	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	1.0	2.1	3.3	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	1.0	1.1	2.2	3.5	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	3.0	1.0	1.1	2.3	3.7	4.3	3.9	4.3	4.1	3.8	4.1
6	1.0	3.2	1.1	1.2	2.5	4.0	4.6	4.2	4.6	4.4	4.1
7	3.0	1.0	3.4	1.2	1.3	2.7	4.2	4.8	4.5	4.9	4.6
8	2.0	3.1	1.1	3.5	1.2	1.3	2.7	4.3	5.0	4.6	5.0
9	0.0	2.0	3.1	1.1	3.5	1.2	1.3	2.7	4.3	4.9	4.5
10	1.0	0.0	2.0	3.1	1.1	3.5	1.2	1.3	2.8	4.3	5.0
11	5.0	1.0	0.0	2.0	3.1	1.1	3.5	1.2	1.3	2.7	4.3
12	0.0	4.8	1.0	0.0	1.9	3.0	1.0	3.4	1.2	1.2	2.6
K-5	13.0	13.6	16.5	19.4	21.0	21.3	21.0	21.1	20.7	20.8	20.8
6-8	6.0	7.3	5.6	5.9	5.0	8.0	11.5	13.3	14.1	13.9	13.7
9-12	6.0	7.8	6.1	6.2	9.6	8.8	7.0	8.6	9.6	13.1	16.4
K-12	25.0	28.7	28.2	31.5	35.6	38.1	39.5	43.0	44.4	47.8	50.9

Study Area 25C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	1.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	2.0	1.0	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	3.0	2.1	1.1	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	2.0	3.2	2.2	1.2	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	3.0	2.1	3.3	2.3	1.2	7.1	6.5	7.1	6.8	6.3	6.8
6	0.0	3.2	2.2	3.6	2.5	1.3	7.7	7.1	7.7	7.3	6.8
7	1.0	0.0	3.4	2.4	3.8	2.7	1.4	8.1	7.4	8.1	7.7
8	1.0	1.0	0.0	3.5	2.4	3.9	2.7	1.4	8.3	7.6	8.3
9	1.0	1.0	1.0	0.0	3.5	2.4	3.9	2.7	1.4	8.2	7.6
10	1.0	1.0	1.0	1.0	0.0	3.5	2.5	3.9	2.8	1.4	8.4
11	4.0	1.0	1.0	1.0	1.0	0.0	3.5	2.4	3.9	2.7	1.4
12	1.0	3.8	1.0	1.0	1.0	1.0	0.0	3.4	2.3	3.7	2.6
K-5	16.0	18.8	23.0	26.1	29.9	35.5	35.1	35.1	34.8	34.4	34.8
6-8	2.0	4.2	5.6	9.5	8.7	7.9	11.8	16.6	23.4	23.0	22.8
9-12	7.0	6.8	4.0	3.0	5.5	6.9	9.9	12.4	10.4	16.0	20.0
K-12	25.0	29.8	32.6	38.6	44.1	50.3	56.8	64.1	68.6	73.4	77.6

Study Area 26 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	1.0	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7
1	0.0	0.0	1.1	1.5	1.0	0.8	0.8	0.8	0.8	0.8	0.8
2	0.0	0.0	1.0	1.5	1.6	1.1	0.9	0.9	0.9	0.9	0.9
3	0.0	0.0	1.0	1.4	1.6	1.7	1.1	0.9	0.9	0.9	0.9
4	0.0	0.0	1.0	1.5	1.5	1.7	1.8	1.2	1.0	1.0	1.0
5	0.0	0.0	1.0	1.4	1.5	1.6	1.8	1.9	1.2	1.0	1.0
6	0.0	0.0	1.0	1.5	1.5	1.6	1.7	1.9	2.0	1.3	1.1
7	0.0	0.0	1.0	1.5	1.5	1.6	1.7	1.8	2.0	2.1	1.4
8	0.0	0.0	1.0	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.2
9	0.0	0.0	0.9	1.3	1.4	1.5	1.6	1.7	1.8	1.8	2.1
10	0.0	0.0	0.9	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.9
11	0.0	0.0	0.9	1.3	1.3	1.3	1.4	1.5	1.6	1.7	1.8
12	0.0	0.0	0.9	1.2	1.2	1.2	1.3	1.3	1.4	1.5	1.6
K-5	0.0	0.0	6.1	8.2	7.9	7.6	7.1	6.4	5.5	5.3	5.3
6-8	0.0	0.0	3.0	4.4	4.5	4.8	5.1	5.5	5.9	5.5	4.7
9-12	0.0	0.0	3.6	5.1	5.2	5.4	5.8	6.1	6.5	6.8	7.4
K-12	0.0	0.0	12.7	17.7	17.6	17.8	18.0	18.0	17.9	17.6	17.4

Study Area 27 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	3.0	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.4	6.5	6.5
2	2.0	3.1	7.3	6.7	7.3	7.0	6.5	6.9	6.8	6.7	6.8
3	5.0	2.1	3.3	7.7	7.1	7.7	7.3	6.8	7.3	7.1	7.1
4	5.0	5.4	2.2	3.5	8.2	7.6	8.2	7.8	7.3	7.8	7.6
5	4.0	5.2	5.6	2.3	3.7	8.5	7.9	8.6	8.2	7.6	8.1
6	7.0	4.3	5.6	6.0	2.5	4.0	9.2	8.5	9.2	8.8	8.2
7	9.0	7.3	4.5	5.9	6.3	2.7	4.2	9.7	8.9	9.7	9.3
8	5.0	9.3	7.6	4.7	6.1	6.5	2.7	4.3	10.0	9.2	10.0
9	3.0	4.9	9.2	7.5	4.6	6.0	6.4	2.7	4.3	9.9	9.1
10	5.0	3.1	5.0	9.4	7.6	4.7	6.1	6.6	2.8	4.3	10.1
11	4.0	4.9	3.0	5.0	9.3	7.6	4.7	6.1	6.5	2.7	4.3
12	6.0	3.8	4.8	2.9	4.8	8.9	7.3	4.5	5.8	6.2	2.6
K-5	25.0	28.3	30.8	32.9	38.3	42.7	42.1	42.1	41.6	41.3	41.7
6-8	21.0	20.9	17.7	16.6	14.9	13.2	16.1	22.5	28.1	27.7	27.5
9-12	18.0	16.7	22.0	24.8	26.3	27.2	24.5	19.9	19.4	23.1	26.1
K-12	64.0	65.9	70.5	74.3	79.5	83.1	82.7	84.5	89.1	92.1	95.3

Study Area 28 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	7.0	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.4	6.5	6.5
2	4.0	7.3	7.3	6.7	7.3	7.0	6.5	6.9	6.8	6.7	6.8
3	5.0	4.2	7.7	7.7	7.1	7.7	7.3	6.8	7.3	7.1	7.1
4	8.0	5.4	4.5	8.3	8.2	7.6	8.2	7.8	7.3	7.8	7.6
5	2.0	8.3	5.6	4.7	8.6	8.5	7.9	8.6	8.2	7.6	8.1
6	4.0	2.2	9.0	6.0	5.0	9.3	9.2	8.5	9.2	8.8	8.2
7	7.0	4.2	2.3	9.4	6.3	5.3	9.7	9.7	8.9	9.7	9.3
8	4.0	7.2	4.3	2.3	9.7	6.5	5.5	10.0	10.0	9.2	10.0
9	8.0	4.0	7.1	4.3	2.3	9.6	6.4	5.4	9.9	9.9	9.1
10	8.0	8.2	4.0	7.3	4.4	2.4	9.8	6.6	5.5	10.1	10.1
11	8.0	7.9	8.1	4.0	7.2	4.3	2.3	9.7	6.5	5.5	10.0
12	6.0	7.7	7.6	7.8	3.8	6.9	4.2	2.2	9.3	6.2	5.2
K-5	32.0	37.7	37.5	40.1	43.2	42.7	42.1	42.1	41.6	41.3	41.7
6-8	15.0	13.6	15.6	17.7	21.0	21.1	24.4	28.2	28.1	27.7	27.5
9-12	30.0	27.8	26.8	23.4	17.7	23.2	22.7	23.9	31.2	31.7	34.4
K-12	77.0	79.1	79.9	81.2	81.9	87.0	89.2	94.2	100.9	100.7	103.6

Study Area 29 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	7.0	2.1	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	5.0	7.3	2.2	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	5.0	5.4	7.9	2.4	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	2.0	5.2	5.6	8.2	2.5	4.3	3.9	4.3	4.1	3.8	4.1
6	3.0	2.2	5.6	6.0	8.8	2.7	4.6	4.2	4.6	4.4	4.1
7	4.0	3.1	2.3	5.9	6.3	9.3	2.8	4.8	4.5	4.9	4.6
8	2.0	4.1	3.2	2.3	6.1	6.5	9.6	2.9	5.0	4.6	5.0
9	9.0	2.0	4.1	3.2	2.3	6.0	6.4	9.5	2.8	4.9	4.5
10	3.0	9.2	2.0	4.2	3.3	2.4	6.1	6.6	9.6	2.9	5.0
11	2.0	3.0	9.1	2.0	4.1	3.2	2.3	6.1	6.5	9.6	2.9
12	5.0	1.9	2.9	8.7	1.9	4.0	3.1	2.2	5.8	6.2	9.2
K-5	24.0	26.3	25.6	24.2	19.8	21.3	21.0	21.1	20.7	20.8	20.8
6-8	9.0	9.4	11.1	14.2	21.2	18.5	17.0	11.9	14.1	13.9	13.7
9-12	19.0	16.1	18.1	18.1	11.6	15.6	17.9	24.4	24.7	23.6	21.6
K-12	52.0	51.8	54.8	56.5	52.6	55.4	55.9	57.4	59.5	58.3	56.1

Study Area 30 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	1.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	4.0	1.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	2.0	4.2	1.1	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	6.0	2.1	4.5	1.2	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	2.0	6.2	2.2	4.7	1.2	2.8	2.6	2.9	2.7	2.5	2.7
6	6.0	2.2	6.7	2.4	5.0	1.3	3.1	2.8	3.1	2.9	2.7
7	0.0	6.3	2.3	7.1	2.5	5.3	1.4	3.2	3.0	3.2	3.1
8	5.0	0.0	6.5	2.3	7.3	2.6	5.5	1.4	3.3	3.1	3.3
9	1.0	4.9	0.0	6.4	2.3	7.2	2.6	5.4	1.4	3.3	3.0
10	3.0	1.0	5.0	0.0	6.6	2.4	7.4	2.6	5.5	1.4	3.4
11	3.0	3.0	1.0	5.0	0.0	6.5	2.3	7.3	2.6	5.5	1.4
12	3.0	2.9	2.9	1.0	4.8	0.0	6.2	2.2	7.0	2.5	5.2
K-5	17.0	17.6	14.3	14.9	12.7	14.2	14.0	14.1	13.8	13.8	14.0
6-8	11.0	8.5	15.5	11.8	14.8	9.2	10.0	7.4	9.4	9.2	9.1
9-12	10.0	11.8	8.9	12.4	13.7	16.1	18.5	17.5	16.5	12.7	13.0
K-12	38.0	37.9	38.7	39.1	41.2	39.5	42.5	39.0	39.7	35.7	36.1

Study Area 31 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	8.0	4.6	4.3	4.7	4.4	4.1	4.4	4.3	4.3	4.3	4.3
2	4.0	8.4	4.9	4.5	4.9	4.7	4.3	4.6	4.5	4.5	4.6
3	7.0	4.2	8.8	5.1	4.7	5.1	4.9	4.5	4.9	4.8	4.7
4	4.0	7.5	4.5	9.4	5.5	5.0	5.5	5.2	4.9	5.2	5.1
5	7.0	4.2	7.8	4.7	9.8	5.7	5.2	5.7	5.4	5.1	5.4
6	4.0	7.6	4.5	8.4	5.0	10.6	6.1	5.7	6.2	5.9	5.5
7	3.0	4.2	7.9	4.7	8.8	5.3	11.1	6.5	5.9	6.5	6.2
8	3.0	3.1	4.3	8.2	4.9	9.1	5.5	11.5	6.6	6.1	6.7
9	6.0	3.0	3.1	4.3	8.1	4.8	9.0	5.4	11.3	6.6	6.1
10	1.0	6.1	3.0	3.1	4.4	8.3	4.9	9.2	5.5	11.6	6.7
11	4.0	1.0	6.1	3.0	3.1	4.3	8.2	4.9	9.1	5.5	11.5
12	4.0	3.8	1.0	5.8	2.9	3.0	4.2	7.8	4.7	8.7	5.2
K-5	34.0	32.6	34.3	32.2	32.9	28.4	28.0	28.0	27.7	27.6	27.8
6-8	10.0	14.9	16.7	21.3	18.7	25.0	22.7	23.7	18.7	18.5	18.4
9-12	15.0	13.9	13.2	16.2	18.5	20.4	26.3	27.3	30.6	32.4	29.5
K-12	59.0	61.4	64.2	69.7	70.1	73.8	77.0	79.0	77.0	78.5	75.7

Study Area 32 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	10.0	9.2	10.0	9.6	8.9	9.5	9.3	9.2	9.3	9.3	9.3
1	5.0	11.6	10.7	11.6	11.1	10.3	11.0	10.8	10.7	10.8	10.8
2	2.0	5.2	12.2	11.2	12.2	11.6	10.8	11.6	11.3	11.2	11.4
3	8.0	2.1	5.5	12.8	11.8	12.8	12.2	11.4	12.1	11.9	11.8
4	5.0	8.6	2.2	5.9	13.7	12.6	13.7	13.1	12.2	13.0	12.7
5	5.0	5.2	8.9	2.3	6.1	14.2	13.1	14.3	13.6	12.6	13.5
6	5.0	5.4	5.6	9.6	2.5	6.6	15.4	14.1	15.4	14.7	13.6
7	4.0	5.2	5.7	5.9	10.1	2.7	7.0	16.1	14.8	16.2	15.4
8	4.0	4.1	5.4	5.8	6.1	10.4	2.7	7.2	16.6	15.3	16.7
9	5.0	4.0	4.1	5.4	5.8	6.0	10.3	2.7	7.1	16.5	15.1
10	2.0	5.1	4.0	4.2	5.5	5.9	6.1	10.5	2.8	7.2	16.8
11	4.0	2.0	5.0	4.0	4.1	5.4	5.8	6.1	10.4	2.7	7.2
12	2.0	3.8	1.9	4.8	3.8	4.0	5.2	5.6	5.8	10.0	2.6
K-5	35.0	41.9	49.5	53.4	63.8	71.0	70.1	70.4	69.2	68.8	69.5
6-8	13.0	14.7	16.7	21.3	18.7	19.7	25.1	37.4	46.8	46.2	45.7
9-12	13.0	14.9	15.0	18.4	19.2	21.3	27.4	24.9	26.1	36.4	41.7
K-12	61.0	71.5	81.2	93.1	101.7	112.0	122.6	132.7	142.1	151.4	156.9

Study Area 33A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	1.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	9.0	1.0	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	2.0	9.4	1.1	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	0.0	2.1	10.1	1.2	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	5.0	0.0	2.2	10.5	1.2	7.1	6.5	7.1	6.8	6.3	6.8
6	2.0	5.4	0.0	2.4	11.4	1.3	7.7	7.1	7.7	7.3	6.8
7	3.0	2.1	5.7	0.0	2.5	11.9	1.4	8.1	7.4	8.1	7.7
8	4.0	3.1	2.2	5.8	0.0	2.6	12.3	1.4	8.3	7.6	8.3
9	6.0	4.0	3.1	2.1	5.8	0.0	2.6	12.2	1.4	8.2	7.6
10	4.0	6.1	4.0	3.1	2.2	5.9	0.0	2.6	12.4	1.4	8.4
11	6.0	4.0	6.1	4.0	3.1	2.2	5.8	0.0	2.6	12.3	1.4
12	5.0	5.8	3.8	5.8	3.8	3.0	2.1	5.6	0.0	2.5	11.8
K-5	22.0	22.9	29.8	34.3	29.9	35.5	35.1	35.1	34.8	34.4	34.8
6-8	9.0	10.6	7.9	8.2	13.9	15.8	21.4	16.6	23.4	23.0	22.8
9-12	21.0	19.9	17.0	15.0	14.9	11.1	10.5	20.4	16.4	24.4	29.2
K-12	52.0	53.4	54.7	57.5	58.7	62.4	67.0	72.1	74.6	81.8	86.8

Study Area 33B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	2.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	3.0	2.1	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1
3	1.0	3.1	2.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	3.0	1.1	3.4	2.4	1.4	1.3	1.4	1.3	1.2	1.3	1.3
5	1.0	3.1	1.1	3.5	2.5	1.4	1.3	1.4	1.4	1.3	1.4
6	0.0	1.1	3.4	1.2	3.8	2.7	1.5	1.4	1.5	1.5	1.4
7	0.0	0.0	1.1	3.5	1.3	4.0	2.8	1.6	1.5	1.6	1.5
8	2.0	0.0	0.0	1.2	3.6	1.3	4.1	2.9	1.7	1.5	1.7
9	2.0	2.0	0.0	0.0	1.2	3.6	1.3	4.1	2.8	1.6	1.5
10	3.0	2.0	2.0	0.0	0.0	1.2	3.7	1.3	4.1	2.9	1.7
11	0.0	3.0	2.0	2.0	0.0	0.0	1.2	3.6	1.3	4.1	2.9
12	1.0	0.0	2.9	1.9	1.9	0.0	0.0	1.1	3.5	1.2	3.9
K-5	11.0	11.5	10.0	10.5	8.3	7.1	7.0	7.0	6.9	6.9	7.0
6-8	2.0	1.1	4.5	5.9	8.7	8.0	8.4	5.9	4.7	4.6	4.6
9-12	6.0	7.0	6.9	3.9	3.1	4.8	6.2	10.1	11.7	9.8	10.0
K-12	19.0	19.6	21.4	20.3	20.1	19.9	21.6	23.0	23.3	21.3	21.6

Study Area 34 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	5.0	4.6	4.3	4.7	4.4	4.1	4.4	4.3	4.3	4.3	4.3
2	3.0	5.2	4.9	4.5	4.9	4.7	4.3	4.6	4.5	4.5	4.6
3	9.0	3.1	5.5	5.1	4.7	5.1	4.9	4.5	4.9	4.8	4.7
4	6.0	9.6	3.4	5.9	5.5	5.0	5.5	5.2	4.9	5.2	5.1
5	4.0	6.2	10.0	3.5	6.1	5.7	5.2	5.7	5.4	5.1	5.4
6	4.0	4.3	6.7	10.8	3.8	6.6	6.1	5.7	6.2	5.9	5.5
7	4.0	4.2	4.5	7.1	11.4	4.0	7.0	6.5	5.9	6.5	6.2
8	5.0	4.1	4.3	4.7	7.3	11.7	4.1	7.2	6.6	6.1	6.7
9	9.0	4.9	4.1	4.3	4.6	7.2	11.6	4.1	7.1	6.6	6.1
10	8.0	9.2	5.0	4.2	4.4	4.7	7.4	11.8	4.1	7.2	6.7
11	4.0	7.9	9.1	5.0	4.1	4.3	4.7	7.3	11.7	4.1	7.2
12	6.0	3.8	7.6	8.7	4.8	4.0	4.2	4.5	7.0	11.2	3.9
K-5	31.0	32.4	32.1	27.5	29.2	28.4	28.0	28.0	27.7	27.6	27.8
6-8	13.0	12.6	15.5	22.6	22.5	22.3	17.2	19.4	18.7	18.5	18.4
9-12	27.0	25.8	25.8	22.2	17.9	20.2	27.9	27.7	29.9	29.1	23.9
K-12	71.0	70.8	73.4	72.3	69.6	70.9	73.1	75.1	76.3	75.2	70.1

Study Area 35 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	3.0	2.1	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	1.0	3.1	2.2	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	3.0	1.1	3.4	2.4	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	2.0	3.1	1.1	3.5	2.5	2.8	2.6	2.9	2.7	2.5	2.7
6	4.0	2.2	3.4	1.2	3.8	2.7	3.1	2.8	3.1	2.9	2.7
7	8.0	4.2	2.3	3.5	1.3	4.0	2.8	3.2	3.0	3.2	3.1
8	3.0	8.2	4.3	2.3	3.6	1.3	4.1	2.9	3.3	3.1	3.3
9	10.0	3.0	8.2	4.3	2.3	3.6	1.3	4.1	2.8	3.3	3.0
10	4.0	10.2	3.0	8.3	4.4	2.4	3.7	1.3	4.1	2.9	3.4
11	5.0	4.0	10.1	3.0	8.2	4.3	2.3	3.6	1.3	4.1	2.9
12	5.0	4.8	3.8	9.7	2.9	7.9	4.2	2.2	3.5	1.2	3.9
K-5	13.0	13.5	13.2	14.9	14.0	14.2	14.0	14.1	13.8	13.8	14.0
6-8	15.0	14.6	10.0	7.0	8.7	8.0	10.0	8.9	9.4	9.2	9.1
9-12	24.0	22.0	25.1	25.3	17.8	18.2	11.5	11.2	11.7	11.5	13.2
K-12	52.0	50.1	48.3	47.2	40.5	40.4	35.5	34.2	34.9	34.5	36.3

Study Area 36 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	0.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	2.0	0.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	1.0	2.1	0.0	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	2.0	1.1	2.2	0.0	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	5.0	2.1	1.1	2.3	0.0	2.8	2.6	2.9	2.7	2.5	2.7
6	4.0	5.4	2.2	1.2	2.5	0.0	3.1	2.8	3.1	2.9	2.7
7	4.0	4.2	5.7	2.4	1.3	2.7	0.0	3.2	3.0	3.2	3.1
8	1.0	4.1	4.3	5.8	2.4	1.3	2.7	0.0	3.3	3.1	3.3
9	5.0	1.0	4.1	4.3	5.8	2.4	1.3	2.7	0.0	3.3	3.0
10	2.0	5.1	1.0	4.2	4.4	5.9	2.5	1.3	2.8	0.0	3.4
11	5.0	2.0	5.0	1.0	4.1	4.3	5.8	2.4	1.3	2.7	0.0
12	3.0	4.8	1.9	4.8	1.0	4.0	4.2	5.6	2.3	1.2	2.6
K-5	12.0	9.4	9.8	11.3	11.5	14.2	14.0	14.1	13.8	13.8	14.0
6-8	9.0	13.7	12.2	9.4	6.2	4.0	5.8	6.0	9.4	9.2	9.1
9-12	15.0	12.9	12.0	14.3	15.3	16.6	13.8	12.0	6.4	7.2	9.0
K-12	36.0	36.0	34.0	35.0	33.0	34.8	33.6	32.1	29.6	30.2	32.1

Study Area 37 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3
1	0.0	2.3	2.1	2.8	3.2	2.8	2.7	2.7	2.7	2.7	2.7
2	3.0	0.0	2.4	2.7	3.4	3.4	3.0	2.9	2.8	2.8	2.8
3	6.0	3.1	0.0	3.0	3.3	3.6	3.5	3.1	3.0	3.0	2.9
4	6.0	6.4	3.4	0.5	3.7	3.5	3.8	3.8	3.3	3.2	3.2
5	3.0	6.2	6.7	3.9	0.9	3.8	3.6	4.0	3.9	3.5	3.4
6	9.0	3.2	6.7	7.7	4.7	1.0	4.1	3.9	4.3	4.3	3.7
7	5.0	9.4	3.4	7.5	8.5	5.0	1.0	4.3	4.1	4.5	4.5
8	4.0	5.1	9.7	3.9	8.2	8.8	5.1	1.1	4.5	4.3	4.7
9	3.0	4.0	5.1	9.9	4.2	8.1	8.7	5.1	1.1	4.4	4.2
10	4.0	3.1	4.0	5.5	10.4	4.3	8.3	8.8	5.2	1.1	4.5
11	2.0	4.0	3.0	4.3	5.8	10.3	4.2	8.2	8.8	5.1	1.1
12	8.0	1.9	3.8	3.2	4.4	5.5	9.9	4.1	7.9	8.4	4.9
K-5	20.0	19.8	16.6	15.2	16.9	19.5	18.9	18.8	18.0	17.5	17.3
6-8	18.0	17.7	19.8	19.1	21.4	14.8	10.2	9.3	12.9	13.1	12.9
9-12	17.0	13.0	15.9	22.9	24.8	28.2	31.1	26.2	23.0	19.0	14.7
K-12	55.0	50.5	52.3	57.2	63.1	62.5	60.2	54.3	53.9	49.6	44.9

Study Area 38 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.5	6.5	6.5	6.5
1	4.0	7.6	7.0	7.7	7.3	6.8	7.2	7.1	7.0	7.1	7.1
2	10.0	4.2	8.1	7.4	8.1	7.7	7.2	7.7	7.5	7.5	7.6
3	3.0	10.4	4.4	8.4	7.7	8.4	8.0	7.5	8.0	7.8	7.8
4	7.0	3.0	10.5	4.5	8.5	7.8	8.5	8.1	7.5	8.1	7.9
5	6.0	7.3	3.2	11.0	4.7	8.9	8.2	8.9	8.5	7.9	8.5
6	3.0	6.1	7.5	3.2	11.2	4.8	9.1	8.4	9.1	8.7	8.1
7	5.0	3.0	6.1	7.4	3.2	11.1	4.7	9.0	8.3	9.0	8.6
8	6.0	5.1	3.0	6.1	7.5	3.2	11.2	4.8	9.1	8.4	9.1
9	5.0	6.1	5.2	3.1	6.2	7.6	3.3	11.5	4.9	9.3	8.5
10	8.0	4.9	6.0	5.0	3.0	6.1	7.5	3.2	11.2	4.8	9.1
11	7.0	7.9	4.9	5.9	5.0	3.0	6.1	7.4	3.2	11.1	4.7
12	8.0	6.8	7.7	4.7	5.8	4.8	2.9	5.9	7.2	3.1	10.8
K-5	37.0	38.9	40.2	45.7	42.5	46.2	45.6	45.8	45.0	44.9	45.4
6-8	14.0	14.2	16.6	16.7	21.9	19.1	25.0	22.2	26.5	26.1	25.8
9-12	28.0	25.7	23.8	18.7	20.0	21.5	19.8	28.0	26.5	28.3	33.1
K-12	79.0	78.8	80.6	81.1	84.4	86.8	90.4	96.0	98.0	99.3	104.3

Study Area 39 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	8.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	9.0	8.5	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	4.0	9.4	8.8	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	5.0	4.0	9.5	8.9	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	4.0	5.2	4.2	9.9	9.4	2.5	2.3	2.6	2.4	2.3	2.4
6	10.0	4.1	5.4	4.3	10.1	9.5	2.6	2.4	2.6	2.5	2.3
7	5.0	9.9	4.0	5.3	4.3	10.0	9.4	2.6	2.4	2.6	2.5
8	5.0	5.1	10.0	4.1	5.4	4.3	10.1	9.5	2.6	2.4	2.6
9	6.0	5.1	5.2	10.2	4.2	5.5	4.4	10.3	9.7	2.7	2.4
10	13.0	5.9	5.0	5.0	10.0	4.1	5.4	4.3	10.1	9.5	2.6
11	8.0	12.9	5.8	4.9	5.0	9.9	4.0	5.3	4.3	10.0	9.4
12	5.0	7.8	12.5	5.6	4.8	4.8	9.6	3.9	5.1	4.2	9.7
K-5	32.0	31.1	28.8	27.4	20.2	13.1	13.1	13.0	13.0	12.8	13.0
6-8	20.0	19.1	19.4	13.7	19.8	23.8	22.1	14.5	7.6	7.5	7.4
9-12	32.0	31.7	28.5	25.7	24.0	24.3	23.4	23.8	29.2	26.4	24.1
K-12	84.0	81.9	76.7	66.8	64.0	61.2	58.6	51.3	49.8	46.7	44.5

Study Area 40 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	0.0	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	5.0	0.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	3.0	5.2	0.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1
4	2.0	3.0	5.3	0.0	1.2	1.1	1.2	1.2	1.1	1.2	1.1
5	5.0	2.1	3.2	5.5	0.0	1.3	1.2	1.3	1.2	1.1	1.2
6	4.0	5.1	2.1	3.2	5.6	0.0	1.3	1.2	1.3	1.2	1.2
7	5.0	4.0	5.0	2.1	3.2	5.6	0.0	1.3	1.2	1.3	1.2
8	5.0	5.1	4.0	5.1	2.1	3.2	5.6	0.0	1.3	1.2	1.3
9	3.0	5.1	5.2	4.1	5.2	2.2	3.3	5.7	0.0	1.3	1.2
10	6.0	2.9	5.0	5.0	4.0	5.1	2.1	3.2	5.6	0.0	1.3
11	3.0	5.9	2.9	4.9	5.0	4.0	5.0	2.1	3.2	5.6	0.0
12	7.0	2.9	5.8	2.8	4.8	4.8	3.8	4.9	2.1	3.1	5.4
K-5	16.0	12.3	11.7	9.9	5.4	6.6	6.4	6.6	6.4	6.4	6.4
6-8	14.0	14.2	11.1	10.4	10.9	8.8	6.9	2.5	3.8	3.7	3.7
9-12	19.0	16.8	18.9	16.8	19.0	16.1	14.2	15.9	10.9	10.0	7.9
K-12	49.0	43.3	41.7	37.1	35.3	31.5	27.5	25.0	21.1	20.1	18.0

Study Area 41 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	4.0	5.5	5.0	5.5	5.2	4.8	5.2	5.1	5.0	5.1	5.1
2	4.0	4.2	5.8	5.3	5.8	5.5	5.1	5.5	5.4	5.3	5.4
3	4.0	4.2	4.4	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5
4	3.0	4.0	4.2	4.5	6.1	5.6	6.1	5.8	5.4	5.8	5.6
5	4.0	3.1	4.2	4.4	4.7	6.4	5.9	6.4	6.1	5.7	6.0
6	6.0	4.1	3.2	4.3	4.5	4.8	6.5	6.0	6.5	6.2	5.8
7	3.0	5.9	4.0	3.2	4.3	4.5	4.7	6.4	5.9	6.5	6.2
8	4.0	3.0	6.0	4.1	3.2	4.3	4.5	4.8	6.5	6.0	6.5
9	2.0	4.1	3.1	6.1	4.2	3.3	4.4	4.6	4.9	6.6	6.1
10	3.0	2.0	4.0	3.0	6.0	4.1	3.2	4.3	4.5	4.8	6.5
11	2.0	3.0	1.9	4.0	3.0	5.9	4.0	3.2	4.3	4.5	4.7
12	3.0	1.9	2.9	1.9	3.8	2.9	5.8	3.9	3.1	4.2	4.3
K-5	24.0	25.6	28.6	30.5	31.7	33.0	32.7	32.7	32.3	32.1	32.2
6-8	13.0	13.0	13.2	11.6	12.0	13.6	15.7	17.2	18.9	18.7	18.5
9-12	10.0	11.0	11.9	15.0	17.0	16.2	17.4	16.0	16.8	20.1	21.6
K-12	47.0	49.6	53.7	57.1	60.7	62.8	65.8	65.9	68.0	70.9	72.3

Study Area 42 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	3.3	3.9	3.5	3.5	3.5	3.5	3.5
1	4.0	3.3	3.0	3.3	3.8	4.4	4.2	3.8	3.8	3.8	3.8
2	2.0	4.2	3.5	3.2	4.2	4.8	4.6	4.5	4.1	4.0	4.1
3	8.0	2.1	4.4	3.6	4.0	5.0	5.0	4.8	4.6	4.2	4.2
4	6.0	8.1	2.1	4.5	4.3	4.7	5.1	5.0	4.8	4.7	4.3
5	6.0	6.3	8.5	2.2	5.4	5.2	5.0	5.3	5.3	5.1	4.9
6	4.0	6.1	6.4	8.7	2.9	6.2	5.3	5.1	5.4	5.4	5.2
7	5.0	4.0	6.1	6.4	9.2	3.6	6.1	5.3	5.0	5.4	5.3
8	13.0	5.1	4.0	6.1	7.1	10.0	3.6	6.2	5.3	5.1	5.4
9	11.0	13.3	5.2	4.1	6.7	7.7	10.2	3.7	6.3	5.4	5.2
10	5.0	10.8	13.0	5.0	4.5	7.1	7.6	10.0	3.6	6.2	5.3
11	2.0	4.9	10.7	12.9	5.5	4.9	7.0	7.5	9.9	3.6	6.1
12	8.0	1.9	4.8	10.4	12.9	5.8	4.7	6.8	7.3	9.6	3.4
K-5	29.0	26.8	24.5	19.7	25.0	28.0	27.4	26.9	26.1	25.3	24.8
6-8	22.0	15.2	16.5	21.2	19.2	19.8	15.0	16.6	15.7	15.9	15.9
9-12	26.0	30.9	33.7	32.4	29.6	25.5	29.5	28.0	27.1	24.8	20.0
K-12	77.0	72.9	74.7	73.3	73.8	73.3	71.9	71.5	68.9	66.0	60.7

Study Area 43 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	2.0	4.4	4.0	4.4	4.2	3.9	4.1	4.1	4.0	4.1	4.1
2	5.0	2.1	4.6	4.3	4.6	4.4	4.1	4.4	4.3	4.3	4.3
3	7.0	5.2	2.2	4.8	4.4	4.8	4.6	4.3	4.6	4.5	4.4
4	1.0	7.1	5.3	2.2	4.9	4.5	4.9	4.6	4.3	4.6	4.5
5	5.0	1.0	7.4	5.5	2.3	5.1	4.7	5.1	4.9	4.5	4.8
6	5.0	5.1	1.1	7.6	5.6	2.4	5.2	4.8	5.2	5.0	4.6
7	4.0	4.9	5.0	1.1	7.5	5.6	2.4	5.1	4.7	5.2	4.9
8	4.0	4.0	5.0	5.1	1.1	7.6	5.6	2.4	5.2	4.8	5.2
9	4.0	4.1	4.1	5.1	5.2	1.1	7.7	5.7	2.4	5.3	4.9
10	7.0	3.9	4.0	4.0	5.0	5.1	1.1	7.6	5.6	2.4	5.2
11	1.0	6.9	3.9	4.0	4.0	4.9	5.0	1.1	7.5	5.6	2.4
12	4.0	1.0	6.7	3.8	3.8	3.9	4.8	4.9	1.0	7.3	5.4
K-5	24.0	23.5	27.5	25.0	24.0	26.5	26.1	26.2	25.8	25.7	25.8
6-8	13.0	14.0	11.1	13.8	14.2	15.6	13.2	12.3	15.1	15.0	14.7
9-12	16.0	15.9	18.7	16.9	18.0	15.0	18.6	19.3	16.5	20.6	17.9
K-12	53.0	53.4	57.3	55.7	56.2	57.1	57.9	57.8	57.4	61.3	58.4

Study Area 44 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	1.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	0.0	1.1	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	4.0	0.0	1.1	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	5.0	4.0	0.0	1.1	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	1.0	5.2	4.2	0.0	1.2	3.8	3.5	3.8	3.7	3.4	3.6
6	1.0	1.0	5.4	4.3	0.0	1.2	3.9	3.6	3.9	3.7	3.5
7	3.0	1.0	1.0	5.3	4.3	0.0	1.2	3.9	3.6	3.9	3.7
8	2.0	3.0	1.0	1.0	5.4	4.3	0.0	1.2	3.9	3.6	3.9
9	4.0	2.0	3.1	1.0	1.0	5.5	4.4	0.0	1.2	4.0	3.7
10	1.0	3.9	2.0	3.0	1.0	1.0	5.4	4.3	0.0	1.2	3.9
11	4.0	1.0	3.9	2.0	3.0	1.0	1.0	5.3	4.3	0.0	1.2
12	2.0	3.9	1.0	3.8	1.9	2.9	1.0	1.0	5.1	4.2	0.0
K-5	14.0	16.4	14.8	14.1	17.4	19.7	19.6	19.6	19.3	19.4	19.3
6-8	6.0	5.0	7.4	10.6	9.7	5.5	5.1	8.7	11.4	11.2	11.1
9-12	11.0	10.8	10.0	9.8	6.9	10.4	11.8	10.6	10.6	9.4	8.8
K-12	31.0	32.2	32.2	34.5	34.0	35.6	36.5	38.9	41.3	40.0	39.2

Study Area 45 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.3	2.1	2.3	2.2	2.0	2.2	2.1	2.1	2.1	2.1
2	6.0	2.2	2.5	2.3	2.5	2.4	2.2	2.4	2.4	2.3	2.4
3	6.0	6.4	2.4	2.7	2.5	2.7	2.6	2.4	2.6	2.5	2.5
4	2.0	6.0	6.4	2.4	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	3.0	2.0	6.1	6.5	2.4	2.8	2.5	2.8	2.6	2.5	2.6
6	7.0	3.3	2.3	6.8	7.3	2.7	3.1	2.8	3.1	2.9	2.7
7	4.0	7.1	3.4	2.3	6.9	7.3	2.7	3.1	2.8	3.1	3.0
8	5.0	4.1	7.3	3.5	2.4	7.1	7.6	2.8	3.2	2.9	3.2
9	4.0	5.4	4.4	7.9	3.7	2.5	7.6	8.2	3.0	3.4	3.2
10	7.0	3.9	5.3	4.4	7.7	3.7	2.5	7.5	8.0	3.0	3.4
11	4.0	6.9	3.9	5.2	4.3	7.6	3.6	2.5	7.4	7.9	2.9
12	2.0	4.0	6.9	3.8	5.2	4.3	7.6	3.6	2.4	7.3	7.8
K-5	21.0	20.7	21.5	18.1	14.1	14.3	14.1	14.1	14.0	13.9	14.0
6-8	16.0	14.5	13.0	12.6	16.6	17.1	13.4	8.7	9.1	8.9	8.9
9-12	17.0	20.2	20.5	21.3	20.9	18.1	21.3	21.8	20.8	21.6	17.3
K-12	54.0	55.4	55.0	52.0	51.6	49.5	48.8	44.6	43.9	44.4	40.2

Study Area 46A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	3.0	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	2.0	3.2	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	6.0	2.1	3.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1
4	4.0	6.1	2.1	3.3	1.2	1.1	1.2	1.2	1.1	1.2	1.1
5	3.0	4.2	6.4	2.2	3.5	1.3	1.2	1.3	1.2	1.1	1.2
6	3.0	3.1	4.3	6.5	2.2	3.6	1.3	1.2	1.3	1.2	1.2
7	6.0	3.0	3.0	4.2	6.4	2.2	3.5	1.3	1.2	1.3	1.2
8	3.0	6.1	3.0	3.1	4.3	6.5	2.2	3.6	1.3	1.2	1.3
9	5.0	3.1	6.2	3.1	3.1	4.4	6.6	2.3	3.6	1.3	1.2
10	2.0	4.9	3.0	6.1	3.0	3.1	4.3	6.5	2.2	3.6	1.3
11	7.0	2.0	4.9	3.0	6.0	3.0	3.0	4.2	6.4	2.2	3.5
12	5.0	6.8	1.9	4.7	2.9	5.8	2.9	2.9	4.1	6.2	2.2
K-5	19.0	17.6	15.0	9.9	8.9	6.6	6.4	6.6	6.4	6.4	6.4
6-8	12.0	12.2	10.3	13.8	12.9	12.3	7.0	6.1	3.8	3.7	3.7
9-12	19.0	16.8	16.0	16.9	15.0	16.3	16.8	15.9	16.3	13.3	8.2
K-12	50.0	46.6	41.3	40.6	36.8	35.2	30.2	28.6	26.5	23.4	18.3

Study Area 46B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3.0	4.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	3.0	4.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	3.1	3.2	4.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0
6	3.0	2.0	3.2	3.2	4.5	3.6	0.0	0.0	0.0	0.0	0.0
7	2.0	3.0	2.0	3.2	3.2	4.5	3.5	0.0	0.0	0.0	0.0
8	3.0	2.0	3.0	2.0	3.2	3.2	4.5	3.6	0.0	0.0	0.0
9	7.0	3.1	2.1	3.1	2.1	3.3	3.3	4.6	3.6	0.0	0.0
10	2.0	6.9	3.0	2.0	3.0	2.0	3.2	3.2	4.5	3.6	0.0
11	2.0	2.0	6.8	3.0	2.0	3.0	2.0	3.2	3.2	4.5	3.5
12	3.0	1.9	1.9	6.6	2.9	1.9	2.9	2.0	3.1	3.1	4.3
K-5	15.0	13.5	10.7	7.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0
6-8	8.0	7.0	8.2	8.4	10.9	11.3	8.0	3.6	0.0	0.0	0.0
9-12	14.0	13.9	13.8	14.7	10.0	10.2	11.4	13.0	14.4	11.2	7.8
K-12	37.0	34.4	32.7	30.8	24.4	21.5	19.4	16.6	14.4	11.2	7.8

Study Area 46C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	2.1	3.2	4.1	5.0	5.9	6.8	7.4	6.8
1	0.0	1.1	1.0	2.4	4.1	5.3	6.3	7.3	8.2	8.9	8.0
2	2.0	0.0	1.2	2.3	4.3	6.2	7.4	8.5	9.5	10.1	9.4
3	1.0	2.1	0.0	2.4	4.1	6.2	8.1	9.4	10.5	11.2	10.6
4	1.0	1.0	2.1	1.2	4.1	5.9	7.9	9.9	11.2	12.0	11.3
5	0.0	1.0	1.1	3.5	3.0	6.1	7.9	10.1	12.1	13.1	12.6
6	0.0	0.0	1.1	2.3	5.2	4.8	7.9	9.7	12.0	13.7	13.4
7	1.0	0.0	0.0	2.2	3.9	6.8	6.4	9.5	11.3	13.2	13.6
8	1.0	1.0	0.0	1.2	3.9	5.6	8.6	8.1	11.2	12.7	13.3
9	1.0	1.0	1.0	0.9	2.4	5.2	6.9	9.9	9.5	12.4	13.0
10	1.0	1.0	1.0	1.8	2.0	3.5	6.3	8.0	10.9	10.2	12.2
11	1.0	1.0	1.0	1.8	3.0	3.2	4.7	7.4	9.1	11.7	10.1
12	2.0	1.0	1.0	1.8	2.9	4.0	4.2	5.7	8.3	9.7	11.4
K-5	5.0	6.1	6.4	13.9	22.8	33.8	42.6	51.1	58.3	62.7	58.7
6-8	2.0	1.0	1.1	5.7	13.0	17.2	22.9	27.3	34.5	39.6	40.3
9-12	5.0	4.0	4.0	6.3	10.3	15.9	22.1	31.0	37.8	44.0	46.7
K-12	12.0	11.1	11.5	25.9	46.1	66.9	87.6	109.4	130.6	146.3	145.7

Study Area 47 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	4.0	4.4	4.0	4.4	4.2	3.9	4.1	4.1	4.0	4.1	4.1
2	2.0	4.2	4.6	4.3	4.6	4.4	4.1	4.4	4.3	4.3	4.3
3	8.0	2.1	4.4	4.8	4.4	4.8	4.6	4.3	4.6	4.5	4.4
4	4.0	8.1	2.1	4.5	4.9	4.5	4.9	4.6	4.3	4.6	4.5
5	4.0	4.2	8.5	2.2	4.7	5.1	4.7	5.1	4.9	4.5	4.8
6	7.0	4.1	4.3	8.7	2.2	4.8	5.2	4.8	5.2	5.0	4.6
7	6.0	6.9	4.0	4.2	8.6	2.2	4.7	5.1	4.7	5.2	4.9
8	12.0	6.1	7.0	4.1	4.3	8.7	2.2	4.8	5.2	4.8	5.2
9	3.0	12.2	6.2	7.1	4.2	4.4	8.8	2.3	4.9	5.3	4.9
10	8.0	2.9	12.0	6.1	7.0	4.1	4.3	8.6	2.2	4.8	5.2
11	8.0	7.9	2.9	11.9	6.0	6.9	4.0	4.2	8.6	2.2	4.7
12	4.0	7.8	7.7	2.8	11.5	5.8	6.7	3.9	4.1	8.3	2.2
K-5	26.0	26.7	27.6	24.0	26.4	26.5	26.1	26.2	25.8	25.7	25.8
6-8	25.0	17.1	15.3	17.0	15.1	15.7	12.1	14.7	15.1	15.0	14.7
9-12	23.0	30.8	28.8	27.9	28.7	21.2	23.8	19.0	19.8	20.6	17.0
K-12	74.0	74.6	71.7	68.9	70.2	63.4	62.0	59.9	60.7	61.3	57.5

Study Area 48 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	4.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	6.0	4.2	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	5.0	6.2	4.4	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	4.0	5.1	6.3	4.5	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	7.0	4.2	5.3	6.6	4.7	2.5	2.3	2.6	2.4	2.3	2.4
6	4.0	7.1	4.3	5.4	6.7	4.8	2.6	2.4	2.6	2.5	2.3
7	2.0	4.0	7.1	4.2	5.4	6.7	4.7	2.6	2.4	2.6	2.5
8	5.0	2.0	4.0	7.1	4.3	5.4	6.7	4.8	2.6	2.4	2.6
9	4.0	5.1	2.1	4.1	7.3	4.4	5.5	6.9	4.9	2.7	2.4
10	4.0	3.9	5.0	2.0	4.0	7.1	4.3	5.4	6.7	4.8	2.6
11	2.0	4.0	3.9	4.9	2.0	4.0	7.1	4.2	5.4	6.7	4.7
12	1.0	1.9	3.8	3.8	4.8	1.9	3.8	6.9	4.1	5.2	6.5
K-5	28.0	23.7	22.3	19.7	15.5	13.1	13.1	13.0	13.0	12.8	13.0
6-8	11.0	13.1	15.4	16.7	16.4	16.9	14.0	9.8	7.6	7.5	7.4
9-12	11.0	14.9	14.8	14.8	18.1	17.4	20.7	23.4	21.1	19.4	16.2
K-12	50.0	51.7	52.5	51.2	50.0	47.4	47.8	46.2	41.7	39.7	36.6

Study Area 49 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.5	6.5	6.5	6.5
1	4.0	7.6	7.0	7.7	7.3	6.8	7.2	7.1	7.0	7.1	7.1
2	1.0	4.2	8.1	7.4	8.1	7.7	7.2	7.7	7.5	7.5	7.6
3	3.0	1.0	4.4	8.4	7.7	8.4	8.0	7.5	8.0	7.8	7.8
4	6.0	3.0	1.1	4.5	8.5	7.8	8.5	8.1	7.5	8.1	7.9
5	1.0	6.3	3.2	1.1	4.7	8.9	8.2	8.9	8.5	7.9	8.5
6	7.0	1.0	6.4	3.2	1.1	4.8	9.1	8.4	9.1	8.7	8.1
7	7.0	6.9	1.0	6.4	3.2	1.1	4.7	9.0	8.3	9.0	8.6
8	4.0	7.1	7.0	1.0	6.4	3.2	1.1	4.8	9.1	8.4	9.1
9	6.0	4.1	7.2	7.1	1.0	6.6	3.3	1.1	4.9	9.3	8.5
10	4.0	5.9	4.0	7.1	7.0	1.0	6.4	3.2	1.1	4.8	9.1
11	4.0	4.0	5.8	4.0	7.0	6.9	1.0	6.4	3.2	1.1	4.7
12	2.0	3.9	3.8	5.6	3.8	6.8	6.7	1.0	6.2	3.1	1.1
K-5	22.0	28.5	30.8	35.8	42.5	46.2	45.6	45.8	45.0	44.9	45.4
6-8	18.0	15.0	14.4	10.6	10.7	9.1	14.9	22.2	26.5	26.1	25.8
9-12	16.0	17.9	20.8	23.8	18.8	21.3	17.4	11.7	15.4	18.3	23.4
K-12	56.0	61.4	66.0	70.2	72.0	76.6	77.9	79.7	86.9	89.3	94.6

Study Area 50 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	4.0	4.4	4.0	4.4	4.2	3.9	4.1	4.1	4.0	4.1	4.1
2	1.0	4.2	4.6	4.3	4.6	4.4	4.1	4.4	4.3	4.3	4.3
3	7.0	1.0	4.4	4.8	4.4	4.8	4.6	4.3	4.6	4.5	4.4
4	3.0	7.1	1.1	4.5	4.9	4.5	4.9	4.6	4.3	4.6	4.5
5	4.0	3.1	7.4	1.1	4.7	5.1	4.7	5.1	4.9	4.5	4.8
6	1.0	4.1	3.2	7.6	1.1	4.8	5.2	4.8	5.2	5.0	4.6
7	5.0	1.0	4.0	3.2	7.5	1.1	4.7	5.1	4.7	5.2	4.9
8	1.0	5.1	1.0	4.1	3.2	7.6	1.1	4.8	5.2	4.8	5.2
9	3.0	1.0	5.2	1.0	4.2	3.3	7.7	1.1	4.9	5.3	4.9
10	1.0	2.9	1.0	5.0	1.0	4.1	3.2	7.6	1.1	4.8	5.2
11	4.0	1.0	2.9	1.0	5.0	1.0	4.0	3.2	7.5	1.1	4.7
12	1.0	3.9	1.0	2.8	1.0	4.8	1.0	3.9	3.1	7.3	1.1
K-5	23.0	23.5	25.5	22.9	26.4	26.5	26.1	26.2	25.8	25.7	25.8
6-8	7.0	10.2	8.2	14.9	11.8	13.5	11.0	14.7	15.1	15.0	14.7
9-12	9.0	8.8	10.1	9.8	11.2	13.2	15.9	15.8	16.6	18.5	15.9
K-12	39.0	42.5	43.8	47.6	49.4	53.2	53.0	56.7	57.5	59.2	56.4

Study Area 51 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	4.0	5.5	5.0	5.5	5.2	4.8	5.2	5.1	5.0	5.1	5.1
2	2.0	4.2	5.8	5.3	5.8	5.5	5.1	5.5	5.4	5.3	5.4
3	2.0	2.1	4.4	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5
4	4.0	2.0	2.1	4.5	6.1	5.6	6.1	5.8	5.4	5.8	5.6
5	5.0	4.2	2.1	2.2	4.7	6.4	5.9	6.4	6.1	5.7	6.0
6	6.0	5.1	4.3	2.2	2.2	4.8	6.5	6.0	6.5	6.2	5.8
7	3.0	5.9	5.0	4.2	2.1	2.2	4.7	6.4	5.9	6.5	6.2
8	3.0	3.0	6.0	5.1	4.3	2.2	2.2	4.8	6.5	6.0	6.5
9	4.0	3.1	3.1	6.1	5.2	4.4	2.2	2.3	4.9	6.6	6.1
10	4.0	3.9	3.0	3.0	6.0	5.1	4.3	2.2	2.2	4.8	6.5
11	5.0	4.0	3.9	3.0	3.0	5.9	5.0	4.2	2.1	2.2	4.7
12	2.0	4.9	3.8	3.8	2.9	2.9	5.8	4.9	4.1	2.1	2.2
K-5	22.0	22.6	24.4	28.3	31.7	33.0	32.7	32.7	32.3	32.1	32.2
6-8	12.0	14.0	15.3	11.5	8.6	9.2	13.4	17.2	18.9	18.7	18.5
9-12	15.0	15.9	13.8	15.9	17.1	18.3	17.3	13.6	13.3	15.7	19.5
K-12	49.0	52.5	53.5	55.7	57.4	60.5	63.4	63.5	64.5	66.5	70.2

Study Area 52 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	4.0	2.1	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	3.0	4.2	2.2	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	0.0	3.0	4.2	2.2	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	2.0	0.0	3.2	4.4	2.3	2.5	2.3	2.6	2.4	2.3	2.4
6	1.0	2.0	0.0	3.2	4.5	2.4	2.6	2.4	2.6	2.5	2.3
7	4.0	1.0	2.0	0.0	3.2	4.5	2.4	2.6	2.4	2.6	2.5
8	2.0	4.0	1.0	2.0	0.0	3.2	4.5	2.4	2.6	2.4	2.6
9	5.0	2.0	4.1	1.0	2.1	0.0	3.3	4.6	2.4	2.7	2.4
10	3.0	4.9	2.0	4.0	1.0	2.0	0.0	3.2	4.5	2.4	2.6
11	4.0	3.0	4.9	2.0	4.0	1.0	2.0	0.0	3.2	4.5	2.4
12	4.0	3.9	2.9	4.7	1.9	3.9	1.0	2.0	0.0	3.1	4.3
K-5	13.0	13.3	15.9	15.2	13.1	13.1	13.1	13.0	13.0	12.8	13.0
6-8	7.0	7.0	3.0	5.2	7.7	10.1	9.5	7.4	7.6	7.5	7.4
9-12	16.0	13.8	13.9	11.7	9.0	6.9	6.3	9.8	10.1	12.7	11.7
K-12	36.0	34.1	32.8	32.1	29.8	30.1	28.9	30.2	30.7	33.0	32.1

Study Area 53 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	1.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	7.0	1.1	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	6.0	7.3	1.1	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	6.0	6.1	7.4	1.1	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	8.0	6.3	6.4	7.7	1.2	7.6	7.0	7.7	7.3	6.8	7.3
6	9.0	8.2	6.4	6.5	7.9	1.2	7.8	7.2	7.8	7.5	6.9
7	5.0	8.9	8.1	6.4	6.4	7.8	1.2	7.7	7.1	7.7	7.4
8	9.0	5.1	9.0	8.2	6.4	6.5	7.9	1.2	7.8	7.2	7.8
9	7.0	9.2	5.2	9.2	8.3	6.6	6.6	8.0	1.2	8.0	7.3
10	4.0	6.9	9.0	5.0	9.0	8.2	6.4	6.5	7.9	1.2	7.8
11	3.0	4.0	6.8	8.9	5.0	8.9	8.1	6.4	6.4	7.8	1.2
12	4.0	2.9	3.8	6.6	8.6	4.8	8.6	7.8	6.2	6.2	7.6
K-5	34.0	32.8	33.8	34.7	33.7	39.6	39.2	39.3	38.7	38.5	39.0
6-8	23.0	22.2	23.5	21.1	20.7	15.5	16.9	16.1	22.7	22.4	22.1
9-12	18.0	23.0	24.8	29.7	30.9	28.5	29.7	28.7	21.7	23.2	23.9
K-12	75.0	78.0	82.1	85.5	85.3	83.6	85.8	84.1	83.1	84.1	85.0

Study Area 54 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	6.0	2.1	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	2.0	6.2	2.2	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	1.0	2.0	6.3	2.2	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	6.0	1.0	2.1	6.6	2.3	3.8	3.5	3.8	3.7	3.4	3.6
6	5.0	6.1	1.1	2.2	6.7	2.4	3.9	3.6	3.9	3.7	3.5
7	8.0	4.9	6.1	1.1	2.1	6.7	2.4	3.9	3.6	3.9	3.7
8	6.0	8.1	5.0	6.1	1.1	2.2	6.7	2.4	3.9	3.6	3.9
9	7.0	6.1	8.2	5.1	6.2	1.1	2.2	6.9	2.4	4.0	3.7
10	2.0	6.9	6.0	8.1	5.0	6.1	1.1	2.2	6.7	2.4	3.9
11	7.0	2.0	6.8	5.9	8.0	4.9	6.1	1.1	2.1	6.7	2.4
12	5.0	6.8	1.9	6.6	5.8	7.8	4.8	5.9	1.0	2.1	6.5
K-5	20.0	17.4	20.1	21.8	18.5	19.7	19.6	19.6	19.3	19.4	19.3
6-8	19.0	19.1	12.2	9.4	9.9	11.3	13.0	9.9	11.4	11.2	11.1
9-12	21.0	21.8	22.9	25.7	25.0	19.9	14.2	16.1	12.2	15.2	16.5
K-12	60.0	58.3	55.2	56.9	53.4	50.9	46.8	45.6	42.9	45.8	46.9

Study Area 55 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	3.0	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	4.0	3.2	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	1.0	4.2	3.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1
4	4.0	1.0	4.2	3.3	1.2	1.1	1.2	1.2	1.1	1.2	1.1
5	4.0	4.2	1.1	4.4	3.5	1.3	1.2	1.3	1.2	1.1	1.2
6	2.0	4.1	4.3	1.1	4.5	3.6	1.3	1.2	1.3	1.2	1.2
7	5.0	2.0	4.0	4.2	1.1	4.5	3.5	1.3	1.2	1.3	1.2
8	5.0	5.1	2.0	4.1	4.3	1.1	4.5	3.6	1.3	1.2	1.3
9	5.0	5.1	5.2	2.0	4.2	4.4	1.1	4.6	3.6	1.3	1.2
10	3.0	4.9	5.0	5.0	2.0	4.1	4.3	1.1	4.5	3.6	1.3
11	5.0	3.0	4.9	4.9	5.0	2.0	4.0	4.2	1.1	4.5	3.5
12	0.0	4.9	2.9	4.7	4.8	4.8	1.9	3.9	4.1	1.0	4.3
K-5	17.0	14.6	11.8	12.1	8.9	6.6	6.4	6.6	6.4	6.4	6.4
6-8	12.0	11.2	10.3	9.4	9.9	9.2	9.3	6.1	3.8	3.7	3.7
9-12	13.0	17.9	18.0	16.6	16.0	15.3	11.3	13.8	13.3	10.4	10.3
K-12	42.0	43.7	40.1	38.1	34.8	31.1	27.0	26.5	23.5	20.5	20.4

Study Area 56 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	5.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	7.0	5.3	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	7.0	7.3	5.5	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	2.0	7.1	7.4	5.6	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	7.0	2.1	7.4	7.7	5.8	7.6	7.0	7.7	7.3	6.8	7.3
6	4.0	7.1	2.1	7.6	7.9	6.0	7.8	7.2	7.8	7.5	6.9
7	10.0	4.0	7.1	2.1	7.5	7.8	5.9	7.7	7.1	7.7	7.4
8	5.0	10.1	4.0	7.1	2.1	7.6	7.9	6.0	7.8	7.2	7.8
9	6.0	5.1	10.3	4.1	7.3	2.2	7.7	8.0	6.1	8.0	7.3
10	9.0	5.9	5.0	10.1	4.0	7.1	2.1	7.6	7.9	6.0	7.8
11	5.0	8.9	5.8	4.9	10.0	4.0	7.1	2.1	7.5	7.8	5.9
12	9.0	4.9	8.6	5.6	4.8	9.7	3.8	6.9	2.1	7.3	7.6
K-5	34.0	33.8	39.2	39.2	38.3	39.6	39.2	39.3	38.7	38.5	39.0
6-8	19.0	21.2	13.2	16.8	17.5	21.4	21.6	20.9	22.7	22.4	22.1
9-12	29.0	24.8	29.7	24.7	26.1	23.0	20.7	24.6	23.6	29.1	28.6
K-12	82.0	79.8	82.1	80.7	81.9	84.0	81.5	84.8	85.0	90.0	89.7

Study Area 57 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	0.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	3.0	0.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	2.0	3.1	0.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	6.0	2.0	3.2	0.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	3.0	6.3	2.1	3.3	0.0	2.5	2.3	2.6	2.4	2.3	2.4
6	1.0	3.1	6.4	2.2	3.4	0.0	2.6	2.4	2.6	2.5	2.3
7	4.0	1.0	3.0	6.4	2.1	3.3	0.0	2.6	2.4	2.6	2.5
8	4.0	4.0	1.0	3.1	6.4	2.2	3.4	0.0	2.6	2.4	2.6
9	5.0	4.1	4.1	1.0	3.1	6.6	2.2	3.4	0.0	2.7	2.4
10	5.0	4.9	4.0	4.0	1.0	3.1	6.4	2.2	3.4	0.0	2.6
11	2.0	4.9	4.9	4.0	4.0	1.0	3.0	6.4	2.1	3.3	0.0
12	2.0	1.9	4.8	4.7	3.8	3.9	1.0	2.9	6.2	2.1	3.2
K-5	16.0	15.4	11.6	11.9	10.8	13.1	13.1	13.0	13.0	12.8	13.0
6-8	9.0	8.1	10.4	11.7	11.9	5.5	6.0	5.0	7.6	7.5	7.4
9-12	14.0	15.8	17.8	13.7	11.9	14.6	12.6	14.9	11.7	8.1	8.2
K-12	39.0	39.3	39.8	37.3	34.6	33.2	31.7	32.9	32.3	28.4	28.6

Study Area 58 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	3.0	6.0	5.5	6.0	5.7	5.3	5.6	5.5	5.5	5.6	5.5
2	4.0	3.0	5.9	5.4	5.9	5.6	5.2	5.6	5.5	5.4	5.5
3	6.0	4.3	3.2	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8
4	4.0	6.1	4.4	3.2	6.4	5.9	6.4	6.1	5.7	6.1	6.0
5	7.0	4.0	6.2	4.4	3.3	6.5	6.0	6.5	6.2	5.8	6.2
6	2.0	7.4	4.3	6.6	4.7	3.5	6.9	6.3	6.9	6.6	6.1
7	7.0	2.1	7.7	4.5	6.8	4.9	3.6	7.2	6.6	7.2	6.8
8	6.0	7.2	2.1	7.9	4.6	7.0	5.0	3.7	7.4	6.8	7.4
9	6.0	6.6	7.9	2.4	8.7	5.0	7.7	5.5	4.1	8.1	7.5
10	3.0	5.8	6.3	7.6	2.3	8.4	4.8	7.4	5.3	3.9	7.8
11	4.0	2.9	5.6	6.1	7.4	2.2	8.1	4.7	7.2	5.1	3.8
12	5.0	3.8	2.8	5.4	5.9	7.1	2.1	7.8	4.5	6.9	4.9
K-5	29.0	28.0	30.2	30.1	31.5	34.3	33.9	33.9	33.6	33.4	33.6
6-8	15.0	16.7	14.1	19.0	16.1	15.4	15.5	17.2	20.9	20.6	20.3
9-12	18.0	19.1	22.6	21.5	24.3	22.7	22.7	25.4	21.1	24.0	24.0
K-12	62.0	63.8	66.9	70.6	71.9	72.4	72.1	76.5	75.6	78.0	77.9

Study Area 59 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	6.0	3.6	3.3	3.6	3.4	3.2	3.4	3.3	3.3	3.3	3.3
2	9.0	5.9	3.5	3.3	3.5	3.4	3.1	3.4	3.3	3.3	3.3
3	4.0	9.6	6.4	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5
4	6.0	4.1	9.8	6.5	3.9	3.5	3.9	3.7	3.4	3.7	3.6
5	10.0	6.1	4.1	9.9	6.5	3.9	3.6	3.9	3.7	3.5	3.7
6	4.0	10.6	6.4	4.4	10.5	6.9	4.1	3.8	4.1	3.9	3.7
7	4.0	4.2	11.0	6.7	4.5	10.9	7.2	4.3	4.0	4.3	4.1
8	6.0	4.1	4.3	11.4	6.9	4.7	11.3	7.4	4.4	4.1	4.4
9	4.0	6.6	4.5	4.7	12.5	7.6	5.1	12.4	8.2	4.9	4.5
10	5.0	3.8	6.3	4.4	4.5	12.0	7.3	4.9	11.9	7.9	4.7
11	6.0	4.9	3.7	6.1	4.2	4.4	11.6	7.0	4.8	11.5	7.6
12	1.0	5.8	4.7	3.6	5.9	4.1	4.2	11.2	6.8	4.6	11.1
K-5	38.0	32.1	30.1	30.0	23.5	20.6	20.4	20.5	20.1	20.1	20.2
6-8	14.0	18.9	21.7	22.5	21.9	22.5	22.6	15.5	12.5	12.3	12.2
9-12	16.0	21.1	19.2	18.8	27.1	28.1	28.2	35.5	31.7	28.9	27.9
K-12	68.0	72.1	71.0	71.3	72.5	71.2	71.2	71.5	64.3	61.3	60.3

Study Area 60 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	1.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	2.0	1.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	5.0	2.1	1.1	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	5.0	5.1	2.2	1.1	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	2.0	5.1	5.2	2.2	1.1	2.6	2.4	2.6	2.5	2.3	2.5
6	1.0	2.1	5.4	5.5	2.3	1.2	2.8	2.5	2.8	2.6	2.4
7	3.0	1.0	2.2	5.6	5.7	2.4	1.2	2.9	2.6	2.9	2.7
8	2.0	3.1	1.1	2.3	5.7	5.8	2.5	1.2	2.9	2.7	3.0
9	2.0	2.2	3.4	1.2	2.5	6.3	6.4	2.8	1.4	3.2	3.0
10	0.0	1.9	2.1	3.3	1.1	2.4	6.1	6.2	2.6	1.3	3.1
11	1.0	0.0	1.9	2.0	3.2	1.1	2.3	5.9	6.0	2.6	1.3
12	0.0	1.0	0.0	1.8	2.0	3.0	1.1	2.2	5.6	5.8	2.5
K-5	17.0	17.5	15.1	12.3	12.5	13.8	13.7	13.5	13.5	13.3	13.5
6-8	6.0	6.2	8.7	13.4	13.7	9.4	6.5	6.6	8.3	8.2	8.1
9-12	3.0	5.1	7.4	8.3	8.8	12.8	15.9	17.1	15.6	12.9	9.9
K-12	26.0	28.8	31.2	34.0	35.0	36.0	36.1	37.2	37.4	34.4	31.5

Study Area 61 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	10.0	10.7	9.9	10.7	10.2	9.5	10.2	10.0	9.9	10.0	9.9
2	5.0	9.9	10.6	9.8	10.6	10.1	9.4	10.1	9.9	9.8	9.9
3	2.0	5.4	10.6	11.3	10.4	11.4	10.8	10.1	10.8	10.6	10.5
4	7.0	2.0	5.5	10.8	11.6	10.6	11.6	11.1	10.3	11.0	10.8
5	7.0	7.1	2.1	5.5	10.9	11.7	10.8	11.7	11.2	10.4	11.1
6	6.0	7.4	7.5	2.2	5.8	11.6	12.4	11.4	12.4	11.8	11.0
7	6.0	6.2	7.7	7.8	2.3	6.1	12.0	12.9	11.9	12.9	12.3
8	4.0	6.2	6.4	7.9	8.0	2.3	6.3	12.4	13.3	12.2	13.3
9	6.0	4.4	6.8	7.1	8.7	8.8	2.6	6.9	13.6	14.6	13.4
10	6.0	5.8	4.2	6.5	6.8	8.4	8.5	2.5	6.6	13.1	14.0
11	6.0	5.8	5.6	4.1	6.3	6.6	8.1	8.2	2.4	6.4	12.7
12	7.0	5.8	5.6	5.4	3.9	6.1	6.3	7.8	7.9	2.3	6.2
K-5	40.0	43.4	47.7	56.7	61.7	61.8	61.2	61.3	60.5	60.2	60.6
6-8	16.0	19.8	21.6	17.9	16.1	20.0	30.7	36.7	37.6	36.9	36.6
9-12	25.0	21.8	22.2	23.1	25.7	29.9	25.5	25.4	30.5	36.4	46.3
K-12	81.0	85.0	91.5	97.7	103.5	111.7	117.4	123.4	128.6	133.5	143.5

Study Area 62 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	3.0	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	4.0	3.2	4.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	5.0	4.1	3.3	4.3	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	3.0	5.1	4.1	3.3	4.4	1.3	1.2	1.3	1.2	1.2	1.2
6	8.0	3.2	5.4	4.4	3.5	4.6	1.4	1.3	1.4	1.3	1.2
7	2.0	8.3	3.3	5.6	4.5	3.6	4.8	1.4	1.3	1.4	1.4
8	7.0	2.1	8.6	3.4	5.7	4.7	3.8	5.0	1.5	1.4	1.5
9	7.0	7.7	2.3	9.4	3.7	6.3	5.1	4.1	5.5	1.6	1.5
10	3.0	6.7	7.4	2.2	9.0	3.6	6.1	4.9	4.0	5.2	1.6
11	6.0	2.9	6.5	7.2	2.1	8.8	3.5	5.9	4.8	3.8	5.1
12	7.0	5.8	2.8	6.3	6.9	2.0	8.4	3.3	5.6	4.6	3.7
K-5	20.0	18.5	14.9	12.2	10.1	6.9	6.7	6.7	6.6	6.7	6.7
6-8	17.0	13.6	17.3	13.4	13.7	12.9	10.0	7.7	4.2	4.1	4.1
9-12	23.0	23.1	19.0	25.1	21.7	20.7	23.1	18.2	19.9	15.2	11.9
K-12	60.0	55.2	51.2	50.7	45.5	40.5	39.8	32.6	30.7	26.0	22.7

Study Area 63 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	2.0	10.7	9.9	10.7	10.2	9.5	10.2	10.0	9.9	10.0	9.9
2	6.0	2.0	10.6	9.8	10.6	10.1	9.4	10.1	9.9	9.8	9.9
3	9.0	6.4	2.1	11.3	10.4	11.4	10.8	10.1	10.8	10.6	10.5
4	8.0	9.2	6.5	2.2	11.6	10.6	11.6	11.1	10.3	11.0	10.8
5	6.0	8.1	9.3	6.6	2.2	11.7	10.8	11.7	11.2	10.4	11.1
6	7.0	6.4	8.6	9.8	7.0	2.3	12.4	11.4	12.4	11.8	11.0
7	4.0	7.3	6.6	8.9	10.2	7.3	2.4	12.9	11.9	12.9	12.3
8	7.0	4.1	7.5	6.8	9.2	10.5	7.5	2.5	13.3	12.2	13.3
9	6.0	7.7	4.5	8.2	7.5	10.1	11.6	8.3	2.7	14.6	13.4
10	9.0	5.8	7.4	4.4	7.9	7.2	9.7	11.1	7.9	2.6	14.0
11	3.0	8.7	5.6	7.2	4.2	7.7	7.0	9.4	10.8	7.7	2.5
12	3.0	2.9	8.4	5.4	6.9	4.1	7.4	6.7	9.0	10.4	7.4
K-5	40.0	44.7	47.4	49.2	53.0	61.8	61.2	61.3	60.5	60.2	60.6
6-8	18.0	17.8	22.7	25.5	26.4	20.1	22.3	26.8	37.6	36.9	36.6
9-12	21.0	25.1	25.9	25.2	26.5	29.1	35.7	35.5	30.4	35.3	37.3
K-12	79.0	87.6	96.0	99.9	105.9	111.0	119.2	123.6	128.5	132.4	134.5

Study Area 64 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.5	6.5	6.5	6.5
1	3.0	8.3	7.7	8.4	8.0	7.4	7.9	7.8	7.7	7.8	7.7
2	6.0	3.0	8.2	7.6	8.3	7.9	7.3	7.8	7.7	7.6	7.7
3	6.0	6.4	3.2	8.8	8.1	8.9	8.4	7.8	8.4	8.2	8.1
4	8.0	6.1	6.5	3.2	9.0	8.3	9.0	8.6	8.0	8.5	8.4
5	5.0	8.1	6.2	6.6	3.3	9.1	8.4	9.1	8.7	8.1	8.6
6	3.0	5.3	8.6	6.6	7.0	3.5	9.6	8.9	9.7	9.2	8.6
7	4.0	3.1	5.5	8.9	6.8	7.3	3.6	10.0	9.2	10.1	9.6
8	6.0	4.1	3.2	5.7	9.2	7.0	7.5	3.7	10.3	9.5	10.4
9	5.0	6.6	4.5	3.5	6.2	10.1	7.7	8.3	4.1	11.4	10.4
10	7.0	4.8	6.3	4.4	3.4	6.0	9.7	7.4	7.9	3.9	10.9
11	6.0	6.8	4.7	6.1	4.2	3.3	5.8	9.4	7.2	7.7	3.8
12	4.0	5.8	6.5	4.5	5.9	4.1	3.2	5.6	9.0	6.9	7.4
K-5	35.0	38.3	38.8	41.3	42.9	48.2	47.5	47.6	47.0	46.7	47.0
6-8	13.0	12.5	17.3	21.2	23.0	17.8	20.7	22.6	29.2	28.8	28.6
9-12	22.0	24.0	22.0	18.5	19.7	23.5	26.4	30.7	28.2	29.9	32.5
K-12	70.0	74.8	78.1	81.0	85.6	89.5	94.6	100.9	104.4	105.4	108.1

Study Area 65 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	9.0	6.0	5.5	6.0	5.7	5.3	5.6	5.5	5.5	5.6	5.5
2	4.0	8.9	5.9	5.4	5.9	5.6	5.2	5.6	5.5	5.4	5.5
3	6.0	4.3	9.5	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8
4	3.0	6.1	4.4	9.7	6.4	5.9	6.4	6.1	5.7	6.1	6.0
5	2.0	3.0	6.2	4.4	9.8	6.5	6.0	6.5	6.2	5.8	6.2
6	2.0	2.1	3.2	6.6	4.7	10.4	6.9	6.3	6.9	6.6	6.1
7	5.0	2.1	2.2	3.3	6.8	4.9	10.8	7.2	6.6	7.2	6.8
8	4.0	5.1	2.1	2.3	3.4	7.0	5.0	11.2	7.4	6.8	7.4
9	5.0	4.4	5.7	2.4	2.5	3.8	7.7	5.5	12.3	8.1	7.5
10	3.0	4.8	4.2	5.4	2.3	2.4	3.6	7.4	5.3	11.8	7.8
11	2.0	2.9	4.7	4.1	5.3	2.2	2.3	3.5	7.2	5.1	11.4
12	4.0	1.9	2.8	4.5	3.9	5.1	2.1	2.2	3.4	6.9	4.9
K-5	29.0	32.9	36.5	36.6	38.0	34.3	33.9	33.9	33.6	33.4	33.6
6-8	11.0	9.3	7.5	12.2	14.9	22.3	22.7	24.7	20.9	20.6	20.3
9-12	14.0	14.0	17.4	16.4	14.0	13.5	15.7	18.6	28.2	31.9	31.6
K-12	54.0	56.2	61.4	65.2	66.9	70.1	72.3	77.2	82.7	85.9	85.5

Study Area 66 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	3.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	3.0	3.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	2.0	3.2	3.2	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	4.0	2.0	3.3	3.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	4.0	4.0	2.1	3.3	3.3	2.6	2.4	2.6	2.5	2.3	2.5
6	3.0	4.2	4.3	2.2	3.5	3.5	2.8	2.5	2.8	2.6	2.4
7	3.0	3.1	4.4	4.5	2.3	3.6	3.6	2.9	2.6	2.9	2.7
8	1.0	3.1	3.2	4.5	4.6	2.3	3.8	3.7	2.9	2.7	3.0
9	2.0	1.1	3.4	3.5	5.0	5.0	2.6	4.1	4.1	3.2	3.0
10	4.0	1.9	1.1	3.3	3.4	4.8	4.8	2.5	4.0	3.9	3.1
11	2.0	3.9	1.9	1.0	3.2	3.3	4.7	4.7	2.4	3.8	3.8
12	5.0	1.9	3.7	1.8	1.0	3.0	3.2	4.5	4.5	2.3	3.7
K-5	18.0	16.4	15.2	15.5	14.7	13.8	13.7	13.5	13.5	13.3	13.5
6-8	7.0	10.4	11.9	11.2	10.4	9.4	10.2	9.1	8.3	8.2	8.1
9-12	13.0	8.8	10.1	9.6	12.6	16.1	15.3	15.8	15.0	13.2	13.6
K-12	38.0	35.6	37.2	36.3	37.7	39.3	39.2	38.4	36.8	34.7	35.2

Study Area 67 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	8.0	7.4	8.0	7.6	7.1	7.6	7.4	7.4	7.5	7.4	7.4
1	2.0	9.5	8.8	9.5	9.1	8.5	9.0	8.9	8.8	8.9	8.8
2	4.0	2.0	9.4	8.7	9.5	9.0	8.4	8.9	8.8	8.7	8.8
3	2.0	4.3	2.1	10.1	9.3	10.1	9.6	9.0	9.6	9.4	9.3
4	5.0	2.0	4.4	2.2	10.3	9.5	10.3	9.8	9.1	9.8	9.6
5	2.0	5.1	2.1	4.4	2.2	10.4	9.6	10.4	9.9	9.2	9.9
6	4.0	2.1	5.4	2.2	4.7	2.3	11.0	10.1	11.0	10.5	9.8
7	5.0	4.2	2.2	5.6	2.3	4.9	2.4	11.5	10.5	11.5	10.9
8	3.0	5.1	4.3	2.3	5.7	2.3	5.0	2.5	11.8	10.9	11.8
9	6.0	3.3	5.7	4.7	2.5	6.3	2.6	5.5	2.7	13.0	11.9
10	5.0	5.8	3.2	5.4	4.5	2.4	6.1	2.5	5.3	2.6	12.5
11	5.0	4.9	5.6	3.1	5.3	4.4	2.3	5.9	2.4	5.1	2.5
12	7.0	4.8	4.7	5.4	3.0	5.1	4.2	2.2	5.6	2.3	4.9
K-5	23.0	30.3	34.8	42.5	47.5	55.1	54.3	54.4	53.7	53.4	53.8
6-8	12.0	11.4	11.9	10.1	12.7	9.5	18.4	24.1	33.3	32.9	32.5
9-12	23.0	18.8	19.2	18.6	15.3	18.2	15.2	16.1	16.0	23.0	31.8
K-12	58.0	60.5	65.9	71.2	75.5	82.8	87.9	94.6	103.0	109.3	118.1

Study Area 68 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	2.0	10.7	9.9	10.7	10.2	9.5	10.2	10.0	9.9	10.0	9.9
2	2.0	2.0	10.6	9.8	10.6	10.1	9.4	10.1	9.9	9.8	9.9
3	4.0	2.1	2.1	11.3	10.4	11.4	10.8	10.1	10.8	10.6	10.5
4	7.0	4.1	2.2	2.2	11.6	10.6	11.6	11.1	10.3	11.0	10.8
5	4.0	7.1	4.1	2.2	2.2	11.7	10.8	11.7	11.2	10.4	11.1
6	3.0	4.2	7.5	4.4	2.3	2.3	12.4	11.4	12.4	11.8	11.0
7	11.0	3.1	4.4	7.8	4.5	2.4	2.4	12.9	11.9	12.9	12.3
8	5.0	11.3	3.2	4.5	8.0	4.7	2.5	2.5	13.3	12.2	13.3
9	5.0	5.5	12.5	3.5	5.0	8.8	5.1	2.8	2.7	14.6	13.4
10	6.0	4.8	5.3	12.0	3.4	4.8	8.5	4.9	2.6	2.6	14.0
11	6.0	5.8	4.7	5.1	11.6	3.3	4.7	8.2	4.8	2.6	2.5
12	2.0	5.8	5.6	4.5	4.9	11.1	3.2	4.5	7.9	4.6	2.5
K-5	28.0	34.3	37.9	44.8	53.0	61.8	61.2	61.3	60.5	60.2	60.6
6-8	19.0	18.6	15.1	16.7	14.8	9.4	17.3	26.8	37.6	36.9	36.6
9-12	19.0	21.9	28.1	25.1	24.9	28.0	21.5	20.4	18.0	24.4	32.4
K-12	66.0	74.8	81.1	86.6	92.7	99.2	100.0	108.5	116.1	121.5	129.6

Study Area 69 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	4.0	7.1	6.6	7.2	6.8	6.3	6.8	6.6	6.6	6.7	6.6
2	6.0	4.0	7.1	6.5	7.1	6.8	6.3	6.7	6.6	6.5	6.6
3	4.0	6.4	4.2	7.6	7.0	7.6	7.2	6.7	7.2	7.0	7.0
4	2.0	4.1	6.5	4.3	7.7	7.1	7.7	7.4	6.9	7.3	7.2
5	2.0	2.0	4.1	6.6	4.4	7.8	7.2	7.8	7.4	6.9	7.4
6	4.0	2.1	2.1	4.4	7.0	4.6	8.3	7.6	8.3	7.9	7.3
7	2.0	4.2	2.2	2.2	4.5	7.3	4.8	8.6	7.9	8.6	8.2
8	1.0	2.1	4.3	2.3	2.3	4.7	7.5	5.0	8.8	8.1	8.9
9	6.0	1.1	2.3	4.7	2.5	2.5	5.1	8.3	5.5	9.7	9.0
10	5.0	5.8	1.1	2.2	4.5	2.4	2.4	4.9	7.9	5.2	9.3
11	3.0	4.9	5.6	1.0	2.1	4.4	2.3	2.3	4.8	7.7	5.1
12	4.0	2.9	4.7	5.4	1.0	2.0	4.2	2.2	2.3	4.6	7.4
K-5	24.0	29.1	34.5	37.9	38.3	41.3	40.8	40.7	40.3	40.0	40.4
6-8	7.0	8.4	8.6	8.9	13.8	16.6	20.6	21.2	25.0	24.6	24.4
9-12	18.0	14.7	13.7	13.3	10.1	11.3	14.0	17.7	20.5	27.2	30.8
K-12	49.0	52.2	56.8	60.1	62.2	69.2	75.4	79.6	85.8	91.8	95.6

Study Area 70 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	2.1	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	2.1	2.2	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	3.1	2.2	2.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0
6	2.0	2.2	3.4	2.4	2.5	5.3	0.0	0.0	0.0	0.0	0.0
7	5.0	2.1	2.3	3.5	2.5	2.7	5.6	0.0	0.0	0.0	0.0
8	2.0	5.1	2.2	2.3	3.6	2.6	2.7	5.7	0.0	0.0	0.0
9	3.0	2.0	5.1	2.1	2.3	3.6	2.6	2.7	5.7	0.0	0.0
10	7.0	3.1	2.0	5.2	2.2	2.4	3.7	2.6	2.8	5.8	0.0
11	2.0	6.9	3.0	2.0	5.1	2.2	2.3	3.6	2.6	2.7	5.7
12	3.0	1.9	6.7	2.9	1.9	4.9	2.1	2.2	3.5	2.5	2.6
K-5	13.0	11.5	8.8	7.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	9.0	9.4	7.9	8.2	8.6	10.6	8.3	5.7	0.0	0.0	0.0
9-12	15.0	13.9	16.8	12.2	11.5	13.1	10.7	11.1	14.6	11.0	8.3
K-12	37.0	34.8	33.5	27.4	25.0	23.7	19.0	16.8	14.6	11.0	8.3

Study Area 71 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	1.0	4.2	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1
3	3.0	1.0	4.4	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	3.0	3.2	1.1	4.7	1.4	1.3	1.4	1.3	1.2	1.3	1.3
5	3.0	3.1	3.3	1.2	4.9	1.4	1.3	1.4	1.4	1.3	1.4
6	4.0	3.2	3.4	3.6	1.3	5.3	1.5	1.4	1.5	1.5	1.4
7	6.0	4.2	3.4	3.5	3.8	1.3	5.6	1.6	1.5	1.6	1.5
8	5.0	6.2	4.3	3.5	3.6	3.9	1.4	5.7	1.7	1.5	1.7
9	5.0	4.9	6.1	4.3	3.5	3.6	3.9	1.4	5.7	1.6	1.5
10	3.0	5.1	5.0	6.2	4.4	3.5	3.7	3.9	1.4	5.8	1.7
11	5.0	3.0	5.0	5.0	6.2	4.3	3.5	3.6	3.9	1.4	5.7
12	5.0	4.8	2.9	4.8	4.8	5.9	4.2	3.4	3.5	3.7	1.3
K-5	15.0	13.6	12.1	10.5	10.7	7.1	7.0	7.0	6.9	6.9	7.0
6-8	15.0	13.6	11.1	10.6	8.7	10.5	8.5	8.7	4.7	4.6	4.6
9-12	18.0	17.8	19.0	20.3	18.9	17.3	15.3	12.3	14.5	12.5	10.2
K-12	48.0	45.0	42.2	41.4	38.3	34.9	30.8	28.0	26.1	24.0	21.8

Study Area 72 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	2.0	4.6	4.3	4.7	4.4	4.1	4.4	4.3	4.3	4.3	4.3
2	5.0	2.1	4.9	4.5	4.9	4.7	4.3	4.6	4.5	4.5	4.6
3	2.0	5.2	2.2	5.1	4.7	5.1	4.9	4.5	4.9	4.8	4.7
4	4.0	2.1	5.6	2.4	5.5	5.0	5.5	5.2	4.9	5.2	5.1
5	9.0	4.2	2.2	5.8	2.5	5.7	5.2	5.7	5.4	5.1	5.4
6	6.0	9.7	4.5	2.4	6.3	2.7	6.1	5.7	6.2	5.9	5.5
7	4.0	6.3	10.2	4.7	2.5	6.6	2.8	6.5	5.9	6.5	6.2
8	8.0	4.1	6.5	10.5	4.9	2.6	6.8	2.9	6.6	6.1	6.7
9	3.0	7.9	4.1	6.4	10.4	4.8	2.6	6.8	2.8	6.6	6.1
10	6.0	3.1	8.1	4.2	6.6	10.6	4.9	2.6	6.9	2.9	6.7
11	2.0	5.9	3.0	8.0	4.1	6.5	10.5	4.9	2.6	6.8	2.9
12	2.0	1.9	5.7	2.9	7.7	4.0	6.2	10.1	4.7	2.5	6.5
K-5	26.0	21.9	23.2	26.3	25.6	28.4	28.0	28.0	27.7	27.6	27.8
6-8	18.0	20.1	21.2	17.6	13.7	11.9	15.7	15.1	18.7	18.5	18.4
9-12	13.0	18.8	20.9	21.5	28.8	25.9	24.2	24.4	17.0	18.8	22.2
K-12	57.0	60.8	65.3	65.4	68.1	66.2	67.9	67.5	63.4	64.9	68.4

Study Area 73 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	7.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	2.0	7.3	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	4.0	2.1	7.7	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	3.0	4.3	2.2	8.3	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	6.0	3.1	4.5	2.3	8.6	7.1	6.5	7.1	6.8	6.3	6.8
6	5.0	6.5	3.4	4.8	2.5	9.3	7.7	7.1	7.7	7.3	6.8
7	3.0	5.2	6.8	3.5	5.0	2.7	9.7	8.1	7.4	8.1	7.7
8	4.0	3.1	5.4	7.0	3.6	5.2	2.7	10.0	8.3	7.6	8.3
9	3.0	4.0	3.1	5.4	6.9	3.6	5.1	2.7	9.9	8.2	7.6
10	4.0	3.1	4.0	3.1	5.5	7.1	3.7	5.3	2.8	10.1	8.4
11	2.0	4.0	3.0	4.0	3.1	5.4	7.0	3.6	5.2	2.7	10.0
12	4.0	1.9	3.8	2.9	3.8	3.0	5.2	6.7	3.5	5.0	2.6
K-5	27.0	27.2	30.8	33.2	37.3	35.5	35.1	35.1	34.8	34.4	34.8
6-8	12.0	14.8	15.6	15.3	11.1	17.2	20.1	25.2	23.4	23.0	22.8
9-12	13.0	13.0	13.9	15.4	19.3	19.1	21.0	18.3	21.4	26.0	28.6
K-12	52.0	55.0	60.3	63.9	67.7	71.8	76.2	78.6	79.6	83.4	86.2

Study Area 74 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	9.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	0.0	9.4	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	2.0	0.0	9.9	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	11.0	2.1	0.0	10.6	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	3.0	11.4	2.2	0.0	11.0	7.1	6.5	7.1	6.8	6.3	6.8
6	3.0	3.2	12.4	2.4	0.0	11.9	7.7	7.1	7.7	7.3	6.8
7	6.0	3.1	3.4	13.0	2.5	0.0	12.5	8.1	7.4	8.1	7.7
8	8.0	6.2	3.2	3.5	13.4	2.6	0.0	12.9	8.3	7.6	8.3
9	5.0	7.9	6.1	3.2	3.5	13.2	2.6	0.0	12.8	8.2	7.6
10	5.0	5.1	8.1	6.2	3.3	3.5	13.5	2.6	0.0	13.0	8.4
11	4.0	4.9	5.0	8.0	6.2	3.2	3.5	13.4	2.6	0.0	12.9
12	8.0	3.8	4.8	4.8	7.7	5.9	3.1	3.4	12.8	2.5	0.0
K-5	30.0	33.3	28.5	33.2	39.7	35.5	35.1	35.1	34.8	34.4	34.8
6-8	17.0	12.5	19.0	18.9	15.9	14.5	20.2	28.1	23.4	23.0	22.8
9-12	22.0	21.7	24.0	22.2	20.7	25.8	22.7	19.4	28.2	23.7	28.9
K-12	69.0	67.5	71.5	74.3	76.3	75.8	78.0	82.6	86.4	81.1	86.5

Study Area 75 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	1.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	0.0	1.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	2.0	0.0	1.1	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	2.0	2.1	0.0	1.2	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	1.0	2.1	2.2	0.0	1.2	2.8	2.6	2.9	2.7	2.5	2.7
6	1.0	1.1	2.2	2.4	0.0	1.3	3.1	2.8	3.1	2.9	2.7
7	1.0	1.0	1.1	2.4	2.5	0.0	1.4	3.2	3.0	3.2	3.1
8	5.0	1.0	1.1	1.2	2.4	2.6	0.0	1.4	3.3	3.1	3.3
9	4.0	4.9	1.0	1.1	1.2	2.4	2.6	0.0	1.4	3.3	3.0
10	2.0	4.1	5.0	1.0	1.1	1.2	2.5	2.6	0.0	1.4	3.4
11	1.0	2.0	4.0	5.0	1.0	1.1	1.2	2.4	2.6	0.0	1.4
12	3.0	1.0	1.9	3.9	4.8	1.0	1.0	1.1	2.3	2.5	0.0
K-5	8.0	9.3	9.8	10.2	12.7	14.2	14.0	14.1	13.8	13.8	14.0
6-8	7.0	3.1	4.4	6.0	4.9	3.9	4.5	7.4	9.4	9.2	9.1
9-12	10.0	12.0	11.9	11.0	8.1	5.7	7.3	6.1	6.3	7.2	7.8
K-12	25.0	24.4	26.1	27.2	25.7	23.8	25.8	27.6	29.5	30.2	30.9

Study Area 76 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	5.0	4.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2.0	5.4	4.5	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4.0	2.1	5.6	4.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0
6	6.0	4.3	2.2	6.0	5.0	6.6	0.0	0.0	0.0	0.0	0.0
7	6.0	6.3	4.5	2.4	6.3	5.3	7.0	0.0	0.0	0.0	0.0
8	1.0	6.2	6.5	4.7	2.4	6.5	5.5	7.2	0.0	0.0	0.0
9	3.0	1.0	6.1	6.4	4.6	2.4	6.4	5.4	7.1	0.0	0.0
10	6.0	3.1	1.0	6.2	6.6	4.7	2.5	6.6	5.5	7.2	0.0
11	4.0	5.9	3.0	1.0	6.2	6.5	4.7	2.4	6.5	5.5	7.2
12	3.0	3.8	5.7	2.9	1.0	5.9	6.2	4.5	2.3	6.2	5.2
K-5	20.0	16.9	15.6	10.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0
6-8	13.0	16.8	13.2	13.1	13.7	18.4	12.5	7.2	0.0	0.0	0.0
9-12	16.0	13.8	15.8	16.5	18.4	19.5	19.8	18.9	21.4	18.9	12.4
K-12	49.0	47.5	44.6	40.2	38.2	37.9	32.3	26.1	21.4	18.9	12.4

Study Area 77 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	1.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	3.0	1.0	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	5.0	3.1	1.1	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	4.0	5.4	3.4	1.2	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	3.0	4.2	5.6	3.5	1.2	7.1	6.5	7.1	6.8	6.3	6.8
6	5.0	3.2	4.5	6.0	3.8	1.3	7.7	7.1	7.7	7.3	6.8
7	6.0	5.2	3.4	4.7	6.3	4.0	1.4	8.1	7.4	8.1	7.7
8	6.0	6.2	5.4	3.5	4.9	6.5	4.1	1.4	8.3	7.6	8.3
9	4.0	5.9	6.1	5.4	3.5	4.8	6.4	4.1	1.4	8.2	7.6
10	3.0	4.1	6.1	6.2	5.5	3.5	4.9	6.6	4.1	1.4	8.4
11	6.0	3.0	4.0	6.0	6.2	5.4	3.5	4.9	6.5	4.1	1.4
12	2.0	5.8	2.9	3.9	5.8	5.9	5.2	3.4	4.7	6.2	3.9
K-5	21.0	24.1	26.5	27.3	29.9	35.5	35.1	35.1	34.8	34.4	34.8
6-8	17.0	14.6	13.3	14.2	15.0	11.8	13.2	16.6	23.4	23.0	22.8
9-12	15.0	18.8	19.1	21.5	21.0	19.6	20.0	19.0	16.7	19.9	21.3
K-12	53.0	57.5	58.9	63.0	65.9	66.9	68.3	70.7	74.9	77.3	78.9

Study Area 78 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	5.0	2.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	1.0	5.4	2.1	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	3.0	1.0	5.5	2.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	0.0	3.0	1.0	5.5	2.2	2.6	2.4	2.6	2.5	2.3	2.5
6	2.0	0.0	3.2	1.1	5.8	2.3	2.8	2.5	2.8	2.6	2.4
7	3.0	2.1	0.0	3.3	1.1	6.1	2.4	2.9	2.6	2.9	2.7
8	6.0	3.1	2.1	0.0	3.4	1.2	6.3	2.5	2.9	2.7	3.0
9	6.0	6.6	3.4	2.4	0.0	3.8	1.3	6.9	2.7	3.2	3.0
10	5.0	5.8	6.3	3.3	2.3	0.0	3.6	1.2	6.6	2.6	3.1
11	5.0	4.9	5.6	6.1	3.2	2.2	0.0	3.5	1.2	6.4	2.5
12	2.0	4.8	4.7	5.4	5.9	3.0	2.1	0.0	3.4	1.2	6.2
K-5	13.0	15.6	15.2	16.7	13.6	13.8	13.7	13.5	13.5	13.3	13.5
6-8	11.0	5.2	5.3	4.4	10.3	9.6	11.5	7.9	8.3	8.2	8.1
9-12	18.0	22.1	20.0	17.2	11.4	9.0	7.0	11.6	13.9	13.4	14.8
K-12	42.0	42.9	40.5	38.3	35.3	32.4	32.2	33.0	35.7	34.9	36.4

Study Area 79 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	3.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	4.0	3.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	3.0	4.3	3.2	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	3.0	3.1	4.4	3.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	3.0	3.0	3.1	4.4	3.3	2.6	2.4	2.6	2.5	2.3	2.5
6	8.0	3.2	3.2	3.3	4.7	3.5	2.8	2.5	2.8	2.6	2.4
7	5.0	8.3	3.3	3.3	3.4	4.9	3.6	2.9	2.6	2.9	2.7
8	4.0	5.1	8.6	3.4	3.4	3.5	5.0	3.7	2.9	2.7	3.0
9	6.0	4.4	5.7	9.4	3.7	3.8	3.9	5.5	4.1	3.2	3.0
10	10.0	5.8	4.2	5.4	9.0	3.6	3.6	3.7	5.3	3.9	3.1
11	4.0	9.7	5.6	4.1	5.3	8.8	3.5	3.5	3.6	5.1	3.8
12	3.0	3.8	9.3	5.4	3.9	5.1	8.4	3.3	3.4	3.5	4.9
K-5	18.0	17.6	17.3	16.6	14.7	13.8	13.7	13.5	13.5	13.3	13.5
6-8	17.0	16.6	15.1	10.0	11.5	11.9	11.4	9.1	8.3	8.2	8.1
9-12	23.0	23.7	24.8	24.3	21.9	21.3	19.4	16.0	16.4	15.7	14.8
K-12	58.0	57.9	57.2	50.9	48.1	47.0	44.5	38.6	38.2	37.2	36.4

Study Area 80 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	5.0	6.0	5.5	6.0	5.7	5.3	5.6	5.5	5.5	5.6	5.5
2	6.0	4.9	5.9	5.4	5.9	5.6	5.2	5.6	5.5	5.4	5.5
3	6.0	6.4	5.3	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8
4	8.0	6.1	6.5	5.4	6.4	5.9	6.4	6.1	5.7	6.1	6.0
5	3.0	8.1	6.2	6.6	5.5	6.5	6.0	6.5	6.2	5.8	6.2
6	4.0	3.2	8.6	6.6	7.0	5.8	6.9	6.3	6.9	6.6	6.1
7	9.0	4.2	3.3	8.9	6.8	7.3	6.0	7.2	6.6	7.2	6.8
8	6.0	9.3	4.3	3.4	9.2	7.0	7.5	6.2	7.4	6.8	7.4
9	3.0	6.6	10.2	4.7	3.7	10.1	7.7	8.3	6.8	8.1	7.5
10	6.0	2.9	6.3	9.8	4.5	3.6	9.7	7.4	7.9	6.5	7.8
11	3.0	5.8	2.8	6.1	9.5	4.4	3.5	9.4	7.2	7.7	6.3
12	3.0	2.9	5.6	2.7	5.9	9.1	4.2	3.3	9.0	6.9	7.4
K-5	33.0	36.1	34.4	34.5	33.7	34.3	33.9	33.9	33.6	33.4	33.6
6-8	19.0	16.7	16.2	18.9	23.0	20.1	20.4	19.7	20.9	20.6	20.3
9-12	15.0	18.2	24.9	23.3	23.6	27.2	25.1	28.4	30.9	29.2	29.0
K-12	67.0	71.0	75.5	76.7	80.3	81.6	79.4	82.0	85.4	83.2	82.9

Study Area 81 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	4.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	4.0	4.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	0.0	4.3	4.2	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	10.0	0.0	4.4	4.3	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	3.0	10.1	0.0	4.4	4.4	2.6	2.4	2.6	2.5	2.3	2.5
6	3.0	3.2	10.7	0.0	4.7	4.6	2.8	2.5	2.8	2.6	2.4
7	9.0	3.1	3.3	11.1	0.0	4.9	4.8	2.9	2.6	2.9	2.7
8	4.0	9.3	3.2	3.4	11.5	0.0	5.0	5.0	2.9	2.7	3.0
9	8.0	4.4	10.2	3.5	3.7	12.6	0.0	5.5	5.5	3.2	3.0
10	2.0	7.7	4.2	9.8	3.4	3.6	12.1	0.0	5.3	5.2	3.1
11	7.0	1.9	7.4	4.1	9.5	3.3	3.5	11.7	0.0	5.1	5.1
12	2.0	6.7	1.9	7.2	3.9	9.1	3.2	3.3	11.3	0.0	4.9
K-5	23.0	22.6	15.2	17.7	15.8	13.8	13.7	13.5	13.5	13.3	13.5
6-8	16.0	15.6	17.2	14.5	16.2	9.5	12.6	10.4	8.3	8.2	8.1
9-12	19.0	20.7	23.7	24.6	20.5	28.6	18.8	20.5	22.1	13.5	16.1
K-12	58.0	58.9	56.1	56.8	52.5	51.9	45.1	44.4	43.9	35.0	37.7

Study Area 82A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	5.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	5.0	5.2	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	3.0	5.2	5.5	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	2.0	3.2	5.6	5.9	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	4.0	2.1	3.3	5.8	6.1	4.3	3.9	4.3	4.1	3.8	4.1
6	2.0	4.3	2.2	3.6	6.3	6.6	4.6	4.2	4.6	4.4	4.1
7	3.0	2.1	4.5	2.4	3.8	6.6	7.0	4.8	4.5	4.9	4.6
8	3.0	3.1	2.2	4.7	2.4	3.9	6.8	7.2	5.0	4.6	5.0
9	1.0	3.0	3.1	2.1	4.6	2.4	3.9	6.8	7.1	4.9	4.5
10	4.0	1.0	3.0	3.1	2.2	4.7	2.5	3.9	6.9	7.2	5.0
11	1.0	4.0	1.0	3.0	3.1	2.2	4.7	2.4	3.9	6.8	7.2
12	3.0	1.0	3.8	1.0	2.9	3.0	2.1	4.5	2.3	3.7	6.5
K-5	22.0	22.0	24.3	25.3	23.4	21.3	21.0	21.1	20.7	20.8	20.8
6-8	8.0	9.5	8.9	10.7	12.5	17.1	18.4	16.2	14.1	13.9	13.7
9-12	9.0	9.0	10.9	9.2	12.8	12.3	13.2	17.6	20.2	22.6	23.2
K-12	39.0	40.5	44.1	45.2	48.7	50.7	52.6	54.9	55.0	57.3	57.7

Study Area 82B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	5.0	8.3	10.7	13.0	15.1
1	2.0	3.5	3.2	3.5	3.3	3.1	5.9	10.9	14.7	17.5	19.8
2	2.0	2.1	3.7	3.4	3.7	3.5	5.6	10.8	16.0	20.0	22.6
3	4.0	2.1	2.2	3.8	3.5	3.8	6.0	10.4	15.9	21.4	25.3
4	2.0	4.3	2.2	2.4	4.1	3.8	6.5	11.1	15.8	21.6	27.2
5	4.0	2.1	4.5	2.3	2.5	4.3	6.2	11.3	16.1	21.0	26.7
6	2.0	4.3	2.2	4.8	2.5	2.7	7.0	11.4	16.9	22.0	27.1
7	5.0	2.1	4.5	2.4	5.0	2.7	5.1	11.9	16.6	22.3	27.4
8	4.0	5.1	2.2	4.7	2.4	5.2	5.0	9.8	16.8	21.6	27.2
9	2.0	4.0	5.1	2.1	4.6	2.4	6.9	8.2	12.9	19.9	24.4
10	2.0	2.0	4.0	5.2	2.2	4.7	4.3	10.4	11.8	16.5	23.4
11	2.0	2.0	2.0	4.0	5.1	2.2	6.4	7.5	13.6	14.9	19.4
12	1.0	1.9	1.9	1.9	3.8	4.9	3.8	9.3	10.3	16.2	17.3
K-5	17.0	16.9	18.8	18.3	19.8	21.3	35.2	62.8	89.2	114.5	136.7
6-8	11.0	11.5	8.9	11.9	9.9	10.6	17.1	33.1	50.3	65.9	81.7
9-12	7.0	9.9	13.0	13.2	15.7	14.2	21.4	35.4	48.6	67.5	84.5
K-12	35.0	38.3	40.7	43.4	45.4	46.1	73.7	131.3	188.1	247.9	302.9

Study Area 82C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 83 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	1.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	1.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
9	1.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0	0.0
10	0.0	1.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0
11	0.0	0.0	1.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0
12	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.2	0.0
K-5	1.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	1.0	1.0	1.1	1.2	1.3	1.3	0.0	0.0	0.0	0.0	0.0
9-12	2.0	1.0	1.0	2.1	1.1	1.1	2.3	1.3	1.3	1.2	0.0
K-12	4.0	3.1	3.2	3.3	2.4	2.4	2.3	1.3	1.3	1.2	0.0

Study Area 84 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	3.0	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	2.0	3.2	4.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	2.0	2.0	3.3	4.3	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	5.0	2.0	2.1	3.3	4.4	1.3	1.2	1.3	1.2	1.2	1.2
6	3.0	5.3	2.1	2.2	3.5	4.6	1.4	1.3	1.4	1.3	1.2
7	8.0	3.1	5.5	2.2	2.3	3.6	4.8	1.4	1.3	1.4	1.4
8	4.0	8.2	3.2	5.7	2.3	2.3	3.8	5.0	1.5	1.4	1.5
9	2.0	4.4	9.1	3.5	6.2	2.5	2.6	4.1	5.5	1.6	1.5
10	4.0	1.9	4.2	8.7	3.4	6.0	2.4	2.5	4.0	5.2	1.6
11	5.0	3.9	1.9	4.1	8.4	3.3	5.8	2.3	2.4	3.8	5.1
12	2.0	4.8	3.7	1.8	3.9	8.1	3.2	5.6	2.3	2.3	3.7
K-5	17.0	13.3	12.9	12.2	10.1	6.9	6.7	6.7	6.6	6.7	6.7
6-8	15.0	16.6	10.8	10.1	8.1	10.5	10.0	7.7	4.2	4.1	4.1
9-12	13.0	15.0	18.9	18.1	21.9	19.9	14.0	14.5	14.2	12.9	11.9
K-12	45.0	44.9	42.6	40.4	40.1	37.3	30.7	28.9	25.0	23.7	22.7

Study Area 85A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	3.0	3.6	3.3	3.6	3.4	3.2	3.4	3.3	3.3	3.3	3.3
2	5.0	3.0	3.5	3.3	3.5	3.4	3.1	3.4	3.3	3.3	3.3
3	4.0	5.4	3.2	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5
4	3.0	4.1	5.5	3.2	3.9	3.5	3.9	3.7	3.4	3.7	3.6
5	0.0	3.0	4.1	5.5	3.3	3.9	3.6	3.9	3.7	3.5	3.7
6	5.0	0.0	3.2	4.4	5.8	3.5	4.1	3.8	4.1	3.9	3.7
7	2.0	5.2	0.0	3.3	4.5	6.1	3.6	4.3	4.0	4.3	4.1
8	3.0	2.1	5.4	0.0	3.4	4.7	6.3	3.7	4.4	4.1	4.4
9	2.0	3.3	2.3	5.9	0.0	3.8	5.1	6.9	4.1	4.9	4.5
10	5.0	1.9	3.2	2.2	5.7	0.0	3.6	4.9	6.6	3.9	4.7
11	5.0	4.9	1.9	3.1	2.1	5.5	0.0	3.5	4.8	6.4	3.8
12	3.0	4.8	4.7	1.8	3.0	2.0	5.3	0.0	3.4	4.6	6.2
K-5	18.0	21.9	22.6	22.3	20.3	20.6	20.4	20.5	20.1	20.1	20.2
6-8	10.0	7.3	8.6	7.7	13.7	14.3	14.0	11.8	12.5	12.3	12.2
9-12	15.0	14.9	12.1	13.0	10.8	11.3	14.0	15.3	18.9	19.8	19.2
K-12	43.0	44.1	43.3	43.0	44.8	46.2	48.4	47.6	51.5	52.2	51.6

Study Area 85B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	3.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	1.0	3.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	0.0	1.1	3.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	0.0	0.0	1.1	3.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	0.0	0.0	1.1	3.3	1.3	1.2	1.3	1.2	1.2	1.2
6	0.0	1.1	0.0	0.0	1.2	3.5	1.4	1.3	1.4	1.3	1.2
7	3.0	0.0	1.1	0.0	0.0	1.2	3.6	1.4	1.3	1.4	1.4
8	4.0	3.1	0.0	1.1	0.0	0.0	1.3	3.7	1.5	1.4	1.5
9	1.0	4.4	3.4	0.0	1.2	0.0	0.0	1.4	4.1	1.6	1.5
10	2.0	1.0	4.2	3.3	0.0	1.2	0.0	0.0	1.3	3.9	1.6
11	5.0	1.9	0.9	4.1	3.2	0.0	1.2	0.0	0.0	1.3	3.8
12	0.0	4.8	1.9	0.9	3.9	3.0	0.0	1.1	0.0	0.0	1.2
K-5	6.0	6.2	7.6	8.9	9.0	6.9	6.7	6.7	6.6	6.7	6.7
6-8	7.0	4.2	1.1	1.1	1.2	4.7	6.3	6.4	4.2	4.1	4.1
9-12	8.0	12.1	10.4	8.3	8.3	4.2	1.2	2.5	5.4	6.8	8.1
K-12	21.0	22.5	19.1	18.3	18.5	15.8	14.2	15.6	16.2	17.6	18.9

Study Area 86A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	2.0	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	3.0	2.1	4.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	2.0	3.1	2.2	4.3	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	2.0	3.1	2.2	4.4	1.3	1.2	1.3	1.2	1.2	1.2
6	2.0	1.1	2.1	3.3	2.3	4.6	1.4	1.3	1.4	1.3	1.2
7	2.0	2.1	1.1	2.2	3.4	2.4	4.8	1.4	1.3	1.4	1.4
8	1.0	2.1	2.1	1.1	2.3	3.5	2.5	5.0	1.5	1.4	1.5
9	4.0	1.1	2.3	2.4	1.2	2.5	3.9	2.8	5.5	1.6	1.5
10	2.0	3.8	1.1	2.2	2.3	1.2	2.4	3.7	2.6	5.2	1.6
11	5.0	1.9	3.7	1.0	2.1	2.2	1.2	2.3	3.6	2.6	5.1
12	1.0	4.8	1.9	3.6	1.0	2.0	2.1	1.1	2.3	3.5	2.5
K-5	13.0	13.3	12.8	11.1	10.1	6.9	6.7	6.7	6.6	6.7	6.7
6-8	5.0	5.3	5.3	6.6	8.0	10.5	8.7	7.7	4.2	4.1	4.1
9-12	12.0	11.6	9.0	9.2	6.6	7.9	9.6	9.9	14.0	12.9	10.7
K-12	30.0	30.2	27.1	26.9	24.7	25.3	25.0	24.3	24.8	23.7	21.5

Study Area 86B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	0.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	3.0	0.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	3.0	3.2	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	0.0	3.1	3.3	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	0.0	3.1	3.3	0.0	1.3	1.2	1.3	1.2	1.2	1.2
6	1.0	1.1	0.0	3.3	3.5	0.0	1.4	1.3	1.4	1.3	1.2
7	0.0	1.0	1.1	0.0	3.4	3.6	0.0	1.4	1.3	1.4	1.4
8	5.0	0.0	1.1	1.1	0.0	3.5	3.8	0.0	1.5	1.4	1.5
9	2.0	5.5	0.0	1.2	1.2	0.0	3.9	4.1	0.0	1.6	1.5
10	1.0	1.9	5.3	0.0	1.1	1.2	0.0	3.7	4.0	0.0	1.6
11	1.0	1.0	1.9	5.1	0.0	1.1	1.2	0.0	3.6	3.8	0.0
12	2.0	1.0	0.9	1.8	4.9	0.0	1.1	1.1	0.0	3.5	3.7
K-5	8.0	8.4	9.7	7.9	5.7	6.9	6.7	6.7	6.6	6.7	6.7
6-8	6.0	2.1	2.2	4.4	6.9	7.1	5.2	2.7	4.2	4.1	4.1
9-12	6.0	9.4	8.1	8.1	7.2	2.3	6.2	8.9	7.6	8.9	6.8
K-12	20.0	19.9	20.0	20.4	19.8	16.3	18.1	18.3	18.4	19.7	17.6

Study Area 86C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	2.0	2.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	1.0	2.1	2.1	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	3.0	1.0	2.2	2.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	0.0	3.0	1.0	2.2	2.2	2.6	2.4	2.6	2.5	2.3	2.5
6	0.0	0.0	3.2	1.1	2.3	2.3	2.8	2.5	2.8	2.6	2.4
7	3.0	0.0	0.0	3.3	1.1	2.4	2.4	2.9	2.6	2.9	2.7
8	1.0	3.1	0.0	0.0	3.4	1.2	2.5	2.5	2.9	2.7	3.0
9	3.0	1.1	3.4	0.0	0.0	3.8	1.3	2.8	2.7	3.2	3.0
10	4.0	2.9	1.1	3.3	0.0	0.0	3.6	1.2	2.6	2.6	3.1
11	0.0	3.9	2.8	1.0	3.2	0.0	0.0	3.5	1.2	2.6	2.5
12	1.0	0.0	3.7	2.7	1.0	3.0	0.0	0.0	3.4	1.2	2.5
K-5	10.0	12.3	11.9	13.4	13.6	13.8	13.7	13.5	13.5	13.3	13.5
6-8	4.0	3.1	3.2	4.4	6.8	5.9	7.7	7.9	8.3	8.2	8.1
9-12	8.0	7.9	11.0	7.0	4.2	6.8	4.9	7.5	9.9	9.6	11.1
K-12	22.0	23.3	26.1	24.8	24.6	26.5	26.3	28.9	31.7	31.1	32.7

Study Area 86D Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	4.3	6.6	8.6	10.5	12.4	14.4	14.2	13.5
1	0.0	2.4	2.2	5.2	9.3	12.1	14.5	16.8	19.0	18.8	16.9
2	1.0	0.0	2.4	4.5	8.7	12.8	15.5	17.9	20.1	20.3	18.7
3	0.0	1.1	0.0	5.1	8.6	13.1	17.5	20.4	23.0	23.1	21.7
4	1.0	0.0	1.1	2.4	8.8	12.4	17.0	21.4	24.4	24.9	23.6
5	1.0	1.0	0.0	3.5	6.0	12.5	16.2	20.7	25.2	26.2	25.2
6	1.0	1.1	1.1	2.5	7.5	10.2	17.0	20.9	25.8	28.3	27.7
7	2.0	1.0	1.1	3.6	6.3	11.5	14.3	21.4	25.4	28.3	29.4
8	1.0	2.1	1.1	3.6	7.4	10.2	15.5	18.4	25.7	27.7	29.2
9	0.0	1.1	2.3	3.0	6.7	10.9	14.0	19.8	23.0	29.4	30.5
10	1.0	0.0	1.1	3.8	5.3	8.9	12.9	15.9	21.5	23.1	28.2
11	0.0	1.0	0.0	2.7	6.1	7.6	11.1	14.9	17.8	21.8	22.4
12	0.0	0.0	0.9	1.6	5.0	8.3	9.8	13.1	16.8	18.1	21.0
K-5	5.0	6.3	7.7	25.0	48.0	71.5	91.2	109.6	126.1	127.5	119.6
6-8	4.0	4.2	3.3	9.7	21.2	31.9	46.8	60.7	76.9	84.3	86.3
9-12	1.0	2.1	4.3	11.1	23.1	35.7	47.8	63.7	79.1	92.4	102.1
K-12	10.0	12.6	15.3	45.8	92.3	139.1	185.8	234.0	282.1	304.2	308.0

Study Area 87 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	0.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	0.0	0.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	0.0	0.0	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	0.0	0.0	0.0	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	0.0	0.0	0.0	0.0	1.3	1.2	1.3	1.2	1.2	1.2
6	0.0	1.1	0.0	0.0	0.0	0.0	1.4	1.3	1.4	1.3	1.2
7	1.0	0.0	1.1	0.0	0.0	0.0	0.0	1.4	1.3	1.4	1.4
8	0.0	1.0	0.0	1.1	0.0	0.0	0.0	0.0	1.5	1.4	1.5
9	2.0	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	1.6	1.5
10	1.0	1.9	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	1.6
11	1.0	1.0	1.9	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0
12	2.0	1.0	0.9	1.8	0.0	1.0	0.0	1.1	0.0	0.0	0.0
K-5	2.0	2.1	3.3	4.6	5.7	6.9	6.7	6.7	6.6	6.7	6.7
6-8	1.0	2.1	1.1	1.1	0.0	0.0	1.4	2.7	4.2	4.1	4.1
9-12	6.0	3.9	3.9	2.9	2.3	2.2	1.2	1.1	0.0	1.6	3.1
K-12	9.0	8.1	8.3	8.6	8.0	9.1	9.3	10.5	10.8	12.4	13.9

Housing Profile

Sherwood School District

Prepared using SchoolSite by DDP

Population		Households	
2010 Total Population	24,814	2015 Median Household Income	$89,609
2015 Total Population	25,661	2020 Median Household Income	$98,928
2020 Total Population	26,832	2015-2020 Annual Rate	2.00%
2015-2020 Annual Rate	0.90%		

	Census 2010		2015		2020	
Housing Units by Occupancy Status and Tenure	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Housing Units	8,669	100.0%	8,853	100.0%	9,257	100.0%
Occupied	8,296	95.7%	8,566	96.8%	8,962	96.8%
Owner	6,192	71.4%	6,222	70.3%	6,495	70.2%
Renter	2,104	24.3%	2,344	26.5%	2,467	26.7%
Vacant	373	4.3%	287	3.2%	295	3.2%

	2015		2020	
Owner Occupied Housing Units by Value	**Number**	**Percent**	**Number**	**Percent**
Total	6,221	100.0%	6,496	100.0%
<$50,000	108	1.7%	45	0.7%
$50,000-$99,999	85	1.4%	49	0.8%
$100,000-$149,999	132	2.1%	36	0.6%
$150,000-$199,999	179	2.9%	54	0.8%
$200,000-$249,999	544	8.7%	253	3.9%
$250,000-$299,999	1,080	17.4%	552	8.5%
$300,000-$399,999	1,872	30.1%	1,839	28.3%
$400,000-$499,999	912	14.7%	1,707	26.3%
$500,000-$749,999	795	12.8%	973	15.0%
$750,000-$999,999	272	4.4%	578	8.9%
$1,000,000+	242	3.9%	410	6.3%
Median Value	$352,484		$424,605	
Average Value	$414,608		$502,717	

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

April 28, 2016

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Census 2010 Owner Occupied Housing Units by Mortgage Status	Number	Percent
Total	6,192	100.0%
Owned with a Mortgage/Loan	5,282	85.3%
Owned Free and Clear	910	14.7%

Census 2010 Vacant Housing Units by Status	Number	Percent
Total	373	100.0%
For Rent	112	30.0%
Rented- Not Occupied	8	2.1%
For Sale Only	106	28.4%
Sold - Not Occupied	22	5.9%
Seasonal/Recreational/Occasional Use	40	10.7%
For Migrant Workers	0	0.0%
Other Vacant	90	24.1%

Census 2010 Occupied Housing Units by Age of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,295	6,191	74.6%
15-24	191	44	23.0%
25-34	1,233	736	59.7%
35-44	2,308	1,763	76.4%
45-54	1,905	1,567	82.3%
55-64	1,376	1,130	82.1%
65-74	716	597	83.4%
75-84	371	269	72.5%
85+	195	85	43.6%

Census 2010 Occupied Housing Units by Race/Ethnicity of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,296	6,192	74.6%
White Alone	7,613	5,739	75.4%
Black/African American	65	38	58.5%
American Indian/Alaska	40	24	60.0%
Asian Alone	232	185	79.7%
Pacific Islander Alone	18	7	38.9%
Other Race Alone	172	100	58.1%
Two or More Races	156	99	63.5%
Hispanic Origin	404	244	60.4%

Census 2010 Occupied Housing Units by Size and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,297	6,192	74.6%
1-Person	1,587	893	56.3%
2-Person	2,541	1,989	78.3%
3-Person	1,473	1,113	75.6%
4-Person	1,700	1,410	82.9%
5-Person	663	535	80.7%
6-Person	226	173	76.5%
7+ Person	107	79	73.8%

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

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Demographic and Income Profile

Sherwood School District

Prepared using SchoolSite by DDP

Summary	Census 2010	2015	2020
Population	24,814	25,661	26,832
Households	8,296	8,566	8,962
Families	6,329	6,491	6,763
Average Household Size	2.85	2.86	2.86
Owner Occupied Housing Units	6,192	6,222	6,495
Renter Occupied Housing Units	2,104	2,344	2,467
Median Age	35.8	36.9	37.7

Trends: 2015 - 2020 Annual Rate	Area	State	National
Population	0.90%	0.74%	0.75%
Households	0.91%	0.79%	0.77%
Families	0.82%	0.66%	0.69%
Owner HHs	0.86%	0.75%	0.70%
Median Household Income	2.00%	2.76%	2.66%

	2015		2020	
Households by Income	Number	Percent	Number	Percent
<$15,000	381	4.4%	326	3.6%
$15,000 - $24,999	444	5.2%	297	3.3%
$25,000 - $34,999	490	5.7%	368	4.1%
$35,000 - $49,999	646	7.5%	565	6.3%
$50,000 - $74,999	1,125	13.1%	1,071	12.0%
$75,000 - $99,999	1,800	21.0%	1,914	21.4%
$100,000 - $149,999	2,437	28.4%	2,872	32.0%
$150,000 - $199,999	646	7.5%	851	9.5%
$200,000+	596	7.0%	698	7.8%
Median Household Income	$89,609		$98,928	
Average Household Income	$102,759		$114,214	
Per Capita Income	$35,385		$39,352	

	Census 2010		2015		2020	
Population by Age	Number	Percent	Number	Percent	Number	Percent
0 - 4	1,774	7.2%	1,709	6.7%	1,711	6.4%
5 - 9	2,185	8.8%	1,891	7.4%	1,843	6.9%
10 - 14	2,222	9.0%	2,221	8.7%	2,084	7.8%
15 - 19	1,606	6.5%	1,924	7.5%	2,059	7.7%
20 - 24	1,039	4.2%	1,474	5.7%	1,534	5.7%
25 - 34	3,186	12.8%	2,908	11.3%	3,214	12.0%
35 - 44	4,690	18.9%	4,145	16.2%	3,712	13.8%
45 - 54	3,636	14.7%	4,069	15.9%	4,356	16.2%
55 - 64	2,462	9.9%	2,793	10.9%	3,141	11.7%
65 - 74	1,190	4.8%	1,671	6.5%	2,073	7.7%
75 - 84	552	2.2%	601	2.3%	843	3.1%
85+	269	1.1%	256	1.0%	260	1.0%

	Census 2010		2015		2020	
Race and Ethnicity	Number	Percent	Number	Percent	Number	Percent
White Alone	22,041	88.8%	22,457	87.5%	23,064	86.0%
Black Alone	281	1.1%	325	1.3%	391	1.5%
American Indian Alone	152	0.6%	162	0.6%	180	0.7%
Asian Alone	756	3.0%	900	3.5%	1,077	4.0%
Pacific Islander Alone	75	0.3%	81	0.3%	94	0.4%
Some Other Race Alone	664	2.7%	747	2.9%	859	3.2%
Two or More Races	846	3.4%	989	3.9%	1,167	4.3%
Hispanic Origin (Any Race)	1,726	7.0%	1,942	7.6%	2,257	8.4%

Data Note: Income is expressed in current dollars.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2015 and 2020.

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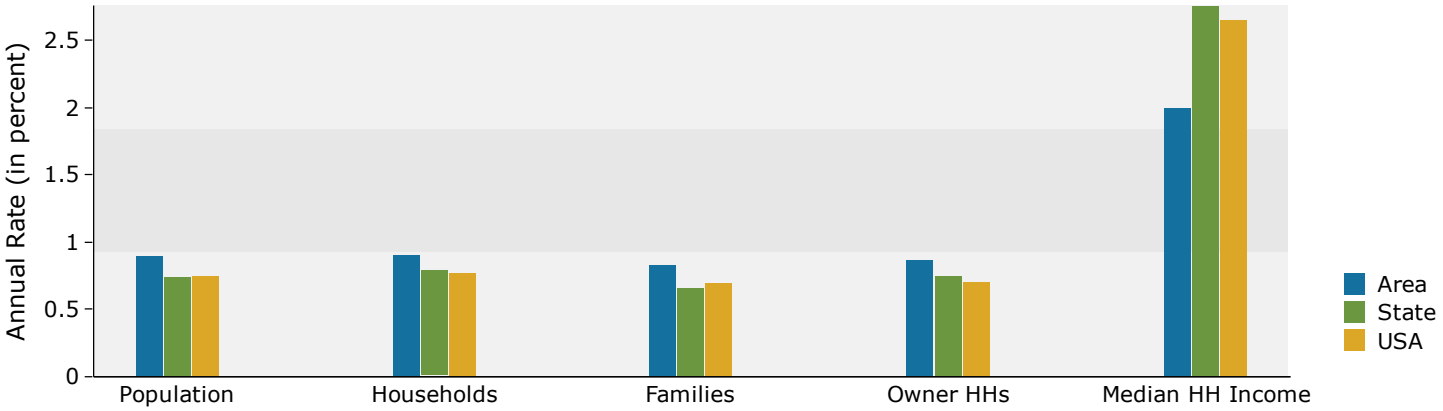
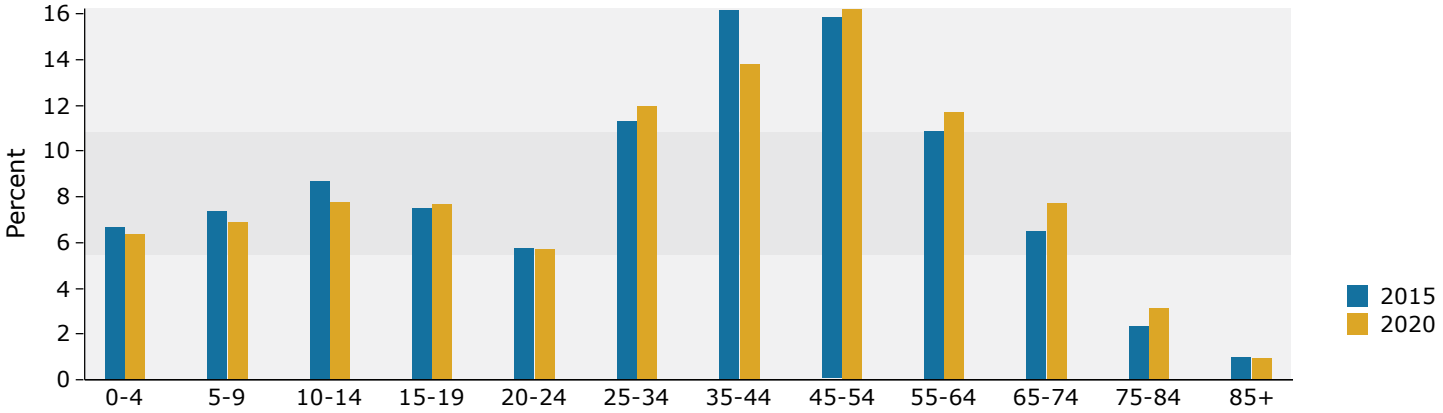
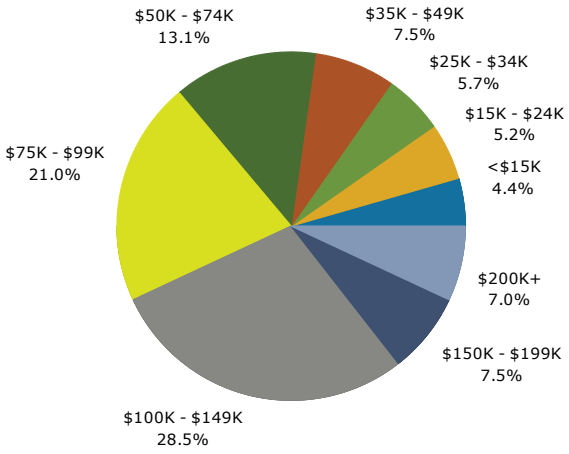
Trends 2015-2020



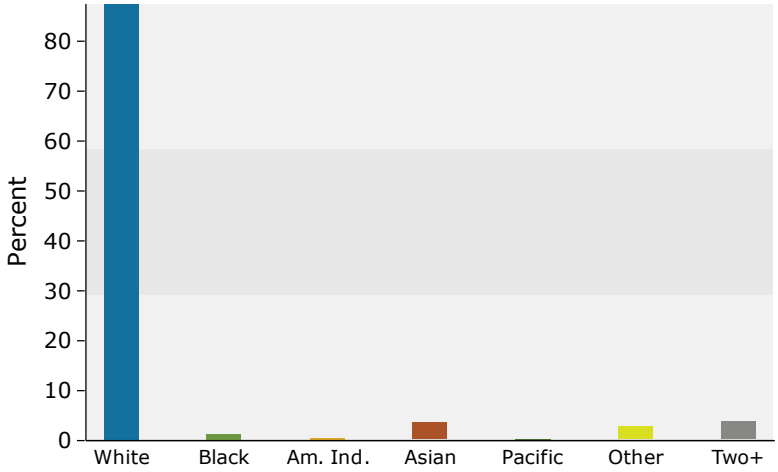
Population by Age



2015 Household Income



2015 Population by Race



2015 Percent Hispanic Origin: 7.6%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2015 and 2020.

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Sherwood School District

Sherwood, Oregon

10-Year
Student Population Projections
By Residence

Fall 2016-2025
(Based on Fall 2015 Data)

May 11, 2016

Prepared by

DAVIS DEMOGRAPHICS & PLANNING, INC.
Demography schools can plan on.

11850 Pierce Street, Suite 200
Riverside, California 92505
Phone: (951)-270-5211
Fax: (951) 270-5212
www.DavisDemographics.com

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*The Third Party Demographic Reports are prepared using ESRI's Business Analyst Online (BAO). Reports are created by overlaying the Sherwood School District boundary onto the ESRI BAO data. These reports are for informational purposes only; DDP is not responsible for the accuracy of the data.

INTRODUCTION

The Sherwood School District has contracted with Davis Demographics & Planning, Inc. (DDP) to develop and analyze demographic data relevant to the District's facility planning efforts. The scope of contracted work includes: mapping the District, address matching the current student file, developing and researching pertinent demographic data, identifying future residential development plans and developing a ten year student population projection. DDP will then assist the District in developing solutions for housing future student population. Additionally, this study was prepared to assist the District's efforts in evaluating future site requirements and attendance area changes.

The purpose of this report is to identify and inform the District of current trends occurring in the community; how these trends may affect future student population; and to assist in illustrating facility adjustments that may be necessary to accommodate the potential student population shifts. The District can then use this information to better plan for the need, location and timing of facility or boundary adjustments.

The **Sources of Data** section details where the two sources of data, geographic and non-geographic, are collected and how each data item is used in the ten year student population projection model.

The **Ten Year Projection Methodology** section discusses in detail how the factors used in the study were calculated and why they were used. These factors include the calculation of incoming kindergarten classes, additional students from new housing (referred to as student yield), the effects of student mobility, and a detailed review of planned residential development within the District.

While reading this report, it is important to remember that this is a snapshot of current (October 2015) and potential student population based upon data gathered in Spring 2015. DDP uses known residential housing projects that have been filed with the City or County and estimates future annual phasing of only these projects. DDP does not estimate any additional units beyond the "known" filed projects and therefore it is possible that more units could be built during this ten year timeframe. Population demographics, development plans, funding opportunities and district priorities can all change, and therefore, new projections and adjustments to the overall Master Plan will continue to be necessary in the future.

EXECUTIVE SUMMARY

Davis Demographics & Planning, Inc. is assisting the Sherwood School District in planning for future student population changes. By factoring current and historical student data with demographic data and planned residential development, DDP calculated a ten year student population projection. This projection is based upon residence of the students and is designed to alert the District as to when and where student population shifts will occur.

The Sherwood School District has seen constant growth from 2012 to 2014. The current 2015/2016 school year saw a significant gain of about 137 K-12 students. Over the next ten years, the projections show that the Sherwood School District should continue to grow through 2025. As of October 2015, the District stood at 5,067 K-12 students, and by fall 2025 that figure could be closer to 6,535, a net increase of 1,468 K-12 students.

ELEMENTARY SCHOOL CONCLUSIONS

The Sherwood School District is projected to experience overall growth in its resident student population among the elementary grades over the next ten years. The resident student population is at 2,196 and could rise to 2,594 (a net gain of 398 K-5 students) by fall of 2025. It is important to note that the projected growth amongst the elementary attendance areas is most likely a result of new residential construction. The attendance areas with the biggest projected resident K-5 student population gains over the ten year projection period include Archer Glen ES (+198 K-5 Students) and Hopkins ES (+201 K-5 Students). On the other end of the spectrum is the attendance area with an anticipated net decrease in K-5 student population, Edy Ridge ES (-28 K-5 Students). The decline is a result of smaller projected incoming kindergarten classes that are due to enter the District and replace the bigger class size bubbles, which are graduating on through to the middle school grades. The projected smaller kindergarten class sizes are mostly a result of the declining birthrates.

Based on the K-5 ten year projections, boundary adjustments may be needed for most attendance areas based on declining enrollment, major growth, or non-contiguous boundaries. The Hopkins attendance area should be monitored as it is expected to exceed its current capacity of 675 by fall 2022. The District may also have to keep an eye on the Archer Glen attendance area due to anticipated growth exceeding its capacity. The monitoring of any potential future residential development will continue to be necessary, as this will play an important role to any potential resident population changes in the coming years.

MIDDLE SCHOOL CONCLUSIONS

The Sherwood School District has two comprehensive 6-8 middle schools, each with a distinct attendance area: Laurel Ridge Middle School and Sherwood Middle School. Overall growth for the middle school 6-8 student population is expected to grow by an additional 425 resident students by 2025. Laurel Ridge attendance area should experience most of this growth with a projected net increase of 352 resident grade 6-8 students. The resident 6-8 student population for the Laurel Ridge attendance area should remain relatively stable with a projected net gain of only 73 students by 2025.

With a total projected growth of 425 6th-8th grade students by fall of 2025, the District may need to consider adding portable classrooms. Therefore, no boundary re-alignments among the Middle School attendance areas may be necessary within the next ten years. However, the District should closely monitor the Laurel Ridge area since it does look like its resident counts may be approaching its designed capacity of 550 in 2018. However, from fall 2021 to fall 2025 the school may stabilize around 550 students. Most of the growth in Sherwood MS attendance area is a result of residential development from the specific planning areas within the boundary.

HIGH SCHOOL CONCLUSIONS

The Sherwood School District has experienced growth in the high school resident student population over the last four years with an enrollment of 1,537 as of fall 2015. A 39.8% net growth for the high school population is expected within the next ten years, which equates to a net gain of 645 9-12. The high school residential totals are currently exceeding the capacity of 1,550. With this large growth, the District should consider opening a new high school. By fall 2025 the District is expected to have a high school 9-12 student population surpass the 1,550 capacity mark by 715 students.

SOURCES OF DATA

Geographic Map Data

Five geographic data layers were created for use in the ten year student population projections:

1. Street Centerline Database
2. Study Areas
3. Schools
4. Students – Historical and Current
5. Planned Residential Development

1) Street Centerline Data

The street database has associated attributes that contains but are not limited to, the following fields: full street name, address range and street classification.

The main function of the streets is in the geo-coding process of the student data. Each student is address-matched to the streets by their given address. The geo-coding process places a point on the map for every student in the exact location that student resides. This enables DDP to analyze the student data in a geographic manner.

Another vital utilization of the digital street database is in the construction of study areas. Freeways, major streets, and neighborhood streets are used as boundaries for the study areas.

2) Study Areas

Study areas are small geographic areas and the building blocks of a school district; they are similar to neighborhoods. Study areas are geographically defined following logical boundaries of the neighborhood, such as freeways, streets, railroad tracks, rivers, etc. Each study area is then coded with the elementary, middle, and high school that area is assigned to attend. By gathering information about the District at the study area level, you can closely monitor growth and demographic trends in particular regions and spot potential need for boundary changes or new facilities. There are 104 study areas created for the Sherwood SD.

3) Schools

The District provided school detailed information to DDP for mapping the District facilities.

4) Student Data

a. **Historical Student Data** - Historical enrollment is used to compare past student population growth and trends as well as the effects of mobility (move in, move out from existing housing) throughout the District. DDP utilized the last three years (2012, 2013, and 2014) of student enrollment data for each October from fall 2012 through fall 2014.
b. **Current Student Data** - A student data file representing October 2015 (received by DDP as a computer data file from the School District) summarized by grade level and by study area is used as a base for enrollment projections. Existing students were categorized by study area through the address-matching process that locates each student

within a particular area based upon their given address. The projections run each of the next ten years from fall 2016 through fall 2025.

The Student Accounting Summary (Table 1) indicates the total student enrollment as of October 2015 and the number of students used in the ten year student population projections. The projection model is based upon student residence and excludes students residing outside of the District's boundary, students with Grades = 13, Special Education students, independent study students, prekindergarten students and students in which DDP was unable to match. Special Education students were excluded from the projections (due to different classroom loading standards and not all of the District's elementary schools housed Special Education Students).

Table 1– Student Accounting Summary

Fall 2015 Actual Enrollment (Representing October 8, 2015)

Total Students Provided by the District to DDP	5,108
Students Living outside of District boundary	- 108
Students with Grades = 13	-13
Special Ed Students	-27
Prekindergarten Students	-28
STUDENTS USED IN PROJECTIONS	**4,932**

5) Planned Residential Development - This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries, and planning officials from the cities of Sherwood and Tualatin. Data includes, when available, development name, developer/owner, location, housing type, total number of units, and projected move-in dates (phasing estimates). Phasing for planned housing is factored into the ten year projections. (See Section Two for a detailed listing of the planned residential development). In the student population projection, DDP includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the projection timeframe. The planned residential development information and phasing estimates show a snapshot of the District at the time of this study. Any of the residential development information contained within this report may change and should therefore, be updated at least annually.

Non-Geographic Data

Two basic sets of non-geographic data were compiled and reviewed for use in the ten year student population projections by residence:

1. Births by Zip Code
2. Mobility Factors

1) Births by Zip Code Data - Birth data by postal zip code was obtained from the Oregon State Center for Health Statistics, for the years 2003-2014 and roughly correlated to the Sherwood School District's boundary. Past changes in historical birthrates are used to estimate incoming kindergarten student population from existing housing.

2) Mobility Factors - Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). Mobility, similar to a cohort, is applied as a percentage of increase/decrease among each grade for every year of the projections. The Mobility Factors help account for apartment movement, housing resales, and dropout rates at the high school level.

TEN YEAR "RESIDENCE" PROJECTION METHODOLOGY

The projection methodology used in this study combines historical student population figures, and past and present demographic characteristics to forecast future student population at the study area level. District-wide projections are summarized from the individual study area projections. **These projections are based upon where the students reside and where they should be attending school. DDP uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate estimate of where future school facilities should be located.** The best way to plan for future student population shifts is to know where the next group of students will be residing. The following details the methodology used in preparing the student population projections by residence.

Ten Year Projections

Projections are calculated out ten years from the date of projection for several reasons. The planning horizon for any type of facility is typically no less than five years, often longer. Ten years is sufficient to adequately plan for any facility. It is a short to mid-term solution for planning needs. Projections beyond ten years are based upon speculation due to the lack of reliable information on birthrates, new home construction, economic conditions etc.

Why Projections are Calculated by Residence

Typically, school district projections are based on enrollment by school. However, this method is inadequate when used to locate future school facility needs because the location of the students is not taken into consideration. A school's enrollment can fluctuate due to variables in the curriculum, program changes, school administration, and open enrollment policies. These variables can skew the apparent need for new or additional facilities in an area.

The method used by DDP is unique because it modifies a standard cohort projection with demographic factors and actual student location. **DDP bases its projections on the belief that school facility planning is more accurate when facilities are located where the greatest number of students reside.**

The best way to plan for future schools is to know where the next group of students will be coming from. The following details the methodology used in preparing the student population projections.

1) Progression - Each year of the projections, 12th grade students graduate and continuing students progress through to the next grade level. This normal progression of students is modified by the following factors:

2) Incoming Kindergarten – Live birth data is reported to the Oregon State Center for Health Statistics, by the resident postal zip code of the mother. DDP uses birth data by zip code so, if need be, a different birth factor can be applied to various areas of the District.

Incoming kindergarten classes, for existing homes, are estimated by comparing changes in past births and birthrates. Table 2 shows the total births for the two main zip codes in the Sherwood School District area from 2003 to 2014. Incoming kindergarten classes are determined by multiplying the existing kindergarten class (2015) by the percent increase/decrease in the birthrate for the year the kindergarten class was born (2010). Assuming that the fall 2015 kindergarten class was born in 2010, DDP compared the total births in 2010 to the total births in 2011, to determine a factor for next year's kindergarten class (Fall 2016). Similarly, 2010 was compared to 2012 (Fall 2017 K class), 2010 to 2013 (Fall 2018 K class) and 2010 to 2014 (Fall 2019 K class).

Split between 2 counties Washington and Clackamas

	Washington 97140	Clackamas 97140	Combined	Real Birthrate	Birthrates used by DDP	Year of Projection
2003	317	5	322			
2004	299	7	306			
2005	316	0	316			
2006	351	0	351			
2007	318	2	320			
2008	311	14	325			
2009	269	13	282			
2010	**266**	**11**	**277**	**BASE YEAR**		
2011	**231**	**10**	**241**	87.0%	**92.0%**	2016
2012	**255**	**9**	**264**	95.3%	**100.3%**	2017
2013	**240**	**11**	**251**	90.6%	**95.6%**	2018
2014	**225**	**7**	**232**	83.8%	**88.8%**	2019
				89.9%	**94.9%**	2020
				88.1%	**93.1%**	2021
				87.2%	**92.3%**	2022
				88.4%	**93.4%**	2023
				87.9%	**92.9%**	2024
				87.9%	**92.9%**	2025

= PEAK YEAR

Source: State of Oregon Center for Health Statistics

Table 2– Birth Data by Zip Code

According to Table 2, the birth data for zip code 97140 shows a decrease of births from 2006 to 2010 with total births in 2010 of 277 (for 97140 combined). Births for 97140 have not shown any kind of consistent trend. Births have been relatively unstable with average births from 2003 to 2010 of 312. There was a peak in births in 2006 of 351 live births for 97140 combined. The births then experienced an overall decline from 2010 through 2014. Birth factors for 2020-2025 are an average of the previous three years, and is conducted this way because the birth data is not yet available or the children have not been born; DDP elects to follow this common practice because it doesn't want to over or under project incoming kindergarteners.

3) Student Mobility Factors - Student mobility factors further refine the ten year student population projections. Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). This factor takes into account the apartment movement within the District, as well as housing resales and dropout rates at the high school level. Mobility, similar to a cohort, is applied as a percentage of increase/decrease to each grade for every year of the projections. DDP used

the District's historical student data (representing data taken from the Fall timeframe) for calculating these factors.

A net increase or decrease of zero students over time is represented by a factor of 100%. A net student loss is represented by a factor less than 100% and a net gain by a factor greater than 100% (see the example below).

Example: 100 K grade students in the Archer Glen ES area for fall 2015
X 119.0% (the K-1 Archer Glen ES area Mobility Factor)
119.0 1st grade students in fall 2016 for that area in Archer Glen

The sampling used was taken over a four-year period (student data from 2012 through 2015) and three yearly groupings were calculated. For example, a comparison was made for the fall 2012 K student population to the fall 2013 1st grade students. This comparison was also conducted for the fall 2013 & fall 2014 and fall 2014 & Fall 2015 groupings. Table 3, below, shows the Mobility Factors that were used for this year's report.

Table 3-Mobility Factors

Using Fall 2012 through 2015 Student Data (3 Years of Change) by Elementary Attendance Area

Sherwood School District Mobility (Using Fall 2012 through Fall 2015 Student Data)

(Excluding Study Areas that Have Had Development and Ones that Contain Low Student Counts)

	K to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12
Archer Glen ES	1.190	0.990	1.070	1.020	1.010	1.060	1.040	1.030	1.100	0.960	0.970	0.960
Edy Ridge ES	1.140	1.110	1.070	1.000	1.020	1.110	1.010	1.030	1.080	0.980	0.990	0.990
Hopkins ES	1.160	1.050	1.050	1.070	1.040	1.080	1.050	1.030	0.990	1.020	0.990	0.960
Middleton ES	1.090	1.060	1.040	1.010	1.050	1.020	0.990	1.010	1.020	0.980	0.990	0.970

Based upon DDP's experience with many other school districts' data, the figures in Table 3 are very typical of communities like Sherwood SD. Archer Glen ES's K to 1 Mobility Factor is 119.0%. That means that for Archer Glens' area, as students transition from Kindergarten to 1st grade (K to 1st) there is an average student increase of 19%. Since kindergarten is not a required grade, many parents choose to keep their children in daycare facilities through kindergarten and then bring them into 1st grade at the public school. This accounts for the high K to 1 rates. Most of the Districts mobility factors are green (greater than 1.00). This means that parents are choosing to move into the Sherwood School District, specifically to enroll their children in their schools. The only losses (red) seen above are some very slight high school dropout rates.

4) Student Yield Factors (SYF'S) – Ten-Year Projections - The Student Yield Factors, when applied to planned residential development units, determine how many additional students will be generated from new housing construction within the District (see **Section Two** for details on planned residential development schedules). Student Yield Factors are sometimes referred to as Student Generation Rates (SGR's). DDP has elected to use student yield factors from Sherwood School District neighbors, West-Linn Wilsonville. Sherwood School District did not have a large enough sample size of new housing units to accurately create student yield factors.

Table 4- Student Yield Factors

Single-Family Detached (SFD) Units				
Grade Ranges	K-5	6-8	9-12	K-12
Student Yield Factor	0.285	0.142	0.135	0.562

Multi-Family Units (MFA) (apartments, condos, townhomes, etc)				
Grade Ranges	K-5	6-8	9-12	K-12
Student Yield Factor	0.096	0.048	0.061	0.205

Before the SYF's can be applied to the current housing units, the year of construction for each housing type must be analyzed. In general, new housing attracts young families with elementary school aged children. Over the next 12 to 15 years, the children grow older and pass through the grades. This cycle is then repeated throughout the life of the home. Analyzing the year of construction for new housing units can help estimate the number of facilities needed to accommodate new students.

5) Planned Residential Development and Student Yield Factors - Closely related to the Student Yield Factors (SYF) are planned residential development units. Planned residential development data is collected to determine the number of new residential units that will be built over the ten year period of the student population projections. The units built within the next ten years will have the appropriate SYF applied to it to determine the number of new students the planned residential development will yield.

This residential development data was obtained through the District, developers that have current or future projects within District boundaries, and planning officials from the cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. (see **Section Two** for details on planned residential development occupancy).

In the resident student projections, DDP includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the projection timeframe. The planned residential development information and phasing estimates is a snapshot of the District at the time of this study. The residential development information changes quite often and should be updated at least on an annual basis.

APPLYING THE VARIABLES TO GENERATE THE PROJECTIONS

The following paragraphs summarize how DDP uses the factors to determine the student population projections. Remember that these projections are based on residence.

The Sherwood School District has been broken up into 104 study areas and each are coded for each of the District's elementary, middle and high school, depending upon what attendance area they fall in. The residential projections are calculated at the study area level. This means that DDP conducts 104 individual projections that are based upon the number of students residing in each study area.

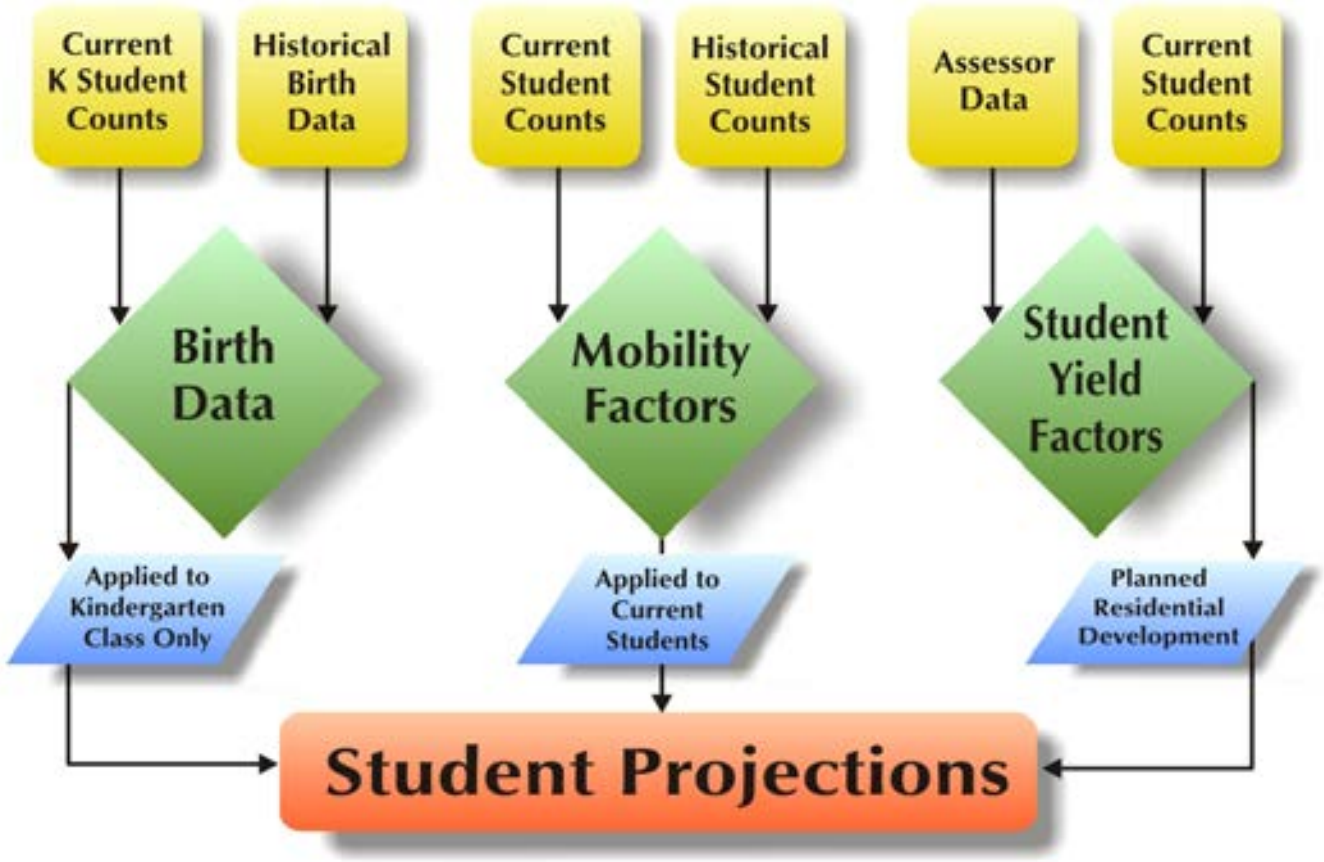
The first step in running these projections involves listing the number of students that live in a particular study area by each individual grade (Kindergarten through 12th grade). The current student base (Fall 2015) is then passed onto the next year's grade (2015's K become 2016's 1st graders, 2015's 1st graders become 2016's 2nd graders, and so on). After the natural progressions of students through the grades are applied, Birth Factors are then multiplied to the current Kindergarten class to generate a base for the following year's Kindergarten class. (*Section One*)

Next, a Mobility Factor is applied to all grades. Again, these factors take into account the natural in/out migration of students throughout the District. A specific Mobility Factor was calculated for each grade transition (K to 1st, 1st to 2nd, etc.) within each elementary attendance area and is applied to the appropriate grade (and school area) to estimate the next year's progressed students.

The last essential layer applied to the projections deals with additional students from planned residential development (*Section Two*). This is a simple calculation, again conducted at the study area level, where the estimated number of new housing units for a particular year is multiplied by the appropriate Student Yield Factors. For example, if 100 single-family detached (SFD) units are to be built in a specific study area in a given year, then you would multiply this number (100 units, for example) by the SFD K-5 Student Yield Factor (.285) and the resulting number (29 K-5 students) is divided evenly among the six grades. (*Section One*)

To finish generating the projections by residence, the same process is conducted for each of the 104 study areas. Once the projections have been run at the study area level, then it is simple addition to determine projections for each of the District's attendance areas or for a district-wide summary. For example, the residential projections for Archer Glen Elementary School are simply the summary of all of the study areas that make up this specific attendance area (see *Section Five* for the projections of each elementary attendance area). The District Summary for the "residence" projections (*Section Four)* is a total summary of all 104 study areas, which excludes all of the students that attend a district school and live outside of the District's boundaries and students unable to be mapped. Then out-of-district students are factored back into the projections by simply adding the existing totals in at the bottom of the projections (please see the Attendance Matrices in *Section Three* for a breakdown of the out-of-district students by school). DDP adds the current total out-of-district to each year of the projections because there is no accurate way to forecast these students in the future.

DDP Student Projection Model



PLANNED RESIDENTIAL DEVELOPMENT

This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries, and planning officials from the Cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. Please see the next page (page 11) for a map of the known residential projects in the Sherwood School District area. Following the map (on page 12) is a breakdown of the estimated occupancy date for new housing units over the next ten years (from Fall 2016 through Fall 2025) by Study Area and by the three main housing types (single family detached – SFD – units; multi-family attached – MFA – units; and apartments – APT – units). This document is referred to as the District-Wide Residential Development Summary. In addition, DDP has included a Residential Development List (page 12), which is sorted by Study Area and is an inventory of all known residential projects that are expected to be active over the next ten years.

DDP estimates that as many as 1,155 Single-Family Detached units, 189 multi-family units, and 207 Apartment units could be built within the Sherwood District boundary over the next ten years. This amount of units is definitely possible and is not unprecedented. Most of these units are estimated to be constructed within the ten year period, with the fall 2021 and fall 2022 school years having the most units being built with 235 each year.

Please note that all phasing schedules are based on occupancy, all Approved and Tentative maps plus proposed and potential development are included on these lists, the Summary only includes units that may be occupied in the ten year timeframe of the projections and are based upon data gathered during the Spring of 2016 and may not reflect recent changes.

Sherwood School District

Active and Future Residential Development

Roshun Village Townhomes
14 MFA Units

Mandel Farms Subdivision
86 SFD Units

Sherwood Plaza Apartments
82 APT Units

Cedar Brook PUD
15 SFD Units

Cedar Brook PUD
50 MFA Units

Sherwood West
Mostly SFD Units
Not Included in Ten Year Projection

Timber Crossing
18 SFD Units

28 SFD Units

Brookman Road Concept Plan
726 SFD Units

Brookman Road Concept Plan
362 SFD Units

Basalt Creek Planning Area
162 MFA Units

Basalt Creek Planning Area
324 SFD Units

Basalt Creek Planning Area
162 APT Units

PACIFIC HIGHWAY
SCHROEDER LANE
ELWERT ROAD
CONZELMANN ROAD
EDY ROAD
EASTVIEW ROAD
PROPOSED ROAD
GALBREATH DRIVE
TUALATIN-SHERWOOD ROAD
12TH STREET
HANDLEY STREET
DEWEY DRIVE
VILLA ROAD
STELLAR DRIVE
FITCH DRIVE
SUNSET BLVD
OLD PACIFIC HIGHWAY
KRUGER ROAD
BROOKMAN ROAD
OBERST ROAD
SQUIRREL LANE
OBERST LANE
MCCONNELL ROAD
PLEASANT HILL ROAD
WILLAMETTE STREET
DIVISION STREET
FOREST AVENUE
PINE STREET
SMOCK STREET
HIGH POINT DRIVE
MCKINLEY DRIVE
STONEHAVEN STREET
MURDOCK ROAD
BAKER ROAD
MORGAN LANE
MORGAN ROAD
ALESCA LN
BAKER RD
DAHLKE LN
TONQUIN ROAD
CIPOLE ROAD
129TH AVENUE
124TH AVENUE
120TH AVENUE
115TH AVENUE
109TH AVENUE
MYSLONY ST
INDUSTRIAL WAY
TETON AVENUE
95TH AVENUE
93RD AVENUE
BOONES FERRY
86TH AVENUE
AVERY STREET
SILETZ DRIVE
OCHOCO DRIVE
UMATILLA STREET
ARAPAHO ROAD
SIUSLAW LANE
PAULINA DRIVE
ALSEA DRIVE
BLAKE STREET
DAKOTA DRIVE
91ST AVENUE
109TH TERRACE
107TH AVENUE
106TH AVENUE
IBACH STREET
TAYLORS DRIVE
104TH AVENUE
ONEIDA STREET
BROWN STREET
106TH AVENUE
MANDAN DRIVE
TONQUIN LOOP
TONQUIN ROAD
WALDO WAY
GREENHILL LANE
82ND AVENUE
DAY ROAD
CAHALIN ROAD
GRAHAMS FERRY ROAD
WHEATLAND DRIVE
SALISH LANE

1 2 3 4 5 6 7 8 9 10 11A 12 13 15 20 21 22 23A 23B 24A 24B 25A 25B 26 27 30 31 32 33A 34 35 38 39 40 41 42 43 44 45 46A 46B 46C 47 48 49 50 51 53 54 55 56 57 58 59 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82A 82B 82C 83 84 85B 86A 86C 86D 87

N

Map Prepared by
DAVIS DEMOGRAPHICS & PLANNING, INC.
Demography schools can plan on.

May 11, 2016

0 0.4 0.8 Miles

New Housing Development
Streets
Study Areas

Total SFD = 1155 Total MFA = 189 Total APT = 207 Total OTHER = 0

Study Area	10/2015 - 10/2016			10/2016 - 10/2017			10/2017 - 10/2018			10/2018 - 10/2019			10/2019 - 10/2020			10/2020 - 10/2021			10/2021 - 10/2022			10/2022 - 10/2023			10/2023 - 10/2024			10/2024 - 10/2025			Total	Study Area	Elementary School	Middle School	High School
	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT					
8	9	0	0	38	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	8	Edy Ridge ES	Laurel Ridge MS	Sherwood HS
9	5	20	0	10	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	9	Edy Ridge ES	Laurel Ridge MS	Sherwood HS
20	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	20	Edy Ridge ES	Laurel Ridge MS	Sherwood HS
26	0	0	0	0	0	60	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	26	Hopkins ES	Sherwood MS	Sherwood HS
37	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	37	Hopkins ES	Sherwood MS	Sherwood HS
42	0	0	0	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	42	Middleton ES	Sherwood MS	Sherwood HS
46C	0	0	0	0	0	0	25	0	0	35	0	0	35	0	0	35	0	0	35	0	0	35	0	0	28	0	0	0	0	0	228	46C	Middleton ES	Laurel Ridge MS	Sherwood HS
82B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	25	25	75	25	25	75	25	25	75	25	25	69	25	25	574	82B	Hopkins ES	Sherwood MS	Sherwood HS
86D	0	0	0	0	0	0	50	0	0	75	0	0	75	0	0	75	0	0	75	0	0	75	0	0	31	0	0	0	0	0	456	86D	Archer Glen ES	Sherwood MS	Sherwood HS
Total	14	34	0	48	30	60	123	0	22	133	0	0	124	0	0	140	25	25	185	25	25	185	25	25	134	25	25	69	25	25	Total				
	Total 15 / 16		48	Total 16 / 17		138	Total 17 / 18		145	Total 18 / 19		133	Total 19 / 20		124	Total 20 / 21		190	Total 21 / 22		235	Total 22 / 23		235	Total 23 / 24		184	Total 24/ 25		119					

Contact/Owner Developer	Project/Area	Study Area	Total Units	Type of Units	Left to Build	Comments
City of Sherwood	Unknown	42	28	SFD	All	Talking about starting up again
City of Tualitan	Basalt Creek Planning Area	82B	162	APT	All	Talk to Cities of Tualatin & Wilsonville (162 APT)
City of Tualitan	Basalt Creek Planning Area	82B	324	SFD	All	Talk to Cities of Tualatin & Wilsonville (324 SFD)
City of Tualitan	Basalt Creek Planning Area	82B	162	MFA	All	Talk to Cities of Tualatin & Wilsonville (162 MFA)
City of Sherwood	Brookman Road Concept Plan	86D	726	SFD	All	Outside of City - Could be Annexed soon?
City of Sherwood	Brookman Road Concept Plan	46C	362	SFD	All	Outside of City - Could be Annexed soon?
DR Horton	Cedar Brook PUD	9	15	SFD	All	50 townhomes & 15 SFD, Currently in progress
DR Horton	Cedar Brook PUD	9	50	MFA	All	50 townhomes & 15 SFD, Currently in progress
Venture Properties	Mandel Farms Subdivision	8	86	SFD	All	1st 9 units by Fall 2016, Currently in progress
Roshun Village	Roshun Village Townhomes	20	14	MFA	All	14 Townhomes, Currently in progress
Mercury Development	Sherwood Plaza Apartments	26	82	APT	All	82 Apts const in Jan 2017
City of Sherwood	Sherwood West	4	4400	SFD	All	Four distinct regions/A ways off 7+ yrs, still in planning
City of Sherwood	Timber Crossing	37	18	SFD	All	17-20 possible lots

= Projects in progress

THE K-5 ATTENDANCE MATRIX

An Elementary (K-5) Attendance Matrix has been included to provide a better understanding of where students reside and where they attend school. This matrix helps to see a "snapshot" of the District's current Open Enrollment patterns. DDP has also created a Middle and High Attendance Matrix on the following pages.

The attendance matrix acts as a checks and balance for student accounting. It shows where the students reside (what is their School of Residence) based upon our address matching capabilities and what school they attend (School of Attendance) based upon data in the student file supplied by the District. The inclusion of this matrix is essential to showing how the students used in the projections match up to the District's records of enrollment for each school. The best way to plan for future facilities is to know where the next group of students will be coming from, not necessarily which school they are currently attending.

Remember, DDP's projections are based upon where the students reside, not where they attend school. DDP uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate depiction of where future facilities (if necessary) should be located. Therefore, since the projections are based upon where the students reside, the figures DDP uses as a base for each school's resident projection may be slightly higher or lower than the actual reported enrollment for each school.

READING THE MATRIX

Looking at the K-5 Elementary School Attendance Matrix on page 15, let us begin with Archer Glen ES as an example. Following down the second column with the "Archer Glen ES" heading, on the first row you see that there are 486 K-5 grade students attending Archer Glen ES and residing in the Archer Glen ES attendance area. Continuing downward, four students attend Archer Glen ES, but reside in the Edy Ridge ES attendance area. Next, it shows that 17 students attend Archer Glen ES and reside in the Hopkins ES attendance area, and so on.

The row named "PK" refers to all prekindergarten students enrolled with the District. There are 0 prekindergarten students that attend Archer Glen ES. The row named "Special Education" refers to all elementary level Special Education students attending the District. No special education students attend Archer Glen ES. The item entitled "Out-of-District" refers to students living outside of the Sherwood School District but attending one of the District's schools. There are seven Out-of-District students attending Archer Glen ES. The "K-5 Totals" row shows the total number of K-5 students attending a school regardless of where they reside; this should reflect the District's enrollment counts for each school as of October 2015. There were 525 students attending Archer Glen ES as of October 2015. At the bottom of the matrix, DDP lists the District's "Open Enrollment Percentage," a figure that lists the total number of students attending the particular school but live outside of the designated boundary. There were 39 such students attending Archer Glen ES, calculating a percentage of 7.5%, which means that as of October 2015, 7.5% of Archer Glen ES's students came from outside of its current boundary.

The next step is to read across the matrix, beginning with the Archer Glen ES attendance area row. It is now understood that the 486 represent the total number of K-5 grade

students that reside in the Archer Glen ES attendance area and attend Archer Glen ES. The next column, titled "Edy Ridge ES", lists the number of K-5 grade students that reside in the Archer Glen ES attendance area, but attend Edy Ridge ES. There were six K-5 students who resided in the Archer Glen ES attendance area but attend Edy Ridge ES as of October 2015.

The K-5 Students column in the beginning represents the total number of students living in that particular attendance area. There are 507 K-5 students residing in the Archer Glen ES attendance area. Reading down the Totals column, you will find the number of K-5 students used in the fall 2015 projections - - 2,196 K-5 students (excluding Prekindergarten, Special Ed., and Out-of-District).

The Middle Matrix (on page 16) is read in the same manner as the Elementary School Matrix.

Fall 2015/2016 K-5 (Elementary School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS)		SCHOOL OF ATTENDANCE				
Attendance Area	K-5 Students	Archer Glen ES	Edy Ridge ES	Hopkins ES	Middleton ES	Transfer Out Rates
Archer Glen ES	**507**	**486**	6	10	5	4.1%
Edy Ridge ES	**534**	4	**517**	9	4	3.2%
Hopkins ES	**549**	17	5	**510**	17	7.1%
Middleton ES	**606**	11	6	3	**586**	3.3%
K-5 Sub-Totals:	**2,196**	**518**	**534**	**532**	**612**	
PK	**28**	0	0	28	0	
Special Education:	**4**	0	0	0	4	
Out of District:	**24**	7	5	7	5	
K-5 Totals:	**2,252**	**525**	**539**	**567**	**621**	
# Enrolled, But Not Living in Attendance Area:	**121**	**39**	**22**	**29**	**31**	
Open Enrollment % ("Transfer In" %):	**5.5%**	**7.5%**	**4.1%**	**5.5%**	**5.1%**	
	District-wide					

Fall 2015/2016 6-8 (Middle School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS) — Attendance Area	6-8 Students	SCHOOL OF ATTENDANCE: Laurel Ridge MS	SCHOOL OF ATTENDANCE: Sherwood MS	Transfer Out Rates
Laurel Ridge MS	**481**	**464**	17	3.5%
Sherwood MS	**718**	19	**699**	2.6%
6-8 Sub-Totals:	**1,199**	**483**	**716**	
Special Education:	**5**	1	4	
Out of District:	**19**	5	14	
6-8 Totals:	**1,223**	**489**	**734**	
# Enrolled, But Not Living in Attendance Area:	**55**	**24**	**31**	
Open Enrollment % ("Transfer In" %):	**4.6%**	**5.0%**	**4.3%**	
	District-wide			

DISTRICT-WIDE STUDENT PROJECTIONS (BY "RESIDENCE")

The student population is projected out ten years for each of the study areas and for the entire Sherwood School District. The District-Wide Summary enables the District to see a broad overview of future growth and what impact this growth will have on existing facilities. The study area listings enable the District to monitor student population growth or decline in smaller geographic areas within the District (please see *Appendix A* for the individual 104 Study Area projections).

At any point in time, study areas and their projected resident students can be shifted between schools to assist in balancing enrollment growth. Together, these projection summaries present the means for identifying the timing of additional student arrival and overall facility requirements and location to accommodate the District's expected growth.

The following page shows the District-Wide Projections by "Residence" using the fall 2015 (mid-October) student data as the base and fall 2013 and fall 2014 listed for reference. Ten consecutive years are then projected from fall 2016 through fall 2025 with the Out-of-District, Unmatched, and Special Ed students separated from the sub-totals. The Out-of-District, Unmatched, and Special Ed student records are added back in for each projection year (after the sub-totals) using the same fall 2015 figures. At the bottom of the District-Wide Projection, a projected annual change is listed.

For an exact breakdown of how many Out-of-District, Special Ed and Unmatched students there were for each elementary school as of fall 2015, please see the K-5 Attendance Matrix on page 15 and the 6-8 Middle School Matrix on page 16.

District-Wide 10-Year Forecast

Projection Date 10/7/2015

		Actual Fall 2013	Actual Fall 2014	"Current" Fall 2015	Projected Resident Student Counts Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025
	K	303	302	337	311.2	342.4	331.0	311.5	335.1	333.7	337.2	346.0	347.1	347.9
	1	338	345	344	387.4	360.7	399.3	386.4	363.6	392.5	393.5	397.5	404.9	402.6
	2	371	355	371	364.2	410.2	384.9	425.2	411.0	388.5	420.9	421.8	423.5	428.1
	3	331	380	386	393.4	389.2	440.2	413.6	455.7	442.3	420.8	455.0	453.4	451.9
	4	346	347	391	396.7	406.2	405.3	458.2	430.4	475.3	463.9	442.0	474.8	470.2
	5	379	356	367	404.1	413.1	424.9	423.8	478.0	451.0	499.4	487.7	462.7	493.3
	6	393	406	380	391.9	435.0	447.2	459.4	459.9	517.5	490.9	542.5	527.3	497.4
	7	401	400	411	389.2	403.5	451.1	463.0	475.0	478.2	540.0	512.9	563.3	544.7
	8	386	408	408	422.2	402.6	419.6	469.0	480.5	494.3	500.4	563.6	533.3	581.9
	9	381	397	428	427.6	444.1	424.9	442.8	495.7	507.5	525.4	531.0	594.7	560.5
	10	350	382	399	422.8	423.9	441.7	423.3	440.3	493.3	507.2	523.7	528.8	589.2
	11	362	343	375	394.0	419.6	422.2	439.4	421.3	439.4	492.6	506.8	520.9	524.0
	12	314	348	335	364.6	385.0	411.4	414.1	429.8	414.2	433.1	484.5	496.8	508.2
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Sub Total of Resident Students:	K-5	2,068	2,085	2,196	2,257.0	2,321.8	2,385.6	2,418.7	2,473.8	2,483.3	2,535.7	2,550.0	2,566.4	2,594.0
	6-8	1,180	1,214	1,199	1,203.3	1,241.1	1,317.9	1,391.4	1,415.4	1,490.0	1,531.3	1,619.0	1,623.9	1,624.0
	9-12	1,407	1,470	1,537	1,609.0	1,672.6	1,700.2	1,719.6	1,787.1	1,854.4	1,958.3	2,046.0	2,141.2	2,181.9
	K-12	4,655	4,769	4,932	5,069.3	5,235.5	5,403.7	5,529.7	5,676.3	5,827.7	6,025.3	6,215.0	6,331.5	6,399.9
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Special Education Students:	K-5	8	6	4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	6-8	13	10	5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	9-12	13	16	18	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
	K-12	34	32	27	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Out-of-District Students:	K-5	58	40	24	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
	6-8	36	28	19	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
	9-12	91	82	65	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
	K-12	185	150	108	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
		Fall 2013	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**	**Fall 2023**	**Fall 2024**	**Fall 2025**
Unmatched Students:	K-5	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6-8	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9-12	2	2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	K-12	4	2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Change from 2015-2025 #	Change from 2015-2025 %
Totals:	**K-5**	**2,136**	**2,131**	**2,224**	**2285.0**	**2349.8**	**2413.6**	**2446.7**	**2501.8**	**2511.3**	**2563.7**	**2578.0**	**2594.4**	**2622.0**	**398.0**	**17.9%**
	6-8	**1,229**	**1,252**	**1,223**	**1227.3**	**1265.1**	**1341.9**	**1415.4**	**1439.4**	**1514.0**	**1555.3**	**1643.0**	**1647.9**	**1648.0**	**425.0**	**34.8%**
	9-12	**1,513**	**1,570**	**1,620**	**1692.0**	**1755.6**	**1783.2**	**1802.6**	**1870.1**	**1937.4**	**2041.3**	**2129.0**	**2224.2**	**2264.9**	**644.9**	**39.8%**
	K-12	**4,878**	**4,953**	**5,067**	**5204.3**	**5370.5**	**5538.7**	**5664.7**	**5811.3**	**5962.7**	**6160.3**	**6350.0**	**6466.5**	**6534.9**	**1,467.9**	**29.0%**

		From '13 to '14	From '14 to '15	From '15 to '16	From '16 to '17	From '17 to '18	From '18 to '19	From '19 to '20	From '20 to '21	From '21 to '22	From '22 to '23	From '23 to '24	From '24 to '25
% Change:	**K-5 Annual Change:**	-0.2%	4.2%	2.7%	2.8%	2.6%	1.4%	2.2%	0.4%	2.0%	0.6%	0.6%	1.1%
	6-8 Annual Change:	1.8%	-2.4%	0.4%	3.0%	5.7%	5.2%	1.7%	4.9%	2.7%	5.3%	0.3%	0.0%
	9-12 Annual Change:	3.6%	3.1%	4.3%	3.6%	1.5%	1.1%	3.6%	3.5%	5.1%	4.1%	4.3%	1.8%
	K-12 Annual Change:	1.5%	2.2%	2.6%	3.1%	3.0%	2.2%	2.5%	2.5%	3.2%	3.0%	1.8%	1.0%

The above projections are based upon a student data file provided to DDP by the Sherwood School District representing early October 2015.

13 students with a grade = 13 and 28 PreK students were given to DDP in the original student data file and were excluded from the above projections.

District Wide Student Population Projection Trends ("Residence" Method)

The Sherwood School District has experienced growth in resident student population since 2012. The District seemed to have experienced a big jump in its K-12 Student population from fall 2014 to fall 2015. According to the projections, the Sherwood School District could continue to see a gradual K-12 student population growth over the next ten years. A K-12 student population of 6,400 is projected by fall of 2025. The District may experience an average gain of about 147 students starting fall 2016 through fall 2025. This represents an overall net gain of 1,468 K-12 students or a 29% student population increase for the District by fall 2025.

According to the projections, the K-5 resident student population is expected to see growth throughout the ten years. The K-5 resident student population for 2015 is 2,196 and may reach 2,594 by fall of 2025 (2,594), a net gain of about 398 resident K-5. The K-5 resident student population is expected to grow by 65 (+2.8%) students between fall 2016 to fall 2017. By the fall of 2023, growth may start to slow down and level out from an average growth of 2% between fall 2016 through fall 2022 to an average growth of 0.7% between fall 2023 to fall 2025.

The middle school grades are expected to grow throughout the ten-year time frame. Gradual growth is expected for the middle school grades from fall 2016 through fall 2023, due mainly to high mobility factors. As of fall 2015, the District had a middle school population of 1,223 students. A total middle school population of 1,648 students is projected by fall 2025. This represents a net gain of 425 middle school students or a 34.8% growth for these grade ranges. By fall 2023 the 6-8 resident student population may stabilize around 1,648.

The Sherwood School District may experience the most growth in the high school grade levels. Over the ten-year timeframe, the District is expected to have a net gain of about 645 high school students. Currently (2015), the District has 1,620 9-12 students and the projections show that the district's 9-12 student population could reach 2,265 by 2025. Fall 2022 may be the year with the largest year-to-year growth. For fall 2021 resident 9-12 student population is projected to be 1,854 and in fall 2022 it is expected to grow to 1,958 (growth of 104 9-12 students or 5.6%).

Sherwood School District

Elementary School
Attendance Boundaries
and
Resident Student Projections

Edy Ridge
K-5 Projections
Current Year: 534
2016: 546
2020: 527
2025: 506

Hopkins ES
K-5 Projections
Current Year: 549
2016: 574
2020: 652
2025: 750

Middleton ES
K-5 Projections
Current Year: 606
2016: 595
2020: 624
2025: 633

Archer Glen ES
K-5 Projections
Current Year: 507
2016: 541
2020: 670
2025: 705

N

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May 11, 2016

0 0.75 1.5 Miles

- Archer Glen ES
- Edy Ridge ES
- Hopkins ES
- Middleton ES
- Schools
- Streets

Sherwood School District

Elementary School
Net Enrollment Changes
2015 through 2025 by Study Area

Edy Ridge ES
Hopkins ES
Middleton ES
Archer Glen ES

N

Schools
Streets

-25.0 - -12.5
-12.5 - -0.9
No change
0.9 - 60.0
60.0 - 120.0

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0 0.75 1.5 Miles

Elementary School Attendance Area Projections (by "Residence")

Attendance Area Archer Glen ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	89.0	81.9	89.3	87.5	83.9	91.2	91.5	92.7	95.6	95.0	94.3
1	79.0	105.9	97.4	109.0	108.3	104.0	112.8	113.1	114.6	115.5	113.1
2	90.0	78.2	104.9	98.8	111.5	110.7	106.5	115.2	115.5	114.9	114.4
3	77.0	96.3	83.7	114.7	109.5	123.1	122.3	117.8	127.0	125.2	122.9
4	99.0	78.5	98.2	87.8	120.7	115.4	129.2	128.4	123.8	131.1	127.7
5	73.0	100.0	79.3	101.6	92.2	125.4	120.1	134.1	133.3	126.5	132.4
K-5	507.0	540.8	552.8	599.4	626.1	669.8	682.4	701.3	709.8	708.2	704.8

Attendance Area Edy Ridge ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	69.0	64.7	72.6	69.9	64.4	68.6	67.4	66.8	67.6	67.2	67.2
1	94.0	80.0	76.9	84.9	79.7	73.4	78.2	76.8	76.2	77.0	76.6
2	91.0	105.7	91.9	87.4	94.2	88.5	81.5	86.8	85.2	84.6	85.5
3	100.0	98.7	116.0	100.3	93.5	100.8	94.7	87.2	92.9	91.2	90.5
4	93.0	101.2	101.4	117.9	100.3	93.5	100.8	94.7	87.2	92.9	91.2
5	87.0	96.1	106.0	105.3	120.2	102.3	95.4	102.8	96.6	88.9	94.8
K-5	534.0	546.4	564.8	565.7	552.3	527.1	518.0	515.1	505.7	501.8	505.8

Attendance Area Hopkins ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	90.0	82.8	91.2	87.3	81.3	86.6	87.2	89.8	93.1	95.0	97.1
1	92.0	104.4	97.2	106.7	101.8	94.3	103.0	106.2	109.2	113.1	115.0
2	81.0	96.6	110.6	102.8	112.5	106.9	101.3	112.7	116.1	119.2	123.0
3	97.0	85.0	102.4	117.0	108.4	118.1	114.6	111.0	122.9	126.4	129.5
4	98.0	103.8	92.0	110.4	125.6	116.0	128.8	127.3	123.4	136.2	139.7
5	91.0	101.9	108.9	96.5	115.3	130.6	123.0	138.5	136.9	132.9	145.9
K-5	549.0	574.5	602.3	620.7	644.9	652.5	657.9	685.5	701.6	722.8	750.2

Attendance Area Middleton ES Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	89.0	81.9	89.3	86.3	82.0	88.7	87.7	87.8	89.7	89.8	89.2
1	79.0	97.0	89.2	98.6	96.6	91.9	98.5	97.4	97.6	99.2	97.9
2	109.0	83.7	102.8	95.9	107.0	104.8	99.2	106.1	105.0	104.8	105.2
3	112.0	113.4	87.1	108.2	102.1	113.7	110.7	104.9	112.1	110.5	109.0
4	101.0	113.1	114.5	89.2	111.6	105.5	116.5	113.5	107.6	114.6	111.6
5	116.0	106.1	118.8	121.5	96.1	119.6	112.5	124.0	120.9	114.4	120.3
K-5	606.0	595.2	601.7	599.7	595.4	624.2	625.1	633.7	632.9	633.3	633.2

Above projections EXCLUDE Out-of-District students and Special Education students. For a breakdown of Out-of-District students and Special Education students per school, then please refer to the Elementary School K-5 Attendance Matrix on page 15.

Projection Trends for the District's Elementary School (K-5) Attendance Areas ("Residence" Projections)

The Sherwood School District is projected to experience overall growth in its resident student population among the elementary grades. The resident student population is at 2,196 and could reach 2,594 (a net gain of 398 K-5 students) by fall of 2025. It is important to note that the projected growth amongst the elementary attendance areas is most likely a result of new residential construction and high mobility. The attendance areas with the biggest projected resident K-5 student population gains over the ten year projection period include Hopkins ES (+201 K-5) and Archer Glen ES (+198 K-5). The Hopkins boundary area does have a potential for 674 new housing units over the next ten years, and the Archer Glen area has potential for 456 new housing units. On the other end of the spectrum are those attendance areas with the largest anticipated net decreases in K-5 student population. This includes Edy Ridge ES (-28 K-5 Students). The decline is a result of smaller projected incoming kindergarten classes that are due to enter the District and replace the bigger class size bubbles, which are graduating on through to the middle school grades. In fact, these smaller kindergarten classes have already hit some attendance areas as of fall 2015. The projected smaller kindergarten class sizes are mostly a result of the declining birthrates for the next three years.

INDIVIDUAL ELEMENTARY SCHOOL ATTENDANCE AREA ANALYSIS

The **Hopkins Elementary School** attendance area has the largest projected growth among the District's four elementary boundaries. Gradual growth is expected for this attendance area over the next ten years. A total of 750 K-5 students is expected for this area by the end of the projection period in 2025 (201 more K-5 students). This represents a net growth of 36%. The high mobility factors indicate that the Hopkins Elementary attendance area is a very desirable location for families to settle. Scheduled residential development will also play an important role in the projected elementary grade population for this attendance area. There are 342 single-family, 125 multi-family, and 207 apartment units scheduled to be built within this attendance area over the next ten year timeframe. With an actual enrollment of 567 PK-5 students as of fall 2015, this anticipated growth may place this school beyond its designated capacity. With the neighboring schools at or near capacity, the District may want to consider adding portables to Hopkins Elementary or expanding the facility to accommodate this projected growth. The Hopkins ES attendance area will definitely continue to experience significant growth in its resident K-5 student population and the District will need to look at options on how to properly house these additional students.

The **Archer Glen Elementary School** attendance area is expected to experience the second largest projected growth in elementary grade resident student population. As of fall 2015, this attendance area had 507 resident K-5 students living within its boundaries. It is projected that the attendance area could see as many as 705 K-5 resident students by fall of 2025. This represents a net growth of 198 resident K-5 students (39% growth) which amounts to about 6-7 classrooms worth of students. This growth is mainly due to the scheduled residential development that is due to be constructed within this area, a total of 456 new residential units over the next ten years. The development is focused within the city of Sherwood's Brookman Road Concept Plan. Along with the development, Archer Glen also has a high mobility rate with an average gain of 5% from kindergarten to fifth grade. Archer Glen ES has a current enrollment count of 525 K-5 students. The District will need

to closely monitor the residential development activity to get a better grasp on what is truly going to occur within this attendance area in the future and to determine whether or not the school can handle the amount of growth. Archer Glen has a capacity of 650 and by fall 2019 the school may be near that number with resident population of 626 and by fall 2020 a resident K-5 total of 670.

The **Edy Ridge Elementary School** attendance area is projected to be the only school to experience a net decrease over the projection window. As of fall 2015, there were 534 resident K-5 students living within the Edy Ridge attendance area and is projected to contain 506 resident K-5 students by fall 2025 (a net loss of 28 students or a 5.3% net decrease). The attendance area may experience a peak enrollment in 2018 with 566 resident K-5 students. This population decrease should start around 2019 when the larger student class sizes begin to graduate on through to the middle school grades. Smaller resident kindergarten class sizes have contributed to recent declining resident counts and similar sized K classes are anticipated for this attendance area for the next ten years. Kindergarten classes are expected to be around 65 resident students and graduating 5th graders are expected to be about 100 resident students.

The attendance area that is projected to stay relatively stable is **Middleton Elementary School** attendance area. In fall 2015, this attendance area had 606 K-5 students. By fall 2025, this attendance area could have 633 resident students, which indicates a net increase of 27 resident K-5 students over the next ten years (a net increase of 4.3%). The beginning years of the projection may not see much growth. Development in the area is not expected to begin until 2018 with a piece of the Brookman Road Concept Plan. From fall 2016 through fall 2019 the attendance area may experience a decline of 11 resident K-5 students. The year with the largest growth may be in 2020 with a growth of 29 students and a resident total of 624 K-5 students The Middleton attendance area currently has a non-contagious boundary, with 470 resident K-5 students living in the larger central part of the attendance area and 136 resident K-5 students living in the smaller northern part. Of the 136 resident K-5 students living in the smaller northern part of the Middleton attendance area, two students do not attend Middleton, they transfer to Edy Ridge. If possible, the District may consider boundary adjustments with Edy Ridge. This may help Edy Ridge with declining enrollment as well as alleviate funds being used to transport students living in the non-contiguous area of Middleton.

ELEMENTARY SCHOOL CONCLUSIONS

Based on the K-5 ten year projections, some boundary adjustments may need to be done for most attendance based on declining enrollment, major growth, or non-contiguous boundaries. With the projected growth for the Hopkins attendance area, the District may have to consider expansion options or programmatic changes to the Hopkins Elementary School, which could be nearing. The same could be said for the Archer Glen ES area which may see large growth throughout the ten years. The District may also consider adjusting boundaries for Middleton to help alleviate transportation costs in the non-contiguous area. The monitoring of any potential future residential development will continue to be necessary, as this will play a very important role to any potential resident population changes in the coming years.

Sherwood School District

Middle School
Attendance Boundaries
and
Resident Student Projections

Laurel Ridge MS
6-8 Projections
Current Year: 481
2016: 487
2020: 584
2025: 554

Sherwood MS
6-8 Projections
Current Year: 718
2016: 716
2020: 831
2025: 1,070

Laurel Ridge MS
Sherwood MS
Schools
Streets

N

0 0.75 1.5 Miles

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Sherwood School District

Middle School
Net Enrollment Changes
2015 through 2025 by Study Area

Laurel Ridge MS
Sherwood MS

-15.0 - -7.5
-7.5 - -0.9
No change
0.9 - 41.0
41.0 - 82.0

Schools
Streets

N

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0 0.75 1.5 Miles

Middle School Attendance Area Projections (by "Residence")

Attendance Area Laurel Ridge MS Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	121.0	112.5	124.8	120.8	112.9	121.2	119.9	119.8	122.0	122.0	121.4
1	140.0	136.7	129.0	143.0	137.0	128.1	137.3	135.8	135.7	137.8	136.3
2	149.0	154.4	152.0	143.9	157.6	151.0	141.2	151.2	149.6	149.1	149.9
3	169.0	159.0	166.7	164.0	154.0	168.5	161.4	151.0	161.6	159.5	157.6
4	158.0	170.9	162.3	170.3	166.3	156.3	170.8	163.8	153.3	163.6	160.2
5	156.0	164.3	179.2	170.5	177.0	173.4	163.1	178.1	170.9	159.8	169.0
6	159.0	168.3	179.3	195.6	185.1	193.1	187.8	176.6	192.6	184.3	171.0
7	154.0	160.6	171.4	182.8	197.7	187.3	195.5	189.8	178.6	194.3	184.6
8	168.0	158.4	167.0	178.2	188.5	203.8	193.2	201.8	195.7	183.9	198.5
6-8	481.0	487.3	517.7	556.6	571.3	584.2	576.5	568.2	566.9	562.5	554.1

Attendance Area Sherwood MS Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	216.0	198.7	217.6	210.2	198.7	213.9	213.9	217.4	224.0	225.1	226.5
1	204.0	250.6	231.7	256.2	249.4	235.6	255.2	257.7	261.8	267.1	266.3
2	222.0	209.8	258.2	241.0	267.6	260.0	247.3	269.6	272.2	274.4	278.1
3	217.0	234.4	222.5	276.2	259.6	287.2	280.9	269.8	293.4	293.9	294.3
4	233.0	225.8	243.8	235.0	291.8	274.1	304.4	300.1	288.7	311.1	310.0
5	211.0	239.7	233.9	254.4	246.8	304.6	287.9	321.3	316.8	302.9	324.3
6	221.0	223.6	255.7	251.6	274.2	266.8	329.8	314.3	349.9	343.0	326.4
7	257.0	228.7	232.1	268.4	265.3	287.7	282.7	350.2	334.2	369.1	360.1
8	240.0	263.7	235.6	241.4	280.4	276.7	301.1	298.6	367.9	349.4	383.4
6-8	718.0	716.0	723.4	761.4	819.9	831.2	913.6	963.1	1052.0	1061.5	1069.9

Above projections EXCLUDE Out-of-District students and Special Education students. For a breakdown of Out-of-District students and Special Education students per school, then please refer to the Middle School 6-8 Attendance Matrix on page 16.

Projection Trends for the District's Middle School (6-8) Attendance Areas ("Residence" Projections)

The Sherwood School District has two comprehensive 6-8 middle schools, each with a distinct attendance area: Laurel Ridge Middle School and Sherwood Middle School. Both attendance areas feed directly into Sherwood's one high school, Sherwood HS. Overall growth for the middle school 6-8 student population is expected. A net increase of 425 6-8 students and a total of 1,648 6-8 students is expected by 2025. The Sherwood MS may experience the most growth. By 2025 Laurel Ridge may have 15.2% growth and Sherwood MS may have 49% growth.

Sherwood Middle School attendance area is expected to grow the most over the next ten years. Although a slight decline of two 6-8 resident students is expected for this attendance area by fall 2016, steady growth is expected for this area beyond 2016. As of fall 2015, Sherwood's attendance area had 718 6-8 students living within it and is projected to reach around 1,070 students by 2025. That is a net increase of 352 6-8 students when comparing 2015 to 2025 (+49%). The growth is mainly due to the anticipated construction of the Brookman Road Concept Plan and the Basalt Creek planning area. Both plans are still under review. However, the City of Sherwood still expects construction to start in 2018 for Brookman Road and 2020 for Basalt Creek. Currently, Sherwood MS gains 31 6-8 students (gain 4.3%) from outside its boundary, it loses 17 6-8 students (lose 3.5%) to Laurel Ridge. Sherwood MS's area is expected to see a large growth within the ten year timeframe and it appears that the school may approach its capacity of 1,090 by 2025. However, the District should closely monitor the Brookman Road Concept Plan and the Basalt Creek planning area; Sherwood MS's growth is closely tied to these projects.

As of fall 2015, the **Laurel Ridge Middle School** attendance area had 481 resident 6-8 students living within this attendance area. It is projected that Laurel Ridge MS's attendance area could experience an increase of about 73 grade 6-8 students by fall 2025, potentially giving it a total population of about 554 6-8 students. Laurel Ridge is expected to see a total of 393 residential units built within the ten year timeframe. Of the 393 units; DR Horton is expected to construct 15 single family and 50 multi-family units in the Cedar Brook development, Venture properties is expected to build 86 single family homes in the Mandel Farms subdivision, and Roshun Village is expected to build 14 townhomes in the Roshun Village Townhome development. Although most of the Brookman Road Concept Plan is located in the Sherwood MS boundary part of it falls within Laurel Ridge. Within the Laurel Ridge the plan is expected to yield 228 single family homes. It is also important to note that the Sherwood West planning area is expected to be within the Laurel Ridge attendance area. This planning area is not expected to be developed within the ten year window, however the District may want to follow the status of this development as it may possibly yield 4,400 units. The District will need to monitor Laurel Ridge because it may reach its designed capacity of 550 by fall 2018 with a resident 6-8 population of 557.

MIDDLE SCHOOL CONCLUSIONS

With a total projected growth of 425 6^{th}-8^{th} grade students by fall of 2025, the District may need to consider adding portable classrooms to the two middle schools. Most of the growth in resident middle school student population is a result of the parts of specific plans

expected to begin within the ten-year projection timeframe. Therefore, the District will need to closely monitor planning area and concept plan developments within the District area since those developments may potentially yield a large number of housing units.

Sherwood School District

High School Attendance Boundaries and Resident Student Projections

Sherwood HS
9-12 Projections
Current Year: 1,537
2016: 1,609
2020: 1,787
2025: 2,182

N

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May 11, 2016

0 0.75 1.5 Miles

Sherwood HS
Schools
Streets

Sherwood School District

High School
Net Enrollment Changes
2015 through 2025 by Study Area

Sherwood HS

-13.0 - -6.5
-6.5 - -0.9
No change
0.9 - 50.5
50.5 - 101.0

Schools
Streets

N

Map Prepared by

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May 11, 2016

0 0.75 1.5 Miles

High School Attendance Area Projections (by "Residence")

Attendance Area Sherwood HS Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	337.0	311.2	342.4	331.0	311.5	335.1	333.7	337.2	346.0	347.1	347.9
1	344.0	387.4	360.7	399.3	386.4	363.6	392.5	393.5	397.5	404.9	402.6
2	371.0	364.2	410.2	384.9	425.2	411.0	388.5	420.9	421.8	423.5	428.1
3	386.0	393.4	389.2	440.2	413.6	455.7	442.3	420.8	455.0	453.4	451.9
4	391.0	396.7	406.2	405.3	458.2	430.4	475.3	463.9	442.0	474.8	470.2
5	367.0	404.1	413.1	424.9	423.8	478.0	451.0	499.4	487.7	462.7	493.3
6	380.0	391.9	435.0	447.2	459.4	459.9	517.5	490.9	542.5	527.3	497.4
7	411.0	389.2	403.5	451.1	463.0	475.0	478.2	540.0	512.9	563.3	544.7
8	408.0	422.2	402.6	419.6	469.0	480.5	494.3	500.4	563.6	533.3	581.9
9	428.0	427.6	444.1	424.9	442.8	495.7	507.5	525.4	531.0	594.7	560.5
10	399.0	422.8	423.9	441.7	423.3	440.3	493.3	507.2	523.7	528.8	589.2
11	375.0	394.0	419.6	422.2	439.4	421.3	439.4	492.6	506.8	520.9	524.0
12	335.0	364.6	385.0	411.4	414.1	429.8	414.2	433.1	484.5	496.8	508.2
9-12	1537.0	1609.0	1672.6	1700.2	1719.6	1787.1	1854.4	1958.3	2046.0	2141.2	2181.9

Above projections EXCLUDE Out-of-District students and Special Education students. For a breakdown of Out-of-District students and Special Education students per school, then please refer to the High School 9-12 Attendance Matrix on page 16.

Projection Trends for the District's High School (9-12) Attendance Area ("Residence" Projections)

The Sherwood School District has one high school, Sherwood HS. The high school has experienced growth within the 9-12 resident student population over the last four years with a total of 1,537 students as of fall 2015. A 39.8% net growth for the high school population is expected within the next ten years, which equates to a net gain of 645 9-12. By the end of the ten-year projections the resident 9-12 total may be about 2,182. Currently, the capacity for Sherwood HS is 1,550 and it may pass that figure by next year. It is anticipated that by 2025 the District may have 2,182 resident 9-12 students. The District may need to add portables to house students within the near future. However, the District should immediately start to look into how it plans on housing these additional high school students. Permanent expansion of the existing Sherwood HS site may be needed or a second high school site should be considered.

School Codes and School Assignments by Study Area

The Sherwood School District has assigned each school a code and DDP has incorporated these same codes in the databases and data layers that they have created/maintained for the district. Each study area is then coded with the elementary, middle and high school that the area is assigned to attend.

ELEMENTARY SCHOOLS (K-5)

Only Schools with assigned attendance areas are listed

School Code	Elementary School Name	Study Areas for Each Attendance Area
1334	Archer Ridge ES **24 Study Areas**	58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 78, 79, 80, 81, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
4730	Edy Ridge ES **20 Study Areas**	1, 10, 11A, 11B, 12, 13, 14, 15, 19, 2, 20, 21, 3, 4, 45, 5, 6, 7, 8, 9
1191	Hopkins ES **33 Study Areas**	22, 23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37, 70, 71, 72, 73, 74, 75, 76, 77, 82A, 82B, 82C, 83
3222	Middleton ES **27 Study Areas**	16, 17A, 17B, 18A, 18B, 18C, 38, 39, 40, 41, 42, 43, 44, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57
	4 Elementary Schools	**104 Study Areas**

School Codes and School Assignments by Study Area (continued)

MIDDLE SCHOOLS (6-8)

Only Schools with assigned attendance areas are listed :

School Code	Middle School Name	Study Areas for Each Attendance Area
4731	Laurel Ridge MS **37 Study Areas**	1, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 2, 20, 21, 3,4, 44, 45, 46A, 46B, 46C, 47, 48, 49, 5, 50, 53, 54, 55, 6, 7, 8, 9
1192	Sherwood MS **67 Study Areas**	22, 23A, 23B,24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 51, 52, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
	2 Middle Schools	**104 Study Areas**

*All 104 Study Areas compose the District's one high school "Sherwood HS."

Sherwood School District

Study Areas

Edy Ridge ES
Hopkins ES
Middleton ES
Archer Glen ES

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0 0.5 1 Miles

N

Schools
Streets
Study Areas

Study Area 1 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.0	3.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1.0	1.0	3.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1.0	1.0	1.0	3.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0
6	1.0	1.1	1.1	1.1	3.6	2.7	0.0	0.0	0.0	0.0	0.0
7	5.0	1.0	1.1	1.1	1.1	3.7	2.7	0.0	0.0	0.0	0.0
8	4.0	5.1	1.0	1.2	1.2	1.2	3.8	2.8	0.0	0.0	0.0
9	4.0	4.3	5.6	1.1	1.2	1.3	1.3	4.1	3.0	0.0	0.0
10	4.0	3.9	4.2	5.5	1.1	1.2	1.2	1.2	4.0	3.0	0.0
11	4.0	4.0	3.9	4.2	5.4	1.1	1.2	1.2	1.2	4.0	2.9
12	6.0	4.0	3.9	3.8	4.1	5.3	1.1	1.2	1.2	1.2	3.9
K-5	8.0	7.4	6.6	5.7	2.4	0.0	0.0	0.0	0.0	0.0	0.0
6-8	10.0	7.2	3.2	3.4	5.9	7.6	6.5	2.8	0.0	0.0	0.0
9-12	18.0	16.2	17.6	14.6	11.8	8.9	4.8	7.7	9.4	8.2	6.8
K-12	36.0	30.8	27.4	23.7	20.1	16.5	11.3	10.5	9.4	8.2	6.8

Study Area 2 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	8.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	5.0	8.9	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	6.0	5.4	9.5	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	6.0	6.0	5.4	9.5	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	6.0	6.1	6.1	5.5	9.7	1.4	1.3	1.4	1.3	1.2	1.3
6	3.0	6.7	6.8	6.8	6.1	10.8	1.5	1.4	1.5	1.5	1.4
7	7.0	3.0	6.7	6.9	6.9	6.1	10.9	1.5	1.4	1.6	1.5
8	5.0	7.2	3.1	6.9	7.1	7.1	6.3	11.2	1.6	1.5	1.6
9	9.0	5.4	7.8	3.4	7.5	7.6	7.6	6.8	12.1	1.7	1.6
10	3.0	8.8	5.3	7.6	3.3	7.3	7.5	7.5	6.7	11.8	1.7
11	3.0	3.0	8.7	5.2	7.6	3.3	7.3	7.4	7.4	6.6	11.7
12	4.0	3.0	2.9	8.6	5.2	7.5	3.2	7.2	7.3	7.3	6.5
K-5	32.0	28.4	24.3	19.7	15.6	7.1	7.1	7.1	7.0	7.0	7.0
6-8	15.0	16.9	16.6	20.6	20.1	24.0	18.7	14.1	4.5	4.6	4.5
9-12	19.0	20.2	24.7	24.8	23.6	25.7	25.6	28.9	33.5	27.4	21.5
K-12	66.0	65.5	65.6	65.1	59.3	56.8	51.4	50.1	45.0	39.0	33.0

Study Area 3 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.4	3.1	3.4	3.3	3.0	3.2	3.2	3.2	3.2	3.2
2	5.0	2.2	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5	3.5
3	7.0	5.4	2.4	4.1	3.7	4.1	3.9	3.6	3.9	3.8	3.7
4	8.0	7.0	5.4	2.4	4.1	3.7	4.1	3.9	3.6	3.9	3.8
5	5.0	8.2	7.1	5.5	2.4	4.1	3.8	4.2	4.0	3.7	3.9
6	7.0	5.6	9.1	7.9	6.1	2.7	4.6	4.2	4.6	4.4	4.1
7	5.0	7.1	5.6	9.1	8.0	6.1	2.7	4.6	4.3	4.7	4.4
8	9.0	5.1	7.3	5.8	9.4	8.2	6.3	2.8	4.8	4.4	4.8
9	7.0	9.7	5.6	7.9	6.2	10.2	8.9	6.8	3.0	5.2	4.8
10	3.0	6.9	9.5	5.5	7.7	6.1	10.0	8.7	6.7	3.0	5.1
11	7.0	3.0	6.8	9.4	5.4	7.6	6.0	9.9	8.6	6.6	2.9
12	6.0	6.9	2.9	6.7	9.3	5.3	7.6	6.0	9.8	8.6	6.5
K-5	30.0	29.0	24.8	21.8	20.0	21.3	21.2	21.3	21.0	20.9	20.9
6-8	21.0	17.8	22.0	22.8	23.5	17.0	13.6	11.6	13.7	13.5	13.3
9-12	23.0	26.5	24.8	29.5	28.6	29.2	32.5	31.4	28.1	23.4	19.3
K-12	74.0	73.3	71.6	74.1	72.1	67.5	67.3	64.3	62.8	57.8	53.5

Study Area 4 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	6.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	6.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	2.0	6.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	3.1	2.0	6.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0
6	4.0	2.2	3.4	2.3	7.3	4.0	0.0	0.0	0.0	0.0	0.0
7	5.0	4.0	2.2	3.4	2.3	7.3	4.1	0.0	0.0	0.0	0.0
8	5.0	5.1	4.2	2.3	3.5	2.4	7.6	4.2	0.0	0.0	0.0
9	3.0	5.4	5.6	4.5	2.5	3.8	2.5	8.2	4.5	0.0	0.0
10	3.0	2.9	5.3	5.5	4.4	2.4	3.7	2.5	8.0	4.4	0.0
11	6.0	3.0	2.9	5.2	5.4	4.4	2.4	3.7	2.5	7.9	4.4
12	5.0	5.9	2.9	2.9	5.2	5.3	4.3	2.4	3.7	2.4	7.8
K-5	16.0	14.8	12.0	10.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0
6-8	14.0	11.3	9.8	8.0	13.1	13.7	11.7	4.2	0.0	0.0	0.0
9-12	17.0	17.2	16.7	18.1	17.5	15.9	12.9	16.8	18.7	14.7	12.2
K-12	47.0	43.3	38.5	36.2	34.2	29.6	24.6	21.0	18.7	14.7	12.2

Study Area 5 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	8.0	10.3	9.4	10.3	9.8	9.1	9.7	9.6	9.5	9.6	9.5
2	5.0	8.9	11.4	10.5	11.4	10.9	10.1	10.8	10.6	10.5	10.6
3	4.0	5.4	9.5	12.2	11.2	12.2	11.6	10.8	11.6	11.3	11.2
4	8.0	4.0	5.4	9.5	12.2	11.2	12.2	11.6	10.8	11.6	11.3
5	9.0	8.2	4.1	5.5	9.7	12.4	11.4	12.5	11.9	11.0	11.8
6	11.0	10.0	9.1	4.5	6.1	10.8	13.8	12.7	13.8	13.2	12.3
7	3.0	11.1	10.1	9.1	4.6	6.1	10.9	13.9	12.8	14.0	13.3
8	4.0	3.1	11.4	10.4	9.4	4.7	6.3	11.2	14.4	13.2	14.4
9	4.0	4.3	3.3	12.4	11.2	10.2	5.1	6.8	12.1	15.5	14.3
10	6.0	3.9	4.2	3.3	12.1	11.0	10.0	5.0	6.7	11.8	15.2
11	6.0	5.9	3.9	4.2	3.2	12.0	10.9	9.9	4.9	6.6	11.7
12	5.0	5.9	5.9	3.8	4.1	3.2	11.9	10.8	9.8	4.9	6.5
K-5	43.0	45.1	48.8	56.6	62.3	64.3	63.4	63.6	62.8	62.4	62.8
6-8	18.0	24.2	30.6	24.0	20.1	21.6	31.0	37.8	41.0	40.4	40.0
9-12	21.0	20.0	17.3	23.7	30.6	36.4	37.9	32.5	33.5	38.8	47.7
K-12	82.0	89.3	96.7	104.3	113.0	122.3	132.3	133.9	137.3	141.6	150.5

Study Area 6 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	3.0	3.4	3.1	3.4	3.3	3.0	3.2	3.2	3.2	3.2	3.2
2	5.0	3.3	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5	3.5
3	7.0	5.4	3.6	4.1	3.7	4.1	3.9	3.6	3.9	3.8	3.7
4	5.0	7.0	5.4	3.6	4.1	3.7	4.1	3.9	3.6	3.9	3.8
5	8.0	5.1	7.1	5.5	3.6	4.1	3.8	4.2	4.0	3.7	3.9
6	4.0	8.9	5.7	7.9	6.1	4.0	4.6	4.2	4.6	4.4	4.1
7	4.0	4.0	9.0	5.7	8.0	6.1	4.1	4.6	4.3	4.7	4.4
8	5.0	4.1	4.2	9.2	5.9	8.2	6.3	4.2	4.8	4.4	4.8
9	8.0	5.4	4.4	4.5	10.0	6.4	8.9	6.8	4.5	5.2	4.8
10	5.0	7.8	5.3	4.4	4.4	9.8	6.2	8.7	6.7	4.4	5.1
11	3.0	4.9	7.8	5.2	4.3	4.4	9.7	6.2	8.6	6.6	4.4
12	3.0	3.0	4.9	7.7	5.2	4.3	4.3	9.6	6.1	8.6	6.5
K-5	31.0	27.0	26.0	23.0	21.2	21.3	21.2	21.3	21.0	20.9	20.9
6-8	13.0	17.0	18.9	22.8	20.0	18.3	15.0	13.0	13.7	13.5	13.3
9-12	19.0	21.1	22.4	21.8	23.9	24.9	29.1	31.3	25.9	24.8	20.8
K-12	63.0	65.1	67.3	67.6	65.1	64.5	65.3	65.6	60.6	59.2	55.0

Study Area 7 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	5.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	4.0	5.6	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	5.0	4.3	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	1.0	5.0	4.3	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	7.0	1.0	5.1	4.4	6.1	1.4	1.3	1.4	1.3	1.2	1.3
6	7.0	7.8	1.1	5.7	4.8	6.7	1.5	1.4	1.5	1.5	1.4
7	7.0	7.1	7.8	1.1	5.7	4.9	6.8	1.5	1.4	1.6	1.5
8	5.0	7.2	7.3	8.1	1.2	5.9	5.0	7.0	1.6	1.5	1.6
9	1.0	5.4	7.8	7.9	8.7	1.3	6.4	5.4	7.6	1.7	1.6
10	4.0	1.0	5.3	7.6	7.7	8.6	1.2	6.2	5.3	7.4	1.7
11	6.0	4.0	1.0	5.2	7.6	7.6	8.5	1.2	6.2	5.3	7.3
12	3.0	5.9	3.9	1.0	5.2	7.5	7.6	8.4	1.2	6.1	5.2
K-5	23.0	17.9	18.6	15.0	12.0	7.1	7.1	7.1	7.0	7.0	7.0
6-8	19.0	22.1	16.2	14.9	11.7	17.5	13.3	9.9	4.5	4.6	4.5
9-12	14.0	16.3	18.0	21.7	29.2	25.0	23.7	21.2	20.3	20.5	15.8
K-12	56.0	56.3	52.8	51.6	52.9	49.6	44.1	38.2	31.8	32.1	27.3

Study Area 8 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.9	9.1	9.7	8.4	8.8	8.7	8.7	8.7	8.7	8.7
1	4.0	8.5	9.9	12.4	11.1	9.6	10.1	9.9	9.9	10.0	9.9
2	4.0	4.9	11.4	13.0	13.8	12.3	10.6	11.2	11.0	11.0	11.1
3	4.0	4.7	7.2	14.2	13.9	14.8	13.2	11.4	12.0	11.8	11.7
4	5.0	4.4	6.5	9.0	14.2	13.9	14.8	13.2	11.4	12.0	11.8
5	3.0	5.5	6.4	8.6	9.2	14.5	14.2	15.1	13.5	11.6	12.2
6	4.0	3.8	8.1	9.1	9.5	10.2	16.0	15.8	16.7	14.9	12.9
7	4.0	4.5	5.7	10.1	9.2	9.6	10.3	16.2	15.9	16.9	15.1
8	1.0	4.6	6.5	7.7	10.4	9.5	9.9	10.6	16.7	16.4	17.4
9	4.0	1.4	6.3	8.4	8.4	11.2	10.2	10.7	11.5	18.0	17.7
10	0.0	4.2	2.6	7.5	8.2	8.2	11.0	10.0	10.5	11.3	17.7
11	0.0	0.3	5.4	3.9	7.4	8.2	8.1	10.9	9.9	10.4	11.2
12	1.0	0.3	1.6	6.7	3.9	7.3	8.1	8.0	10.8	9.8	10.2
K-5	27.0	34.9	50.5	66.9	70.6	73.9	71.6	69.5	66.5	65.1	65.4
6-8	9.0	12.9	20.3	26.9	29.1	29.3	36.2	42.6	49.3	48.2	45.4
9-12	5.0	6.2	15.9	26.5	27.9	34.9	37.4	39.6	42.7	49.5	56.8
K-12	41.0	54.0	86.7	120.3	127.6	138.1	145.2	151.7	158.5	162.8	167.6

Study Area 9 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	7.0	8.3	7.5	7.0	7.5	7.3	7.3	7.4	7.3	7.3
1	8.0	8.6	9.1	9.4	8.6	8.0	8.5	8.4	8.3	8.4	8.3
2	3.0	9.5	10.6	10.1	10.5	9.5	8.9	9.4	9.3	9.2	9.3
3	8.0	3.8	11.2	11.4	10.8	11.2	10.2	9.5	10.1	9.9	9.8
4	5.0	8.6	4.8	11.2	11.4	10.8	11.2	10.2	9.5	10.1	9.9
5	6.0	5.7	9.7	4.9	11.4	11.6	11.0	11.4	10.4	9.7	10.3
6	9.0	7.3	7.4	10.8	5.4	12.7	12.9	12.2	12.7	11.5	10.8
7	8.0	9.7	8.3	7.4	10.9	5.4	12.8	13.0	12.3	12.8	11.6
8	7.0	8.8	10.9	8.6	7.6	11.2	5.6	13.2	13.4	12.7	13.2
9	7.0	8.1	10.4	11.8	9.3	8.3	12.1	6.1	14.2	14.5	13.7
10	8.0	7.3	8.7	10.2	11.6	9.1	8.1	11.9	5.9	13.9	14.2
11	8.0	8.4	8.0	8.6	10.1	11.4	9.0	8.0	11.7	5.9	13.8
12	5.0	8.4	9.1	8.0	8.5	10.0	11.3	8.9	7.9	11.6	5.8
K-5	37.0	43.2	53.7	54.5	59.7	58.6	57.1	56.2	55.0	54.6	54.9
6-8	24.0	25.8	26.6	26.8	23.9	29.3	31.3	38.4	38.4	37.0	35.6
9-12	28.0	32.2	36.2	38.6	39.5	38.8	40.5	34.9	39.7	45.9	47.5
K-12	89.0	101.2	116.5	119.9	123.1	126.7	128.9	129.5	133.1	137.5	138.0

Study Area 10 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	8.0	5.7	5.2	5.7	5.4	5.1	5.4	5.3	5.3	5.3	5.3
2	9.0	8.9	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8	5.9
3	5.0	9.6	9.5	6.8	6.2	6.8	6.5	6.0	6.4	6.3	6.2
4	8.0	5.0	9.6	9.5	6.8	6.2	6.8	6.5	6.0	6.4	6.3
5	11.0	8.2	5.1	9.8	9.7	6.9	6.4	6.9	6.6	6.1	6.6
6	5.0	12.2	9.1	5.7	10.9	10.8	7.7	7.1	7.7	7.3	6.8
7	2.0	5.1	12.3	9.1	5.7	11.0	10.9	7.7	7.1	7.8	7.4
8	7.0	2.1	5.2	12.7	9.4	5.9	11.3	11.2	8.0	7.3	8.0
9	8.0	7.6	2.2	5.6	13.7	10.2	6.4	12.2	12.1	8.6	7.9
10	8.0	7.8	7.4	2.2	5.5	13.4	10.0	6.2	12.0	11.8	8.4
11	5.0	7.9	7.8	7.3	2.2	5.5	13.3	9.9	6.2	11.9	11.7
12	6.0	4.9	7.8	7.7	7.3	2.1	5.4	13.2	9.8	6.1	11.8
K-5	46.0	42.0	40.7	42.4	38.8	35.7	35.4	35.3	34.9	34.5	34.9
6-8	14.0	19.4	26.6	27.5	26.0	27.7	29.9	26.0	22.8	22.4	22.2
9-12	27.0	28.2	25.2	22.8	28.7	31.2	35.1	41.5	40.1	38.4	39.8
K-12	87.0	89.6	92.5	92.7	93.5	94.6	100.4	102.8	97.8	95.3	96.9

Study Area 11A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	3.0	5.7	5.2	5.7	5.4	5.1	5.4	5.3	5.3	5.3	5.3
2	5.0	3.3	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8	5.9
3	3.0	5.4	3.6	6.8	6.2	6.8	6.5	6.0	6.4	6.3	6.2
4	5.0	3.0	5.4	3.6	6.8	6.2	6.8	6.5	6.0	6.4	6.3
5	3.0	5.1	3.1	5.5	3.6	6.9	6.4	6.9	6.6	6.1	6.6
6	6.0	3.3	5.7	3.4	6.1	4.0	7.7	7.1	7.7	7.3	6.8
7	3.0	6.1	3.4	5.7	3.4	6.1	4.1	7.7	7.1	7.8	7.4
8	2.0	3.1	6.2	3.5	5.9	3.5	6.3	4.2	8.0	7.3	8.0
9	3.0	2.2	3.3	6.7	3.7	6.4	3.8	6.8	4.5	8.6	7.9
10	5.0	2.9	2.1	3.3	6.6	3.7	6.2	3.7	6.7	4.4	8.4
11	5.0	4.9	2.9	2.1	3.2	6.5	3.6	6.2	3.7	6.6	4.4
12	8.0	4.9	4.9	2.9	2.1	3.2	6.5	3.6	6.1	3.7	6.5
K-5	24.0	27.1	28.6	32.2	32.7	35.7	35.4	35.3	34.9	34.5	34.9
6-8	11.0	12.5	15.3	12.6	15.4	13.6	18.1	19.0	22.8	22.4	22.2
9-12	21.0	14.9	13.2	15.0	15.6	19.8	20.1	20.3	21.0	23.3	27.2
K-12	56.0	54.5	57.1	59.8	63.7	69.1	73.6	74.6	78.7	80.2	84.3

Study Area 11B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	1.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	3.0	1.1	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	3.0	3.2	1.2	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	3.0	3.0	3.2	1.2	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	5.0	3.1	3.1	3.3	1.2	1.4	1.3	1.4	1.3	1.2	1.3
6	3.0	5.6	3.4	3.4	3.6	1.3	1.5	1.4	1.5	1.5	1.4
7	4.0	3.0	5.6	3.4	3.4	3.7	1.4	1.5	1.4	1.6	1.5
8	2.0	4.1	3.1	5.8	3.5	3.5	3.8	1.4	1.6	1.5	1.6
9	1.0	2.2	4.4	3.4	6.2	3.8	3.8	4.1	1.5	1.7	1.6
10	3.0	1.0	2.1	4.4	3.3	6.1	3.7	3.7	4.0	1.5	1.7
11	1.0	3.0	1.0	2.1	4.3	3.3	6.0	3.7	3.7	4.0	1.5
12	1.0	1.0	2.9	1.0	2.1	4.3	3.2	6.0	3.7	3.7	3.9
K-5	16.0	12.4	10.8	9.2	7.1	7.1	7.1	7.1	7.0	7.0	7.0
6-8	9.0	12.7	12.1	12.6	10.5	8.5	6.7	4.3	4.5	4.6	4.5
9-12	6.0	7.2	10.4	10.9	15.9	17.5	16.7	17.5	12.9	10.9	8.7
K-12	31.0	32.3	33.3	32.7	33.5	33.1	30.5	28.9	24.4	22.5	20.2

Study Area 12 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	5.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	7.0	5.6	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	5.0	7.5	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	7.0	5.0	7.5	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	3.0	7.1	5.1	7.6	6.1	1.4	1.3	1.4	1.3	1.2	1.3
6	3.0	3.3	7.9	5.7	8.5	6.7	1.5	1.4	1.5	1.5	1.4
7	3.0	3.0	3.4	8.0	5.7	8.6	6.8	1.5	1.4	1.6	1.5
8	3.0	3.1	3.1	3.5	8.2	5.9	8.8	7.0	1.6	1.5	1.6
9	7.0	3.2	3.3	3.4	3.7	8.9	6.4	9.5	7.6	1.7	1.6
10	6.0	6.9	3.2	3.3	3.3	3.7	8.7	6.2	9.3	7.4	1.7
11	8.0	5.9	6.8	3.1	3.2	3.3	3.6	8.6	6.2	9.2	7.3
12	3.0	7.9	5.9	6.7	3.1	3.2	3.2	3.6	8.6	6.1	9.2
K-5	28.0	27.2	21.8	18.2	12.0	7.1	7.1	7.1	7.0	7.0	7.0
6-8	9.0	9.4	14.4	17.2	22.4	21.2	17.1	9.9	4.5	4.6	4.5
9-12	24.0	23.9	19.2	16.5	13.3	19.1	21.9	27.9	31.7	24.4	19.8
K-12	61.0	60.5	55.4	51.9	47.7	47.4	46.1	44.9	43.2	36.0	31.3

Study Area 13 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	2.0	6.8	6.3	6.9	6.5	6.1	6.5	6.4	6.3	6.4	6.4
2	4.0	2.2	7.6	7.0	7.6	7.3	6.7	7.2	7.1	7.0	7.1
3	5.0	4.3	2.4	8.1	7.5	8.1	7.8	7.2	7.7	7.6	7.5
4	3.0	5.0	4.3	2.4	8.1	7.5	8.1	7.8	7.2	7.7	7.6
5	3.0	3.1	5.1	4.4	2.4	8.3	7.6	8.3	7.9	7.4	7.9
6	1.0	3.3	3.4	5.7	4.8	2.7	9.2	8.5	9.2	8.8	8.2
7	4.0	1.0	3.4	3.4	5.7	4.9	2.7	9.3	8.5	9.3	8.9
8	0.0	4.1	1.0	3.5	3.5	5.9	5.0	2.8	9.6	8.8	9.6
9	2.0	0.0	4.4	1.1	3.7	3.8	6.4	5.4	3.0	10.3	9.5
10	3.0	2.0	0.0	4.4	1.1	3.7	3.7	6.2	5.3	3.0	10.1
11	0.0	3.0	1.9	0.0	4.3	1.1	3.6	3.7	6.2	5.3	2.9
12	0.0	0.0	2.9	1.9	0.0	4.3	1.1	3.6	3.7	6.1	5.2
K-5	23.0	26.9	31.7	34.5	37.4	43.0	42.3	42.4	41.8	41.7	42.1
6-8	5.0	8.4	7.8	12.6	14.0	13.5	16.9	20.6	27.3	26.9	26.7
9-12	5.0	5.0	9.2	7.4	9.1	12.9	14.8	18.9	18.2	24.7	27.7
K-12	33.0	40.3	48.7	54.5	60.5	69.4	74.0	81.9	87.3	93.3	96.5

Study Area 14 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	4.0	5.7	5.2	5.7	5.4	5.1	5.4	5.3	5.3	5.3	5.3
2	4.0	4.4	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8	5.9
3	7.0	4.3	4.8	6.8	6.2	6.8	6.5	6.0	6.4	6.3	6.2
4	6.0	7.0	4.3	4.8	6.8	6.2	6.8	6.5	6.0	6.4	6.3
5	3.0	6.1	7.1	4.4	4.8	6.9	6.4	6.9	6.6	6.1	6.6
6	4.0	3.3	6.8	7.9	4.8	5.4	7.7	7.1	7.7	7.3	6.8
7	6.0	4.0	3.4	6.9	8.0	4.9	5.4	7.7	7.1	7.8	7.4
8	8.0	6.2	4.2	3.5	7.1	8.2	5.0	5.6	8.0	7.3	8.0
9	5.0	8.6	6.7	4.5	3.7	7.6	8.9	5.4	6.0	8.6	7.9
10	7.0	4.9	8.5	6.5	4.4	3.7	7.5	8.7	5.3	5.9	8.4
11	2.0	6.9	4.9	8.4	6.5	4.4	3.6	7.4	8.6	5.3	5.9
12	2.0	2.0	6.9	4.8	8.3	6.4	4.3	3.6	7.3	8.6	5.2
K-5	29.0	32.1	32.7	32.3	33.9	35.7	35.4	35.3	34.9	34.5	34.9
6-8	18.0	13.5	14.4	18.3	19.9	18.5	18.1	20.4	22.8	22.4	22.2
9-12	16.0	22.4	27.0	24.2	22.9	22.1	24.3	25.1	27.2	28.4	27.4
K-12	63.0	68.0	74.1	74.8	76.7	76.3	77.8	80.8	84.9	85.3	84.5

Study Area 15 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	7.0	4.6	4.2	4.6	4.4	4.0	4.3	4.2	4.2	4.3	4.2
2	1.0	7.8	5.1	4.7	5.1	4.8	4.5	4.8	4.7	4.7	4.7
3	4.0	1.1	8.3	5.4	5.0	5.4	5.2	4.8	5.1	5.0	5.0
4	3.0	4.0	1.1	8.3	5.4	5.0	5.4	5.2	4.8	5.1	5.0
5	1.0	3.1	4.1	1.1	8.5	5.5	5.1	5.5	5.3	4.9	5.2
6	5.0	1.1	3.4	4.5	1.2	9.4	6.1	5.6	6.2	5.9	5.4
7	1.0	5.1	1.1	3.4	4.6	1.2	9.5	6.2	5.7	6.2	5.9
8	8.0	1.0	5.2	1.2	3.5	4.7	1.3	9.8	6.4	5.9	6.4
9	3.0	8.6	1.1	5.6	1.2	3.8	5.1	1.4	10.6	6.9	6.3
10	2.0	2.9	8.5	1.1	5.5	1.2	3.7	5.0	1.3	10.4	6.8
11	2.0	2.0	2.9	8.4	1.1	5.5	1.2	3.7	4.9	1.3	10.3
12	5.0	2.0	2.0	2.9	8.3	1.1	5.4	1.2	3.7	4.9	1.3
K-5	20.0	24.3	26.8	27.9	32.0	28.5	28.2	28.2	27.8	27.7	27.8
6-8	14.0	7.2	9.7	9.1	9.3	15.3	16.9	21.6	18.3	18.0	17.7
9-12	12.0	15.5	14.5	18.0	16.1	11.6	15.4	11.3	20.5	23.5	24.7
K-12	46.0	47.0	51.0	55.0	57.4	55.4	60.5	61.1	66.6	69.2	70.2

Study Area 16 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	0.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	6.0	0.0	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	3.0	6.2	0.0	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	10.0	3.0	6.3	0.0	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	6.0	10.5	3.2	6.6	0.0	7.6	7.0	7.7	7.3	6.8	7.3
6	6.0	6.1	10.7	3.2	6.7	0.0	7.8	7.2	7.8	7.5	6.9
7	5.0	5.9	6.1	10.6	3.2	6.7	0.0	7.7	7.1	7.7	7.4
8	8.0	5.1	6.0	6.1	10.7	3.2	6.7	0.0	7.8	7.2	7.8
9	6.0	8.2	5.2	6.1	6.2	10.9	3.3	6.9	0.0	8.0	7.3
10	8.0	5.9	8.0	5.0	6.0	6.1	10.7	3.2	6.7	0.0	7.8
11	8.0	7.9	5.8	7.9	5.0	5.9	6.1	10.6	3.2	6.7	0.0
12	1.0	7.8	7.7	5.6	7.7	4.8	5.8	5.9	10.3	3.1	6.5
K-5	31.0	31.7	28.4	32.5	32.5	39.6	39.2	39.3	38.7	38.5	39.0
6-8	19.0	17.1	22.8	19.9	20.6	9.9	14.5	14.9	22.7	22.4	22.1
9-12	23.0	29.8	26.7	24.6	24.9	27.7	25.9	26.6	20.2	17.8	21.6
K-12	73.0	78.6	77.9	77.0	78.0	77.2	79.6	80.8	81.6	78.7	82.7

Study Area 17A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	1.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	5.0	1.1	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	4.0	5.2	1.1	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	2.0	4.0	5.3	1.1	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	5.0	2.1	4.2	5.5	1.2	3.8	3.5	3.8	3.7	3.4	3.6
6	2.0	5.1	2.1	4.3	5.6	1.2	3.9	3.6	3.9	3.7	3.5
7	4.0	2.0	5.0	2.1	4.3	5.6	1.2	3.9	3.6	3.9	3.7
8	3.0	4.0	2.0	5.1	2.1	4.3	5.6	1.2	3.9	3.6	3.9
9	3.0	3.1	4.1	2.0	5.2	2.2	4.4	5.7	1.2	4.0	3.7
10	2.0	2.9	3.0	4.0	2.0	5.1	2.1	4.3	5.6	1.2	3.9
11	3.0	2.0	2.9	3.0	4.0	2.0	5.0	2.1	4.3	5.6	1.2
12	2.0	2.9	1.9	2.8	2.9	3.9	1.9	4.9	2.1	4.2	5.4
K-5	20.0	18.5	20.1	19.6	17.4	19.7	19.6	19.6	19.3	19.4	19.3
6-8	9.0	11.1	9.1	11.5	12.0	11.1	10.7	8.7	11.4	11.2	11.1
9-12	10.0	10.9	11.9	11.8	14.1	13.2	13.4	17.0	13.2	15.0	14.2
K-12	39.0	40.5	41.1	42.9	43.5	44.0	43.7	45.3	43.9	45.6	44.6

Study Area 17B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	7.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	5.0	7.4	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	6.0	5.2	7.7	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	3.0	6.1	5.3	7.8	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	4.0	3.1	6.4	5.5	8.2	2.5	2.3	2.6	2.4	2.3	2.4
6	4.0	4.1	3.2	6.5	5.6	8.3	2.6	2.4	2.6	2.5	2.3
7	4.0	4.0	4.0	3.2	6.4	5.6	8.3	2.6	2.4	2.6	2.5
8	1.0	4.0	4.0	4.1	3.2	6.5	5.6	8.3	2.6	2.4	2.6
9	1.0	1.0	4.1	4.1	4.2	3.3	6.6	5.7	8.5	2.7	2.4
10	0.0	1.0	1.0	4.0	4.0	4.1	3.2	6.5	5.6	8.3	2.6
11	5.0	0.0	1.0	1.0	4.0	4.0	4.0	3.2	6.4	5.6	8.3
12	1.0	4.9	0.0	0.9	1.0	3.9	3.8	3.9	3.1	6.2	5.4
K-5	27.0	25.8	25.7	21.9	19.0	13.1	13.1	13.0	13.0	12.8	13.0
6-8	9.0	12.1	11.2	13.8	15.2	20.4	16.5	13.3	7.6	7.5	7.4
9-12	7.0	6.9	6.1	10.0	13.2	15.3	17.6	19.3	23.6	22.8	18.7
K-12	43.0	44.8	43.0	45.7	47.4	48.8	47.2	45.6	44.2	43.1	39.1

Study Area 18A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	2.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	2.0	2.1	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	4.0	2.1	2.2	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	2.0	4.0	2.1	2.2	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	6.0	2.1	4.2	2.2	2.3	7.6	7.0	7.7	7.3	6.8	7.3
6	3.0	6.1	2.1	4.3	2.2	2.4	7.8	7.2	7.8	7.5	6.9
7	3.0	3.0	6.1	2.1	4.3	2.2	2.4	7.7	7.1	7.7	7.4
8	1.0	3.0	3.0	6.1	2.1	4.3	2.2	2.4	7.8	7.2	7.8
9	3.0	1.0	3.1	3.1	6.2	2.2	4.4	2.3	2.4	8.0	7.3
10	1.0	2.9	1.0	3.0	3.0	6.1	2.1	4.3	2.2	2.4	7.8
11	0.0	1.0	2.9	1.0	3.0	3.0	6.1	2.1	4.3	2.2	2.4
12	1.0	0.0	1.0	2.8	1.0	2.9	2.9	5.9	2.1	4.2	2.2
K-5	22.0	22.3	27.4	30.3	34.8	39.6	39.2	39.3	38.7	38.5	39.0
6-8	7.0	12.1	11.2	12.5	8.6	8.9	12.4	17.3	22.7	22.4	22.1
9-12	5.0	4.9	8.0	9.9	13.2	14.2	15.5	14.6	11.0	16.8	19.7
K-12	34.0	39.3	46.6	52.7	56.6	62.7	67.1	71.2	72.4	77.7	80.8

Study Area 18B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	6.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	3.0	6.4	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	4.0	3.1	6.6	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	6.0	4.0	3.2	6.7	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	5.0	6.3	4.2	3.3	7.0	3.8	3.5	3.8	3.7	3.4	3.6
6	4.0	5.1	6.4	4.3	3.4	7.2	3.9	3.6	3.9	3.7	3.5
7	4.0	4.0	5.0	6.4	4.3	3.3	7.1	3.9	3.6	3.9	3.7
8	2.0	4.0	4.0	5.1	6.4	4.3	3.4	7.2	3.9	3.6	3.9
9	4.0	2.0	4.1	4.1	5.2	6.6	4.4	3.4	7.3	4.0	3.7
10	5.0	3.9	2.0	4.0	4.0	5.1	6.4	4.3	3.4	7.2	3.9
11	5.0	4.9	3.9	2.0	4.0	4.0	5.0	6.4	4.3	3.3	7.1
12	3.0	4.9	4.8	3.8	1.9	3.9	3.8	4.9	6.2	4.2	3.2
K-5	27.0	25.9	23.5	23.0	23.2	19.7	19.6	19.6	19.3	19.4	19.3
6-8	10.0	13.1	15.4	15.8	14.1	14.8	14.4	14.7	11.4	11.2	11.1
9-12	17.0	15.7	14.8	13.9	15.1	19.6	19.6	19.0	21.2	18.7	17.9
K-12	54.0	54.7	53.7	52.7	52.4	54.1	53.6	53.3	51.9	49.3	48.3

Study Area 18C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1.0	2.0	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3.0	1.0	2.1	2.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6	2.0	3.1	1.1	2.2	2.2	1.2	0.0	0.0	0.0	0.0	0.0
7	2.0	2.0	3.0	1.1	2.1	2.2	1.2	0.0	0.0	0.0	0.0
8	1.0	2.0	2.0	3.1	1.1	2.2	2.2	1.2	0.0	0.0	0.0
9	0.0	1.0	2.1	2.0	3.1	1.1	2.2	2.3	1.2	0.0	0.0
10	0.0	0.0	1.0	2.0	2.0	3.1	1.1	2.2	2.2	1.2	0.0
11	0.0	0.0	0.0	1.0	2.0	2.0	3.0	1.1	2.1	2.2	1.2
12	2.0	0.0	0.0	0.0	1.0	1.9	1.9	2.9	1.0	2.1	2.2
K-5	9.0	6.2	5.3	3.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6-8	5.0	7.1	6.1	6.4	5.4	5.6	3.4	1.2	0.0	0.0	0.0
9-12	2.0	1.0	3.1	5.0	8.1	8.1	8.2	8.5	6.5	5.5	3.4
K-12	16.0	14.3	14.5	14.7	14.7	13.7	11.6	9.7	6.5	5.5	3.4

Study Area 19 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	5.0	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	2.0	5.6	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2	1.2
3	4.0	2.1	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3	1.2
4	4.0	4.0	2.1	5.9	1.4	1.2	1.4	1.3	1.2	1.3	1.3
5	4.0	4.1	4.1	2.2	6.1	1.4	1.3	1.4	1.3	1.2	1.3
6	5.0	4.4	4.5	4.5	2.4	6.7	1.5	1.4	1.5	1.5	1.4
7	3.0	5.1	4.5	4.6	4.6	2.4	6.8	1.5	1.4	1.6	1.5
8	6.0	3.1	5.2	4.6	4.7	4.7	2.5	7.0	1.6	1.5	1.6
9	6.0	6.5	3.3	5.6	5.0	5.1	5.1	2.7	7.6	1.7	1.6
10	7.0	5.9	6.4	3.3	5.5	4.9	5.0	5.0	2.7	7.4	1.7
11	7.0	6.9	5.8	6.3	3.2	5.5	4.8	4.9	4.9	2.6	7.3
12	6.0	6.9	6.9	5.8	6.2	3.2	5.4	4.8	4.9	4.9	2.6
K-5	20.0	17.8	15.4	12.8	12.0	7.1	7.1	7.1	7.0	7.0	7.0
6-8	14.0	12.6	14.2	13.7	11.7	13.8	10.8	9.9	4.5	4.6	4.5
9-12	26.0	26.2	22.4	21.0	19.9	18.7	20.3	17.4	20.1	16.6	13.2
K-12	60.0	56.6	52.0	47.5	43.6	39.6	38.2	34.4	31.6	28.2	24.7

Study Area 20 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	2.1	2.1	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0
1	5.0	2.5	2.4	2.4	2.3	2.2	2.3	2.3	2.2	2.3	2.3
2	3.0	5.8	2.8	2.6	2.7	2.6	2.4	2.6	2.5	2.5	2.5
3	5.0	3.4	6.2	3.0	2.8	2.9	2.8	2.6	2.7	2.7	2.7
4	5.0	5.2	3.4	6.2	3.0	2.8	2.9	2.8	2.6	2.7	2.7
5	1.0	5.3	5.3	3.5	6.3	3.1	2.9	2.9	2.8	2.6	2.8
6	3.0	1.4	5.9	5.9	3.9	7.0	3.4	3.2	3.3	3.1	2.9
7	0.0	3.3	1.4	6.0	6.0	3.9	7.1	3.4	3.2	3.3	3.1
8	6.0	0.2	3.4	1.4	6.2	6.2	4.1	7.3	3.5	3.3	3.4
9	3.0	6.7	0.2	3.6	1.5	6.6	6.6	4.4	7.9	3.8	3.6
10	3.0	3.1	6.6	0.2	3.5	1.5	6.5	6.5	4.3	7.7	3.8
11	4.0	3.2	3.1	6.5	0.2	3.5	1.5	6.4	6.4	4.3	7.7
12	2.0	4.2	3.1	3.1	6.4	0.2	3.5	1.5	6.4	6.4	4.2
K-5	21.0	24.3	22.2	19.7	19.0	15.6	15.3	15.2	14.8	14.8	15.0
6-8	9.0	4.9	10.7	13.3	16.1	17.1	14.6	13.9	10.0	9.7	9.4
9-12	12.0	17.2	13.0	13.4	11.6	11.8	18.1	18.8	25.0	22.2	19.3
K-12	42.0	46.4	45.9	46.4	46.7	44.5	48.0	47.9	49.8	46.7	43.7

Study Area 21 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	9.0	6.8	6.3	6.9	6.5	6.1	6.5	6.4	6.3	6.4	6.4
2	7.0	10.0	7.6	7.0	7.6	7.3	6.7	7.2	7.1	7.0	7.1
3	9.0	7.5	10.7	8.1	7.5	8.1	7.8	7.2	7.7	7.6	7.5
4	5.0	9.0	7.5	10.7	8.1	7.5	8.1	7.8	7.2	7.7	7.6
5	3.0	5.1	9.2	7.6	10.9	8.3	7.6	8.3	7.9	7.4	7.9
6	4.0	3.3	5.7	10.2	8.5	12.1	9.2	8.5	9.2	8.8	8.2
7	4.0	4.0	3.4	5.7	10.3	8.6	12.2	9.3	8.5	9.3	8.9
8	9.0	4.1	4.2	3.5	5.9	10.6	8.8	12.6	9.6	8.8	9.6
9	12.0	9.7	4.4	4.5	3.7	6.4	11.4	9.5	13.6	10.3	9.5
10	4.0	11.8	9.5	4.4	4.4	3.7	6.2	11.2	9.3	13.3	10.1
11	5.0	4.0	11.6	9.4	4.3	4.4	3.6	6.2	11.1	9.2	13.2
12	2.0	4.9	3.9	11.5	9.3	4.3	4.3	3.6	6.1	11.0	9.2
K-5	39.0	43.9	47.3	46.0	45.9	43.0	42.3	42.4	41.8	41.7	42.1
6-8	17.0	11.4	13.3	19.4	24.7	31.3	30.2	30.4	27.3	26.9	26.7
9-12	23.0	30.4	29.4	29.8	21.7	18.8	25.5	30.5	40.1	43.8	42.0
K-12	79.0	85.7	90.0	95.2	92.3	93.1	98.0	103.3	109.2	112.4	110.8

Study Area 22 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	7.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	4.0	7.3	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	4.0	4.2	7.7	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	1.0	4.3	4.5	8.3	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	4.0	1.0	4.5	4.7	8.6	4.3	3.9	4.3	4.1	3.8	4.1
6	3.0	4.3	1.1	4.8	5.0	9.3	4.6	4.2	4.6	4.4	4.1
7	4.0	3.1	4.5	1.2	5.0	5.3	9.7	4.8	4.5	4.9	4.6
8	2.0	4.1	3.2	4.7	1.2	5.2	5.5	10.0	5.0	4.6	5.0
9	2.0	2.0	4.1	3.2	4.6	1.2	5.1	5.4	9.9	4.9	4.5
10	3.0	2.0	2.0	4.2	3.3	4.7	1.2	5.3	5.5	10.1	5.0
11	3.0	3.0	2.0	2.0	4.1	3.2	4.7	1.2	5.2	5.5	10.0
12	5.0	2.9	2.9	1.9	1.9	4.0	3.1	4.5	1.2	5.0	5.2
K-5	23.0	23.1	26.6	26.6	25.9	21.3	21.0	21.1	20.7	20.8	20.8
6-8	9.0	11.5	8.8	10.7	11.2	19.8	19.8	19.0	14.1	13.9	13.7
9-12	13.0	9.9	11.0	11.3	13.9	13.1	14.1	16.4	21.8	25.5	24.7
K-12	45.0	44.5	46.4	48.6	51.0	54.2	54.9	56.5	56.6	60.2	59.2

Study Area 23A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	1.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	0.0	1.0	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1
3	0.0	0.0	1.1	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	2.0	0.0	0.0	1.2	1.4	1.3	1.4	1.3	1.2	1.3	1.3
5	0.0	2.1	0.0	0.0	1.2	1.4	1.3	1.4	1.4	1.3	1.4
6	2.0	0.0	2.2	0.0	0.0	1.3	1.5	1.4	1.5	1.5	1.4
7	0.0	2.1	0.0	2.4	0.0	0.0	1.4	1.6	1.5	1.6	1.5
8	2.0	0.0	2.2	0.0	2.4	0.0	0.0	1.4	1.7	1.5	1.7
9	1.0	2.0	0.0	2.1	0.0	2.4	0.0	0.0	1.4	1.6	1.5
10	0.0	1.0	2.0	0.0	2.2	0.0	2.5	0.0	0.0	1.4	1.7
11	1.0	0.0	1.0	2.0	0.0	2.2	0.0	2.4	0.0	0.0	1.4
12	0.0	1.0	0.0	1.0	1.9	0.0	2.1	0.0	2.3	0.0	0.0
K-5	4.0	5.2	4.4	5.8	7.0	7.1	7.0	7.0	6.9	6.9	7.0
6-8	4.0	2.1	4.4	2.4	2.4	1.3	2.9	4.4	4.7	4.6	4.6
9-12	2.0	4.0	3.0	5.1	4.1	4.6	4.6	2.4	3.7	3.0	4.6
K-12	10.0	11.3	11.8	13.3	13.5	13.0	14.5	13.8	15.3	14.5	16.2

Study Area 23B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	1.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0	0.0	0.0
9	2.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0	0.0
10	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4	0.0
11	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.4
12	1.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.2	0.0
K-5	2.0	2.1	2.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	1.2	1.3	2.6	1.4	1.4	0.0	0.0	0.0
9-12	3.0	2.0	2.0	1.9	0.0	0.0	1.3	1.3	2.7	2.6	1.4
K-12	5.0	4.1	4.2	4.3	2.5	2.6	2.7	2.7	2.7	2.6	1.4

Study Area 24A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 24B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	1.0	1.0	1.1	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	0.0	0.0	1.3	1.4	1.4	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4
K-12	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.4	1.4	1.4

Study Area 25A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	3.0	2.1	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	3.0	3.1	2.2	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	3.0	3.2	3.4	2.4	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	0.0	3.1	3.3	3.5	2.5	4.3	3.9	4.3	4.1	3.8	4.1
6	6.0	0.0	3.4	3.6	3.8	2.7	4.6	4.2	4.6	4.4	4.1
7	2.0	6.3	0.0	3.5	3.8	4.0	2.8	4.8	4.5	4.9	4.6
8	3.0	2.1	6.5	0.0	3.6	3.9	4.1	2.9	5.0	4.6	5.0
9	1.0	3.0	2.0	6.4	0.0	3.6	3.9	4.1	2.8	4.9	4.5
10	4.0	1.0	3.0	2.1	6.6	0.0	3.7	3.9	4.1	2.9	5.0
11	2.0	4.0	1.0	3.0	2.1	6.5	0.0	3.6	3.9	4.1	2.9
12	3.0	1.9	3.8	1.0	2.9	2.0	6.2	0.0	3.5	3.7	3.9
K-5	14.0	17.8	18.8	19.5	19.8	21.3	21.0	21.1	20.7	20.8	20.8
6-8	11.0	8.4	9.9	7.1	11.2	10.6	11.5	11.9	14.1	13.9	13.7
9-12	10.0	9.9	9.8	12.5	11.6	12.1	13.8	11.6	14.3	15.6	16.3
K-12	35.0	36.1	38.5	39.1	42.6	44.0	46.3	44.6	49.1	50.3	50.8

Study Area 25B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	3.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	2.0	3.1	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	1.0	2.1	3.3	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	1.0	1.1	2.2	3.5	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	3.0	1.0	1.1	2.3	3.7	4.3	3.9	4.3	4.1	3.8	4.1
6	1.0	3.2	1.1	1.2	2.5	4.0	4.6	4.2	4.6	4.4	4.1
7	3.0	1.0	3.4	1.2	1.3	2.7	4.2	4.8	4.5	4.9	4.6
8	2.0	3.1	1.1	3.5	1.2	1.3	2.7	4.3	5.0	4.6	5.0
9	0.0	2.0	3.1	1.1	3.5	1.2	1.3	2.7	4.3	4.9	4.5
10	1.0	0.0	2.0	3.1	1.1	3.5	1.2	1.3	2.8	4.3	5.0
11	5.0	1.0	0.0	2.0	3.1	1.1	3.5	1.2	1.3	2.7	4.3
12	0.0	4.8	1.0	0.0	1.9	3.0	1.0	3.4	1.2	1.2	2.6
K-5	13.0	13.6	16.5	19.4	21.0	21.3	21.0	21.1	20.7	20.8	20.8
6-8	6.0	7.3	5.6	5.9	5.0	8.0	11.5	13.3	14.1	13.9	13.7
9-12	6.0	7.8	6.1	6.2	9.6	8.8	7.0	8.6	9.6	13.1	16.4
K-12	25.0	28.7	28.2	31.5	35.6	38.1	39.5	43.0	44.4	47.8	50.9

Study Area 25C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	1.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	2.0	1.0	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	3.0	2.1	1.1	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	2.0	3.2	2.2	1.2	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	3.0	2.1	3.3	2.3	1.2	7.1	6.5	7.1	6.8	6.3	6.8
6	0.0	3.2	2.2	3.6	2.5	1.3	7.7	7.1	7.7	7.3	6.8
7	1.0	0.0	3.4	2.4	3.8	2.7	1.4	8.1	7.4	8.1	7.7
8	1.0	1.0	0.0	3.5	2.4	3.9	2.7	1.4	8.3	7.6	8.3
9	1.0	1.0	1.0	0.0	3.5	2.4	3.9	2.7	1.4	8.2	7.6
10	1.0	1.0	1.0	1.0	0.0	3.5	2.5	3.9	2.8	1.4	8.4
11	4.0	1.0	1.0	1.0	1.0	0.0	3.5	2.4	3.9	2.7	1.4
12	1.0	3.8	1.0	1.0	1.0	1.0	0.0	3.4	2.3	3.7	2.6
K-5	16.0	18.8	23.0	26.1	29.9	35.5	35.1	35.1	34.8	34.4	34.8
6-8	2.0	4.2	5.6	9.5	8.7	7.9	11.8	16.6	23.4	23.0	22.8
9-12	7.0	6.8	4.0	3.0	5.5	6.9	9.9	12.4	10.4	16.0	20.0
K-12	25.0	29.8	32.6	38.6	44.1	50.3	56.8	64.1	68.6	73.4	77.6

Study Area 26 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	1.0	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7
1	0.0	0.0	1.1	1.5	1.0	0.8	0.8	0.8	0.8	0.8	0.8
2	0.0	0.0	1.0	1.5	1.6	1.1	0.9	0.9	0.9	0.9	0.9
3	0.0	0.0	1.0	1.4	1.6	1.7	1.1	0.9	0.9	0.9	0.9
4	0.0	0.0	1.0	1.5	1.5	1.7	1.8	1.2	1.0	1.0	1.0
5	0.0	0.0	1.0	1.4	1.5	1.6	1.8	1.9	1.2	1.0	1.0
6	0.0	0.0	1.0	1.5	1.5	1.6	1.7	1.9	2.0	1.3	1.1
7	0.0	0.0	1.0	1.5	1.5	1.6	1.7	1.8	2.0	2.1	1.4
8	0.0	0.0	1.0	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.2
9	0.0	0.0	0.9	1.3	1.4	1.5	1.6	1.7	1.8	1.8	2.1
10	0.0	0.0	0.9	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.9
11	0.0	0.0	0.9	1.3	1.3	1.3	1.4	1.5	1.6	1.7	1.8
12	0.0	0.0	0.9	1.2	1.2	1.2	1.3	1.3	1.4	1.5	1.6
K-5	0.0	0.0	6.1	8.2	7.9	7.6	7.1	6.4	5.5	5.3	5.3
6-8	0.0	0.0	3.0	4.4	4.5	4.8	5.1	5.5	5.9	5.5	4.7
9-12	0.0	0.0	3.6	5.1	5.2	5.4	5.8	6.1	6.5	6.8	7.4
K-12	0.0	0.0	12.7	17.7	17.6	17.8	18.0	18.0	17.9	17.6	17.4

Study Area 27 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	3.0	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.4	6.5	6.5
2	2.0	3.1	7.3	6.7	7.3	7.0	6.5	6.9	6.8	6.7	6.8
3	5.0	2.1	3.3	7.7	7.1	7.7	7.3	6.8	7.3	7.1	7.1
4	5.0	5.4	2.2	3.5	8.2	7.6	8.2	7.8	7.3	7.8	7.6
5	4.0	5.2	5.6	2.3	3.7	8.5	7.9	8.6	8.2	7.6	8.1
6	7.0	4.3	5.6	6.0	2.5	4.0	9.2	8.5	9.2	8.8	8.2
7	9.0	7.3	4.5	5.9	6.3	2.7	4.2	9.7	8.9	9.7	9.3
8	5.0	9.3	7.6	4.7	6.1	6.5	2.7	4.3	10.0	9.2	10.0
9	3.0	4.9	9.2	7.5	4.6	6.0	6.4	2.7	4.3	9.9	9.1
10	5.0	3.1	5.0	9.4	7.6	4.7	6.1	6.6	2.8	4.3	10.1
11	4.0	4.9	3.0	5.0	9.3	7.6	4.7	6.1	6.5	2.7	4.3
12	6.0	3.8	4.8	2.9	4.8	8.9	7.3	4.5	5.8	6.2	2.6
K-5	25.0	28.3	30.8	32.9	38.3	42.7	42.1	42.1	41.6	41.3	41.7
6-8	21.0	20.9	17.7	16.6	14.9	13.2	16.1	22.5	28.1	27.7	27.5
9-12	18.0	16.7	22.0	24.8	26.3	27.2	24.5	19.9	19.4	23.1	26.1
K-12	64.0	65.9	70.5	74.3	79.5	83.1	82.7	84.5	89.1	92.1	95.3

Study Area 28 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	7.0	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.4	6.5	6.5
2	4.0	7.3	7.3	6.7	7.3	7.0	6.5	6.9	6.8	6.7	6.8
3	5.0	4.2	7.7	7.7	7.1	7.7	7.3	6.8	7.3	7.1	7.1
4	8.0	5.4	4.5	8.3	8.2	7.6	8.2	7.8	7.3	7.8	7.6
5	2.0	8.3	5.6	4.7	8.6	8.5	7.9	8.6	8.2	7.6	8.1
6	4.0	2.2	9.0	6.0	5.0	9.3	9.2	8.5	9.2	8.8	8.2
7	7.0	4.2	2.3	9.4	6.3	5.3	9.7	9.7	8.9	9.7	9.3
8	4.0	7.2	4.3	2.3	9.7	6.5	5.5	10.0	10.0	9.2	10.0
9	8.0	4.0	7.1	4.3	2.3	9.6	6.4	5.4	9.9	9.9	9.1
10	8.0	8.2	4.0	7.3	4.4	2.4	9.8	6.6	5.5	10.1	10.1
11	8.0	7.9	8.1	4.0	7.2	4.3	2.3	9.7	6.5	5.5	10.0
12	6.0	7.7	7.6	7.8	3.8	6.9	4.2	2.2	9.3	6.2	5.2
K-5	32.0	37.7	37.5	40.1	43.2	42.7	42.1	42.1	41.6	41.3	41.7
6-8	15.0	13.6	15.6	17.7	21.0	21.1	24.4	28.2	28.1	27.7	27.5
9-12	30.0	27.8	26.8	23.4	17.7	23.2	22.7	23.9	31.2	31.7	34.4
K-12	77.0	79.1	79.9	81.2	81.9	87.0	89.2	94.2	100.9	100.7	103.6

Study Area 29 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	7.0	2.1	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	5.0	7.3	2.2	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	5.0	5.4	7.9	2.4	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	2.0	5.2	5.6	8.2	2.5	4.3	3.9	4.3	4.1	3.8	4.1
6	3.0	2.2	5.6	6.0	8.8	2.7	4.6	4.2	4.6	4.4	4.1
7	4.0	3.1	2.3	5.9	6.3	9.3	2.8	4.8	4.5	4.9	4.6
8	2.0	4.1	3.2	2.3	6.1	6.5	9.6	2.9	5.0	4.6	5.0
9	9.0	2.0	4.1	3.2	2.3	6.0	6.4	9.5	2.8	4.9	4.5
10	3.0	9.2	2.0	4.2	3.3	2.4	6.1	6.6	9.6	2.9	5.0
11	2.0	3.0	9.1	2.0	4.1	3.2	2.3	6.1	6.5	9.6	2.9
12	5.0	1.9	2.9	8.7	1.9	4.0	3.1	2.2	5.8	6.2	9.2
K-5	24.0	26.3	25.6	24.2	19.8	21.3	21.0	21.1	20.7	20.8	20.8
6-8	9.0	9.4	11.1	14.2	21.2	18.5	17.0	11.9	14.1	13.9	13.7
9-12	19.0	16.1	18.1	18.1	11.6	15.6	17.9	24.4	24.7	23.6	21.6
K-12	52.0	51.8	54.8	56.5	52.6	55.4	55.9	57.4	59.5	58.3	56.1

Study Area 30 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	1.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	4.0	1.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	2.0	4.2	1.1	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	6.0	2.1	4.5	1.2	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	2.0	6.2	2.2	4.7	1.2	2.8	2.6	2.9	2.7	2.5	2.7
6	6.0	2.2	6.7	2.4	5.0	1.3	3.1	2.8	3.1	2.9	2.7
7	0.0	6.3	2.3	7.1	2.5	5.3	1.4	3.2	3.0	3.2	3.1
8	5.0	0.0	6.5	2.3	7.3	2.6	5.5	1.4	3.3	3.1	3.3
9	1.0	4.9	0.0	6.4	2.3	7.2	2.6	5.4	1.4	3.3	3.0
10	3.0	1.0	5.0	0.0	6.6	2.4	7.4	2.6	5.5	1.4	3.4
11	3.0	3.0	1.0	5.0	0.0	6.5	2.3	7.3	2.6	5.5	1.4
12	3.0	2.9	2.9	1.0	4.8	0.0	6.2	2.2	7.0	2.5	5.2
K-5	17.0	17.6	14.3	14.9	12.7	14.2	14.0	14.1	13.8	13.8	14.0
6-8	11.0	8.5	15.5	11.8	14.8	9.2	10.0	7.4	9.4	9.2	9.1
9-12	10.0	11.8	8.9	12.4	13.7	16.1	18.5	17.5	16.5	12.7	13.0
K-12	38.0	37.9	38.7	39.1	41.2	39.5	42.5	39.0	39.7	35.7	36.1

Study Area 31 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	8.0	4.6	4.3	4.7	4.4	4.1	4.4	4.3	4.3	4.3	4.3
2	4.0	8.4	4.9	4.5	4.9	4.7	4.3	4.6	4.5	4.5	4.6
3	7.0	4.2	8.8	5.1	4.7	5.1	4.9	4.5	4.9	4.8	4.7
4	4.0	7.5	4.5	9.4	5.5	5.0	5.5	5.2	4.9	5.2	5.1
5	7.0	4.2	7.8	4.7	9.8	5.7	5.2	5.7	5.4	5.1	5.4
6	4.0	7.6	4.5	8.4	5.0	10.6	6.1	5.7	6.2	5.9	5.5
7	3.0	4.2	7.9	4.7	8.8	5.3	11.1	6.5	5.9	6.5	6.2
8	3.0	3.1	4.3	8.2	4.9	9.1	5.5	11.5	6.6	6.1	6.7
9	6.0	3.0	3.1	4.3	8.1	4.8	9.0	5.4	11.3	6.6	6.1
10	1.0	6.1	3.0	3.1	4.4	8.3	4.9	9.2	5.5	11.6	6.7
11	4.0	1.0	6.1	3.0	3.1	4.3	8.2	4.9	9.1	5.5	11.5
12	4.0	3.8	1.0	5.8	2.9	3.0	4.2	7.8	4.7	8.7	5.2
K-5	34.0	32.6	34.3	32.2	32.9	28.4	28.0	28.0	27.7	27.6	27.8
6-8	10.0	14.9	16.7	21.3	18.7	25.0	22.7	23.7	18.7	18.5	18.4
9-12	15.0	13.9	13.2	16.2	18.5	20.4	26.3	27.3	30.6	32.4	29.5
K-12	59.0	61.4	64.2	69.7	70.1	73.8	77.0	79.0	77.0	78.5	75.7

Study Area 32 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	10.0	9.2	10.0	9.6	8.9	9.5	9.3	9.2	9.3	9.3	9.3
1	5.0	11.6	10.7	11.6	11.1	10.3	11.0	10.8	10.7	10.8	10.8
2	2.0	5.2	12.2	11.2	12.2	11.6	10.8	11.6	11.3	11.2	11.4
3	8.0	2.1	5.5	12.8	11.8	12.8	12.2	11.4	12.1	11.9	11.8
4	5.0	8.6	2.2	5.9	13.7	12.6	13.7	13.1	12.2	13.0	12.7
5	5.0	5.2	8.9	2.3	6.1	14.2	13.1	14.3	13.6	12.6	13.5
6	5.0	5.4	5.6	9.6	2.5	6.6	15.4	14.1	15.4	14.7	13.6
7	4.0	5.2	5.7	5.9	10.1	2.7	7.0	16.1	14.8	16.2	15.4
8	4.0	4.1	5.4	5.8	6.1	10.4	2.7	7.2	16.6	15.3	16.7
9	5.0	4.0	4.1	5.4	5.8	6.0	10.3	2.7	7.1	16.5	15.1
10	2.0	5.1	4.0	4.2	5.5	5.9	6.1	10.5	2.8	7.2	16.8
11	4.0	2.0	5.0	4.0	4.1	5.4	5.8	6.1	10.4	2.7	7.2
12	2.0	3.8	1.9	4.8	3.8	4.0	5.2	5.6	5.8	10.0	2.6
K-5	35.0	41.9	49.5	53.4	63.8	71.0	70.1	70.4	69.2	68.8	69.5
6-8	13.0	14.7	16.7	21.3	18.7	19.7	25.1	37.4	46.8	46.2	45.7
9-12	13.0	14.9	15.0	18.4	19.2	21.3	27.4	24.9	26.1	36.4	41.7
K-12	61.0	71.5	81.2	93.1	101.7	112.0	122.6	132.7	142.1	151.4	156.9

Study Area 33A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	1.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	9.0	1.0	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	2.0	9.4	1.1	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	0.0	2.1	10.1	1.2	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	5.0	0.0	2.2	10.5	1.2	7.1	6.5	7.1	6.8	6.3	6.8
6	2.0	5.4	0.0	2.4	11.4	1.3	7.7	7.1	7.7	7.3	6.8
7	3.0	2.1	5.7	0.0	2.5	11.9	1.4	8.1	7.4	8.1	7.7
8	4.0	3.1	2.2	5.8	0.0	2.6	12.3	1.4	8.3	7.6	8.3
9	6.0	4.0	3.1	2.1	5.8	0.0	2.6	12.2	1.4	8.2	7.6
10	4.0	6.1	4.0	3.1	2.2	5.9	0.0	2.6	12.4	1.4	8.4
11	6.0	4.0	6.1	4.0	3.1	2.2	5.8	0.0	2.6	12.3	1.4
12	5.0	5.8	3.8	5.8	3.8	3.0	2.1	5.6	0.0	2.5	11.8
K-5	22.0	22.9	29.8	34.3	29.9	35.5	35.1	35.1	34.8	34.4	34.8
6-8	9.0	10.6	7.9	8.2	13.9	15.8	21.4	16.6	23.4	23.0	22.8
9-12	21.0	19.9	17.0	15.0	14.9	11.1	10.5	20.4	16.4	24.4	29.2
K-12	52.0	53.4	54.7	57.5	58.7	62.4	67.0	72.1	74.6	81.8	86.8

Study Area 33B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	2.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	3.0	2.1	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1
3	1.0	3.1	2.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	3.0	1.1	3.4	2.4	1.4	1.3	1.4	1.3	1.2	1.3	1.3
5	1.0	3.1	1.1	3.5	2.5	1.4	1.3	1.4	1.4	1.3	1.4
6	0.0	1.1	3.4	1.2	3.8	2.7	1.5	1.4	1.5	1.5	1.4
7	0.0	0.0	1.1	3.5	1.3	4.0	2.8	1.6	1.5	1.6	1.5
8	2.0	0.0	0.0	1.2	3.6	1.3	4.1	2.9	1.7	1.5	1.7
9	2.0	2.0	0.0	0.0	1.2	3.6	1.3	4.1	2.8	1.6	1.5
10	3.0	2.0	2.0	0.0	0.0	1.2	3.7	1.3	4.1	2.9	1.7
11	0.0	3.0	2.0	2.0	0.0	0.0	1.2	3.6	1.3	4.1	2.9
12	1.0	0.0	2.9	1.9	1.9	0.0	0.0	1.1	3.5	1.2	3.9
K-5	11.0	11.5	10.0	10.5	8.3	7.1	7.0	7.0	6.9	6.9	7.0
6-8	2.0	1.1	4.5	5.9	8.7	8.0	8.4	5.9	4.7	4.6	4.6
9-12	6.0	7.0	6.9	3.9	3.1	4.8	6.2	10.1	11.7	9.8	10.0
K-12	19.0	19.6	21.4	20.3	20.1	19.9	21.6	23.0	23.3	21.3	21.6

Study Area 34 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	5.0	4.6	4.3	4.7	4.4	4.1	4.4	4.3	4.3	4.3	4.3
2	3.0	5.2	4.9	4.5	4.9	4.7	4.3	4.6	4.5	4.5	4.6
3	9.0	3.1	5.5	5.1	4.7	5.1	4.9	4.5	4.9	4.8	4.7
4	6.0	9.6	3.4	5.9	5.5	5.0	5.5	5.2	4.9	5.2	5.1
5	4.0	6.2	10.0	3.5	6.1	5.7	5.2	5.7	5.4	5.1	5.4
6	4.0	4.3	6.7	10.8	3.8	6.6	6.1	5.7	6.2	5.9	5.5
7	4.0	4.2	4.5	7.1	11.4	4.0	7.0	6.5	5.9	6.5	6.2
8	5.0	4.1	4.3	4.7	7.3	11.7	4.1	7.2	6.6	6.1	6.7
9	9.0	4.9	4.1	4.3	4.6	7.2	11.6	4.1	7.1	6.6	6.1
10	8.0	9.2	5.0	4.2	4.4	4.7	7.4	11.8	4.1	7.2	6.7
11	4.0	7.9	9.1	5.0	4.1	4.3	4.7	7.3	11.7	4.1	7.2
12	6.0	3.8	7.6	8.7	4.8	4.0	4.2	4.5	7.0	11.2	3.9
K-5	31.0	32.4	32.1	27.5	29.2	28.4	28.0	28.0	27.7	27.6	27.8
6-8	13.0	12.6	15.5	22.6	22.5	22.3	17.2	19.4	18.7	18.5	18.4
9-12	27.0	25.8	25.8	22.2	17.9	20.2	27.9	27.7	29.9	29.1	23.9
K-12	71.0	70.8	73.4	72.3	69.6	70.9	73.1	75.1	76.3	75.2	70.1

Study Area 35 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	3.0	2.1	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	1.0	3.1	2.2	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	3.0	1.1	3.4	2.4	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	2.0	3.1	1.1	3.5	2.5	2.8	2.6	2.9	2.7	2.5	2.7
6	4.0	2.2	3.4	1.2	3.8	2.7	3.1	2.8	3.1	2.9	2.7
7	8.0	4.2	2.3	3.5	1.3	4.0	2.8	3.2	3.0	3.2	3.1
8	3.0	8.2	4.3	2.3	3.6	1.3	4.1	2.9	3.3	3.1	3.3
9	10.0	3.0	8.2	4.3	2.3	3.6	1.3	4.1	2.8	3.3	3.0
10	4.0	10.2	3.0	8.3	4.4	2.4	3.7	1.3	4.1	2.9	3.4
11	5.0	4.0	10.1	3.0	8.2	4.3	2.3	3.6	1.3	4.1	2.9
12	5.0	4.8	3.8	9.7	2.9	7.9	4.2	2.2	3.5	1.2	3.9
K-5	13.0	13.5	13.2	14.9	14.0	14.2	14.0	14.1	13.8	13.8	14.0
6-8	15.0	14.6	10.0	7.0	8.7	8.0	10.0	8.9	9.4	9.2	9.1
9-12	24.0	22.0	25.1	25.3	17.8	18.2	11.5	11.2	11.7	11.5	13.2
K-12	52.0	50.1	48.3	47.2	40.5	40.4	35.5	34.2	34.9	34.5	36.3

Study Area 36 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	0.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	2.0	0.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	1.0	2.1	0.0	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	2.0	1.1	2.2	0.0	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	5.0	2.1	1.1	2.3	0.0	2.8	2.6	2.9	2.7	2.5	2.7
6	4.0	5.4	2.2	1.2	2.5	0.0	3.1	2.8	3.1	2.9	2.7
7	4.0	4.2	5.7	2.4	1.3	2.7	0.0	3.2	3.0	3.2	3.1
8	1.0	4.1	4.3	5.8	2.4	1.3	2.7	0.0	3.3	3.1	3.3
9	5.0	1.0	4.1	4.3	5.8	2.4	1.3	2.7	0.0	3.3	3.0
10	2.0	5.1	1.0	4.2	4.4	5.9	2.5	1.3	2.8	0.0	3.4
11	5.0	2.0	5.0	1.0	4.1	4.3	5.8	2.4	1.3	2.7	0.0
12	3.0	4.8	1.9	4.8	1.0	4.0	4.2	5.6	2.3	1.2	2.6
K-5	12.0	9.4	9.8	11.3	11.5	14.2	14.0	14.1	13.8	13.8	14.0
6-8	9.0	13.7	12.2	9.4	6.2	4.0	5.8	6.0	9.4	9.2	9.1
9-12	15.0	12.9	12.0	14.3	15.3	16.6	13.8	12.0	6.4	7.2	9.0
K-12	36.0	36.0	34.0	35.0	33.0	34.8	33.6	32.1	29.6	30.2	32.1

Study Area 37 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3
1	0.0	2.3	2.1	2.8	3.2	2.8	2.7	2.7	2.7	2.7	2.7
2	3.0	0.0	2.4	2.7	3.4	3.4	3.0	2.9	2.8	2.8	2.8
3	6.0	3.1	0.0	3.0	3.3	3.6	3.5	3.1	3.0	3.0	2.9
4	6.0	6.4	3.4	0.5	3.7	3.5	3.8	3.8	3.3	3.2	3.2
5	3.0	6.2	6.7	3.9	0.9	3.8	3.6	4.0	3.9	3.5	3.4
6	9.0	3.2	6.7	7.7	4.7	1.0	4.1	3.9	4.3	4.3	3.7
7	5.0	9.4	3.4	7.5	8.5	5.0	1.0	4.3	4.1	4.5	4.5
8	4.0	5.1	9.7	3.9	8.2	8.8	5.1	1.1	4.5	4.3	4.7
9	3.0	4.0	5.1	9.9	4.2	8.1	8.7	5.1	1.1	4.4	4.2
10	4.0	3.1	4.0	5.5	10.4	4.3	8.3	8.8	5.2	1.1	4.5
11	2.0	4.0	3.0	4.3	5.8	10.3	4.2	8.2	8.8	5.1	1.1
12	8.0	1.9	3.8	3.2	4.4	5.5	9.9	4.1	7.9	8.4	4.9
K-5	20.0	19.8	16.6	15.2	16.9	19.5	18.9	18.8	18.0	17.5	17.3
6-8	18.0	17.7	19.8	19.1	21.4	14.8	10.2	9.3	12.9	13.1	12.9
9-12	17.0	13.0	15.9	22.9	24.8	28.2	31.1	26.2	23.0	19.0	14.7
K-12	55.0	50.5	52.3	57.2	63.1	62.5	60.2	54.3	53.9	49.6	44.9

Study Area 38 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.5	6.5	6.5	6.5
1	4.0	7.6	7.0	7.7	7.3	6.8	7.2	7.1	7.0	7.1	7.1
2	10.0	4.2	8.1	7.4	8.1	7.7	7.2	7.7	7.5	7.5	7.6
3	3.0	10.4	4.4	8.4	7.7	8.4	8.0	7.5	8.0	7.8	7.8
4	7.0	3.0	10.5	4.5	8.5	7.8	8.5	8.1	7.5	8.1	7.9
5	6.0	7.3	3.2	11.0	4.7	8.9	8.2	8.9	8.5	7.9	8.5
6	3.0	6.1	7.5	3.2	11.2	4.8	9.1	8.4	9.1	8.7	8.1
7	5.0	3.0	6.1	7.4	3.2	11.1	4.7	9.0	8.3	9.0	8.6
8	6.0	5.1	3.0	6.1	7.5	3.2	11.2	4.8	9.1	8.4	9.1
9	5.0	6.1	5.2	3.1	6.2	7.6	3.3	11.5	4.9	9.3	8.5
10	8.0	4.9	6.0	5.0	3.0	6.1	7.5	3.2	11.2	4.8	9.1
11	7.0	7.9	4.9	5.9	5.0	3.0	6.1	7.4	3.2	11.1	4.7
12	8.0	6.8	7.7	4.7	5.8	4.8	2.9	5.9	7.2	3.1	10.8
K-5	37.0	38.9	40.2	45.7	42.5	46.2	45.6	45.8	45.0	44.9	45.4
6-8	14.0	14.2	16.6	16.7	21.9	19.1	25.0	22.2	26.5	26.1	25.8
9-12	28.0	25.7	23.8	18.7	20.0	21.5	19.8	28.0	26.5	28.3	33.1
K-12	79.0	78.8	80.6	81.1	84.4	86.8	90.4	96.0	98.0	99.3	104.3

Study Area 39 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	8.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	9.0	8.5	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	4.0	9.4	8.8	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	5.0	4.0	9.5	8.9	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	4.0	5.2	4.2	9.9	9.4	2.5	2.3	2.6	2.4	2.3	2.4
6	10.0	4.1	5.4	4.3	10.1	9.5	2.6	2.4	2.6	2.5	2.3
7	5.0	9.9	4.0	5.3	4.3	10.0	9.4	2.6	2.4	2.6	2.5
8	5.0	5.1	10.0	4.1	5.4	4.3	10.1	9.5	2.6	2.4	2.6
9	6.0	5.1	5.2	10.2	4.2	5.5	4.4	10.3	9.7	2.7	2.4
10	13.0	5.9	5.0	5.0	10.0	4.1	5.4	4.3	10.1	9.5	2.6
11	8.0	12.9	5.8	4.9	5.0	9.9	4.0	5.3	4.3	10.0	9.4
12	5.0	7.8	12.5	5.6	4.8	4.8	9.6	3.9	5.1	4.2	9.7
K-5	32.0	31.1	28.8	27.4	20.2	13.1	13.1	13.0	13.0	12.8	13.0
6-8	20.0	19.1	19.4	13.7	19.8	23.8	22.1	14.5	7.6	7.5	7.4
9-12	32.0	31.7	28.5	25.7	24.0	24.3	23.4	23.8	29.2	26.4	24.1
K-12	84.0	81.9	76.7	66.8	64.0	61.2	58.6	51.3	49.8	46.7	44.5

Study Area 40 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	0.0	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	5.0	0.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	3.0	5.2	0.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1
4	2.0	3.0	5.3	0.0	1.2	1.1	1.2	1.2	1.1	1.2	1.1
5	5.0	2.1	3.2	5.5	0.0	1.3	1.2	1.3	1.2	1.1	1.2
6	4.0	5.1	2.1	3.2	5.6	0.0	1.3	1.2	1.3	1.2	1.2
7	5.0	4.0	5.0	2.1	3.2	5.6	0.0	1.3	1.2	1.3	1.2
8	5.0	5.1	4.0	5.1	2.1	3.2	5.6	0.0	1.3	1.2	1.3
9	3.0	5.1	5.2	4.1	5.2	2.2	3.3	5.7	0.0	1.3	1.2
10	6.0	2.9	5.0	5.0	4.0	5.1	2.1	3.2	5.6	0.0	1.3
11	3.0	5.9	2.9	4.9	5.0	4.0	5.0	2.1	3.2	5.6	0.0
12	7.0	2.9	5.8	2.8	4.8	4.8	3.8	4.9	2.1	3.1	5.4
K-5	16.0	12.3	11.7	9.9	5.4	6.6	6.4	6.6	6.4	6.4	6.4
6-8	14.0	14.2	11.1	10.4	10.9	8.8	6.9	2.5	3.8	3.7	3.7
9-12	19.0	16.8	18.9	16.8	19.0	16.1	14.2	15.9	10.9	10.0	7.9
K-12	49.0	43.3	41.7	37.1	35.3	31.5	27.5	25.0	21.1	20.1	18.0

Study Area 41 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	4.0	5.5	5.0	5.5	5.2	4.8	5.2	5.1	5.0	5.1	5.1
2	4.0	4.2	5.8	5.3	5.8	5.5	5.1	5.5	5.4	5.3	5.4
3	4.0	4.2	4.4	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5
4	3.0	4.0	4.2	4.5	6.1	5.6	6.1	5.8	5.4	5.8	5.6
5	4.0	3.1	4.2	4.4	4.7	6.4	5.9	6.4	6.1	5.7	6.0
6	6.0	4.1	3.2	4.3	4.5	4.8	6.5	6.0	6.5	6.2	5.8
7	3.0	5.9	4.0	3.2	4.3	4.5	4.7	6.4	5.9	6.5	6.2
8	4.0	3.0	6.0	4.1	3.2	4.3	4.5	4.8	6.5	6.0	6.5
9	2.0	4.1	3.1	6.1	4.2	3.3	4.4	4.6	4.9	6.6	6.1
10	3.0	2.0	4.0	3.0	6.0	4.1	3.2	4.3	4.5	4.8	6.5
11	2.0	3.0	1.9	4.0	3.0	5.9	4.0	3.2	4.3	4.5	4.7
12	3.0	1.9	2.9	1.9	3.8	2.9	5.8	3.9	3.1	4.2	4.3
K-5	24.0	25.6	28.6	30.5	31.7	33.0	32.7	32.7	32.3	32.1	32.2
6-8	13.0	13.0	13.2	11.6	12.0	13.6	15.7	17.2	18.9	18.7	18.5
9-12	10.0	11.0	11.9	15.0	17.0	16.2	17.4	16.0	16.8	20.1	21.6
K-12	47.0	49.6	53.7	57.1	60.7	62.8	65.8	65.9	68.0	70.9	72.3

Study Area 42 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	3.3	3.9	3.5	3.5	3.5	3.5	3.5
1	4.0	3.3	3.0	3.3	3.8	4.4	4.2	3.8	3.8	3.8	3.8
2	2.0	4.2	3.5	3.2	4.2	4.8	4.6	4.5	4.1	4.0	4.1
3	8.0	2.1	4.4	3.6	4.0	5.0	5.0	4.8	4.6	4.2	4.2
4	6.0	8.1	2.1	4.5	4.3	4.7	5.1	5.0	4.8	4.7	4.3
5	6.0	6.3	8.5	2.2	5.4	5.2	5.0	5.3	5.3	5.1	4.9
6	4.0	6.1	6.4	8.7	2.9	6.2	5.3	5.1	5.4	5.4	5.2
7	5.0	4.0	6.1	6.4	9.2	3.6	6.1	5.3	5.0	5.4	5.3
8	13.0	5.1	4.0	6.1	7.1	10.0	3.6	6.2	5.3	5.1	5.4
9	11.0	13.3	5.2	4.1	6.7	7.7	10.2	3.7	6.3	5.4	5.2
10	5.0	10.8	13.0	5.0	4.5	7.1	7.6	10.0	3.6	6.2	5.3
11	2.0	4.9	10.7	12.9	5.5	4.9	7.0	7.5	9.9	3.6	6.1
12	8.0	1.9	4.8	10.4	12.9	5.8	4.7	6.8	7.3	9.6	3.4
K-5	29.0	26.8	24.5	19.7	25.0	28.0	27.4	26.9	26.1	25.3	24.8
6-8	22.0	15.2	16.5	21.2	19.2	19.8	15.0	16.6	15.7	15.9	15.9
9-12	26.0	30.9	33.7	32.4	29.6	25.5	29.5	28.0	27.1	24.8	20.0
K-12	77.0	72.9	74.7	73.3	73.8	73.3	71.9	71.5	68.9	66.0	60.7

Study Area 43 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	2.0	4.4	4.0	4.4	4.2	3.9	4.1	4.1	4.0	4.1	4.1
2	5.0	2.1	4.6	4.3	4.6	4.4	4.1	4.4	4.3	4.3	4.3
3	7.0	5.2	2.2	4.8	4.4	4.8	4.6	4.3	4.6	4.5	4.4
4	1.0	7.1	5.3	2.2	4.9	4.5	4.9	4.6	4.3	4.6	4.5
5	5.0	1.0	7.4	5.5	2.3	5.1	4.7	5.1	4.9	4.5	4.8
6	5.0	5.1	1.1	7.6	5.6	2.4	5.2	4.8	5.2	5.0	4.6
7	4.0	4.9	5.0	1.1	7.5	5.6	2.4	5.1	4.7	5.2	4.9
8	4.0	4.0	5.0	5.1	1.1	7.6	5.6	2.4	5.2	4.8	5.2
9	4.0	4.1	4.1	5.1	5.2	1.1	7.7	5.7	2.4	5.3	4.9
10	7.0	3.9	4.0	4.0	5.0	5.1	1.1	7.6	5.6	2.4	5.2
11	1.0	6.9	3.9	4.0	4.0	4.9	5.0	1.1	7.5	5.6	2.4
12	4.0	1.0	6.7	3.8	3.8	3.9	4.8	4.9	1.0	7.3	5.4
K-5	24.0	23.5	27.5	25.0	24.0	26.5	26.1	26.2	25.8	25.7	25.8
6-8	13.0	14.0	11.1	13.8	14.2	15.6	13.2	12.3	15.1	15.0	14.7
9-12	16.0	15.9	18.7	16.9	18.0	15.0	18.6	19.3	16.5	20.6	17.9
K-12	53.0	53.4	57.3	55.7	56.2	57.1	57.9	57.8	57.4	61.3	58.4

Study Area 44 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	1.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	0.0	1.1	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	4.0	0.0	1.1	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	5.0	4.0	0.0	1.1	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	1.0	5.2	4.2	0.0	1.2	3.8	3.5	3.8	3.7	3.4	3.6
6	1.0	1.0	5.4	4.3	0.0	1.2	3.9	3.6	3.9	3.7	3.5
7	3.0	1.0	1.0	5.3	4.3	0.0	1.2	3.9	3.6	3.9	3.7
8	2.0	3.0	1.0	1.0	5.4	4.3	0.0	1.2	3.9	3.6	3.9
9	4.0	2.0	3.1	1.0	1.0	5.5	4.4	0.0	1.2	4.0	3.7
10	1.0	3.9	2.0	3.0	1.0	1.0	5.4	4.3	0.0	1.2	3.9
11	4.0	1.0	3.9	2.0	3.0	1.0	1.0	5.3	4.3	0.0	1.2
12	2.0	3.9	1.0	3.8	1.9	2.9	1.0	1.0	5.1	4.2	0.0
K-5	14.0	16.4	14.8	14.1	17.4	19.7	19.6	19.6	19.3	19.4	19.3
6-8	6.0	5.0	7.4	10.6	9.7	5.5	5.1	8.7	11.4	11.2	11.1
9-12	11.0	10.8	10.0	9.8	6.9	10.4	11.8	10.6	10.6	9.4	8.8
K-12	31.0	32.2	32.2	34.5	34.0	35.6	36.5	38.9	41.3	40.0	39.2

Study Area 45 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.3	2.1	2.3	2.2	2.0	2.2	2.1	2.1	2.1	2.1
2	6.0	2.2	2.5	2.3	2.5	2.4	2.2	2.4	2.4	2.3	2.4
3	6.0	6.4	2.4	2.7	2.5	2.7	2.6	2.4	2.6	2.5	2.5
4	2.0	6.0	6.4	2.4	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	3.0	2.0	6.1	6.5	2.4	2.8	2.5	2.8	2.6	2.5	2.6
6	7.0	3.3	2.3	6.8	7.3	2.7	3.1	2.8	3.1	2.9	2.7
7	4.0	7.1	3.4	2.3	6.9	7.3	2.7	3.1	2.8	3.1	3.0
8	5.0	4.1	7.3	3.5	2.4	7.1	7.6	2.8	3.2	2.9	3.2
9	4.0	5.4	4.4	7.9	3.7	2.5	7.6	8.2	3.0	3.4	3.2
10	7.0	3.9	5.3	4.4	7.7	3.7	2.5	7.5	8.0	3.0	3.4
11	4.0	6.9	3.9	5.2	4.3	7.6	3.6	2.5	7.4	7.9	2.9
12	2.0	4.0	6.9	3.8	5.2	4.3	7.6	3.6	2.4	7.3	7.8
K-5	21.0	20.7	21.5	18.1	14.1	14.3	14.1	14.1	14.0	13.9	14.0
6-8	16.0	14.5	13.0	12.6	16.6	17.1	13.4	8.7	9.1	8.9	8.9
9-12	17.0	20.2	20.5	21.3	20.9	18.1	21.3	21.8	20.8	21.6	17.3
K-12	54.0	55.4	55.0	52.0	51.6	49.5	48.8	44.6	43.9	44.4	40.2

Study Area 46A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	3.0	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	2.0	3.2	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	6.0	2.1	3.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1
4	4.0	6.1	2.1	3.3	1.2	1.1	1.2	1.2	1.1	1.2	1.1
5	3.0	4.2	6.4	2.2	3.5	1.3	1.2	1.3	1.2	1.1	1.2
6	3.0	3.1	4.3	6.5	2.2	3.6	1.3	1.2	1.3	1.2	1.2
7	6.0	3.0	3.0	4.2	6.4	2.2	3.5	1.3	1.2	1.3	1.2
8	3.0	6.1	3.0	3.1	4.3	6.5	2.2	3.6	1.3	1.2	1.3
9	5.0	3.1	6.2	3.1	3.1	4.4	6.6	2.3	3.6	1.3	1.2
10	2.0	4.9	3.0	6.1	3.0	3.1	4.3	6.5	2.2	3.6	1.3
11	7.0	2.0	4.9	3.0	6.0	3.0	3.0	4.2	6.4	2.2	3.5
12	5.0	6.8	1.9	4.7	2.9	5.8	2.9	2.9	4.1	6.2	2.2
K-5	19.0	17.6	15.0	9.9	8.9	6.6	6.4	6.6	6.4	6.4	6.4
6-8	12.0	12.2	10.3	13.8	12.9	12.3	7.0	6.1	3.8	3.7	3.7
9-12	19.0	16.8	16.0	16.9	15.0	16.3	16.8	15.9	16.3	13.3	8.2
K-12	50.0	46.6	41.3	40.6	36.8	35.2	30.2	28.6	26.5	23.4	18.3

Study Area 46B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3.0	4.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	3.0	4.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	3.1	3.2	4.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0
6	3.0	2.0	3.2	3.2	4.5	3.6	0.0	0.0	0.0	0.0	0.0
7	2.0	3.0	2.0	3.2	3.2	4.5	3.5	0.0	0.0	0.0	0.0
8	3.0	2.0	3.0	2.0	3.2	3.2	4.5	3.6	0.0	0.0	0.0
9	7.0	3.1	2.1	3.1	2.1	3.3	3.3	4.6	3.6	0.0	0.0
10	2.0	6.9	3.0	2.0	3.0	2.0	3.2	3.2	4.5	3.6	0.0
11	2.0	2.0	6.8	3.0	2.0	3.0	2.0	3.2	3.2	4.5	3.5
12	3.0	1.9	1.9	6.6	2.9	1.9	2.9	2.0	3.1	3.1	4.3
K-5	15.0	13.5	10.7	7.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0
6-8	8.0	7.0	8.2	8.4	10.9	11.3	8.0	3.6	0.0	0.0	0.0
9-12	14.0	13.9	13.8	14.7	10.0	10.2	11.4	13.0	14.4	11.2	7.8
K-12	37.0	34.4	32.7	30.8	24.4	21.5	19.4	16.6	14.4	11.2	7.8

Study Area 46C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	2.1	3.2	4.1	5.0	5.9	6.8	7.4	6.8
1	0.0	1.1	1.0	2.4	4.1	5.3	6.3	7.3	8.2	8.9	8.0
2	2.0	0.0	1.2	2.3	4.3	6.2	7.4	8.5	9.5	10.1	9.4
3	1.0	2.1	0.0	2.4	4.1	6.2	8.1	9.4	10.5	11.2	10.6
4	1.0	1.0	2.1	1.2	4.1	5.9	7.9	9.9	11.2	12.0	11.3
5	0.0	1.0	1.1	3.5	3.0	6.1	7.9	10.1	12.1	13.1	12.6
6	0.0	0.0	1.1	2.3	5.2	4.8	7.9	9.7	12.0	13.7	13.4
7	1.0	0.0	0.0	2.2	3.9	6.8	6.4	9.5	11.3	13.2	13.6
8	1.0	1.0	0.0	1.2	3.9	5.6	8.6	8.1	11.2	12.7	13.3
9	1.0	1.0	1.0	0.9	2.4	5.2	6.9	9.9	9.5	12.4	13.0
10	1.0	1.0	1.0	1.8	2.0	3.5	6.3	8.0	10.9	10.2	12.2
11	1.0	1.0	1.0	1.8	3.0	3.2	4.7	7.4	9.1	11.7	10.1
12	2.0	1.0	1.0	1.8	2.9	4.0	4.2	5.7	8.3	9.7	11.4
K-5	5.0	6.1	6.4	13.9	22.8	33.8	42.6	51.1	58.3	62.7	58.7
6-8	2.0	1.0	1.1	5.7	13.0	17.2	22.9	27.3	34.5	39.6	40.3
9-12	5.0	4.0	4.0	6.3	10.3	15.9	22.1	31.0	37.8	44.0	46.7
K-12	12.0	11.1	11.5	25.9	46.1	66.9	87.6	109.4	130.6	146.3	145.7

Study Area 47 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	4.0	4.4	4.0	4.4	4.2	3.9	4.1	4.1	4.0	4.1	4.1
2	2.0	4.2	4.6	4.3	4.6	4.4	4.1	4.4	4.3	4.3	4.3
3	8.0	2.1	4.4	4.8	4.4	4.8	4.6	4.3	4.6	4.5	4.4
4	4.0	8.1	2.1	4.5	4.9	4.5	4.9	4.6	4.3	4.6	4.5
5	4.0	4.2	8.5	2.2	4.7	5.1	4.7	5.1	4.9	4.5	4.8
6	7.0	4.1	4.3	8.7	2.2	4.8	5.2	4.8	5.2	5.0	4.6
7	6.0	6.9	4.0	4.2	8.6	2.2	4.7	5.1	4.7	5.2	4.9
8	12.0	6.1	7.0	4.1	4.3	8.7	2.2	4.8	5.2	4.8	5.2
9	3.0	12.2	6.2	7.1	4.2	4.4	8.8	2.3	4.9	5.3	4.9
10	8.0	2.9	12.0	6.1	7.0	4.1	4.3	8.6	2.2	4.8	5.2
11	8.0	7.9	2.9	11.9	6.0	6.9	4.0	4.2	8.6	2.2	4.7
12	4.0	7.8	7.7	2.8	11.5	5.8	6.7	3.9	4.1	8.3	2.2
K-5	26.0	26.7	27.6	24.0	26.4	26.5	26.1	26.2	25.8	25.7	25.8
6-8	25.0	17.1	15.3	17.0	15.1	15.7	12.1	14.7	15.1	15.0	14.7
9-12	23.0	30.8	28.8	27.9	28.7	21.2	23.8	19.0	19.8	20.6	17.0
K-12	74.0	74.6	71.7	68.9	70.2	63.4	62.0	59.9	60.7	61.3	57.5

Study Area 48 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	4.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	6.0	4.2	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	5.0	6.2	4.4	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	4.0	5.1	6.3	4.5	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	7.0	4.2	5.3	6.6	4.7	2.5	2.3	2.6	2.4	2.3	2.4
6	4.0	7.1	4.3	5.4	6.7	4.8	2.6	2.4	2.6	2.5	2.3
7	2.0	4.0	7.1	4.2	5.4	6.7	4.7	2.6	2.4	2.6	2.5
8	5.0	2.0	4.0	7.1	4.3	5.4	6.7	4.8	2.6	2.4	2.6
9	4.0	5.1	2.1	4.1	7.3	4.4	5.5	6.9	4.9	2.7	2.4
10	4.0	3.9	5.0	2.0	4.0	7.1	4.3	5.4	6.7	4.8	2.6
11	2.0	4.0	3.9	4.9	2.0	4.0	7.1	4.2	5.4	6.7	4.7
12	1.0	1.9	3.8	3.8	4.8	1.9	3.8	6.9	4.1	5.2	6.5
K-5	28.0	23.7	22.3	19.7	15.5	13.1	13.1	13.0	13.0	12.8	13.0
6-8	11.0	13.1	15.4	16.7	16.4	16.9	14.0	9.8	7.6	7.5	7.4
9-12	11.0	14.9	14.8	14.8	18.1	17.4	20.7	23.4	21.1	19.4	16.2
K-12	50.0	51.7	52.5	51.2	50.0	47.4	47.8	46.2	41.7	39.7	36.6

Study Area 49 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.5	6.5	6.5	6.5
1	4.0	7.6	7.0	7.7	7.3	6.8	7.2	7.1	7.0	7.1	7.1
2	1.0	4.2	8.1	7.4	8.1	7.7	7.2	7.7	7.5	7.5	7.6
3	3.0	1.0	4.4	8.4	7.7	8.4	8.0	7.5	8.0	7.8	7.8
4	6.0	3.0	1.1	4.5	8.5	7.8	8.5	8.1	7.5	8.1	7.9
5	1.0	6.3	3.2	1.1	4.7	8.9	8.2	8.9	8.5	7.9	8.5
6	7.0	1.0	6.4	3.2	1.1	4.8	9.1	8.4	9.1	8.7	8.1
7	7.0	6.9	1.0	6.4	3.2	1.1	4.7	9.0	8.3	9.0	8.6
8	4.0	7.1	7.0	1.0	6.4	3.2	1.1	4.8	9.1	8.4	9.1
9	6.0	4.1	7.2	7.1	1.0	6.6	3.3	1.1	4.9	9.3	8.5
10	4.0	5.9	4.0	7.1	7.0	1.0	6.4	3.2	1.1	4.8	9.1
11	4.0	4.0	5.8	4.0	7.0	6.9	1.0	6.4	3.2	1.1	4.7
12	2.0	3.9	3.8	5.6	3.8	6.8	6.7	1.0	6.2	3.1	1.1
K-5	22.0	28.5	30.8	35.8	42.5	46.2	45.6	45.8	45.0	44.9	45.4
6-8	18.0	15.0	14.4	10.6	10.7	9.1	14.9	22.2	26.5	26.1	25.8
9-12	16.0	17.9	20.8	23.8	18.8	21.3	17.4	11.7	15.4	18.3	23.4
K-12	56.0	61.4	66.0	70.2	72.0	76.6	77.9	79.7	86.9	89.3	94.6

Study Area 50 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	4.0	4.4	4.0	4.4	4.2	3.9	4.1	4.1	4.0	4.1	4.1
2	1.0	4.2	4.6	4.3	4.6	4.4	4.1	4.4	4.3	4.3	4.3
3	7.0	1.0	4.4	4.8	4.4	4.8	4.6	4.3	4.6	4.5	4.4
4	3.0	7.1	1.1	4.5	4.9	4.5	4.9	4.6	4.3	4.6	4.5
5	4.0	3.1	7.4	1.1	4.7	5.1	4.7	5.1	4.9	4.5	4.8
6	1.0	4.1	3.2	7.6	1.1	4.8	5.2	4.8	5.2	5.0	4.6
7	5.0	1.0	4.0	3.2	7.5	1.1	4.7	5.1	4.7	5.2	4.9
8	1.0	5.1	1.0	4.1	3.2	7.6	1.1	4.8	5.2	4.8	5.2
9	3.0	1.0	5.2	1.0	4.2	3.3	7.7	1.1	4.9	5.3	4.9
10	1.0	2.9	1.0	5.0	1.0	4.1	3.2	7.6	1.1	4.8	5.2
11	4.0	1.0	2.9	1.0	5.0	1.0	4.0	3.2	7.5	1.1	4.7
12	1.0	3.9	1.0	2.8	1.0	4.8	1.0	3.9	3.1	7.3	1.1
K-5	23.0	23.5	25.5	22.9	26.4	26.5	26.1	26.2	25.8	25.7	25.8
6-8	7.0	10.2	8.2	14.9	11.8	13.5	11.0	14.7	15.1	15.0	14.7
9-12	9.0	8.8	10.1	9.8	11.2	13.2	15.9	15.8	16.6	18.5	15.9
K-12	39.0	42.5	43.8	47.6	49.4	53.2	53.0	56.7	57.5	59.2	56.4

Study Area 51 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	4.0	5.5	5.0	5.5	5.2	4.8	5.2	5.1	5.0	5.1	5.1
2	2.0	4.2	5.8	5.3	5.8	5.5	5.1	5.5	5.4	5.3	5.4
3	2.0	2.1	4.4	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5
4	4.0	2.0	2.1	4.5	6.1	5.6	6.1	5.8	5.4	5.8	5.6
5	5.0	4.2	2.1	2.2	4.7	6.4	5.9	6.4	6.1	5.7	6.0
6	6.0	5.1	4.3	2.2	2.2	4.8	6.5	6.0	6.5	6.2	5.8
7	3.0	5.9	5.0	4.2	2.1	2.2	4.7	6.4	5.9	6.5	6.2
8	3.0	3.0	6.0	5.1	4.3	2.2	2.2	4.8	6.5	6.0	6.5
9	4.0	3.1	3.1	6.1	5.2	4.4	2.2	2.3	4.9	6.6	6.1
10	4.0	3.9	3.0	3.0	6.0	5.1	4.3	2.2	2.2	4.8	6.5
11	5.0	4.0	3.9	3.0	3.0	5.9	5.0	4.2	2.1	2.2	4.7
12	2.0	4.9	3.8	3.8	2.9	2.9	5.8	4.9	4.1	2.1	2.2
K-5	22.0	22.6	24.4	28.3	31.7	33.0	32.7	32.7	32.3	32.1	32.2
6-8	12.0	14.0	15.3	11.5	8.6	9.2	13.4	17.2	18.9	18.7	18.5
9-12	15.0	15.9	13.8	15.9	17.1	18.3	17.3	13.6	13.3	15.7	19.5
K-12	49.0	52.5	53.5	55.7	57.4	60.5	63.4	63.5	64.5	66.5	70.2

Study Area 52 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	4.0	2.1	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	3.0	4.2	2.2	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	0.0	3.0	4.2	2.2	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	2.0	0.0	3.2	4.4	2.3	2.5	2.3	2.6	2.4	2.3	2.4
6	1.0	2.0	0.0	3.2	4.5	2.4	2.6	2.4	2.6	2.5	2.3
7	4.0	1.0	2.0	0.0	3.2	4.5	2.4	2.6	2.4	2.6	2.5
8	2.0	4.0	1.0	2.0	0.0	3.2	4.5	2.4	2.6	2.4	2.6
9	5.0	2.0	4.1	1.0	2.1	0.0	3.3	4.6	2.4	2.7	2.4
10	3.0	4.9	2.0	4.0	1.0	2.0	0.0	3.2	4.5	2.4	2.6
11	4.0	3.0	4.9	2.0	4.0	1.0	2.0	0.0	3.2	4.5	2.4
12	4.0	3.9	2.9	4.7	1.9	3.9	1.0	2.0	0.0	3.1	4.3
K-5	13.0	13.3	15.9	15.2	13.1	13.1	13.1	13.0	13.0	12.8	13.0
6-8	7.0	7.0	3.0	5.2	7.7	10.1	9.5	7.4	7.6	7.5	7.4
9-12	16.0	13.8	13.9	11.7	9.0	6.9	6.3	9.8	10.1	12.7	11.7
K-12	36.0	34.1	32.8	32.1	29.8	30.1	28.9	30.2	30.7	33.0	32.1

Study Area 53 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	1.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	7.0	1.1	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	6.0	7.3	1.1	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	6.0	6.1	7.4	1.1	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	8.0	6.3	6.4	7.7	1.2	7.6	7.0	7.7	7.3	6.8	7.3
6	9.0	8.2	6.4	6.5	7.9	1.2	7.8	7.2	7.8	7.5	6.9
7	5.0	8.9	8.1	6.4	6.4	7.8	1.2	7.7	7.1	7.7	7.4
8	9.0	5.1	9.0	8.2	6.4	6.5	7.9	1.2	7.8	7.2	7.8
9	7.0	9.2	5.2	9.2	8.3	6.6	6.6	8.0	1.2	8.0	7.3
10	4.0	6.9	9.0	5.0	9.0	8.2	6.4	6.5	7.9	1.2	7.8
11	3.0	4.0	6.8	8.9	5.0	8.9	8.1	6.4	6.4	7.8	1.2
12	4.0	2.9	3.8	6.6	8.6	4.8	8.6	7.8	6.2	6.2	7.6
K-5	34.0	32.8	33.8	34.7	33.7	39.6	39.2	39.3	38.7	38.5	39.0
6-8	23.0	22.2	23.5	21.1	20.7	15.5	16.9	16.1	22.7	22.4	22.1
9-12	18.0	23.0	24.8	29.7	30.9	28.5	29.7	28.7	21.7	23.2	23.9
K-12	75.0	78.0	82.1	85.5	85.3	83.6	85.8	84.1	83.1	84.1	85.0

Study Area 54 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	2.0	3.3	3.0	3.3	3.1	2.9	3.1	3.0	3.0	3.1	3.0
2	6.0	2.1	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.2
3	2.0	6.2	2.2	3.6	3.3	3.6	3.4	3.2	3.4	3.4	3.3
4	1.0	2.0	6.3	2.2	3.6	3.3	3.7	3.5	3.2	3.5	3.4
5	6.0	1.0	2.1	6.6	2.3	3.8	3.5	3.8	3.7	3.4	3.6
6	5.0	6.1	1.1	2.2	6.7	2.4	3.9	3.6	3.9	3.7	3.5
7	8.0	4.9	6.1	1.1	2.1	6.7	2.4	3.9	3.6	3.9	3.7
8	6.0	8.1	5.0	6.1	1.1	2.2	6.7	2.4	3.9	3.6	3.9
9	7.0	6.1	8.2	5.1	6.2	1.1	2.2	6.9	2.4	4.0	3.7
10	2.0	6.9	6.0	8.1	5.0	6.1	1.1	2.2	6.7	2.4	3.9
11	7.0	2.0	6.8	5.9	8.0	4.9	6.1	1.1	2.1	6.7	2.4
12	5.0	6.8	1.9	6.6	5.8	7.8	4.8	5.9	1.0	2.1	6.5
K-5	20.0	17.4	20.1	21.8	18.5	19.7	19.6	19.6	19.3	19.4	19.3
6-8	19.0	19.1	12.2	9.4	9.9	11.3	13.0	9.9	11.4	11.2	11.1
9-12	21.0	21.8	22.9	25.7	25.0	19.9	14.2	16.1	12.2	15.2	16.5
K-12	60.0	58.3	55.2	56.9	53.4	50.9	46.8	45.6	42.9	45.8	46.9

Study Area 55 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	3.0	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	4.0	3.2	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	1.0	4.2	3.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1
4	4.0	1.0	4.2	3.3	1.2	1.1	1.2	1.2	1.1	1.2	1.1
5	4.0	4.2	1.1	4.4	3.5	1.3	1.2	1.3	1.2	1.1	1.2
6	2.0	4.1	4.3	1.1	4.5	3.6	1.3	1.2	1.3	1.2	1.2
7	5.0	2.0	4.0	4.2	1.1	4.5	3.5	1.3	1.2	1.3	1.2
8	5.0	5.1	2.0	4.1	4.3	1.1	4.5	3.6	1.3	1.2	1.3
9	5.0	5.1	5.2	2.0	4.2	4.4	1.1	4.6	3.6	1.3	1.2
10	3.0	4.9	5.0	5.0	2.0	4.1	4.3	1.1	4.5	3.6	1.3
11	5.0	3.0	4.9	4.9	5.0	2.0	4.0	4.2	1.1	4.5	3.5
12	0.0	4.9	2.9	4.7	4.8	4.8	1.9	3.9	4.1	1.0	4.3
K-5	17.0	14.6	11.8	12.1	8.9	6.6	6.4	6.6	6.4	6.4	6.4
6-8	12.0	11.2	10.3	9.4	9.9	9.2	9.3	6.1	3.8	3.7	3.7
9-12	13.0	17.9	18.0	16.6	16.0	15.3	11.3	13.8	13.3	10.4	10.3
K-12	42.0	43.7	40.1	38.1	34.8	31.1	27.0	26.5	23.5	20.5	20.4

Study Area 56 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	5.0	6.5	6.0	6.6	6.3	5.8	6.2	6.1	6.0	6.1	6.1
2	7.0	5.3	6.9	6.4	7.0	6.6	6.2	6.6	6.5	6.4	6.5
3	7.0	7.3	5.5	7.2	6.6	7.2	6.9	6.4	6.8	6.7	6.7
4	2.0	7.1	7.4	5.6	7.3	6.7	7.3	7.0	6.5	6.9	6.8
5	7.0	2.1	7.4	7.7	5.8	7.6	7.0	7.7	7.3	6.8	7.3
6	4.0	7.1	2.1	7.6	7.9	6.0	7.8	7.2	7.8	7.5	6.9
7	10.0	4.0	7.1	2.1	7.5	7.8	5.9	7.7	7.1	7.7	7.4
8	5.0	10.1	4.0	7.1	2.1	7.6	7.9	6.0	7.8	7.2	7.8
9	6.0	5.1	10.3	4.1	7.3	2.2	7.7	8.0	6.1	8.0	7.3
10	9.0	5.9	5.0	10.1	4.0	7.1	2.1	7.6	7.9	6.0	7.8
11	5.0	8.9	5.8	4.9	10.0	4.0	7.1	2.1	7.5	7.8	5.9
12	9.0	4.9	8.6	5.6	4.8	9.7	3.8	6.9	2.1	7.3	7.6
K-5	34.0	33.8	39.2	39.2	38.3	39.6	39.2	39.3	38.7	38.5	39.0
6-8	19.0	21.2	13.2	16.8	17.5	21.4	21.6	20.9	22.7	22.4	22.1
9-12	29.0	24.8	29.7	24.7	26.1	23.0	20.7	24.6	23.6	29.1	28.6
K-12	82.0	79.8	82.1	80.7	81.9	84.0	81.5	84.8	85.0	90.0	89.7

Study Area 57 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	0.0	2.2	2.0	2.2	2.1	1.9	2.1	2.0	2.0	2.0	2.0
2	3.0	0.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2
3	2.0	3.1	0.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2
4	6.0	2.0	3.2	0.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3
5	3.0	6.3	2.1	3.3	0.0	2.5	2.3	2.6	2.4	2.3	2.4
6	1.0	3.1	6.4	2.2	3.4	0.0	2.6	2.4	2.6	2.5	2.3
7	4.0	1.0	3.0	6.4	2.1	3.3	0.0	2.6	2.4	2.6	2.5
8	4.0	4.0	1.0	3.1	6.4	2.2	3.4	0.0	2.6	2.4	2.6
9	5.0	4.1	4.1	1.0	3.1	6.6	2.2	3.4	0.0	2.7	2.4
10	5.0	4.9	4.0	4.0	1.0	3.1	6.4	2.2	3.4	0.0	2.6
11	2.0	4.9	4.9	4.0	4.0	1.0	3.0	6.4	2.1	3.3	0.0
12	2.0	1.9	4.8	4.7	3.8	3.9	1.0	2.9	6.2	2.1	3.2
K-5	16.0	15.4	11.6	11.9	10.8	13.1	13.1	13.0	13.0	12.8	13.0
6-8	9.0	8.1	10.4	11.7	11.9	5.5	6.0	5.0	7.6	7.5	7.4
9-12	14.0	15.8	17.8	13.7	11.9	14.6	12.6	14.9	11.7	8.1	8.2
K-12	39.0	39.3	39.8	37.3	34.6	33.2	31.7	32.9	32.3	28.4	28.6

Study Area 58 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	3.0	6.0	5.5	6.0	5.7	5.3	5.6	5.5	5.5	5.6	5.5
2	4.0	3.0	5.9	5.4	5.9	5.6	5.2	5.6	5.5	5.4	5.5
3	6.0	4.3	3.2	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8
4	4.0	6.1	4.4	3.2	6.4	5.9	6.4	6.1	5.7	6.1	6.0
5	7.0	4.0	6.2	4.4	3.3	6.5	6.0	6.5	6.2	5.8	6.2
6	2.0	7.4	4.3	6.6	4.7	3.5	6.9	6.3	6.9	6.6	6.1
7	7.0	2.1	7.7	4.5	6.8	4.9	3.6	7.2	6.6	7.2	6.8
8	6.0	7.2	2.1	7.9	4.6	7.0	5.0	3.7	7.4	6.8	7.4
9	6.0	6.6	7.9	2.4	8.7	5.0	7.7	5.5	4.1	8.1	7.5
10	3.0	5.8	6.3	7.6	2.3	8.4	4.8	7.4	5.3	3.9	7.8
11	4.0	2.9	5.6	6.1	7.4	2.2	8.1	4.7	7.2	5.1	3.8
12	5.0	3.8	2.8	5.4	5.9	7.1	2.1	7.8	4.5	6.9	4.9
K-5	29.0	28.0	30.2	30.1	31.5	34.3	33.9	33.9	33.6	33.4	33.6
6-8	15.0	16.7	14.1	19.0	16.1	15.4	15.5	17.2	20.9	20.6	20.3
9-12	18.0	19.1	22.6	21.5	24.3	22.7	22.7	25.4	21.1	24.0	24.0
K-12	62.0	63.8	66.9	70.6	71.9	72.4	72.1	76.5	75.6	78.0	77.9

Study Area 59 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	6.0	3.6	3.3	3.6	3.4	3.2	3.4	3.3	3.3	3.3	3.3
2	9.0	5.9	3.5	3.3	3.5	3.4	3.1	3.4	3.3	3.3	3.3
3	4.0	9.6	6.4	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5
4	6.0	4.1	9.8	6.5	3.9	3.5	3.9	3.7	3.4	3.7	3.6
5	10.0	6.1	4.1	9.9	6.5	3.9	3.6	3.9	3.7	3.5	3.7
6	4.0	10.6	6.4	4.4	10.5	6.9	4.1	3.8	4.1	3.9	3.7
7	4.0	4.2	11.0	6.7	4.5	10.9	7.2	4.3	4.0	4.3	4.1
8	6.0	4.1	4.3	11.4	6.9	4.7	11.3	7.4	4.4	4.1	4.4
9	4.0	6.6	4.5	4.7	12.5	7.6	5.1	12.4	8.2	4.9	4.5
10	5.0	3.8	6.3	4.4	4.5	12.0	7.3	4.9	11.9	7.9	4.7
11	6.0	4.9	3.7	6.1	4.2	4.4	11.6	7.0	4.8	11.5	7.6
12	1.0	5.8	4.7	3.6	5.9	4.1	4.2	11.2	6.8	4.6	11.1
K-5	38.0	32.1	30.1	30.0	23.5	20.6	20.4	20.5	20.1	20.1	20.2
6-8	14.0	18.9	21.7	22.5	21.9	22.5	22.6	15.5	12.5	12.3	12.2
9-12	16.0	21.1	19.2	18.8	27.1	28.1	28.2	35.5	31.7	28.9	27.9
K-12	68.0	72.1	71.0	71.3	72.5	71.2	71.2	71.5	64.3	61.3	60.3

Study Area 60 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	1.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	2.0	1.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	5.0	2.1	1.1	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	5.0	5.1	2.2	1.1	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	2.0	5.1	5.2	2.2	1.1	2.6	2.4	2.6	2.5	2.3	2.5
6	1.0	2.1	5.4	5.5	2.3	1.2	2.8	2.5	2.8	2.6	2.4
7	3.0	1.0	2.2	5.6	5.7	2.4	1.2	2.9	2.6	2.9	2.7
8	2.0	3.1	1.1	2.3	5.7	5.8	2.5	1.2	2.9	2.7	3.0
9	2.0	2.2	3.4	1.2	2.5	6.3	6.4	2.8	1.4	3.2	3.0
10	0.0	1.9	2.1	3.3	1.1	2.4	6.1	6.2	2.6	1.3	3.1
11	1.0	0.0	1.9	2.0	3.2	1.1	2.3	5.9	6.0	2.6	1.3
12	0.0	1.0	0.0	1.8	2.0	3.0	1.1	2.2	5.6	5.8	2.5
K-5	17.0	17.5	15.1	12.3	12.5	13.8	13.7	13.5	13.5	13.3	13.5
6-8	6.0	6.2	8.7	13.4	13.7	9.4	6.5	6.6	8.3	8.2	8.1
9-12	3.0	5.1	7.4	8.3	8.8	12.8	15.9	17.1	15.6	12.9	9.9
K-12	26.0	28.8	31.2	34.0	35.0	36.0	36.1	37.2	37.4	34.4	31.5

Study Area 61 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	10.0	10.7	9.9	10.7	10.2	9.5	10.2	10.0	9.9	10.0	9.9
2	5.0	9.9	10.6	9.8	10.6	10.1	9.4	10.1	9.9	9.8	9.9
3	2.0	5.4	10.6	11.3	10.4	11.4	10.8	10.1	10.8	10.6	10.5
4	7.0	2.0	5.5	10.8	11.6	10.6	11.6	11.1	10.3	11.0	10.8
5	7.0	7.1	2.1	5.5	10.9	11.7	10.8	11.7	11.2	10.4	11.1
6	6.0	7.4	7.5	2.2	5.8	11.6	12.4	11.4	12.4	11.8	11.0
7	6.0	6.2	7.7	7.8	2.3	6.1	12.0	12.9	11.9	12.9	12.3
8	4.0	6.2	6.4	7.9	8.0	2.3	6.3	12.4	13.3	12.2	13.3
9	6.0	4.4	6.8	7.1	8.7	8.8	2.6	6.9	13.6	14.6	13.4
10	6.0	5.8	4.2	6.5	6.8	8.4	8.5	2.5	6.6	13.1	14.0
11	6.0	5.8	5.6	4.1	6.3	6.6	8.1	8.2	2.4	6.4	12.7
12	7.0	5.8	5.6	5.4	3.9	6.1	6.3	7.8	7.9	2.3	6.2
K-5	40.0	43.4	47.7	56.7	61.7	61.8	61.2	61.3	60.5	60.2	60.6
6-8	16.0	19.8	21.6	17.9	16.1	20.0	30.7	36.7	37.6	36.9	36.6
9-12	25.0	21.8	22.2	23.1	25.7	29.9	25.5	25.4	30.5	36.4	46.3
K-12	81.0	85.0	91.5	97.7	103.5	111.7	117.4	123.4	128.6	133.5	143.5

Study Area 62 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	3.0	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	4.0	3.2	4.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	5.0	4.1	3.3	4.3	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	3.0	5.1	4.1	3.3	4.4	1.3	1.2	1.3	1.2	1.2	1.2
6	8.0	3.2	5.4	4.4	3.5	4.6	1.4	1.3	1.4	1.3	1.2
7	2.0	8.3	3.3	5.6	4.5	3.6	4.8	1.4	1.3	1.4	1.4
8	7.0	2.1	8.6	3.4	5.7	4.7	3.8	5.0	1.5	1.4	1.5
9	7.0	7.7	2.3	9.4	3.7	6.3	5.1	4.1	5.5	1.6	1.5
10	3.0	6.7	7.4	2.2	9.0	3.6	6.1	4.9	4.0	5.2	1.6
11	6.0	2.9	6.5	7.2	2.1	8.8	3.5	5.9	4.8	3.8	5.1
12	7.0	5.8	2.8	6.3	6.9	2.0	8.4	3.3	5.6	4.6	3.7
K-5	20.0	18.5	14.9	12.2	10.1	6.9	6.7	6.7	6.6	6.7	6.7
6-8	17.0	13.6	17.3	13.4	13.7	12.9	10.0	7.7	4.2	4.1	4.1
9-12	23.0	23.1	19.0	25.1	21.7	20.7	23.1	18.2	19.9	15.2	11.9
K-12	60.0	55.2	51.2	50.7	45.5	40.5	39.8	32.6	30.7	26.0	22.7

Study Area 63 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	2.0	10.7	9.9	10.7	10.2	9.5	10.2	10.0	9.9	10.0	9.9
2	6.0	2.0	10.6	9.8	10.6	10.1	9.4	10.1	9.9	9.8	9.9
3	9.0	6.4	2.1	11.3	10.4	11.4	10.8	10.1	10.8	10.6	10.5
4	8.0	9.2	6.5	2.2	11.6	10.6	11.6	11.1	10.3	11.0	10.8
5	6.0	8.1	9.3	6.6	2.2	11.7	10.8	11.7	11.2	10.4	11.1
6	7.0	6.4	8.6	9.8	7.0	2.3	12.4	11.4	12.4	11.8	11.0
7	4.0	7.3	6.6	8.9	10.2	7.3	2.4	12.9	11.9	12.9	12.3
8	7.0	4.1	7.5	6.8	9.2	10.5	7.5	2.5	13.3	12.2	13.3
9	6.0	7.7	4.5	8.2	7.5	10.1	11.6	8.3	2.7	14.6	13.4
10	9.0	5.8	7.4	4.4	7.9	7.2	9.7	11.1	7.9	2.6	14.0
11	3.0	8.7	5.6	7.2	4.2	7.7	7.0	9.4	10.8	7.7	2.5
12	3.0	2.9	8.4	5.4	6.9	4.1	7.4	6.7	9.0	10.4	7.4
K-5	40.0	44.7	47.4	49.2	53.0	61.8	61.2	61.3	60.5	60.2	60.6
6-8	18.0	17.8	22.7	25.5	26.4	20.1	22.3	26.8	37.6	36.9	36.6
9-12	21.0	25.1	25.9	25.2	26.5	29.1	35.7	35.5	30.4	35.3	37.3
K-12	79.0	87.6	96.0	99.9	105.9	111.0	119.2	123.6	128.5	132.4	134.5

Study Area 64 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	7.0	6.4	7.0	6.7	6.2	6.6	6.5	6.5	6.5	6.5	6.5
1	3.0	8.3	7.7	8.4	8.0	7.4	7.9	7.8	7.7	7.8	7.7
2	6.0	3.0	8.2	7.6	8.3	7.9	7.3	7.8	7.7	7.6	7.7
3	6.0	6.4	3.2	8.8	8.1	8.9	8.4	7.8	8.4	8.2	8.1
4	8.0	6.1	6.5	3.2	9.0	8.3	9.0	8.6	8.0	8.5	8.4
5	5.0	8.1	6.2	6.6	3.3	9.1	8.4	9.1	8.7	8.1	8.6
6	3.0	5.3	8.6	6.6	7.0	3.5	9.6	8.9	9.7	9.2	8.6
7	4.0	3.1	5.5	8.9	6.8	7.3	3.6	10.0	9.2	10.1	9.6
8	6.0	4.1	3.2	5.7	9.2	7.0	7.5	3.7	10.3	9.5	10.4
9	5.0	6.6	4.5	3.5	6.2	10.1	7.7	8.3	4.1	11.4	10.4
10	7.0	4.8	6.3	4.4	3.4	6.0	9.7	7.4	7.9	3.9	10.9
11	6.0	6.8	4.7	6.1	4.2	3.3	5.8	9.4	7.2	7.7	3.8
12	4.0	5.8	6.5	4.5	5.9	4.1	3.2	5.6	9.0	6.9	7.4
K-5	35.0	38.3	38.8	41.3	42.9	48.2	47.5	47.6	47.0	46.7	47.0
6-8	13.0	12.5	17.3	21.2	23.0	17.8	20.7	22.6	29.2	28.8	28.6
9-12	22.0	24.0	22.0	18.5	19.7	23.5	26.4	30.7	28.2	29.9	32.5
K-12	70.0	74.8	78.1	81.0	85.6	89.5	94.6	100.9	104.4	105.4	108.1

Study Area 65 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	9.0	6.0	5.5	6.0	5.7	5.3	5.6	5.5	5.5	5.6	5.5
2	4.0	8.9	5.9	5.4	5.9	5.6	5.2	5.6	5.5	5.4	5.5
3	6.0	4.3	9.5	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8
4	3.0	6.1	4.4	9.7	6.4	5.9	6.4	6.1	5.7	6.1	6.0
5	2.0	3.0	6.2	4.4	9.8	6.5	6.0	6.5	6.2	5.8	6.2
6	2.0	2.1	3.2	6.6	4.7	10.4	6.9	6.3	6.9	6.6	6.1
7	5.0	2.1	2.2	3.3	6.8	4.9	10.8	7.2	6.6	7.2	6.8
8	4.0	5.1	2.1	2.3	3.4	7.0	5.0	11.2	7.4	6.8	7.4
9	5.0	4.4	5.7	2.4	2.5	3.8	7.7	5.5	12.3	8.1	7.5
10	3.0	4.8	4.2	5.4	2.3	2.4	3.6	7.4	5.3	11.8	7.8
11	2.0	2.9	4.7	4.1	5.3	2.2	2.3	3.5	7.2	5.1	11.4
12	4.0	1.9	2.8	4.5	3.9	5.1	2.1	2.2	3.4	6.9	4.9
K-5	29.0	32.9	36.5	36.6	38.0	34.3	33.9	33.9	33.6	33.4	33.6
6-8	11.0	9.3	7.5	12.2	14.9	22.3	22.7	24.7	20.9	20.6	20.3
9-12	14.0	14.0	17.4	16.4	14.0	13.5	15.7	18.6	28.2	31.9	31.6
K-12	54.0	56.2	61.4	65.2	66.9	70.1	72.3	77.2	82.7	85.9	85.5

Study Area 66 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	3.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	3.0	3.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	2.0	3.2	3.2	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	4.0	2.0	3.3	3.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	4.0	4.0	2.1	3.3	3.3	2.6	2.4	2.6	2.5	2.3	2.5
6	3.0	4.2	4.3	2.2	3.5	3.5	2.8	2.5	2.8	2.6	2.4
7	3.0	3.1	4.4	4.5	2.3	3.6	3.6	2.9	2.6	2.9	2.7
8	1.0	3.1	3.2	4.5	4.6	2.3	3.8	3.7	2.9	2.7	3.0
9	2.0	1.1	3.4	3.5	5.0	5.0	2.6	4.1	4.1	3.2	3.0
10	4.0	1.9	1.1	3.3	3.4	4.8	4.8	2.5	4.0	3.9	3.1
11	2.0	3.9	1.9	1.0	3.2	3.3	4.7	4.7	2.4	3.8	3.8
12	5.0	1.9	3.7	1.8	1.0	3.0	3.2	4.5	4.5	2.3	3.7
K-5	18.0	16.4	15.2	15.5	14.7	13.8	13.7	13.5	13.5	13.3	13.5
6-8	7.0	10.4	11.9	11.2	10.4	9.4	10.2	9.1	8.3	8.2	8.1
9-12	13.0	8.8	10.1	9.6	12.6	16.1	15.3	15.8	15.0	13.2	13.6
K-12	38.0	35.6	37.2	36.3	37.7	39.3	39.2	38.4	36.8	34.7	35.2

Study Area 67 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	8.0	7.4	8.0	7.6	7.1	7.6	7.4	7.4	7.5	7.4	7.4
1	2.0	9.5	8.8	9.5	9.1	8.5	9.0	8.9	8.8	8.9	8.8
2	4.0	2.0	9.4	8.7	9.5	9.0	8.4	8.9	8.8	8.7	8.8
3	2.0	4.3	2.1	10.1	9.3	10.1	9.6	9.0	9.6	9.4	9.3
4	5.0	2.0	4.4	2.2	10.3	9.5	10.3	9.8	9.1	9.8	9.6
5	2.0	5.1	2.1	4.4	2.2	10.4	9.6	10.4	9.9	9.2	9.9
6	4.0	2.1	5.4	2.2	4.7	2.3	11.0	10.1	11.0	10.5	9.8
7	5.0	4.2	2.2	5.6	2.3	4.9	2.4	11.5	10.5	11.5	10.9
8	3.0	5.1	4.3	2.3	5.7	2.3	5.0	2.5	11.8	10.9	11.8
9	6.0	3.3	5.7	4.7	2.5	6.3	2.6	5.5	2.7	13.0	11.9
10	5.0	5.8	3.2	5.4	4.5	2.4	6.1	2.5	5.3	2.6	12.5
11	5.0	4.9	5.6	3.1	5.3	4.4	2.3	5.9	2.4	5.1	2.5
12	7.0	4.8	4.7	5.4	3.0	5.1	4.2	2.2	5.6	2.3	4.9
K-5	23.0	30.3	34.8	42.5	47.5	55.1	54.3	54.4	53.7	53.4	53.8
6-8	12.0	11.4	11.9	10.1	12.7	9.5	18.4	24.1	33.3	32.9	32.5
9-12	23.0	18.8	19.2	18.6	15.3	18.2	15.2	16.1	16.0	23.0	31.8
K-12	58.0	60.5	65.9	71.2	75.5	82.8	87.9	94.6	103.0	109.3	118.1

Study Area 68 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	9.0	8.3	9.0	8.6	8.0	8.5	8.4	8.3	8.4	8.4	8.4
1	2.0	10.7	9.9	10.7	10.2	9.5	10.2	10.0	9.9	10.0	9.9
2	2.0	2.0	10.6	9.8	10.6	10.1	9.4	10.1	9.9	9.8	9.9
3	4.0	2.1	2.1	11.3	10.4	11.4	10.8	10.1	10.8	10.6	10.5
4	7.0	4.1	2.2	2.2	11.6	10.6	11.6	11.1	10.3	11.0	10.8
5	4.0	7.1	4.1	2.2	2.2	11.7	10.8	11.7	11.2	10.4	11.1
6	3.0	4.2	7.5	4.4	2.3	2.3	12.4	11.4	12.4	11.8	11.0
7	11.0	3.1	4.4	7.8	4.5	2.4	2.4	12.9	11.9	12.9	12.3
8	5.0	11.3	3.2	4.5	8.0	4.7	2.5	2.5	13.3	12.2	13.3
9	5.0	5.5	12.5	3.5	5.0	8.8	5.1	2.8	2.7	14.6	13.4
10	6.0	4.8	5.3	12.0	3.4	4.8	8.5	4.9	2.6	2.6	14.0
11	6.0	5.8	4.7	5.1	11.6	3.3	4.7	8.2	4.8	2.6	2.5
12	2.0	5.8	5.6	4.5	4.9	11.1	3.2	4.5	7.9	4.6	2.5
K-5	28.0	34.3	37.9	44.8	53.0	61.8	61.2	61.3	60.5	60.2	60.6
6-8	19.0	18.6	15.1	16.7	14.8	9.4	17.3	26.8	37.6	36.9	36.6
9-12	19.0	21.9	28.1	25.1	24.9	28.0	21.5	20.4	18.0	24.4	32.4
K-12	66.0	74.8	81.1	86.6	92.7	99.2	100.0	108.5	116.1	121.5	129.6

Study Area 69 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	6.0	5.5	6.0	5.7	5.3	5.7	5.6	5.5	5.6	5.6	5.6
1	4.0	7.1	6.6	7.2	6.8	6.3	6.8	6.6	6.6	6.7	6.6
2	6.0	4.0	7.1	6.5	7.1	6.8	6.3	6.7	6.6	6.5	6.6
3	4.0	6.4	4.2	7.6	7.0	7.6	7.2	6.7	7.2	7.0	7.0
4	2.0	4.1	6.5	4.3	7.7	7.1	7.7	7.4	6.9	7.3	7.2
5	2.0	2.0	4.1	6.6	4.4	7.8	7.2	7.8	7.4	6.9	7.4
6	4.0	2.1	2.1	4.4	7.0	4.6	8.3	7.6	8.3	7.9	7.3
7	2.0	4.2	2.2	2.2	4.5	7.3	4.8	8.6	7.9	8.6	8.2
8	1.0	2.1	4.3	2.3	2.3	4.7	7.5	5.0	8.8	8.1	8.9
9	6.0	1.1	2.3	4.7	2.5	2.5	5.1	8.3	5.5	9.7	9.0
10	5.0	5.8	1.1	2.2	4.5	2.4	2.4	4.9	7.9	5.2	9.3
11	3.0	4.9	5.6	1.0	2.1	4.4	2.3	2.3	4.8	7.7	5.1
12	4.0	2.9	4.7	5.4	1.0	2.0	4.2	2.2	2.3	4.6	7.4
K-5	24.0	29.1	34.5	37.9	38.3	41.3	40.8	40.7	40.3	40.0	40.4
6-8	7.0	8.4	8.6	8.9	13.8	16.6	20.6	21.2	25.0	24.6	24.4
9-12	18.0	14.7	13.7	13.3	10.1	11.3	14.0	17.7	20.5	27.2	30.8
K-12	49.0	52.2	56.8	60.1	62.2	69.2	75.4	79.6	85.8	91.8	95.6

Study Area 70 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	2.1	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.0	2.1	2.2	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	3.1	2.2	2.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0
6	2.0	2.2	3.4	2.4	2.5	5.3	0.0	0.0	0.0	0.0	0.0
7	5.0	2.1	2.3	3.5	2.5	2.7	5.6	0.0	0.0	0.0	0.0
8	2.0	5.1	2.2	2.3	3.6	2.6	2.7	5.7	0.0	0.0	0.0
9	3.0	2.0	5.1	2.1	2.3	3.6	2.6	2.7	5.7	0.0	0.0
10	7.0	3.1	2.0	5.2	2.2	2.4	3.7	2.6	2.8	5.8	0.0
11	2.0	6.9	3.0	2.0	5.1	2.2	2.3	3.6	2.6	2.7	5.7
12	3.0	1.9	6.7	2.9	1.9	4.9	2.1	2.2	3.5	2.5	2.6
K-5	13.0	11.5	8.8	7.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	9.0	9.4	7.9	8.2	8.6	10.6	8.3	5.7	0.0	0.0	0.0
9-12	15.0	13.9	16.8	12.2	11.5	13.1	10.7	11.1	14.6	11.0	8.3
K-12	37.0	34.8	33.5	27.4	25.0	23.7	19.0	16.8	14.6	11.0	8.3

Study Area 71 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1
2	1.0	4.2	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1
3	3.0	1.0	4.4	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	3.0	3.2	1.1	4.7	1.4	1.3	1.4	1.3	1.2	1.3	1.3
5	3.0	3.1	3.3	1.2	4.9	1.4	1.3	1.4	1.4	1.3	1.4
6	4.0	3.2	3.4	3.6	1.3	5.3	1.5	1.4	1.5	1.5	1.4
7	6.0	4.2	3.4	3.5	3.8	1.3	5.6	1.6	1.5	1.6	1.5
8	5.0	6.2	4.3	3.5	3.6	3.9	1.4	5.7	1.7	1.5	1.7
9	5.0	4.9	6.1	4.3	3.5	3.6	3.9	1.4	5.7	1.6	1.5
10	3.0	5.1	5.0	6.2	4.4	3.5	3.7	3.9	1.4	5.8	1.7
11	5.0	3.0	5.0	5.0	6.2	4.3	3.5	3.6	3.9	1.4	5.7
12	5.0	4.8	2.9	4.8	4.8	5.9	4.2	3.4	3.5	3.7	1.3
K-5	15.0	13.6	12.1	10.5	10.7	7.1	7.0	7.0	6.9	6.9	7.0
6-8	15.0	13.6	11.1	10.6	8.7	10.5	8.5	8.7	4.7	4.6	4.6
9-12	18.0	17.8	19.0	20.3	18.9	17.3	15.3	12.3	14.5	12.5	10.2
K-12	48.0	45.0	42.2	41.4	38.3	34.9	30.8	28.0	26.1	24.0	21.8

Study Area 72 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	4.0	3.7	4.0	3.8	3.6	3.8	3.7	3.7	3.7	3.7	3.7
1	2.0	4.6	4.3	4.7	4.4	4.1	4.4	4.3	4.3	4.3	4.3
2	5.0	2.1	4.9	4.5	4.9	4.7	4.3	4.6	4.5	4.5	4.6
3	2.0	5.2	2.2	5.1	4.7	5.1	4.9	4.5	4.9	4.8	4.7
4	4.0	2.1	5.6	2.4	5.5	5.0	5.5	5.2	4.9	5.2	5.1
5	9.0	4.2	2.2	5.8	2.5	5.7	5.2	5.7	5.4	5.1	5.4
6	6.0	9.7	4.5	2.4	6.3	2.7	6.1	5.7	6.2	5.9	5.5
7	4.0	6.3	10.2	4.7	2.5	6.6	2.8	6.5	5.9	6.5	6.2
8	8.0	4.1	6.5	10.5	4.9	2.6	6.8	2.9	6.6	6.1	6.7
9	3.0	7.9	4.1	6.4	10.4	4.8	2.6	6.8	2.8	6.6	6.1
10	6.0	3.1	8.1	4.2	6.6	10.6	4.9	2.6	6.9	2.9	6.7
11	2.0	5.9	3.0	8.0	4.1	6.5	10.5	4.9	2.6	6.8	2.9
12	2.0	1.9	5.7	2.9	7.7	4.0	6.2	10.1	4.7	2.5	6.5
K-5	26.0	21.9	23.2	26.3	25.6	28.4	28.0	28.0	27.7	27.6	27.8
6-8	18.0	20.1	21.2	17.6	13.7	11.9	15.7	15.1	18.7	18.5	18.4
9-12	13.0	18.8	20.9	21.5	28.8	25.9	24.2	24.4	17.0	18.8	22.2
K-12	57.0	60.8	65.3	65.4	68.1	66.2	67.9	67.5	63.4	64.9	68.4

Study Area 73 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	7.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	2.0	7.3	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	4.0	2.1	7.7	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	3.0	4.3	2.2	8.3	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	6.0	3.1	4.5	2.3	8.6	7.1	6.5	7.1	6.8	6.3	6.8
6	5.0	6.5	3.4	4.8	2.5	9.3	7.7	7.1	7.7	7.3	6.8
7	3.0	5.2	6.8	3.5	5.0	2.7	9.7	8.1	7.4	8.1	7.7
8	4.0	3.1	5.4	7.0	3.6	5.2	2.7	10.0	8.3	7.6	8.3
9	3.0	4.0	3.1	5.4	6.9	3.6	5.1	2.7	9.9	8.2	7.6
10	4.0	3.1	4.0	3.1	5.5	7.1	3.7	5.3	2.8	10.1	8.4
11	2.0	4.0	3.0	4.0	3.1	5.4	7.0	3.6	5.2	2.7	10.0
12	4.0	1.9	3.8	2.9	3.8	3.0	5.2	6.7	3.5	5.0	2.6
K-5	27.0	27.2	30.8	33.2	37.3	35.5	35.1	35.1	34.8	34.4	34.8
6-8	12.0	14.8	15.6	15.3	11.1	17.2	20.1	25.2	23.4	23.0	22.8
9-12	13.0	13.0	13.9	15.4	19.3	19.1	21.0	18.3	21.4	26.0	28.6
K-12	52.0	55.0	60.3	63.9	67.7	71.8	76.2	78.6	79.6	83.4	86.2

Study Area 74 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	9.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	0.0	9.4	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	2.0	0.0	9.9	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	11.0	2.1	0.0	10.6	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	3.0	11.4	2.2	0.0	11.0	7.1	6.5	7.1	6.8	6.3	6.8
6	3.0	3.2	12.4	2.4	0.0	11.9	7.7	7.1	7.7	7.3	6.8
7	6.0	3.1	3.4	13.0	2.5	0.0	12.5	8.1	7.4	8.1	7.7
8	8.0	6.2	3.2	3.5	13.4	2.6	0.0	12.9	8.3	7.6	8.3
9	5.0	7.9	6.1	3.2	3.5	13.2	2.6	0.0	12.8	8.2	7.6
10	5.0	5.1	8.1	6.2	3.3	3.5	13.5	2.6	0.0	13.0	8.4
11	4.0	4.9	5.0	8.0	6.2	3.2	3.5	13.4	2.6	0.0	12.9
12	8.0	3.8	4.8	4.8	7.7	5.9	3.1	3.4	12.8	2.5	0.0
K-5	30.0	33.3	28.5	33.2	39.7	35.5	35.1	35.1	34.8	34.4	34.8
6-8	17.0	12.5	19.0	18.9	15.9	14.5	20.2	28.1	23.4	23.0	22.8
9-12	22.0	21.7	24.0	22.2	20.7	25.8	22.7	19.4	28.2	23.7	28.9
K-12	69.0	67.5	71.5	74.3	76.3	75.8	78.0	82.6	86.4	81.1	86.5

Study Area 75 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	1.0	2.3	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2
2	0.0	1.0	2.4	2.2	2.4	2.3	2.2	2.3	2.3	2.2	2.3
3	2.0	0.0	1.1	2.6	2.4	2.6	2.4	2.3	2.4	2.4	2.4
4	2.0	2.1	0.0	1.2	2.7	2.5	2.7	2.6	2.4	2.6	2.5
5	1.0	2.1	2.2	0.0	1.2	2.8	2.6	2.9	2.7	2.5	2.7
6	1.0	1.1	2.2	2.4	0.0	1.3	3.1	2.8	3.1	2.9	2.7
7	1.0	1.0	1.1	2.4	2.5	0.0	1.4	3.2	3.0	3.2	3.1
8	5.0	1.0	1.1	1.2	2.4	2.6	0.0	1.4	3.3	3.1	3.3
9	4.0	4.9	1.0	1.1	1.2	2.4	2.6	0.0	1.4	3.3	3.0
10	2.0	4.1	5.0	1.0	1.1	1.2	2.5	2.6	0.0	1.4	3.4
11	1.0	2.0	4.0	5.0	1.0	1.1	1.2	2.4	2.6	0.0	1.4
12	3.0	1.0	1.9	3.9	4.8	1.0	1.0	1.1	2.3	2.5	0.0
K-5	8.0	9.3	9.8	10.2	12.7	14.2	14.0	14.1	13.8	13.8	14.0
6-8	7.0	3.1	4.4	6.0	4.9	3.9	4.5	7.4	9.4	9.2	9.1
9-12	10.0	12.0	11.9	11.0	8.1	5.7	7.3	6.1	6.3	7.2	7.8
K-12	25.0	24.4	26.1	27.2	25.7	23.8	25.8	27.6	29.5	30.2	30.9

Study Area 76 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	5.0	4.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2.0	5.4	4.5	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4.0	2.1	5.6	4.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0
6	6.0	4.3	2.2	6.0	5.0	6.6	0.0	0.0	0.0	0.0	0.0
7	6.0	6.3	4.5	2.4	6.3	5.3	7.0	0.0	0.0	0.0	0.0
8	1.0	6.2	6.5	4.7	2.4	6.5	5.5	7.2	0.0	0.0	0.0
9	3.0	1.0	6.1	6.4	4.6	2.4	6.4	5.4	7.1	0.0	0.0
10	6.0	3.1	1.0	6.2	6.6	4.7	2.5	6.6	5.5	7.2	0.0
11	4.0	5.9	3.0	1.0	6.2	6.5	4.7	2.4	6.5	5.5	7.2
12	3.0	3.8	5.7	2.9	1.0	5.9	6.2	4.5	2.3	6.2	5.2
K-5	20.0	16.9	15.6	10.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0
6-8	13.0	16.8	13.2	13.1	13.7	18.4	12.5	7.2	0.0	0.0	0.0
9-12	16.0	13.8	15.8	16.5	18.4	19.5	19.8	18.9	21.4	18.9	12.4
K-12	49.0	47.5	44.6	40.2	38.2	37.9	32.3	26.1	21.4	18.9	12.4

Study Area 77 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	1.0	5.8	5.3	5.8	5.5	5.2	5.5	5.4	5.4	5.4	5.4
2	3.0	1.0	6.1	5.6	6.1	5.8	5.4	5.8	5.7	5.6	5.7
3	5.0	3.1	1.1	6.4	5.9	6.4	6.1	5.7	6.1	6.0	5.9
4	4.0	5.4	3.4	1.2	6.8	6.3	6.9	6.5	6.1	6.5	6.4
5	3.0	4.2	5.6	3.5	1.2	7.1	6.5	7.1	6.8	6.3	6.8
6	5.0	3.2	4.5	6.0	3.8	1.3	7.7	7.1	7.7	7.3	6.8
7	6.0	5.2	3.4	4.7	6.3	4.0	1.4	8.1	7.4	8.1	7.7
8	6.0	6.2	5.4	3.5	4.9	6.5	4.1	1.4	8.3	7.6	8.3
9	4.0	5.9	6.1	5.4	3.5	4.8	6.4	4.1	1.4	8.2	7.6
10	3.0	4.1	6.1	6.2	5.5	3.5	4.9	6.6	4.1	1.4	8.4
11	6.0	3.0	4.0	6.0	6.2	5.4	3.5	4.9	6.5	4.1	1.4
12	2.0	5.8	2.9	3.9	5.8	5.9	5.2	3.4	4.7	6.2	3.9
K-5	21.0	24.1	26.5	27.3	29.9	35.5	35.1	35.1	34.8	34.4	34.8
6-8	17.0	14.6	13.3	14.2	15.0	11.8	13.2	16.6	23.4	23.0	22.8
9-12	15.0	18.8	19.1	21.5	21.0	19.6	20.0	19.0	16.7	19.9	21.3
K-12	53.0	57.5	58.9	63.0	65.9	66.9	68.3	70.7	74.9	77.3	78.9

Study Area 78 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	5.0	2.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	1.0	5.4	2.1	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	3.0	1.0	5.5	2.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	0.0	3.0	1.0	5.5	2.2	2.6	2.4	2.6	2.5	2.3	2.5
6	2.0	0.0	3.2	1.1	5.8	2.3	2.8	2.5	2.8	2.6	2.4
7	3.0	2.1	0.0	3.3	1.1	6.1	2.4	2.9	2.6	2.9	2.7
8	6.0	3.1	2.1	0.0	3.4	1.2	6.3	2.5	2.9	2.7	3.0
9	6.0	6.6	3.4	2.4	0.0	3.8	1.3	6.9	2.7	3.2	3.0
10	5.0	5.8	6.3	3.3	2.3	0.0	3.6	1.2	6.6	2.6	3.1
11	5.0	4.9	5.6	6.1	3.2	2.2	0.0	3.5	1.2	6.4	2.5
12	2.0	4.8	4.7	5.4	5.9	3.0	2.1	0.0	3.4	1.2	6.2
K-5	13.0	15.6	15.2	16.7	13.6	13.8	13.7	13.5	13.5	13.3	13.5
6-8	11.0	5.2	5.3	4.4	10.3	9.6	11.5	7.9	8.3	8.2	8.1
9-12	18.0	22.1	20.0	17.2	11.4	9.0	7.0	11.6	13.9	13.4	14.8
K-12	42.0	42.9	40.5	38.3	35.3	32.4	32.2	33.0	35.7	34.9	36.4

Study Area 79 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	3.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	4.0	3.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	3.0	4.3	3.2	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	3.0	3.1	4.4	3.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	3.0	3.0	3.1	4.4	3.3	2.6	2.4	2.6	2.5	2.3	2.5
6	8.0	3.2	3.2	3.3	4.7	3.5	2.8	2.5	2.8	2.6	2.4
7	5.0	8.3	3.3	3.3	3.4	4.9	3.6	2.9	2.6	2.9	2.7
8	4.0	5.1	8.6	3.4	3.4	3.5	5.0	3.7	2.9	2.7	3.0
9	6.0	4.4	5.7	9.4	3.7	3.8	3.9	5.5	4.1	3.2	3.0
10	10.0	5.8	4.2	5.4	9.0	3.6	3.6	3.7	5.3	3.9	3.1
11	4.0	9.7	5.6	4.1	5.3	8.8	3.5	3.5	3.6	5.1	3.8
12	3.0	3.8	9.3	5.4	3.9	5.1	8.4	3.3	3.4	3.5	4.9
K-5	18.0	17.6	17.3	16.6	14.7	13.8	13.7	13.5	13.5	13.3	13.5
6-8	17.0	16.6	15.1	10.0	11.5	11.9	11.4	9.1	8.3	8.2	8.1
9-12	23.0	23.7	24.8	24.3	21.9	21.3	19.4	16.0	16.4	15.7	14.8
K-12	58.0	57.9	57.2	50.9	48.1	47.0	44.5	38.6	38.2	37.2	36.4

Study Area 80 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	5.0	4.6	5.0	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.6
1	5.0	6.0	5.5	6.0	5.7	5.3	5.6	5.5	5.5	5.6	5.5
2	6.0	4.9	5.9	5.4	5.9	5.6	5.2	5.6	5.5	5.4	5.5
3	6.0	6.4	5.3	6.3	5.8	6.3	6.0	5.6	6.0	5.9	5.8
4	8.0	6.1	6.5	5.4	6.4	5.9	6.4	6.1	5.7	6.1	6.0
5	3.0	8.1	6.2	6.6	5.5	6.5	6.0	6.5	6.2	5.8	6.2
6	4.0	3.2	8.6	6.6	7.0	5.8	6.9	6.3	6.9	6.6	6.1
7	9.0	4.2	3.3	8.9	6.8	7.3	6.0	7.2	6.6	7.2	6.8
8	6.0	9.3	4.3	3.4	9.2	7.0	7.5	6.2	7.4	6.8	7.4
9	3.0	6.6	10.2	4.7	3.7	10.1	7.7	8.3	6.8	8.1	7.5
10	6.0	2.9	6.3	9.8	4.5	3.6	9.7	7.4	7.9	6.5	7.8
11	3.0	5.8	2.8	6.1	9.5	4.4	3.5	9.4	7.2	7.7	6.3
12	3.0	2.9	5.6	2.7	5.9	9.1	4.2	3.3	9.0	6.9	7.4
K-5	33.0	36.1	34.4	34.5	33.7	34.3	33.9	33.9	33.6	33.4	33.6
6-8	19.0	16.7	16.2	18.9	23.0	20.1	20.4	19.7	20.9	20.6	20.3
9-12	15.0	18.2	24.9	23.3	23.6	27.2	25.1	28.4	30.9	29.2	29.0
K-12	67.0	71.0	75.5	76.7	80.3	81.6	79.4	82.0	85.4	83.2	82.9

Study Area 81 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	4.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	4.0	4.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	0.0	4.3	4.2	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	10.0	0.0	4.4	4.3	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	3.0	10.1	0.0	4.4	4.4	2.6	2.4	2.6	2.5	2.3	2.5
6	3.0	3.2	10.7	0.0	4.7	4.6	2.8	2.5	2.8	2.6	2.4
7	9.0	3.1	3.3	11.1	0.0	4.9	4.8	2.9	2.6	2.9	2.7
8	4.0	9.3	3.2	3.4	11.5	0.0	5.0	5.0	2.9	2.7	3.0
9	8.0	4.4	10.2	3.5	3.7	12.6	0.0	5.5	5.5	3.2	3.0
10	2.0	7.7	4.2	9.8	3.4	3.6	12.1	0.0	5.3	5.2	3.1
11	7.0	1.9	7.4	4.1	9.5	3.3	3.5	11.7	0.0	5.1	5.1
12	2.0	6.7	1.9	7.2	3.9	9.1	3.2	3.3	11.3	0.0	4.9
K-5	23.0	22.6	15.2	17.7	15.8	13.8	13.7	13.5	13.5	13.3	13.5
6-8	16.0	15.6	17.2	14.5	16.2	9.5	12.6	10.4	8.3	8.2	8.1
9-12	19.0	20.7	23.7	24.6	20.5	28.6	18.8	20.5	22.1	13.5	16.1
K-12	58.0	58.9	56.1	56.8	52.5	51.9	45.1	44.4	43.9	35.0	37.7

Study Area 82A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	5.0	3.5	3.2	3.5	3.3	3.1	3.3	3.2	3.2	3.3	3.2
2	5.0	5.2	3.7	3.4	3.7	3.5	3.2	3.5	3.4	3.4	3.4
3	3.0	5.2	5.5	3.8	3.5	3.8	3.7	3.4	3.6	3.6	3.5
4	2.0	3.2	5.6	5.9	4.1	3.8	4.1	3.9	3.6	3.9	3.8
5	4.0	2.1	3.3	5.8	6.1	4.3	3.9	4.3	4.1	3.8	4.1
6	2.0	4.3	2.2	3.6	6.3	6.6	4.6	4.2	4.6	4.4	4.1
7	3.0	2.1	4.5	2.4	3.8	6.6	7.0	4.8	4.5	4.9	4.6
8	3.0	3.1	2.2	4.7	2.4	3.9	6.8	7.2	5.0	4.6	5.0
9	1.0	3.0	3.1	2.1	4.6	2.4	3.9	6.8	7.1	4.9	4.5
10	4.0	1.0	3.0	3.1	2.2	4.7	2.5	3.9	6.9	7.2	5.0
11	1.0	4.0	1.0	3.0	3.1	2.2	4.7	2.4	3.9	6.8	7.2
12	3.0	1.0	3.8	1.0	2.9	3.0	2.1	4.5	2.3	3.7	6.5
K-5	22.0	22.0	24.3	25.3	23.4	21.3	21.0	21.1	20.7	20.8	20.8
6-8	8.0	9.5	8.9	10.7	12.5	17.1	18.4	16.2	14.1	13.9	13.7
9-12	9.0	9.0	10.9	9.2	12.8	12.3	13.2	17.6	20.2	22.6	23.2
K-12	39.0	40.5	44.1	45.2	48.7	50.7	52.6	54.9	55.0	57.3	57.7

Study Area 82B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	5.0	8.3	10.7	13.0	15.1
1	2.0	3.5	3.2	3.5	3.3	3.1	5.9	10.9	14.7	17.5	19.8
2	2.0	2.1	3.7	3.4	3.7	3.5	5.6	10.8	16.0	20.0	22.6
3	4.0	2.1	2.2	3.8	3.5	3.8	6.0	10.4	15.9	21.4	25.3
4	2.0	4.3	2.2	2.4	4.1	3.8	6.5	11.1	15.8	21.6	27.2
5	4.0	2.1	4.5	2.3	2.5	4.3	6.2	11.3	16.1	21.0	26.7
6	2.0	4.3	2.2	4.8	2.5	2.7	7.0	11.4	16.9	22.0	27.1
7	5.0	2.1	4.5	2.4	5.0	2.7	5.1	11.9	16.6	22.3	27.4
8	4.0	5.1	2.2	4.7	2.4	5.2	5.0	9.8	16.8	21.6	27.2
9	2.0	4.0	5.1	2.1	4.6	2.4	6.9	8.2	12.9	19.9	24.4
10	2.0	2.0	4.0	5.2	2.2	4.7	4.3	10.4	11.8	16.5	23.4
11	2.0	2.0	2.0	4.0	5.1	2.2	6.4	7.5	13.6	14.9	19.4
12	1.0	1.9	1.9	1.9	3.8	4.9	3.8	9.3	10.3	16.2	17.3
K-5	17.0	16.9	18.8	18.3	19.8	21.3	35.2	62.8	89.2	114.5	136.7
6-8	11.0	11.5	8.9	11.9	9.9	10.6	17.1	33.1	50.3	65.9	81.7
9-12	7.0	9.9	13.0	13.2	15.7	14.2	21.4	35.4	48.6	67.5	84.5
K-12	35.0	38.3	40.7	43.4	45.4	46.1	73.7	131.3	188.1	247.9	302.9

Study Area 82C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 83 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	1.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	1.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
9	1.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0	0.0
10	0.0	1.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.0
11	0.0	0.0	1.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0
12	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.2	0.0
K-5	1.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	1.0	1.0	1.1	1.2	1.3	1.3	0.0	0.0	0.0	0.0	0.0
9-12	2.0	1.0	1.0	2.1	1.1	1.1	2.3	1.3	1.3	1.2	0.0
K-12	4.0	3.1	3.2	3.3	2.4	2.4	2.3	1.3	1.3	1.2	0.0

Study Area 84 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	3.0	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	2.0	3.2	4.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	2.0	2.0	3.3	4.3	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	5.0	2.0	2.1	3.3	4.4	1.3	1.2	1.3	1.2	1.2	1.2
6	3.0	5.3	2.1	2.2	3.5	4.6	1.4	1.3	1.4	1.3	1.2
7	8.0	3.1	5.5	2.2	2.3	3.6	4.8	1.4	1.3	1.4	1.4
8	4.0	8.2	3.2	5.7	2.3	2.3	3.8	5.0	1.5	1.4	1.5
9	2.0	4.4	9.1	3.5	6.2	2.5	2.6	4.1	5.5	1.6	1.5
10	4.0	1.9	4.2	8.7	3.4	6.0	2.4	2.5	4.0	5.2	1.6
11	5.0	3.9	1.9	4.1	8.4	3.3	5.8	2.3	2.4	3.8	5.1
12	2.0	4.8	3.7	1.8	3.9	8.1	3.2	5.6	2.3	2.3	3.7
K-5	17.0	13.3	12.9	12.2	10.1	6.9	6.7	6.7	6.6	6.7	6.7
6-8	15.0	16.6	10.8	10.1	8.1	10.5	10.0	7.7	4.2	4.1	4.1
9-12	13.0	15.0	18.9	18.1	21.9	19.9	14.0	14.5	14.2	12.9	11.9
K-12	45.0	44.9	42.6	40.4	40.1	37.3	30.7	28.9	25.0	23.7	22.7

Study Area 85A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	3.0	2.8	3.0	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.8
1	3.0	3.6	3.3	3.6	3.4	3.2	3.4	3.3	3.3	3.3	3.3
2	5.0	3.0	3.5	3.3	3.5	3.4	3.1	3.4	3.3	3.3	3.3
3	4.0	5.4	3.2	3.8	3.5	3.8	3.6	3.4	3.6	3.5	3.5
4	3.0	4.1	5.5	3.2	3.9	3.5	3.9	3.7	3.4	3.7	3.6
5	0.0	3.0	4.1	5.5	3.3	3.9	3.6	3.9	3.7	3.5	3.7
6	5.0	0.0	3.2	4.4	5.8	3.5	4.1	3.8	4.1	3.9	3.7
7	2.0	5.2	0.0	3.3	4.5	6.1	3.6	4.3	4.0	4.3	4.1
8	3.0	2.1	5.4	0.0	3.4	4.7	6.3	3.7	4.4	4.1	4.4
9	2.0	3.3	2.3	5.9	0.0	3.8	5.1	6.9	4.1	4.9	4.5
10	5.0	1.9	3.2	2.2	5.7	0.0	3.6	4.9	6.6	3.9	4.7
11	5.0	4.9	1.9	3.1	2.1	5.5	0.0	3.5	4.8	6.4	3.8
12	3.0	4.8	4.7	1.8	3.0	2.0	5.3	0.0	3.4	4.6	6.2
K-5	18.0	21.9	22.6	22.3	20.3	20.6	20.4	20.5	20.1	20.1	20.2
6-8	10.0	7.3	8.6	7.7	13.7	14.3	14.0	11.8	12.5	12.3	12.2
9-12	15.0	14.9	12.1	13.0	10.8	11.3	14.0	15.3	18.9	19.8	19.2
K-12	43.0	44.1	43.3	43.0	44.8	46.2	48.4	47.6	51.5	52.2	51.6

Study Area 85B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	3.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	1.0	3.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	0.0	1.1	3.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	0.0	0.0	1.1	3.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	0.0	0.0	1.1	3.3	1.3	1.2	1.3	1.2	1.2	1.2
6	0.0	1.1	0.0	0.0	1.2	3.5	1.4	1.3	1.4	1.3	1.2
7	3.0	0.0	1.1	0.0	0.0	1.2	3.6	1.4	1.3	1.4	1.4
8	4.0	3.1	0.0	1.1	0.0	0.0	1.3	3.7	1.5	1.4	1.5
9	1.0	4.4	3.4	0.0	1.2	0.0	0.0	1.4	4.1	1.6	1.5
10	2.0	1.0	4.2	3.3	0.0	1.2	0.0	0.0	1.3	3.9	1.6
11	5.0	1.9	0.9	4.1	3.2	0.0	1.2	0.0	0.0	1.3	3.8
12	0.0	4.8	1.9	0.9	3.9	3.0	0.0	1.1	0.0	0.0	1.2
K-5	6.0	6.2	7.6	8.9	9.0	6.9	6.7	6.7	6.6	6.7	6.7
6-8	7.0	4.2	1.1	1.1	1.2	4.7	6.3	6.4	4.2	4.1	4.1
9-12	8.0	12.1	10.4	8.3	8.3	4.2	1.2	2.5	5.4	6.8	8.1
K-12	21.0	22.5	19.1	18.3	18.5	15.8	14.2	15.6	16.2	17.6	18.9

Study Area 86A Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	4.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	2.0	4.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	3.0	2.1	4.2	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	2.0	3.1	2.2	4.3	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	2.0	3.1	2.2	4.4	1.3	1.2	1.3	1.2	1.2	1.2
6	2.0	1.1	2.1	3.3	2.3	4.6	1.4	1.3	1.4	1.3	1.2
7	2.0	2.1	1.1	2.2	3.4	2.4	4.8	1.4	1.3	1.4	1.4
8	1.0	2.1	2.1	1.1	2.3	3.5	2.5	5.0	1.5	1.4	1.5
9	4.0	1.1	2.3	2.4	1.2	2.5	3.9	2.8	5.5	1.6	1.5
10	2.0	3.8	1.1	2.2	2.3	1.2	2.4	3.7	2.6	5.2	1.6
11	5.0	1.9	3.7	1.0	2.1	2.2	1.2	2.3	3.6	2.6	5.1
12	1.0	4.8	1.9	3.6	1.0	2.0	2.1	1.1	2.3	3.5	2.5
K-5	13.0	13.3	12.8	11.1	10.1	6.9	6.7	6.7	6.6	6.7	6.7
6-8	5.0	5.3	5.3	6.6	8.0	10.5	8.7	7.7	4.2	4.1	4.1
9-12	12.0	11.6	9.0	9.2	6.6	7.9	9.6	9.9	14.0	12.9	10.7
K-12	30.0	30.2	27.1	26.9	24.7	25.3	25.0	24.3	24.8	23.7	21.5

Study Area 86B Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	0.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	3.0	0.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	3.0	3.2	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	0.0	3.1	3.3	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	0.0	3.1	3.3	0.0	1.3	1.2	1.3	1.2	1.2	1.2
6	1.0	1.1	0.0	3.3	3.5	0.0	1.4	1.3	1.4	1.3	1.2
7	0.0	1.0	1.1	0.0	3.4	3.6	0.0	1.4	1.3	1.4	1.4
8	5.0	0.0	1.1	1.1	0.0	3.5	3.8	0.0	1.5	1.4	1.5
9	2.0	5.5	0.0	1.2	1.2	0.0	3.9	4.1	0.0	1.6	1.5
10	1.0	1.9	5.3	0.0	1.1	1.2	0.0	3.7	4.0	0.0	1.6
11	1.0	1.0	1.9	5.1	0.0	1.1	1.2	0.0	3.6	3.8	0.0
12	2.0	1.0	0.9	1.8	4.9	0.0	1.1	1.1	0.0	3.5	3.7
K-5	8.0	8.4	9.7	7.9	5.7	6.9	6.7	6.7	6.6	6.7	6.7
6-8	6.0	2.1	2.2	4.4	6.9	7.1	5.2	2.7	4.2	4.1	4.1
9-12	6.0	9.4	8.1	8.1	7.2	2.3	6.2	8.9	7.6	8.9	6.8
K-12	20.0	19.9	20.0	20.4	19.8	16.3	18.1	18.3	18.4	19.7	17.6

Study Area 86C Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9
1	2.0	2.4	2.2	2.4	2.3	2.1	2.3	2.2	2.2	2.2	2.2
2	2.0	2.0	2.4	2.2	2.4	2.3	2.1	2.2	2.2	2.2	2.2
3	1.0	2.1	2.1	2.5	2.3	2.5	2.4	2.2	2.4	2.3	2.3
4	3.0	1.0	2.2	2.2	2.6	2.4	2.6	2.5	2.3	2.4	2.4
5	0.0	3.0	1.0	2.2	2.2	2.6	2.4	2.6	2.5	2.3	2.5
6	0.0	0.0	3.2	1.1	2.3	2.3	2.8	2.5	2.8	2.6	2.4
7	3.0	0.0	0.0	3.3	1.1	2.4	2.4	2.9	2.6	2.9	2.7
8	1.0	3.1	0.0	0.0	3.4	1.2	2.5	2.5	2.9	2.7	3.0
9	3.0	1.1	3.4	0.0	0.0	3.8	1.3	2.8	2.7	3.2	3.0
10	4.0	2.9	1.1	3.3	0.0	0.0	3.6	1.2	2.6	2.6	3.1
11	0.0	3.9	2.8	1.0	3.2	0.0	0.0	3.5	1.2	2.6	2.5
12	1.0	0.0	3.7	2.7	1.0	3.0	0.0	0.0	3.4	1.2	2.5
K-5	10.0	12.3	11.9	13.4	13.6	13.8	13.7	13.5	13.5	13.3	13.5
6-8	4.0	3.1	3.2	4.4	6.8	5.9	7.7	7.9	8.3	8.2	8.1
9-12	8.0	7.9	11.0	7.0	4.2	6.8	4.9	7.5	9.9	9.6	11.1
K-12	22.0	23.3	26.1	24.8	24.6	26.5	26.3	28.9	31.7	31.1	32.7

Study Area 86D Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	2.0	1.8	2.0	4.3	6.6	8.6	10.5	12.4	14.4	14.2	13.5
1	0.0	2.4	2.2	5.2	9.3	12.1	14.5	16.8	19.0	18.8	16.9
2	1.0	0.0	2.4	4.5	8.7	12.8	15.5	17.9	20.1	20.3	18.7
3	0.0	1.1	0.0	5.1	8.6	13.1	17.5	20.4	23.0	23.1	21.7
4	1.0	0.0	1.1	2.4	8.8	12.4	17.0	21.4	24.4	24.9	23.6
5	1.0	1.0	0.0	3.5	6.0	12.5	16.2	20.7	25.2	26.2	25.2
6	1.0	1.1	1.1	2.5	7.5	10.2	17.0	20.9	25.8	28.3	27.7
7	2.0	1.0	1.1	3.6	6.3	11.5	14.3	21.4	25.4	28.3	29.4
8	1.0	2.1	1.1	3.6	7.4	10.2	15.5	18.4	25.7	27.7	29.2
9	0.0	1.1	2.3	3.0	6.7	10.9	14.0	19.8	23.0	29.4	30.5
10	1.0	0.0	1.1	3.8	5.3	8.9	12.9	15.9	21.5	23.1	28.2
11	0.0	1.0	0.0	2.7	6.1	7.6	11.1	14.9	17.8	21.8	22.4
12	0.0	0.0	0.9	1.6	5.0	8.3	9.8	13.1	16.8	18.1	21.0
K-5	5.0	6.3	7.7	25.0	48.0	71.5	91.2	109.6	126.1	127.5	119.6
6-8	4.0	4.2	3.3	9.7	21.2	31.9	46.8	60.7	76.9	84.3	86.3
9-12	1.0	2.1	4.3	11.1	23.1	35.7	47.8	63.7	79.1	92.4	102.1
K-12	10.0	12.6	15.3	45.8	92.3	139.1	185.8	234.0	282.1	304.2	308.0

Study Area 87 Projection Date 10/7/2015

	ACTUAL	PROJECTED RESIDENT STUDENTS								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1	0.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
2	0.0	0.0	1.2	1.1	1.2	1.1	1.0	1.1	1.1	1.1	1.1
3	0.0	0.0	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2	1.2
4	0.0	0.0	0.0	0.0	1.3	1.2	1.3	1.2	1.1	1.2	1.2
5	1.0	0.0	0.0	0.0	0.0	1.3	1.2	1.3	1.2	1.2	1.2
6	0.0	1.1	0.0	0.0	0.0	0.0	1.4	1.3	1.4	1.3	1.2
7	1.0	0.0	1.1	0.0	0.0	0.0	0.0	1.4	1.3	1.4	1.4
8	0.0	1.0	0.0	1.1	0.0	0.0	0.0	0.0	1.5	1.4	1.5
9	2.0	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	1.6	1.5
10	1.0	1.9	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0	1.6
11	1.0	1.0	1.9	0.0	1.1	0.0	1.2	0.0	0.0	0.0	0.0
12	2.0	1.0	0.9	1.8	0.0	1.0	0.0	1.1	0.0	0.0	0.0
K-5	2.0	2.1	3.3	4.6	5.7	6.9	6.7	6.7	6.6	6.7	6.7
6-8	1.0	2.1	1.1	1.1	0.0	0.0	1.4	2.7	4.2	4.1	4.1
9-12	6.0	3.9	3.9	2.9	2.3	2.2	1.2	1.1	0.0	1.6	3.1
K-12	9.0	8.1	8.3	8.6	8.0	9.1	9.3	10.5	10.8	12.4	13.9

Housing Profile

Sherwood School District

Prepared using SchoolSite by DDP

Population		Households	
2010 Total Population	24,814	2015 Median Household Income	$89,609
2015 Total Population	25,661	2020 Median Household Income	$98,928
2020 Total Population	26,832	2015-2020 Annual Rate	2.00%
2015-2020 Annual Rate	0.90%		

	Census 2010		2015		2020	
Housing Units by Occupancy Status and Tenure	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Housing Units	8,669	100.0%	8,853	100.0%	9,257	100.0%
Occupied	8,296	95.7%	8,566	96.8%	8,962	96.8%
Owner	6,192	71.4%	6,222	70.3%	6,495	70.2%
Renter	2,104	24.3%	2,344	26.5%	2,467	26.7%
Vacant	373	4.3%	287	3.2%	295	3.2%

	2015		2020	
Owner Occupied Housing Units by Value	**Number**	**Percent**	**Number**	**Percent**
Total	6,221	100.0%	6,496	100.0%
<$50,000	108	1.7%	45	0.7%
$50,000-$99,999	85	1.4%	49	0.8%
$100,000-$149,999	132	2.1%	36	0.6%
$150,000-$199,999	179	2.9%	54	0.8%
$200,000-$249,999	544	8.7%	253	3.9%
$250,000-$299,999	1,080	17.4%	552	8.5%
$300,000-$399,999	1,872	30.1%	1,839	28.3%
$400,000-$499,999	912	14.7%	1,707	26.3%
$500,000-$749,999	795	12.8%	973	15.0%
$750,000-$999,999	272	4.4%	578	8.9%
$1,000,000+	242	3.9%	410	6.3%
Median Value	$352,484		$424,605	
Average Value	$414,608		$502,717	

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

April 28, 2016

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Census 2010 Owner Occupied Housing Units by Mortgage Status	Number	Percent
Total	6,192	100.0%
Owned with a Mortgage/Loan	5,282	85.3%
Owned Free and Clear	910	14.7%

Census 2010 Vacant Housing Units by Status	Number	Percent
Total	373	100.0%
For Rent	112	30.0%
Rented- Not Occupied	8	2.1%
For Sale Only	106	28.4%
Sold - Not Occupied	22	5.9%
Seasonal/Recreational/Occasional Use	40	10.7%
For Migrant Workers	0	0.0%
Other Vacant	90	24.1%

Census 2010 Occupied Housing Units by Age of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,295	6,191	74.6%
15-24	191	44	23.0%
25-34	1,233	736	59.7%
35-44	2,308	1,763	76.4%
45-54	1,905	1,567	82.3%
55-64	1,376	1,130	82.1%
65-74	716	597	83.4%
75-84	371	269	72.5%
85+	195	85	43.6%

Census 2010 Occupied Housing Units by Race/Ethnicity of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,296	6,192	74.6%
White Alone	7,613	5,739	75.4%
Black/African American	65	38	58.5%
American Indian/Alaska	40	24	60.0%
Asian Alone	232	185	79.7%
Pacific Islander Alone	18	7	38.9%
Other Race Alone	172	100	58.1%
Two or More Races	156	99	63.5%
Hispanic Origin	404	244	60.4%

Census 2010 Occupied Housing Units by Size and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,297	6,192	74.6%
1-Person	1,587	893	56.3%
2-Person	2,541	1,989	78.3%
3-Person	1,473	1,113	75.6%
4-Person	1,700	1,410	82.9%
5-Person	663	535	80.7%
6-Person	226	173	76.5%
7+ Person	107	79	73.8%

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

April 28, 2016

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Demographic and Income Profile

Sherwood School District

Prepared using SchoolSite by DDP

Summary	Census 2010	2015	2020
Population	24,814	25,661	26,832
Households	8,296	8,566	8,962
Families	6,329	6,491	6,763
Average Household Size	2.85	2.86	2.86
Owner Occupied Housing Units	6,192	6,222	6,495
Renter Occupied Housing Units	2,104	2,344	2,467
Median Age	35.8	36.9	37.7

Trends: 2015 - 2020 Annual Rate	Area	State	National
Population	0.90%	0.74%	0.75%
Households	0.91%	0.79%	0.77%
Families	0.82%	0.66%	0.69%
Owner HHs	0.86%	0.75%	0.70%
Median Household Income	2.00%	2.76%	2.66%

	2015		2020	
Households by Income	Number	Percent	Number	Percent
<$15,000	381	4.4%	326	3.6%
$15,000 - $24,999	444	5.2%	297	3.3%
$25,000 - $34,999	490	5.7%	368	4.1%
$35,000 - $49,999	646	7.5%	565	6.3%
$50,000 - $74,999	1,125	13.1%	1,071	12.0%
$75,000 - $99,999	1,800	21.0%	1,914	21.4%
$100,000 - $149,999	2,437	28.4%	2,872	32.0%
$150,000 - $199,999	646	7.5%	851	9.5%
$200,000+	596	7.0%	698	7.8%
Median Household Income	$89,609		$98,928	
Average Household Income	$102,759		$114,214	
Per Capita Income	$35,385		$39,352	

	Census 2010		2015		2020	
Population by Age	Number	Percent	Number	Percent	Number	Percent
0 - 4	1,774	7.2%	1,709	6.7%	1,711	6.4%
5 - 9	2,185	8.8%	1,891	7.4%	1,843	6.9%
10 - 14	2,222	9.0%	2,221	8.7%	2,084	7.8%
15 - 19	1,606	6.5%	1,924	7.5%	2,059	7.7%
20 - 24	1,039	4.2%	1,474	5.7%	1,534	5.7%
25 - 34	3,186	12.8%	2,908	11.3%	3,214	12.0%
35 - 44	4,690	18.9%	4,145	16.2%	3,712	13.8%
45 - 54	3,636	14.7%	4,069	15.9%	4,356	16.2%
55 - 64	2,462	9.9%	2,793	10.9%	3,141	11.7%
65 - 74	1,190	4.8%	1,671	6.5%	2,073	7.7%
75 - 84	552	2.2%	601	2.3%	843	3.1%
85+	269	1.1%	256	1.0%	260	1.0%

	Census 2010		2015		2020	
Race and Ethnicity	Number	Percent	Number	Percent	Number	Percent
White Alone	22,041	88.8%	22,457	87.5%	23,064	86.0%
Black Alone	281	1.1%	325	1.3%	391	1.5%
American Indian Alone	152	0.6%	162	0.6%	180	0.7%
Asian Alone	756	3.0%	900	3.5%	1,077	4.0%
Pacific Islander Alone	75	0.3%	81	0.3%	94	0.4%
Some Other Race Alone	664	2.7%	747	2.9%	859	3.2%
Two or More Races	846	3.4%	989	3.9%	1,167	4.3%
Hispanic Origin (Any Race)	1,726	7.0%	1,942	7.6%	2,257	8.4%

Data Note: Income is expressed in current dollars.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2015 and 2020.

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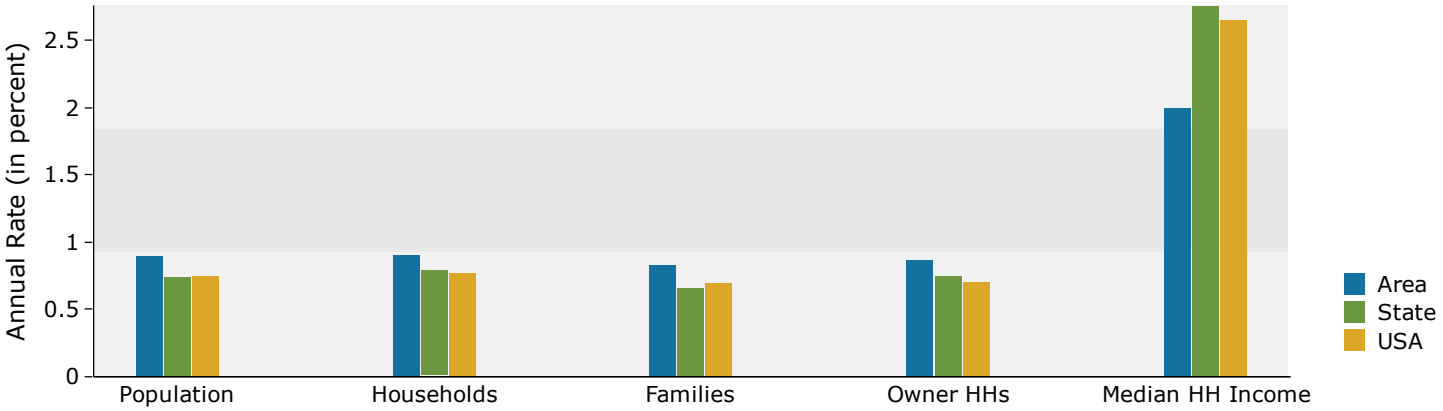
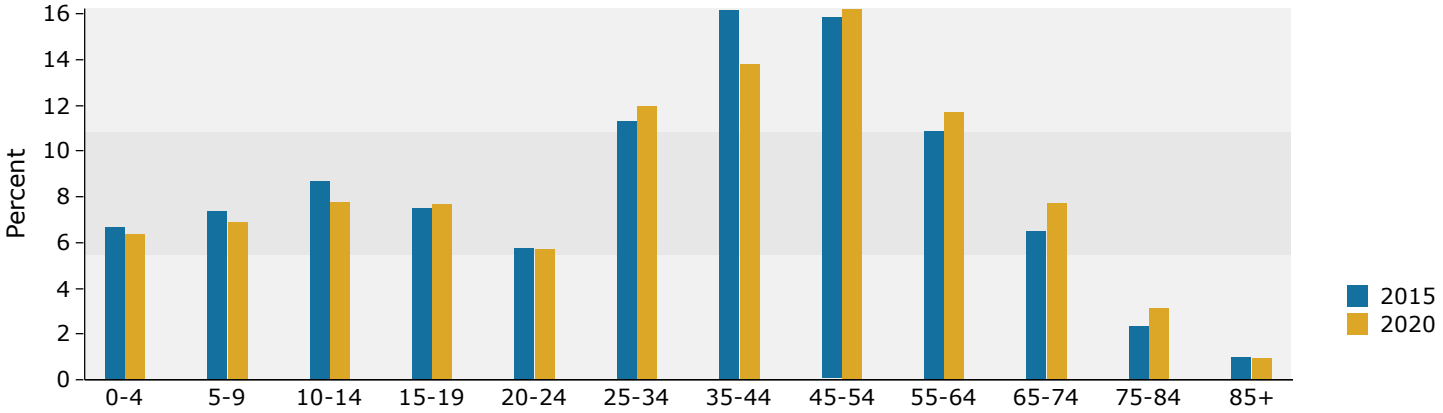
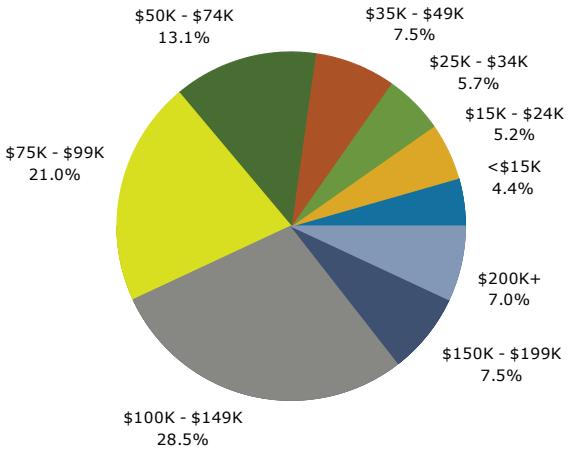
Trends 2015-2020



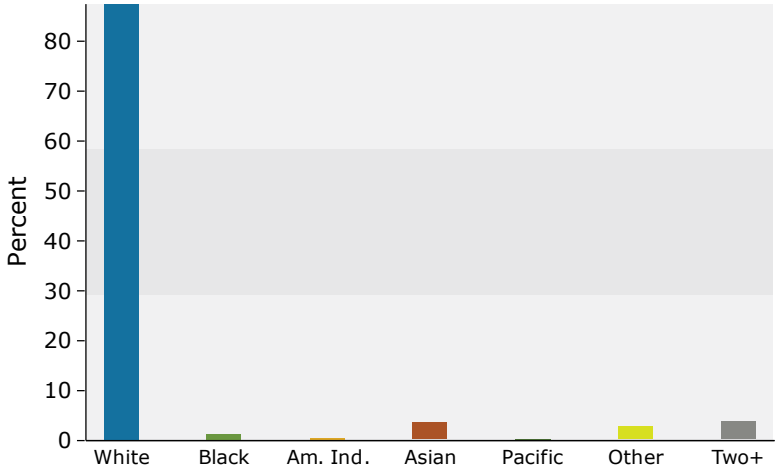
Population by Age



2015 Household Income



2015 Population by Race



2015 Percent Hispanic Origin: 7.6%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2015 and 2020.

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OREGON DEPARTMENT OF EDUCATION

Oregon achieves . . . together!

OREGON AT-A-GLANCE SCHOOL PROFILE

Wilsonville High School

PRINCIPAL: Kelly Schmidt | GRADES: 9-12 | 6800 Wilsonville Rd, Wilsonville 97070 | 503-673-7600

2022-23

Students We Serve

1,246
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	1%
Teachers	0%
Asian	
Students	5%
Teachers	7%
Black/African American	
Students	2%
Teachers	3%
Hispanic/Latino	
Students	21%
Teachers	11%
Multiracial	
Students	7%
Teachers	3%
Native Hawaiian/Pacific Islander	
Students	1%
Teachers	0%
White	
Students	64%
Teachers	77%

15% Ever English Learners

30 Languages Spoken

13% Students with Disabilities

94% Required Childhood Vaccinations

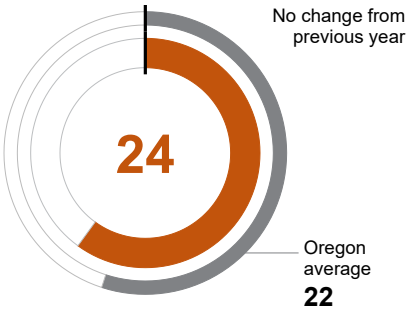
22% Free/ Reduced Price Lunch

*<10 students or data unavailable

School Environment

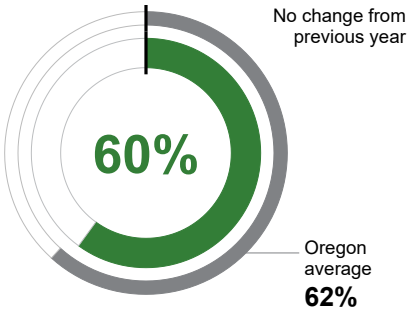
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

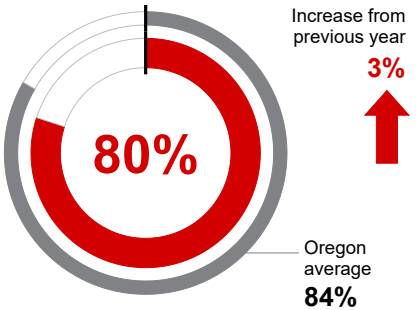
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

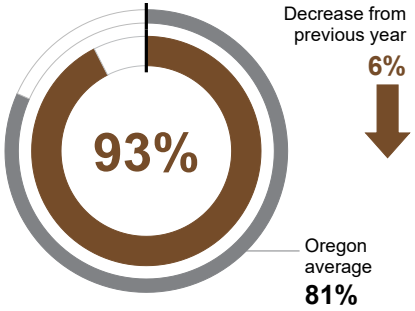
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

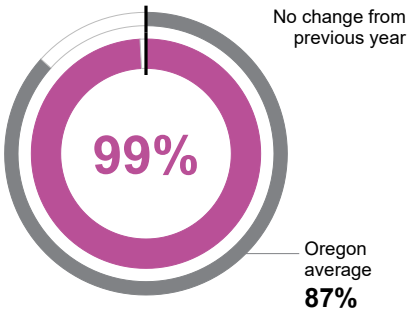
ON-TIME GRADUATION

*Students earning a diploma within four years. Cohort includes students who were first-time ninth graders in 2018-19 graduating in **2021-22**.*



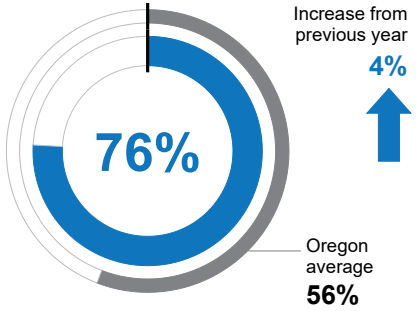
FIVE-YEAR COMPLETION

*Students earning a high school diploma or GED within five years. Cohort Includes students who were first-time ninth graders in 2017-18 finishing in **2021-22**.*



COLLEGE GOING

*Students enrolling in a two or four year college within 16 months of completing high school in **2020-21**. Data from the National Student Clearinghouse.*



School Goals

All students will meet proficiency standards in English Language Arts and Mathematics as measured by Oregon Statewide Assessments and standards-based course assessments. All students will participate in rigorous and meaningful academic and co-curricular learning that prepares them for careers and post K-12 learning. All students will experience belonging to a strong and welcoming school community.

State Goals

The Oregon Department of Education is partnering with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2027. To progress toward this goal, the state will prioritize efforts to improve attendance, provide a well-rounded education, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

District and school equity teams implement actions to ensure all students have every opportunity to reach their full potential and to embrace students' and families' diversity. Appreciating and respecting differences is an integral part of all daily instruction. A commitment to inclusive practices drives programs and practices.

School Website: www.wvhs.wlwv.k12.or.us

Eligibility for Free/Reduced Price Lunch expanded in 2020-21, for more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!

OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Wilsonville High School

2022-23

Our Staff (rounded FTE)

64 Teachers

6 Educational assistants

4 Counselors/ Psychologists/ Social Workers

85% Average teacher retention rate over the past three years

85% % of licensed teachers with more than 3 years of experience

Yes Same principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Asian	83%	>95%	>95%
Black/African American	56%	<10 students or data unavailable	<10 students or data unavailable
Hispanic/Latino	56%	63%	87%
Multiracial	63%	88%	>95%
Native Hawaiian/Pacific Islander	39%	<10 students or data unavailable	<10 students or data unavailable
White	60%	84%	95%
Free/Reduced Price Lunch	47%	54%	>95%
Ever English Learner	53%	60%	93%
Students with Disabilities	50%	55%	81%
Migrant	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Homeless	28%	<10 students or data unavailable	<10 students or data unavailable
Students in Foster Care	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable
Military Connected	<10 students or data unavailable	<10 students or data unavailable	Coming in 2023-24
Talented and Gifted	76%	>95%	>95%
Female	55%	82%	95%
Male	64%	78%	91%
Non-Binary	<10 students or data unavailable	<10 students or data unavailable	<10 students or data unavailable

About Our School

ADVANCED COURSEWORK

Advanced Placement and Dual College Credit Courses core curriculum areas and the arts.

CAREER & TECHNICAL EDUCATION

Broadcast Journalism, Journalism/Media, Programming/Technology, Graphic Arts, Robotics, Engineering

EXTRACURRICULAR ACTIVITIES

Successful Interscholastic Athletics
Many Diverse Clubs
Strong Art, Music, Drama
International Science and Engineering Fair
Robotics
Unified Sports
National Honor Society
Environmental Internships

PARENT & COMMUNITY ENGAGEMENT

The West Linn-Wilsonville School District is deeply grateful for its supportive parents and families. West Linn-Wilsonville understands strong relationships with parents lead to increased student success in the classroom. The district strives to develop strong parent partnerships to enhance students' educational experience at school and at home. The district leads parent evenings that are designed to engage parents in post K-12 learning.

Data are suppressed to protect confidential student information.

For more information please visit: www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Accountability-Measures.aspx

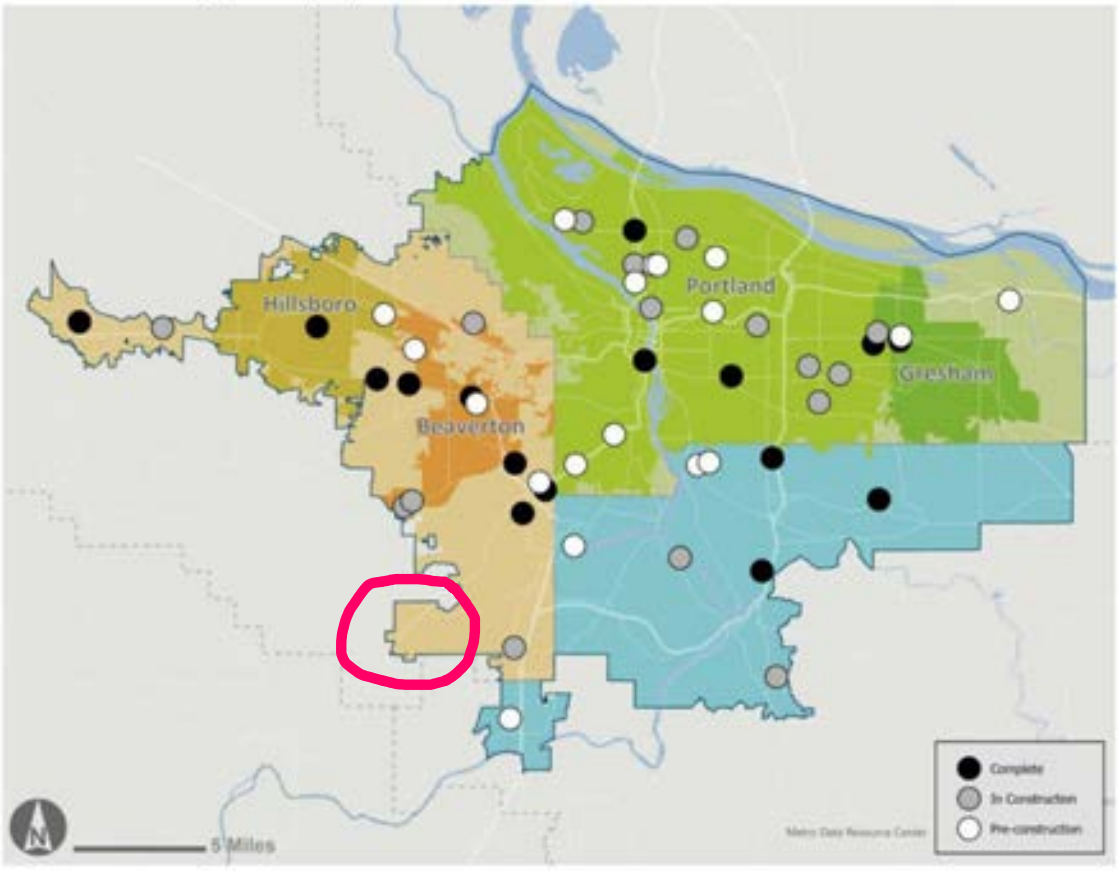
No Metro Affordable Housing Bond Project Located in Sherwood

Affordable housing projects using Metro's housing bond program have been built across the region, including in affluent suburbs like Lake Oswego and Happy Valley, and in the neighboring cities of Tigard, Tualatin and Wilsonville, but not in Sherwood.

2023 Annual report
June 20, 2024

Metro affordable housing bond program

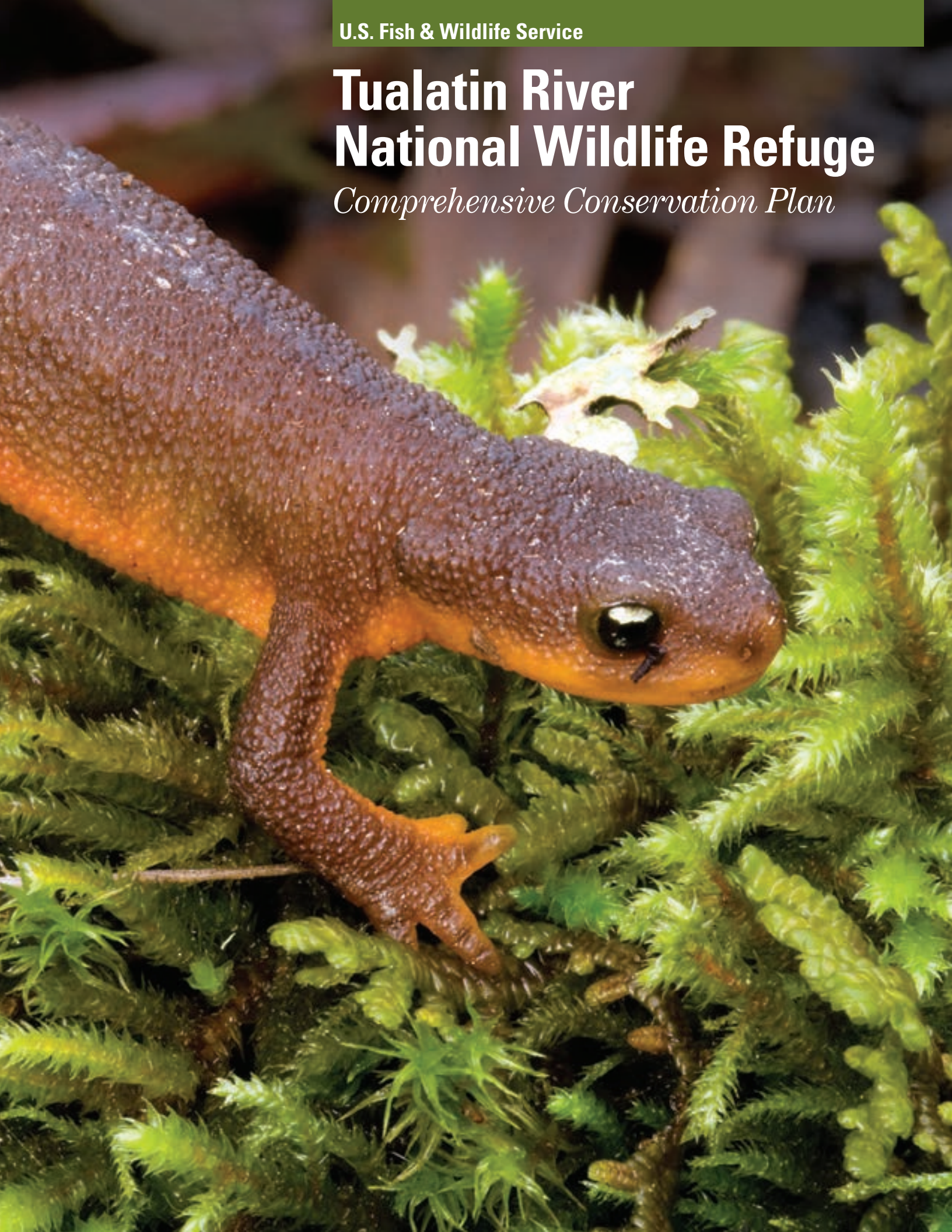
Affordable housing bond project locations



U.S. Fish & Wildlife Service

Tualatin River National Wildlife Refuge

Comprehensive Conservation Plan



An Image of the Future

Tualatin River National Wildlife Refuge is a natural treasure where an abundance of native wildlife thrive in a mosaic of wetland, prairie, forest and stream habitats characteristic of the Willamette Valley that the Atfalat'i people knew. The refuge is a sanctuary for both wildlife and people, a place where the ebb and flow of the river marks the natural rhythms of the refuge through the seasons. It's a special place, an icon where the stories of the refuge reflect the importance of the National Wildlife Refuge System. The refuge has a rich history of community vision where friends and neighbors helped create, and continue to care for, this urban refuge and the watershed that supports it. It's a model that combines excellence in landscape conservation, learning, and partnerships to strive for a healthy natural world. Tualatin River National Wildlife Refuge is a place where rich traditions, outdoor learning experiences, and discovery foster a love of and caring for nature that endures for generations to come.

Comprehensive Conservation Plans provide long-term guidance for management decisions and set forth goals, objectives, and strategies needed to accomplish refuge purposes and identify the Service's best estimate of future needs. These plans detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.

Osprey. ©Louann Goodrich

Tualatin River National Wildlife Refuge

Comprehensive Conservation Plan

Prepared by:

Tualatin River National Wildlife Refuge
19255 SW Pacific Highway
Sherwood, Oregon 97140

and

U.S. Fish and Wildlife Service
911 NE 11th Avenue
Portland, Oregon 97232-4181

June 2013

U.S. Fish and Wildlife Service
Tualatin River National Wildlife Refuge
Comprehensive Conservation Plan
Approval Submission

In accordance with the National Wildlife Refuge System Administration Act, as amended, the U.S. Fish and Wildlife Service completed a Comprehensive Conservation Plan (CCP) for Ridgefield National Wildlife Refuge (Refuge). The purpose of this CCP is to specify a management direction for the Refuge for the next 15 years. The goals, objectives, and strategies for improving Refuge conditions—including the types of habitat we will provide, partnership opportunities, and management actions needed to achieve desired future conditions—are described in the CCP. The Service's preferred alternative for managing the Refuge is described in this CCP and the effects on the human environment were described in the Draft CCP and Environmental Assessment.

This CCP is submitted for the Regional Director's approval by:

Erin Holmes, Project Leader
Tualatin River National Wildlife Refuge — April 23, 2013
Date

Concur:
Bob Flores
Refuge Supervisor — 4/23/13
Date

Concur:
Robin West
Regional Chief, National Wildlife Refuge System — 4-23-13
Date

Approved:
Regional Director, Region 1
Portland, Oregon — APR 25 2013
Date

Finding of No Significant Impact
for the
Tualatin River National Wildlife Refuge Comprehensive Conservation Plan

Washington and Yamhill Counties, Oregon

The U.S. Fish and Wildlife Service (Service) has completed a Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) for Tualatin River National Wildlife Refuge (Refuge). The CCP will guide management of the Refuge for 15 years. The CCP/EA describes our proposals for managing the Refuge and their effects on the human environment under four alternatives, including the no action alternative.

Decision

Based on our comprehensive review and analysis in the CCP/EA, we selected Alternative 2 for implementation, because it will guide management of the Refuge in a manner that:

- Achieves the mission of the National Wildlife Refuge System, and the purposes, vision, and goals of the Refuge.
- Maintains and restores the ecological integrity of the Refuge's habitats and populations.
- Addresses the important issues identified during the CCP scoping process.
- Addresses the legal mandates of the Service and the Refuge.
- Is consistent with the scientific principles of sound wildlife management and endangered species recovery.
- Facilitates priority public uses appropriate and compatible with the Refuge's purposes and the Refuge System mission.

Summary of the Actions to be Implemented

Implementing the selected alternative will have no significant impacts on the environmental resources identified in the CCP/EA. Refuge management under the selected alternative will protect, maintain, and enhance habitat for priority species and resources of concern, and improve the public's opportunities to enjoy wildlife-dependent recreation.

Under Alternative 2, our new Management Direction, there will be a balanced approach among meeting competing needs and issues that the refuge currently faces and is likely to experience in the next 15 years. This direction would combine the existing mosaic of fragmented habitats into larger contiguous blocks of native habitat types within the landscape and also restore relic or disappearing habitats. Using hydrological modeling, historic vegetation and soil information, the refuge will, over the next 15 years, restore and increase the acreage of riparian forest from 388 acres to 433 acres and mixed forest from 49 acres to 103 acres to continue efforts at increasing riparian corridor connectivity and to provide natural habitat for neo-tropical songbirds and other forest species. Relic oak habitats will be restored from 149 acres to 237 acres to provide habitat for imperiled oak dependent wildlife. Managed wetland ponds will be decreased from 294 acres to 193 acres to facilitate restoration of more natural wet prairie habitats consistent with historic vegetation and there will also be an increase in scrub-shrub wetlands. Over 2.7 miles of stream habitat would be restored to facilitate fish passage and benefits to other aquatic species. All of these habitats will provide foraging, resting, and breeding habitats for both migratory and

resident wildlife.

The refuge would expand on existing public use opportunities and offer new quality opportunities including hunting and fishing. On the Sherwood Units, the existing public use trails would remain the same, but an Environmental Education Off-Trail Study Area and a Nature Explore Area would be offered adjacent to those trails. To increase the opportunity for quality wildlife photography, an additional 1-3 photography blinds will be constructed to maximize the photography experience while minimizing disturbance to wildlife. A youth waterfowl hunting program will be developed. Close coordination with the State will determine the season, location of blinds, and other details as a hunt management plan is developed. Hunt program monitoring will occur to adjust the program as needed to facilitate a quality hunt experience while ensuring healthy habitat for waterfowl. A fishing program would be developed to expose first time anglers and youth to fishing. This would occur on the River Overlook and the fishing program would emphasize the experience of fishing and would accompany quality educational program that enhance the experience; such as programs led by the refuge.

Public Involvement and Changes Made to the Selected Alternative Based on Comments

We incorporated a variety of public involvement techniques in developing and reviewing the CCP/EA. This included two open houses, four planning updates, numerous meetings with partners, and public review and comment on the Draft CCP/EA. The details of our public involvement program are described in the CCP, in Appendix K.

Based on the public comments we received and considered, the Management Direction selected was a slightly modified Alternative 2 that incorporated some elements of Alternative 3. We added more riparian forest and mixed forest habitat to reflect more of a historic vegetation model, and eliminated some of the hunt details until a hunt plan is developed in coordination with the State.

Conclusions

Based on review and evaluation of the information contained in the supporting references, I have determined that implementing Alternative 2 as the CCP for Tualatin River National Wildlife Refuge is not a major Federal action that would significantly affect the quality of the human environment within the meaning of section 102(2)(c) of the National Environmental Policy Act of 1969. Accordingly, we are not required to prepare an environmental impact statement.

Robyn Thorson

Regional Director

APR 25 2013

Date

Supporting References

U.S. Fish and Wildlife Service. 2012. *Tualatin River National Wildlife Refuge, Draft Comprehensive Conservation Plan and Environmental Assessment.* Sherwood, OR: Tualatin River National Wildlife Refuge.

Note: This Finding of No Significant Impact and supporting references are available for public review at Tualatin River National Wildlife Refuge, 19255 SW Pacific Highway, Sherwood, Oregon, 97140 and U.S. Fish and Wildlife Service, Division of Planning, Visitor Services, and Transportation, 911 NE 11th Avenue, Portland, Oregon, 97232. These documents can also be found on the Internet at http://pacific.fws.gov/planning/. Interested and affected parties are being notified of our decision.

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Chapter 1
Introduction and Background

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Chapter 1 Introduction and Background

1.1 Introduction

Just a few short miles from the center of Oregon's largest city, the honking of geese replaces the honking of cars. This special place is a refuge, a haven for wildlife and people. Born of a community's dream, and made possible by their support, a wildlife refuge now thrives in the backyard of a growing metropolis.

Located on the outskirts of Portland, Tualatin River National Wildlife Refuge (refuge) is one of a handful of urban national wildlife refuges in the country. Situated within the floodplain of the Tualatin River, the refuge comprises less than 1 percent of the 712-square-mile watershed (see Appendix P, Maps 1 and 3). Yet, due to its richness and diversity of habitats, it supports some of the most abundant and varied wildlife in the watershed. The refuge is home to nearly 200 species of birds, over 28 species of mammals, 14 species of reptiles and amphibians, and a wide variety of insects, fish, and plants. The refuge has also become a place where people can experience and learn about wildlife and the places they call home. Established in 1992 under the guidelines of the U.S. Fish and Wildlife Service's (USFWS's; Service's) Urban Refuge Policy (341 FW 1) (Smith 1991), Tualatin River National Wildlife Refuge has served nearly 110,000 visitors annually since it opened to the public in 2006. In 2007, the Wapato Lake Unit was established, more than doubling the size of the original acquisition boundary.

The Tualatin River National Wildlife Refuge, which includes the Wapato Lake and Sherwood Units (the Sherwood Units contain five subunits: Atfálat'i, Onion Flats, Riverboat, Rock Creek, and Tualatin River), is located in the northern portion of the Willamette Valley, in Washington and Yamhill Counties, Oregon (see Appendix P, Maps 4 and 5). The overall management focus cited in the Land Protection Plan (USFWS 1992a) is to "protect, enhance, and manage upland, wetland, and riparian habitats for a variety of migratory birds and resident fish and wildlife, as well as for the enjoyment of people." The Wapato Lake Unit serves a similar purpose and supports many of the same types of habitats found within the Sherwood Units. Currently, the established acquisition boundary of the refuge totals 7,370 acres, with 2,217 acres under management. The refuge may purchase lands within the boundary from willing sellers. Land currently owned or managed by the refuge is distributed among six management units: Riverboat (348 acres); Tualatin River (221 acres); Atfálat'i (555 acres); Onion Flats (139 acres); Rock Creek (75 acres); and Wapato Lake (879 acres). The refuge's landscape is predominately flat bottomland bordered by uplands. Habitats consist of rivers and streams; herbaceous and scrub-shrub wetlands; riparian forests; wet meadows; oak savanna; and mixed coniferous/deciduous forested uplands.

The refuge has a rich history in community involvement, beginning with the establishment of the refuge itself. In the late 1980s and early 1990s, many local residents and leaders recognized that the Tualatin River and its floodplain had been highly modified by both agriculture and urbanization. This recognition fueled a desire by local communities to preserve open green space and create an area where future generations could enjoy outdoor recreation and interpretation, while also leaving an educational legacy for children. This led a small group of citizens and local leaders to approach the Service to request having part of the 100-year floodplain, just north of Sherwood, be set aside as a national wildlife refuge. At the same time, the Service identified a need to protect and enhance floodplains, wetlands, riparian habitats, and upland buffers for a variety of wildlife and for the

enjoyment of people—in particular in urban areas. In 1992, grassroots and governmental support coalesced, and the Tualatin River National Wildlife Refuge became part of the National Wildlife Refuge System (Refuge System).

Photo 1-1. Entry to Tualatin River National Wildlife Refuge. USFWS.

1.2 Importance of the Refuge

Since the time of Euro-American settlement, habitats in the Willamette Valley have been converted to support a growing human population. Significant losses of habitat have occurred within the Portland/Vancouver metropolitan area and continue to occur (see Appendix P, Map 2). Commercial, agricultural, and residential encroachments into floodplains, which include wetlands, riparian forests, and uplands, have occurred during the past 150 years, resulting in lost habitat, increased pollution, increased human disturbance, and lower water quality. These habitats are important to resident, migrating, and wintering bird, mammal, fish, reptile, amphibian, and invertebrate species. Although these habitats are provided some degree of protection by Oregon's land-use planning process, the wildlife values of these habitats continue to be degraded.

Traditionally, fish and wildlife agencies have focused their efforts on management of lands and waters outside of urban areas where the majority of fish and wildlife resources occur. However, habitats of regional significance often occur in urban areas and are of great value to fish and wildlife. These habitats also provide important public benefits, such as open space, recreation, environmental education, aesthetics, flood control, and water quality enhancement. The proximity and availability of these public benefits are attributes for which the Portland/Vancouver metropolitan area is renowned. Many consider natural areas to be an essential component of the quality of life in this metropolitan area.

As an urban refuge, Tualatin River National Wildlife Refuge was established under the guidance of the Urban Refuge Policy and "may protect habitat of great significance to the conservation of fish and wildlife resources, including endangered and threatened species. However, the 'Primary

Purpose' for establishment of new urban refuges will be to foster environmental awareness and outreach programs to develop an informed, involved citizenry that will support fish and wildlife conservation … these refuges will provide public use benefits associated with fish and wildlife resources that include, but are not limited to, bird watching, fishing, scientific research, environmental education, open space in a urban setting, and protection of cultural resources" (Smith 1991).

Situated within the floodplain of the Tualatin River Valley, the refuge provides habitat for some of the most diverse and abundant wildlife in the valley. The refuge also provides a variety of recreational and educational activities focused on fish and wildlife and their habitats. Visitor facilities include a Wildlife Center, an environmental education shelter, trails, overlooks, an observation deck, a photography blind, environmental education study sites, and exhibit panels. Current visitation is approximately 110,000 people per year (USFWS 2011f).

Photo 1-2. Tualatin River National Wildlife Refuge lies on the outskirts of Portland, Oregon. © Bjorn Fredrickson.

1.3 Proposed Action

The Service manages wildlife refuges as part of the Refuge System. We propose to adopt and implement this Comprehensive Conservation Plan (CCP) for the refuge. A CCP sets forth management guidance for a refuge for a period of 15 years, as required by the National Wildlife Refuge System Administration Act (Administration Act), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act). The Improvement Act requires CCPs to identify and describe:

- The purposes of the refuge;
- The fish, wildlife, and plant populations, their habitats, and the archaeological and cultural values found on the refuge;
- Significant problems that may adversely affect wildlife populations and habitats and ways to correct or mitigate those problems; and

- Areas suitable for administrative sites or visitor facilities, and opportunities for fish- and wildlife-dependent recreation.

Refuge System planning policy (602 FW 3) states that the purpose of CCPs is to "describe the desired future conditions of a refuge and provide long-range guidance and management direction to achieve refuge purposes; help fulfill the Refuge System mission; maintain and, where appropriate, restore the ecological integrity of each refuge and the Refuge System; … and meet other mandates."

The Service developed and examined three alternatives for management of the refuge and disclosed anticipated effects for each alternative, pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended. The goals, objectives, and strategies under Alternative 2 best achieve the purpose of the refuge and the need for the CCP, while maintaining balance among the varied management needs and programs. Alternative 2 represents the most balanced approach for achieving the refuge's purposes, vision, and goals; contributing to the Refuge System's mission; addressing relevant issues and mandates; and managing the refuge with sound principles of fish and wildlife management.

The preferred alternative was modified between the draft and final documents based on comments received from the public or other agencies and organizations. The Service's Regional Director for Region 1 made the final decision regarding which alternative will be implemented. For details on the specific components and actions constituting the chosen management direction, see Chapter 2.

1.4 Purpose of and Need for Action

The purpose of this CCP is to identify the role the refuge would play in supporting the mission of the Refuge System, and to provide the Service, the Refuge System, partners, and the public with long-term guidance for managing programs and activities. This will be a 15-year management plan for improving the refuge's habitat conditions and infrastructure for fish, wildlife, and public use. The CCP is needed to:

- Communicate with the public and other partners in efforts to carry out the mission of the Refuge System;
- Provide a clear statement of direction for managing the refuge;
- Provide neighbors, visitors, and government officials with an understanding of the Service's management actions on and around the refuge;
- Ensure that the Service's management actions support the goals and intent of the Administration Act;
- To the extent practicable, ensure refuge plans will be consistent with the fish and wildlife conservation plans of the state and the conservation programs within the ecosystem;
- Provide a basis for development of budget requests for the refuge's operation, maintenance, and capital improvement needs;
- Address habitat management concerns; and
- Address increasing visitor use needs.

1.5 Legal and Policy Guidance

1.5.1 U.S. Fish and Wildlife Service

The Service is the principal Federal agency responsible for fish, wildlife, and plant conservation. The Refuge System is one of the Service's major programs.

> *The mission of the Service is working with others, to conserve, protect and enhance fish and wildlife and their habitats for the continuing benefit of the American people.*

In the late nineteenth and early twentieth centuries, America's fish and wildlife resources were declining at an alarming rate, largely due to unrestricted market hunting. Concerned citizens, scientists, and hunting and angling groups joined together and generated the political will for the first significant conservation measures taken by the Federal government. These actions included the establishment of the Bureau of Fisheries in the 1870s, the passage of the first Federal wildlife law in 1900, the Lacey Act, which prohibited interstate transport of wildlife taken in violation of state laws, and the creation of wildlife refuges across the nation.

Over the next three decades, the United States ratified the Migratory Bird Treaty with Great Britain, and Congress passed laws to protect migratory birds, establish more new refuges, and create a funding source for refuge land acquisition. In 1940, the U.S. Fish and Wildlife Service was created within the Department of the Interior, and existing Federal wildlife functions including law enforcement, fish management, animal damage control, and wildlife refuge management were combined into a single organization for the first time.

Today, the Service enforces Federal wildlife laws; manages migratory bird populations; restores nationally significant fisheries; conserves and restores vital wildlife habitat; protects and recovers endangered species; helps other governments with conservation efforts; and connects people with nature through high quality education and recreation programs to foster a conservation constituency within the public.

1.5.2 National Wildlife Refuge System

In 1903, President Theodore Roosevelt designated the 5.5-acre Pelican Island in Florida as the nation's first wildlife refuge for the protection of native nesting birds. This was the first time the Federal government set aside land for wildlife. This small but significant designation marked the beginning of the Refuge System.

Over one hundred years later, the Refuge System has become the largest collection of lands in the world specifically managed for wildlife, encompassing more than 150 million acres within 560 refuges, 38 wetland management districts, and more than 3,000 waterfowl production areas providing breeding and nesting habitat for migratory birds. Today there is at least one refuge in every state as well as in Puerto Rico and the U.S. Virgin Islands.

The Tualatin River National Wildlife Refuge is managed as part of the Refuge System within a framework of legal and policy guidelines. The needs of wildlife and their habitats come first on refuges, in contrast to other public lands, which are managed for multiple uses. Refuges are guided by various Federal laws and executive orders, Service policies, and international treaties. The

mission and goals of the Refuge System and the designated purposes of the refuge as described in establishing legislation, executive orders, or other documents establishing, authorizing, or expanding a refuge are fundamental.

1.5.2.1 National Wildlife Refuge System Mission and Goals

The mission of the Refuge System is:

> *To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Administration Act of 1966, as amended).*

The goals of the Refuge System, as articulated in the Mission, Goals, and Purposes Policy (601 FW 1), are:

- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
- Develop and maintain a network of habitats for migratory birds, anadromous and inter-jurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges.
- Conserve those ecosystems, plant communities, and wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts.
- Provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation).
- Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

1.5.2.2 National Wildlife Refuge System Administration Act

Of all the laws governing activities on national wildlife refuges, the Administration Act undoubtedly exerts the greatest influence. The National Wildlife Refuge Improvement Act of 1997 amended the Administration Act by including a unifying mission for all national wildlife refuges as a system, a new process for determining compatible uses on refuges, and a requirement that each refuge be managed under a comprehensive conservation plan, developed in an open public process. In addition to the Improvement Act providing the mission for the Refuge System, it also stated that the wildlife and habitat vision for each unit of the Refuge System shall maintain the following principles.

- Wildlife comes first.
- Ecosystems, biodiversity, and wilderness are vital concepts in refuge and district management.
- Habitats must be healthy.
- Growth of refuges and districts must be strategic.
- The Refuge System serves as a model for habitat management with broad participation from others.

The Administration Act states that the Secretary of the Interior shall provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System as well as ensure that the biological integrity, diversity, and environmental health of the System are maintained. House Report 105–106 accompanying the Improvement Act states "… the fundamental mission of our System is wildlife conservation: wildlife and wildlife conservation must come first." Biological integrity, diversity, and environmental health are critical components of wildlife conservation. As later made clear in the Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3), "the highest measure of biological integrity, diversity, and environmental health is viewed as those intact and self-sustaining habitats and wildlife populations that existed during historic conditions."

Under the Administration Act, each refuge must be managed to fulfill the Refuge System mission as well as the specific purposes for which it was established. The Administration Act requires the Service to monitor the status and trends of fish, wildlife, and plants in each refuge.

Additionally, the Improvement Act identifies six priority wildlife-dependent recreational uses for the Refuge System. These uses are hunting, fishing, wildlife observation and photography, and environmental education and interpretation. Under the Improvement Act, the Service is to grant these six wildlife-dependent public uses special consideration in the planning, management, establishment, and expansion of units of the Refuge System. The overarching goal of the wildlife-dependent public uses program is to enhance opportunities and access to quality wildlife-dependent visitor experiences on refuges while managing refuges to conserve fish, wildlife, plants, and their habitats. When determined compatible on a refuge-specific basis, these six uses assume priority status among all uses of the refuge in question. The Service is to make extra efforts to facilitate priority wildlife-dependent public use opportunities.

When preparing a CCP, refuge managers must re-evaluate all general public, recreational, and economic uses (even those occurring to further refuge habitat management goals) proposed or occurring on a refuge for appropriateness and compatibility. No refuge use may be allowed or continued unless it is determined to be appropriate and compatible. Generally, an appropriate use is one that contributes to fulfilling the refuge purposes, the Refuge System mission, or goals or objectives described in a refuge management plan. A compatible use is one that, in the sound professional judgment of the refuge manager, would not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge. Updated appropriate use and compatibility determinations for existing and proposed uses for Tualatin River National Wildlife Refuge can be found in Appendices A and B of this CCP.

The Improvement Act also requires that, in addition to formally established guidance, the CCP must be developed with the participation of the public. Issues and concerns articulated by the public play a role in guiding alternatives considered during the development of the CCP, and together with formal guidance, can play a role in selection of the management direction. It is Service policy that CCPs be developed in an open public process, and the agency is committed to securing public input throughout the process. Public involvement details can be found in Appendix K of the CCP.

1.5.3 Other Laws and Mandates

Many other Federal laws, executive orders, Service policies, and international treaties govern Service and Refuge System lands. Examples include the Migratory Bird Treaty Act of 1918 (as amended), the Refuge Recreation Act of 1962 (as amended), the National Historic Preservation Act of 1966 (as amended), the Endangered Species Act of 1973 (as amended), and the Service Urban Refuge Policy

(341 FW 1) (Smith 1991). For additional information on laws and other mandates, a list and brief description of Federal laws of interest to the Service can be found in the Laws Digest at http://www.fws.gov/laws/Lawsdigest.html.

In addition, over the last few years, the Service has developed or revised numerous policies and Director's Orders to reflect the mandates and intent of the Improvement Act. Some of these key policies include the Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3); the Compatibility Policy (603 FW 2); the Comprehensive Conservation Planning Policy (602 FW 3); Mission, Goals, and Purposes (601 FW 1); Appropriate Refuge Uses (603 FW 1); Wildlife-dependent Public Uses (605 FW 1); Wilderness-related Policies (610 FW 1-5); and the director's order for Coordination and Cooperative Work with State Fish and Wildlife Agencies (http://www.fws.gov/policy/). These policies and others in draft or under development can be found at: http://refuges.fws.gov/policymakers/nwrpolicies.html.

In 2011, the Service published the new vision for the National Wildlife Refuge System "Conserving the Future" (USFWS 2011c) which sets forth updated recommendations for conservation of wildlife and wildlands, for developing a conservation constituency within the public, and for emrbacing leadership competencies that will guide the Service into the future.

In developing a CCP, refuges must consider these broader laws and policies as well as Refuge System and ecosystem goals and visions. The CCP must be consistent with these and also with the refuge purpose.

1.6 Refuge Establishment and Purposes

1.6.1 Legal Significance of the Refuge Purpose

The purpose for which a refuge was established or acquired is of key importance in refuge planning. Purposes must form the foundation for management decisions. Refuge purposes are the driving force in the development of vision statements, goals, objectives, and strategies in a CCP and are critical to determining the compatibility of existing and proposed refuge uses.

The purposes of a refuge are specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit.

Unless the establishing law, order, or other document indicates otherwise, purposes dealing with the conservation, management, and restoration of fish, wildlife, and plants, and the habitats on which they depend take precedence over other purposes in the management and administration of any refuge. Where a refuge has multiple purposes related to fish, wildlife, and plant conservation, the more specific purpose would take precedence in instances of conflict. When an additional unit is acquired under an authority different from the authority used to establish the original unit, the addition takes on the purpose(s) of the original unit, but the original unit does not take on the purpose(s) of the newer addition. When a conflict exists between the Refuge System mission and the purpose of an individual refuge, the refuge purpose may supersede the mission.

1.6.2 Purpose and History of Refuge Establishment

The Improvement Act of 1997 defines "purposes of the refuge" and "purposes of each refuge" as the purpose specified in or derived from the law or any of a number of specified documents that establish, authorize, or expand a refuge. This includes acquisition purposes in cases where land at a refuge has been acquired under authority other than the establishing authority.

The purposes of Tualatin River National Wildlife Refuge are defined as:

- " … the development, advancement, management, conservation, and protection of fish and wildlife resources … " 16 U.S. Code (U.S.C.) § 742f(a)(4) (Fish and Wildlife Act of 1956).
- " … the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude … " 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- " … the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions … " 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).

Additionally, the refuge was established under the guidance of the Service's Urban Refuge Policy (341 FW 1) (Smith 1991) to foster environmental awareness and outreach programs to develop an informed, involved citizenry that will support fish and wildlife conservation.

1.6.3 Land Status and Ownership

Established in 1992 under the guidelines of the Service's Urban Refuge Policy, the Tualatin River National Wildlife Refuge became one of a handful of urban refuges in the country. The establishment of the refuge was in response to a growing concern in the community about urbanization replacing the rural way of life. Concerned about this urban growth, the community requested a study of the feasibility of creating a refuge. The need and endorsement for creating this refuge was officially approved on December 20, 1991, which then led to an Environmental Assessment (EA) that culminated in a decision to approve the refuge boundary on February 13, 1992 (USFWS 1992a). This EA approved acquiring and managing lands within an acquisition boundary of 3,058 acres by fee title purchase, conservation easements, and/or agreements. In 2004, an additional 2 acres were added, and more recently in 2007, the Wapato Lake Unit was established, adding an additional 4,310 acres to the acquisition boundary. Currently, the approved acquisition boundary incorporates 7,370 acres. Approximately 2,165 acres are under fee title or easement and are managed as a national wildlife refuge; and additional 50 acres are managed under agreement with Metro.

Numerous land parcels have been acquired since 1992 ranging from several acres to over 300 acres. These properties were purchased using different funding sources and under different authorities. Appendix J explains in further detail the acquisition history and authorities of individual tracts.

1.7 Relationship to Other Planning Efforts

When developing a CCP, the Service considers the goals and objectives of existing national, regional, state, and ecosystem plans and/or assessments. The CCP is expected to be consistent, as

much as possible, with existing plans and assist in meeting their conservation goals and objectives. This section summarizes some of the key plans reviewed by members of the core team while developing the CCP.

1.7.1 Regional Plans

The Nature Conservancy's Willamette Valley-Puget Trough-Georgia Basin Ecoregional Assessment: This report addresses the most important places for conserving native species and ecosystems in the Pacific Northwest. Using this assessment, The Nature Conservancy selected target species and communities that represented various habitat types. This assessment is a guide for providing the most conservation benefit for the lowest cost.

1.7.1.1 Migratory Birds Plans

Birds of Conservation Concern: Based on the efforts and assessment scores of three major bird conservation efforts (Partners In Flight [PIF], the U.S. Shorebird Conservation Plan, and the North American Waterbird Conservation Plan [NAWCP]), this report (USFWS 2002a) identifies, by Service region and by Bird Conservation Region (BCR), the bird species most in need of conservation attention. The Tualatin River National Wildlife Refuge is located within BCR Region 5, for which 27 species are listed; however, several of these are seabirds that do not use the refuge.

PIF: The primary goal of the *Conservation Strategy for Landbirds in the Lowlands and Valleys of Western Oregon and Washington* (Altman 2000) is to ensure long-term maintenance of healthy populations of native landbirds. Specific management activities and strategies are recommended.

North American Waterfowl Management Plan (NAWMP): This plan, first formulated in 1986, provides a strategy to protect North America's remaining wetlands and to conserve waterfowl populations through habitat protection, restoration, and enhancement. The plan was updated in 2004 with an emphasis on strengthening the biological foundation, using a landscape approach, and expanding partnerships. The 2004 update contains species-specific population objectives and evaluations of whether the continental population is currently above or below the target. There are also flyway goals for production by species, but the plan did not target population objectives for wintering or migratory waterfowl by area (NAWMP Committee 2004). Implementation of this plan is accomplished at the regional level by partnership, within 11 Joint Venture areas. Tualatin River National Wildlife Refuge is located within the area of the Pacific Coast Joint Venture. Many of the projects identified to achieve the NAWMP objectives are eligible for funding under the North American Wetlands Conservation Act (NAWCA). NAWCA authorizes congressional funding for projects fostering public/private partnerships that support the conservation and restoration of wetland habitats and associated wildlife resources. Given the extent of historical wetlands and ongoing public/private partnerships in the Willamette Valley, this Act has been (and continues to be) a tremendous resource for the conservation community in the region.

Pacific Flyway Plans: Flyway management plans are the products of Flyway Councils, developed to help state and Federal agencies cooperatively manage migratory game birds. Several flyway management plans pertain to Tualatin River National Wildlife Refuge, especially those for the western and cackling Canada goose (Pacific Flyway Council 1999, 2000) and tundra swans (Pacific Flyway Council 2001). In addition, the *Plan for Northwest Oregon/Southwest Washington Canada Goose Agricultural Depredation Control* (Pacific Flyway Council 1998) details specific strategies

and guidance by management area for reducing depredation by Canada geese within the Lower Columbia Region/Willamette Valley.

United States Shorebird Conservation Plan/Northern Pacific Coast Regional Shorebird Management Plan: These plans (Brown et al. 2001; Drut and Buchanan 2000) identify numerous landscapes within the northern Pacific coast that provide important habitat for shorebirds. The diversity of wetland habitat types in the Willamette Valley is specifically highlighted as being of regional importance for several species including dunlin, Wilson's snipe, and killdeer.

Pacific Coast Joint Venture Willamette Valley Implementation Plan: This plan (Roth et al. 2004) is intended to provide a strategic framework for site-specific habitat protection and restoration projects within the Willamette Valley. The plan's primary focus is on migratory birds and their habitats including waterfowl, shorebirds, waterbirds, and landbirds.

1.7.2 State Plans

There are numerous state plans available for management strategies and recommendations on habitat restoration and management, and on guidelines on species as well. The list below is by no means comprehensive and only reflects the plans the refuge most heavily relied on during the development of this CCP.

Oregon Conservation Strategy (OCS): This document, authored by the Oregon Department of Fish and Wildlife (ODFW) (2006), is an overarching strategy for conserving fish and wildlife within the State of Oregon. The strategy identifies specific Conservation Opportunity Areas where high-priority species and habitat conservation may be most efficiently addressed. Strategy (high-priority) habitats identified by the OCS within the Willamette Valley include grasslands, oak woodlands, riparian areas, and wetlands/wet prairies. Three mammals, 10 plants, five herptiles, four invertebrates, 23 fish species, populations, or segments, and 14 birds are listed as strategy (high-priority) species within the OCS; many of these are found within the Willamette Valley. The refuge lies within The Nature Conservancy's Conservation Opportunity Area #80, Tualatin River.

Oregon Elk Management Plan: This plan (ODFW 2003) outlines elk management guidelines within the State of Oregon. ODFW manages elk based on population management objectives for winter population size and post-season bull ratios in each Wildlife Management Unit in the state. The current population objective size for Roosevelt elk in the Willamette Valley is zero. Tualatin River National Wildlife Refuge will be working cooperatively with ODFW and the Willamette Valley National Wildlife Refuge Complex on a step-down elk management plan for the refuge.

State Comprehensive Outdoor Recreation Plan (SCORP): The 2008-2012 Oregon SCORP (Oregon Parks and Recreation Department 2008) includes a comprehensive overview of state recreational trends. The SCORP provides guidance, information, and recommendations for Federal, state, and local government as well as the private sector in making policy and planning decisions regarding outdoor recreation in Oregon.

1.7.3 Additional Plans

USFWS Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington: This plan (USFWS 2010b) outlines the main recovery areas, actions, and population objectives for five listed Willamette Valley plants and Fender's blue butterfly.

Oregon Chub Recovery Plan: This plan (USFWS 1998) outlines the main recovery areas, actions, and population objectives for Oregon chub.

Oregon Partners for Fish and Wildlife Program, Statewide Strategic Plan 2007-2011: This plan (USFWS 2007a) identifies the ecological importance of habitats that occur within the Willamette Valley Focus Area. Continued emphasis will be placed on conservation of rare and unique habitats that support declining species on private lands within the Willamette Valley through collaborative partnerships with private landowners, non-governmental organizations, and other agencies.

1.8 Special Designation Lands

1.8.1 Important Bird Areas

The Important Bird Areas (IBA) program is a global effort to identify the most important areas for maintaining bird populations and focusing conservation efforts on protecting these sites. Within the United States, the program has been promoted and maintained by the American Bird Conservancy (ABC) and the National Audubon Society (NAS). The ABC is coordinating the identification of nationally significant IBAs while NAS is working to identify sites in individual states. The NAS is working within each state to identify a network of sites across the United States that provide critical habitat for birds. This effort recognizes that habitat loss and fragmentation are the most serious threats to birds across North America and around the world. By working through partnerships, principally the North American Bird Conservation Initiative, to identify places that are critical to birds during some part of their life cycle (breeding, wintering, feeding, migrating), the hope is to minimize the effects that habitat loss and degradation have on bird populations. The IBA program has become a key component of many bird conservation efforts. Tualatin River National Wildlife Refuge is in the bird conservation area known as the Northern Pacific Rainforest region. The refuge was designated as an Important Bird Area due to high population numbers of wintering geese and northern pintails, in addition to shorebirds. More information is available at http://web4.audubon.org/bird/iba/index.html.

1.9 Planning Process and Issue Identification

1.9.1 Planning Process

The Service prepared this CCP in compliance with the Administration Act. The actions described within meet the requirements of the Council on Environmental Quality regulations for implementing NEPA. Figure 1-1 demonstrates the complete CCP planning process from conception to final document.

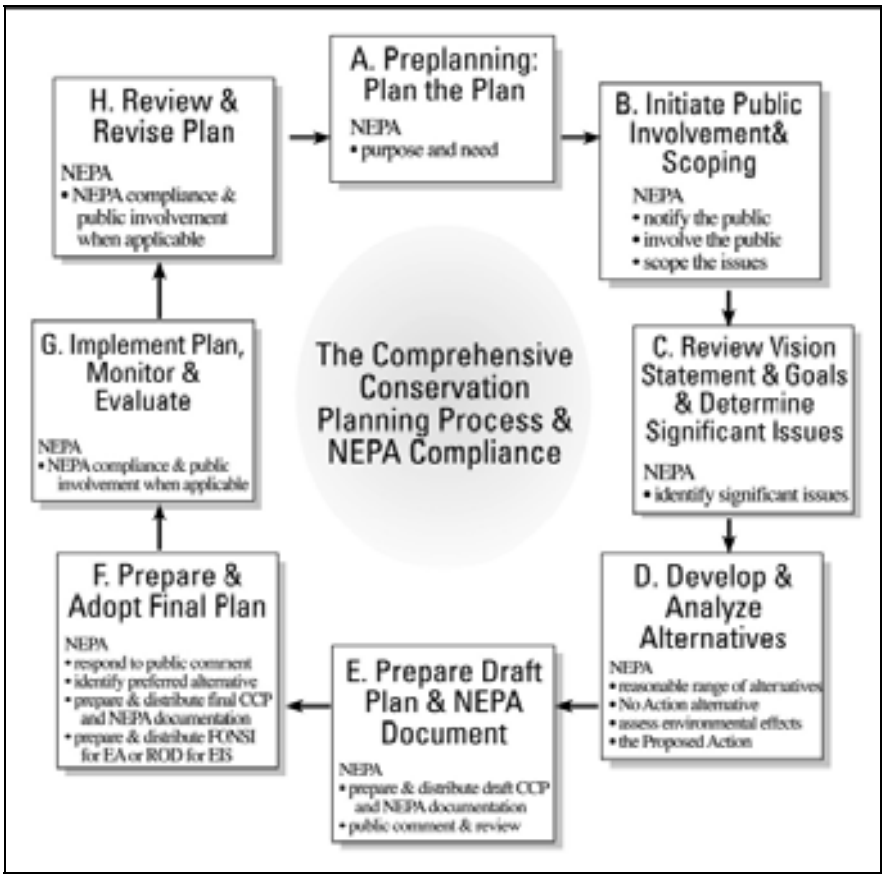

Figure 1-1. Overview of CCP planning process.

The Service began the pre-planning process in 2009 (Table 1-1) with the formation of the core planning team, which consists of refuge staff and a regional planner. The extended planning team included other Service employees, fisheries biologists, refuge law enforcement officers, and other Federal, regional, and state employees. Early in the planning process, both teams cooperatively identified priority species, groups, and communities for the refuge, and most of the biological emphasis of the CCP is focused on maintaining and restoring these targets. Public use planning centered on developing goals, objectives, and strategies around the "big six" wildlife dependent public uses and the role of an urban wildlife refuge. Big six uses include hunting, fishing, wildlife photography and observation, and environmental education and interpretation. Other non-wildlife-dependent uses that currently occur were also addressed.

Table 1-1. Summary of CCP Planning Process for Tualatin River National Wildlife Refuge

Date	Event	Outcome
December 15, 2009	Kick-off meeting and formation of core team	Planning team learned about the CCP process and discussed initial team list, mailing list, roles of team members, and planning schedule.
January 12-14, 2010	Wildlife and habitat review	Panel of wildlife and habitat

Table 1-1. Summary of CCP Planning Process for Tualatin River National Wildlife Refuge

Date	Event	Outcome
		experts from Federal, state, and regional agencies and other partners gathered to discuss and propose options for managing the refuge's wildlife and habitat resources.
October 14, 2010	Visitor services review	Panel of visitor services experts from Federal, state, and regional agencies met to discuss public use opportunities, issues, and concerns.
November 3, 2010	Notice of Intent publication	Notice of Intent to prepare CCP was published in the Federal Register.
November 2010	Planning Update #1 mailing	First update was sent to mailing list recipients; it described planning process and preliminary issues to be considered.
November 16, 2010	Interagency scoping meeting	Multiple agencies gathered to discuss issues, opportunities, and concerns.
November 30 and December 2, 2010	Public scoping meeting, Sherwood and Forest Grove, Oregon	Public attendees learned about CCP process and discussed issues and ideas for future management.
April 2011	Planning Update #2 mailing	Update discussed comments received from the public and summarized draft refuge goals.
May 2011-October 2012	Alternatives development and evaluation; objective and strategy development	Planning team developed alternatives, objectives, and strategies for refuge goals.
	Environmental consequences review	Team reviewed consequences of proposed alternatives.
	Map and figure review	Team discussed relevant maps and figures needed.
	Internal draft plan preparation	Planning team prepared draft CCP and EA, including maps. Document was prepared for editor to ready for internal review.

Table 1-1. Summary of CCP Planning Process for Tualatin River National Wildlife Refuge

Date	Event	Outcome
November 2011	Planning Update #3 mailing	Update #3 summarized the preliminary alternatives.
October 2012	Draft CCP distributed with Planning Update #4	Comment period opened for 30 days.
April 2013	Finding of No Significant Impact approved	CCP final.

During the pre-planning phase, refuge staff identified and evaluated the issues and concerns raised during public scoping. These issues are defined as matters of controversy, dispute, or general concern, or interest in resource management activities, the environment, land uses, or public use activities. Issues are important to the planning process because they identify topics to be addressed in the CCP, pinpoint the types of information to gather, and help define alternatives for the CCP. It is the Service's responsibility to focus planning and analysis on major issues. Major issues typically suggest different actions or alternative solutions, are within the refuge's jurisdiction, and have a positive or negative effect on the resource. Major issues influenced the decisions outlined in the CCP. Issues and goals that assisted in developing the management direction for the CCP are listed below.

1.9.2 Key Issues Addressed in the Comprehensive Conservation Plan

1.9.2.1 Restoration of Native Habitats and Natural Water Regimes

One of the primary goals of the Tualatin River National Wildlife Refuge is to protect, manage, and restore native habitats of the Tualatin River Basin and ensure that the refuge's efforts contribute to the much larger landscape outside of the refuge's boundary. Native habitat restoration requires understanding basic resources that ecosystems are dependent on to make sound scientific decisions. Local-scale knowledge of soils, hydrology, and topography are important attributes to consider when planning to restore a given habitat type. Additionally, it is just as important to determine what the land supported historically and identify changes from the historical condition that would help guide restoration options for a given area. Refuge management must be able to answer the most basic questions of "why" and "where" to support decisions. One of the key components in making restoration decisions is looking at the larger landscape both within and outside refuge boundaries. Habitats within the Tualatin River Basin are often fragmented into small, disconnected areas. Of primary concern is to provide larger contiguous blocks of a given habitat type, and maintain wildlife corridors to increase connectivity among habitat patches.

The Tualatin River is the "lifeblood" of the refuge, as a majority of refuge lands lie within its floodplain. Agricultural practices, development of dams, and urbanization have drastically altered hydrological patterns of the Tualatin River floodplain. Knowledge of current river functions is critical to support floodplain habitat restoration and support decisions to convert areas of the refuge to a more natural hydrologic-driven process.

One outcome of the CCP planning process was the development of computer modeling to help identify and map important floodplain habitat restoration opportunities using current land attributes and historical vegetation. The model will also help determine the historical, current, and future extent

of frequency and duration of Tualatin River flooding in order to identify floodplain restoration opportunities and show how current river hydrology could be integrated into habitat management.

1.9.2.2 Species Posing Management Challenges

The refuge is known for its natural features and diverse and abundant wildlife. However, as a refuge in an urban/rural interface, the space for wildlife is limited and the potential for conflicting use, use that disturbs wildlife both within and outside refuge boundaries, poses wildlife management challenges.

To date there have been no mosquito-borne human health disease issues documented near the refuge, but public concern for potential disease transmission from wildlife to humans have increased as human populations have grown around the refuge. The CCP will explore the refuge's role and appropriate responses to these concerns in cooperation with local agencies.

Invasive species are a major issue on public lands throughout the United States, and national wildlife refuges are no exception. Some invasive species are so well established that eradicating them completely using existing technology is impossible. The CCP, Chapter 4, will examine what the most appropriate strategies are for controlling invasive species in a variety of habitat types. Non-native invasive plant species include reed canarygrass, Himalayan blackberry, Bermuda grass, and common cocklebur. Efforts to control these and other species are ongoing.

Non-native animal populations that occur on refuge lands include nutria, bullfrogs, carp and other non-native fish species, and feral cats. These species degrade habitat and affect native wildlife populations directly or by displacement.

Some native species also pose management challenges. For example, beavers cause damage to water control structures and native vegetation; Canada geese numbers have increased significantly in the Willamette Valley and impact surrounding agricultural lands; ODFW has designated the Willamette Valley Management Unit as an elk de-emphasis area to minimize damage to agricultural crops—populations of elk reside less than a mile from the Wapato Lake Unit. The CCP will evaluate all wildlife management options and control strategies for these species to protect refuge resources.

1.9.2.3 Management of Special-status Species

The refuge has great potential to play a role in the protection and recovery of listed species, species of concern, and rare species occupying a variety of habitat types within the Willamette Valley. The CCP will explore management and landscape-level restoration actions that could include restoring riparian habitats to a more natural barrier-free system, providing wintering habitat for listed salmonids and other native fish. The conservation and restoration of rare and declining habitats such as wet prairie, oak savanna, and other habitat types would assist in the recovery of special-status species and possibly prevent future listings.

1.9.2.4 Refuge Public Access

Getting to and from the refuge as well as accessing areas within the refuge are important considerations for the CCP. Many transportation systems that bring visitors to the refuge either already exist, are planned, or have the potential to be implemented in the future. The CCP will explore whether the existing facilities within the refuge are sufficient to provide access to the range

of high-quality wildlife-dependent recreation opportunities, including those existing and those that may be implemented as an outcome of the CCP. Access must be considered through the lens of appropriateness and compatibility, evaluating disturbance/impacts to wildlife and their habitats, other compatible public uses, and refuge management programs.

1.9.2.5 Hunting and Fishing

Hunting and fishing are traditional recreational uses of renewable natural resources. The Administration Act, other laws, and the Service's policies permit hunting and fishing on a national wildlife refuge when it is compatible with the purposes for which the refuge was established and acquired.

National wildlife refuges exist primarily to safeguard wildlife populations through habitat preservation. The word "refuge" encompasses the idea of providing a haven of safety for wildlife, and as such, hunting might seem to be an inconsistent use of the Refuge System. However, habitats that normally support healthy wildlife populations produce populations that can sustain minor individual loss without impacting the population as a whole; therefore, the resource is renewable.

As practiced on refuges, hunting and fishing do not pose a threat to wildlife populations, and in some instances, are actually necessary for sound wildlife management. For example, on some wildlife refuges, deer populations will often grow too large for the refuge habitat to support. If some deer are not harvested, they destroy habitat for themselves and other animals and die from starvation or disease. The harvesting of wildlife on refuges is carefully regulated to ensure an equilibrium between population levels and wildlife habitat. The decision to permit hunting and fishing on national wildlife refuges is made on a case-by-case basis that considers biological soundness, economic feasibility, effects on other refuge programs, and public demand (USFWS 2011d).

Hunting and fishing are currently not offered at the Tualatin River National Wildlife Refuge. Hunting opportunities in the Portland metropolitan area are very limited, but there is potential to provide high-quality hunting and fishing opportunities on the refuge, in particular hunting at the Wapato Lake Unit and fishing at the Sherwood Units. Public scoping in 2010 revealed interest in offering hunting, including programs that offer youth hunts, and some interest in fishing. The CCP will examine what types of hunting and fishing could be offered, based on appropriateness, compatibility, sustainability, and feasibility.

1.9.2.6 Entrance and User Fees

Charging entrance fees (to visit the refuge) and user fees (to participate in a specific program or use specific facilities) are options to financially support visitor service operations, including facility maintenance and salaries for park rangers, fee collectors, or hunter check station operators. Several aspects of a potential fee program will be evaluated during the CCP. The cost of managing a fee program will be weighed against the revenue that is likely to be generated. The refuge will consider whether the income generated by a fee program would be worth the potential loss of visitors who would not come to the refuge if a fee were required.

1.9.2.7 Wapato Lake Management

In 1952, the Wapato Improvement District (WID) was established to coordinate the various water needs for agricultural operations and maintenance of Wapato Lake. The WID operated and

maintained two pumps, 5+ miles of levees, weirs, canals, bridges, and culverts associated with water management of the lake. The district consisted of all the landowners of the lake who paid assessments to WID to perform the necessary maintenance and operations to dewater the lake and deliver summer water to the lakebed landowners.

When the refuge first acquired lands within the Wapato Improvement District, it became a member of the WID and paid an assessment along with the other landowners to maintain the infrastructure. When the refuge became the majority landowner of the lakebed, the WID voted to no longer function as a district and in spring of 2012, the WID donated its assets to the Service. In the interim, until more detailed habitat management can be completed, the refuge will continue to dewater the lakebed to utilize cooperative farming to help manage invasive species and provide additional forage for waterfowl. Since it is inconsistent with refuge purposes and Service policies the refuge cannot take on the responsibilities of WID that relate to the irrigation responsibilities of the Tualatin Valley Irrigation District.

1.9.3 Issues Outside the Scope of the Comprehensive Conservation Plan

While CCPs are very comprehensive plans, no single plan can cover all issues. The planning team has compiled a list of issues that are currently considered to be outside the scope of this CCP.

Operations associated with raising of Scoggins Dam and raw water pipeline: At the Wapato Lake Unit, additional potential impacts to riverine and floodplain habitats and wildlife resources exist that are associated with a proposed raising of Scoggins Dam and the raw water pipeline project. Refuge and other Service staff will continue to be a part of this planning process.

Alignment of proposed I-5 and 99-W connection corridor: A new road development and associated right-of-way construction project has the potential to impact future acquisition needs and threaten refuge resources at several refuge unit locations. Alternative routes have been proposed that cross fee title refuge lands or are in close proximity to refuge parcels. Refuge staff will continue to monitor and comment on this planning process.

Washington County urban reserve planning process: As an urban refuge, the Tualatin River National Wildlife Refuge faces external threats that reflect the urbanization of the surrounding landscape. The City of Sherwood has been identified as one of the fastest growing cities in Oregon, with residential and commercial development continuing to expand at a high rate. Metro, the elected regional government for the Portland metropolitan area, has expanded the urban growth boundary since refuge establishment to accommodate growth of municipalities. Much of the habitat adjacent to the floodplain is now targeted for construction and development.

Hazardous material and contaminant issues: Land use surrounding the refuge includes a variety of operations that may adversely impact refuge resources, primarily through contamination of soils and waterways and urban-related runoff upstream and adjacent to the refuge. Examples of past and current operations include auto recycling facilities; landfills; abandoned and current industrial sites; quarries; and others. The Service will continue to engage and provide input on these types of concerns on a case-by-case basis, as appropriate and as authorized.

Willamette Valley Conservation Study Area: The Service has initiated a collaborative study of conservation opportunities within the Willamette Valley. The Willamette Valley Conservation Study Area is part of the America's Great Outdoors Initiative to develop twenty-first century conservation

and recreation solutions. The initiative takes as its premise that lasting conservation solutions should rise from the American people. This landscape-level study will be accomplished with our partners and other stakeholders to focus on several key points (USFWS 2011a):

- Conserving rare and declining habitats;
- Assisting in recovering endangered, threatened, and candidate species;
- Connecting people to nature through outdoor recreation and education opportunities;
- Enhancing habitat connectivity and wildlife corridors;
- Conserving rural working farms, ranches, and forest with wildlife habitat values through partnerships and incentives; and
- Assisting in achieving Pacific Flyway Canada goose and other migratory bird objectives.

1.10 Refuge Vision and Goals

1.10.1 Expanded Vision Statement: An Image of the Future

Tualatin River National Wildlife Refuge is a natural treasure where an abundance of native wildlife thrive in a mosaic of wetland, prairie, forest, and stream habitats characteristic of the Willamette Valley that the Atfálat'i people knew. It's a special place, an icon where the stories of the refuge reflect the importance of the National Wildlife Refuge System. The refuge has a rich history of community vision where friends and neighbors helped create, and continue to care for, this urban refuge and the watershed that supports it. It is a model that combines excellence in landscape conservation, learning, and partnerships to strive for a healthy natural world.

The refuge is a sanctuary for both wildlife and people, a place where the ebb and flow of the river marks the natural rhythms of the refuge through the seasons.

Spring is a time when the melody of songbirds echoes through the canopy of the riparian forest and prairies are washed in the vibrant colors of wildflowers in bloom. Nature is alive with the sights and sounds of animals as they fulfill their ancient ritual of courting and raising their young. Wetlands give way to mudflats as migrating shorebirds probe the mud for the insects and worms that will nourish them on their northward journey. The curiosity of school children is nurtured as they discover nature's surprises like a bird's nest, a vole tunnel, a duckling, a soaring hawk, or the slither of a snake.

The heat of summer dominates as wetlands dry and native plants continue to grow, setting the dinner table for the waterfowl that will arrive in fall. Turtles bask on logs, songbirds are fledging their young, the chorus of frogs resonates at sundown, and bats dart through the night sky eating insects on the fly. Volunteers and refuge staff are busy with the chores of caring for the refuge, while families explore the sunny expanse of tall meadow grasses and seek shelter in the cool shade of the green forest.

As fall approaches, the colors of the forest change to golden hues and the air fills with the sound of migrating geese and swans. Seasonal rains begin as the arriving waterfowl seek shelter and food in the wetlands that are beginning to flood. Deer and squirrels prepare for winter as they search for acorns under majestic oaks. Teachers gather at the refuge to learn how to share the sense of wonder that nature has to offer to their students.

Winter brings the awe of thousands of waterfowl, swirling overhead as they seek sanctuary. Rains pour down as ducks, geese, and swans forage in the wetlands, abundant with the seeds and roots that will nourish them through the cold season. People gather and marvel as bald eagles perch high atop leafless trees and patrol wetlands searching for a waterfowl meal. Fish migrate through rising rivers and streams, and seek shelter in the quieter waters of backwater sloughs. Late in the winter, the open water of the wetlands reflects the misty sunsets as waterfowl depart to their arctic breeding grounds.

Winter rains wane as the cycle begins anew in a place where rich traditions, outdoor learning experiences, and discovery foster a love of and caring for nature that endures for generations to come.

1.10.2 Condensed Vision: Summarizing the Core Values of the Refuge

Tualatin River National Wildlife Refuge is a natural treasure where an abundance of native wildlife thrive in a mosaic of wetland, prairie, forest, and stream habitats characteristic of the Willamette Valley that the Atfálat'i people knew. The refuge is a sanctuary for both wildlife and people, a place where the ebb and flow of the river marks the natural rhythms of the refuge through the seasons. It's a special place, an icon where the stories of the refuge reflect the importance of the National Wildlife Refuge System. The refuge has a rich history of community vision where friends and neighbors helped create, and continue to care for, this urban refuge and the watershed that supports it. It's a model that combines excellence in landscape conservation, learning, and partnerships to strive for a healthy natural world. Tualatin River National Wildlife Refuge is a place where wildlife, rich traditions, outdoor learning experiences, and discovery foster a love of and caring for nature that endures for generations to come.

1.10.3 Refuge Goals

Refuge management goals are descriptive, open-ended, and often broad statements of desired future conditions that convey a purpose, but do not define measurable units. Goals must support the refuge vision and describe the desired end result.

The CCP planning team has drafted a series of goals, objectives, and strategies to meet these goals and to address the concerns identified during scoping. Included below are the goals.

- Maintain, enhance, and restore bottomland riparian habitats consistent with the historical range of variability representative of the Willamette Valley ecosystem to support breeding and migratory landbirds and other native species.
- Maintain, enhance, and restore mixed coniferous/deciduous forest habitat to a historical range of variability representative of the Willamette Valley ecosystem to support breeding and migratory landbirds and other native species.
- Maintain, enhance, and restore oak savanna habitat to a historical range of variability representative of the Willamette Valley ecosystem to support breeding and migratory landbirds and other native species.
- Maintain, enhance, and restore native Willamette Valley wet prairie habitat, with an emphasis on management for rare and listed species.

- Maintain, enhance, and restore a diversity of wetlands to support migratory landbirds, waterbirds, and shorebirds with special emphasis on wintering waterfowl.
- Maintain, enhance, and, where feasible, restore streams and off-channel backwater slough habitats to benefit salmonids and other native aquatic species.
- Cultivate and maintain croplands as an interim measure to control non-native invasive species.
- Collect scientific information (surveys, scientific assessments, and research) as necessary to support adaptive management decisions that are associated with the goals of the refuge.
- Protect and manage the refuge's unique cultural resources for their cultural, scientific, and educational values, while consulting with appropriate Native American groups and preservation organizations and complying with historic preservation legislation.
- Provide visitors, local residents, volunteers, and partners with opportunities to understand and appreciate fish and wildlife conservation as well as the purpose, ecology, and management of the refuge and the Refuge System.
- Provide students and educators from the greater Portland area with compatible and high-quality opportunities to participate in environmental education.
- Provide refuge visitors with diverse, compatible, and high-quality opportunities to participate in wildlife-dependent recreation and interpretation.
- Build a broad-based natural resource conservation constituency with a focus on urban audiences to create a conservation ethic within urban communities; increase relevance of habitat conservation, wildlife heritage, and the Refuge System in the eyes of urban citizens; and instill a sense of empowerment for urban communities to work together to actively support conservation, in both local and global settings.

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Chapter 2 Management Direction

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Chapter 2 Management Direction

2.1 Development of Management Direction

In developing the management direction for the Comprehensive Conservation Plan (CCP), the Tualatin River National Wildlife Refuge (refuge) reviewed and considered a variety of natural and cultural resource, social, economic, and organizational information, ideas, and concerns important for managing the refuge. Much of this information is more fully described in Chapters 3, 4, and 5. As is appropriate for a national wildlife refuge, biological resource considerations were paramount in designing the management direction. A U.S. House of Representatives report accompanying the Refuge System Improvement Act stated, ~~"~~the fundamental mission of our [Refuge] System is wildlife conservation: wildlife and wildlife conservation must come first."

The refuge planning team reviewed available scientific reports and studies to better understand ecosystem trends and the latest scientific recommendations for species, habitats, and public uses, including environmental and social effects of those uses. The planning team also identified refuge areas that, due to natural or cultural considerations, were especially sensitive to public uses and facilities, and identified refuge areas that provided special opportunities for public uses.

Refuge staff met with representatives from local, state, and Federal agencies and initiated contact with elected officials and the Confederated Tribes of Grand Ronde (Tribes) to ascertain issues, priorities, problems, and recommendations as perceived by others. Refuge staff also conducted scoping meetings with agencies and the general public to ensure that comments and ideas were considered from all interested parties during development of this CCP. These consultation, coordination, and public participation efforts are more fully described in Appendix K.

The refuge planning team considered all of the above information and input, and identified and described a range of reasonable alternatives. A reasonable alternative is one that is technically and economically practical or feasible, would fulfill the purpose of and need for action without violating minimum environmental standards, and could be implemented. Each alternative was then evaluated for environmental and social effects and how it addressed the CCP issues. The refuge then identified its preferred alternative—Alternative 2—which was labeled as the Proposed Action. Following public review and comment, the U.S. Fish and Wildlife Service (the Service; USFWS) selected this CCP alternative for implementation as the management direction.

2.2 Management Directions Considered but Eliminated from Detailed Study

During development of the management direction, the refuge planning team considered the actions discussed below. All of these actions were ultimately eliminated from further evaluation and inclusion for the reasons stated.

Expanding the refuge boundary. The refuge has been protecting habitat within the approved acquisition boundary through an active effort to acquire lands and waters for almost 20 years. The approved acquisition boundary was substantially increased in 2007 with the addition of the 4,310-acre Wapato Lake Unit (USFWS 2007b). As of June 2011, the refuge has acquired or has otherwise gained management authority over approximately 2,217 acres of the 7,370 acres within the approved

refuge acquisition boundary. Acquisition is from willing sellers through fee title or easements. Of those acres 2,167 acres are in fee title or easement and 50 acres are under memorandum of agreement with Metro for management. Refuge efforts now and into the foreseeable future are focused on securing the acreage yet to be acquired within the existing boundary from willing sellers. Therefore, expansion of the approved refuge acquisition boundary is not being considered as part of this CCP effort.

The Service has recently initiated a separate study of opportunities to conserve valuable fish, wildlife, and plant habitats throughout the Willamette Valley (USFWS 2011a). This new effort is part of the national America's Great Outdoors initiative and will involve collaboration among local communities, landowners, agencies, and organizations. Purposes of the study include conserving rare habitats; enhancing habitat connectivity; helping to recover and avoid listing species with declining populations; addressing goose management issues, including agricultural depredation; enhancing water quantity and quality; and increasing wildlife-dependent recreation and education opportunities. The study will evaluate voluntary conservation easements, private land incentives, potential expansion of existing or establishment of new national wildlife refuges; and other "land protection strategies that support local economies, conserve natural resources and provide increased outdoor recreation and education opportunities" (USFWS 2011a). One of the outcomes of this study may be the possibility of establishing the existing Wapato Lake Unit as its own national wildlife refuge. Several opportunities will be provided for the public to become involved in this new study. The refuge is participating in this Willamette Valley–wide conservation effort, but the initiative is not part of this CCP.

Cropland management for geese. In its plan to reduce goose depredation of private agricultural lands, the Pacific Flyway Council (PFC) recommended, among other things, that Federal refuges do "everything possible … to provide abundant, high quality goose forage" (PFC 1998). A task force created by the Oregon legislature in 2009 to evaluate this issue made similar recommendations and stated that, "Supplemental feeding of geese on … federal areas should be utilized when needed to reduce goose depredation on private farmlands" (Goose Depredation Task Force 2010). Although cooperative farming is used as an interim management tool prior to restoring acquired lands, the refuge planning team considered implementation of a permanent cropland management program on the refuge to provide winter forage for geese. This proposal was eliminated from further study for the following reason:

- Restoration and management of native habitat types on these refuge acreages support higher priority ecological values (i.e., remnant vegetation communities and wildlife species with declining populations) and directly support the purposes of the refuge.

Allowing certain nonwildlife-dependent uses. Uses found not appropriate have not been carried forward in the CCP process (see discussion of the Refuge Administration Act in Section 1.5, Legal and Policy Guidance). The refuge planning team considered the appropriateness of providing opportunities for a broad range of recreational and commercial uses of the refuge that were suggested during CCP scoping or at other times prior to the start of the CCP process. These uses include dog training/walking, bicycling/jogging, plant harvesting, trapping, boat access, and geocaching.

Each of these uses was evaluated and found to cause unacceptable levels of disturbance to wildlife, create unacceptable public safety issues, and/or interfere with users engaged in compatible wildlife-dependent uses. Therefore, these uses were found to be not appropriate on the refuge, and they are

not included in the management direction. These findings are documented in Appendix A, Appropriate Use Findings.

Providing boat access to the Tualatin River at the Wapato Lake Unit. Comments were made during public scoping and the public use review regarding the potential for boating access to the Tualatin River from the Wapato Lake Unit (SWCA Environmental Consultants 2010a, 2010b).

As it flows through the northern half of the Wapato Lake Unit, the Tualatin River is quite narrow and is bordered by strips of remnant riparian forest. As a result of flooding and natural tree fall, the river is regularly blocked by multiple brush and logjams. Maneuvering even a small human-powered craft through this reach of the river would require regular lifting of the craft over or around logjams, creating a potentially dangerous situation. If the refuge developed improved boat access to the river, the public would reasonably expect a relatively safe and enjoyable boating experience, which at this time, we are unable to provide. Additionally, large woody debris is often a valuable component of aquatic fisheries habitat, and logs are best left in place to facilitate wildlife benefits. For these reasons, this proposal was determined impractical and was not further evaluated as part of this CCP.

2.3 Description of Management Direction

As a unit of the National Wildlife Refuge System (Refuge System), the refuge is managed to conserve native fish, wildlife, plants, and their habitats, and to provide opportunities for compatible wildlife-dependent public uses. The refuge will continue to conduct core management programs.

A brief description of the management direction follows. It represents a balanced approach among the many competing needs and issues that the refuge currently faces and is likely to experience in the next 15 years. Table 2-1 summarizes the features of the management direction. Maps displaying the habitat types and visitor services features associated with the management direction can be found in Appendix P. Changes in habitat types and restoration objectives were derived from the philosophy of creating larger blocks of contiguous habitat types to reduce fragmentation and increase connectivity among habitat patches, and to restore and maintain rare habitat types. In some instances we plan to eliminate small patches of rare habitat in favor of another habitat type that will result in less fragmentation. We will then enhance and/or restore more of the rare habitat type in another location to achieve the same goal.

Adaptive management. Based upon the Service's Adaptive Management Implementation policy, refuge staff shall use adaptive management for conserving, protecting, and, where appropriate, restoring lands and resources. Adaptive management is defined as a system of management practices based upon clearly identified outcomes, where monitoring evaluates whether management actions are achieving desired results (objectives). The recently published *Adaptive Management Technical Guide* also defines adaptive management as a decision process that ~~"p~~promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood" (Williams et al. 2009). Adaptive management accounts for the fact that complete knowledge about fish, wildlife, plants, habitats, and the ecological processes supporting them may be lacking. The role of natural variability contributing to ecological resilience also is recognized as an important principle for adaptive management. It is not a ~~"tr~~ial and error" process; rather, adaptive management emphasizes learning while doing based upon available scientific information and best professional judgment considering site-specific biotic and abiotic factors on refuge lands.

Administration. Full implementation of the management direction, including increasing habitat restoration projects and public use opportunities, will require, at a minimum, six additional full-time permanent employees. The refuge will continue to pursue additional staff over the life of the CCP.

Appropriateness and compatibility. Consistent with relevant laws, regulations, and policies, prior to allowing any public use, including commercial use of the refuge, each such use would first need to be found appropriate and determined compatible. The Service made preliminary findings and determinations regarding the appropriateness and compatibility of each use included in the management direction. Prior to signature of a decision document for the CCP and its associated NEPA document, appropriateness findings and compatibility determinations were finalized for each public use included in the Service's management direction. Appropriateness and compatibility are further discussed in Appendices A and B.

Biological integrity. The Administration Act directs the Service to ~~"~~ensure that the biological integrity, diversity, and environmental health of the [Refuge System] are maintained for the benefit of present and future generations of Americans …." The policy is an additional directive for the Service to follow while achieving a refuge's purposes and the Refuge System's mission. It provides for the consideration and protection of the broad spectrum of native fish, wildlife, and habitat resources found on the refuge. When evaluating the appropriate management direction for the refuge (e.g., in compatibility determinations), the Service will use sound professional judgment to determine the refuge's contribution to biological integrity, diversity, and environmental health (BIDEH) at multiple landscape scales. Sound professional judgment will incorporate field experience, knowledge of refuge resources, an understanding of the refuge's role within the ecosystem, applicable laws, and best available science, including consultation with others both inside and outside the Service. The policy states that ~~"~~the highest measure of biological integrity, diversity, and environmental health is viewed as those intact and self-sustaining habitats and wildlife populations that existed during historic conditions."[1]

Climate change. The Service considers and analyzes climate change in its decisions, long-range plans, and other activities. Habitat conditions and wildlife populations are directly and indirectly sensitive to climatic conditions, namely precipitation and temperature. As described in greater detail in Chapter 3, the area's hydrology is not particularly sensitive to changes in climate because the refuge is located in a rain-dominant system. However, increasing temperatures increase the risk of fire, disease, pests, and invasive species throughout the Pacific Northwest, and these trends may affect the refuge's forest, riparian, and upland habitats and species and their management.

The combined changes (temperature, precipitation, and hydrology) can affect the refuge's habitats and species directly, such as the timing of migratory arrival and many other phenological responses, and indirectly, such as by added vulnerability to other stressors including invasive species and pathogens. Predicting biological response at the population level, however, requires complex research and information and sophisticated models that can be validated with field studies over time. This highlights the importance of monitoring both habitats and species to establish potential correlations and adaptation options.

[1] There is one caveat, however. Management for a refuge's purpose(s) is the highest priority, so maintenance and/or restoration of biological integrity, diversity, and environmental health cannot compromise or conflict with refuge purpose(s).

In summary, climate change has the potential to significantly impact the refuge's ability to achieve its purposes, goals, and objectives. Knowledge and monitoring of these regional and local trends will be used to assess potential changes or enhancements to the refuge's management actions and techniques and/or their timing, using the adaptive management approach described above. Most notably, the region's changing climate, specifically hotter and drier summer months, could challenge the refuge's goals and objectives for maintaining, enhancing, and restoring mixed coniferous/deciduous forest habitat to a historical range of variability, and for maintaining, enhancing, and restoring native Willamette Valley wet prairie and shrub-scrub wetland habitat.

The refuge will monitor wildlife corridor analyses, vulnerability assessments, vegetative and species response modeling, and other efforts, including those underway at a landscape scale, such as the Great Northern Landscape Conservation Cooperative (LCC). LCCs are formal science-management partnerships between the Service, Federal agencies, states, Tribes, nongovernmental organizations (NGOs), universities, and other entities to address climate change and other biological stressors in an integrated fashion. LCCs provide science support, biological planning, conservation design, research, and design of inventory and monitoring programs. As needed, objectives and strategies will be adjusted to assist in enhancing refuge resources' resilience to climate change and to potentially manage for new assemblages of species in the future.

Energy efficiency, sustainability, and other green building concepts were among the key principles used in the design and construction of the refuge's Wildlife Center, environmental education shelter, and administration building in the past decade (USFWS 2003a). The refuge will continue to take steps to mitigate effects of climate change and reduce its carbon footprint to help achieve the Service's national commitment to become carbon neutral by 2020 (USFWS 2010a). Habitat restoration efforts will help to sequester carbon. Most restoration efforts involve planting grasses, shrubs, or trees, each of which will remove atmospheric carbon dioxide and store it within the plant materials. In addition, forest and scrub-shrub habitat types will increase shading along waterways, contributing to decreased water temperatures. Restoring and maintaining large blocks of habitat may also provide extended life history needs, such as cooler forest areas, for fish and wildlife as climate change occurs.

Coordination with the State. The refuge will continue to routinely coordinate with state agencies such as Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Environmental Quality (DEQ), and the Department of State Lands (DSL). Key subjects of mutual interest include water quality; wetlands; management of dusky Canada geese, cackling Canada geese, and other waterfowl; goose and elk depredation; management of wildlife-dependent recreation, including hunting and fishing; management of non-native and invasive species; and management of special-status species.

Coordination with the Confederated Tribes of Grand Ronde. The refuge will continue to coordinate and consult with the Tribes on subjects of mutual interest, including education and interpretation regarding cultural resources.

Cultural resources protection and National Historic Preservation Act (NHPA) compliance. The refuge will continue to uphold federal laws protecting cultural resources, including Section 106 of the NHPA. These laws also mandate consultation with Native American Tribes, the State Historic Preservation Office, and other preservation partners.

Facility management. The efficient and safe operation of refuge facilities is critical to achievement of refuge purposes, goals, and objectives, including conserving native fish, wildlife, plants, and their habitats, and providing compatible wildlife-dependent public use opportunities. The Service will continue to maintain, repair, upgrade, and/or replace refuge facilities as necessary and appropriate, consistent with available funding.

Fees. Some public lands, including national wildlife refuges, establish and use revenues generated by entrance and user fees to help support their programs. Federal law and policy requires the use of fee revenues to support visitor services programs, including maintenance and repair of visitor facilities. The refuge has received official approval to establish an entrance fee program (USFWS 2009a), but has not implemented one to date. The refuge will continue to evaluate the desirability of establishing entrance fees to supplement Federal appropriations, grants and other less reliable funding, and volunteer support.

Funding and staffing. As a result of inflation, implementation of current management will likely require increased funding just to maintain current operations. Full implementation of the management direction will require funding levels substantially above current budget allocations to support the identified habitat and wildlife management activities and enhanced public use programs.

Aspects of the refuge's habitat and wildlife program, such as habitat restoration projects, have been funded with grants and cost-share moneys, and through mitigation and other agreements with other agencies. A much greater proportion of the refuge's visitor services program has been funded with one-time grants, cost-share programs, and funding from other outside sources. In addition, as discussed elsewhere in this chapter, both programs are supported through numerous partnership and volunteer efforts. Future programs on the refuge will continue to rely on grants, cost-share moneys, partnerships, and volunteers.

As noted at the beginning of this document, the purpose of this CCP is to provide long-term guidance for management decisions; set forth goals, objectives, and strategies needed to accomplish refuge purposes; and identify the Service's best estimates of future needs. Selection of the management direction does not constitute a commitment for staffing increases, operational and maintenance increases, continued land acquisition, or construction of new projects. After the CCP is completed, actions and programs that are part of the management direction will be implemented over a period of 15 years, consistent with available funding and staffing.

Goose management. The refuge and partner agencies including ODFW are grappling with several issues regarding goose management. Issues of concern include reduced numbers of dusky Canada geese and the abundance of cackling Canada geese, the loss of goose foraging habitat, and goose depredation on private farmland (PFC 1998, 1999, 2008). There are also concerns with increasing populations of resident Western Canada geese.

The refuge lies within the Willamette Valley and Lower Columbia River area, has agricultural lands as neighbors, and supports wintering dusky Canada geese and cackling Canada geese; thus, goose management is an important issue for the refuge. The management direction includes winter surveys of refuge goose use and winter sanctuary areas that provide resting and foraging habitats for dusky Canada geese and other waterfowl.

Habitat and wildlife. The refuge is currently composed of a mosaic of fragmented habitats. The management direction will strive to combine some of these fragments into larger contiguous blocks

of native habitat types within the landscape and also restore relic or disappearing habitat types (see Appendix P, Map 9). It will benefit imperiled species that rely on prairie, scrub-shrub wetland, and oak savanna habitats. It will capitalize on opportunities to work with regional partners and increase the continuity of habitats as well as recreational connections beyond the boundaries of the refuge.

The management direction is largely driven by the typical hydrologic flows in the Tualatin River, with limited water control manipulation on the refuge. Prescribed fire will be added as an additional habitat management technique.

The habitat types of the Tualatin River, primarily riparian forest and herbaceous wetland, will not substantially change under the management direction. In the upland, oak savanna and ruderal habitats will convert to mixed forest. The oak savanna that is currently identified on the refuge is habitat where management efforts have been made to begin converting ruderal uplands to oak savanna primarily through the treatment of invasive species and by some planting. The habitat is not mature oak savanna. However, through this CCP, the refuge has identified some areas that would provide more benefit as mixed forest. The conversion of oak savanna to mixed forest would not result in a ~~"~~true" loss of oak savanna. The limited water manipulation on the Tualatin River Unit will continue. On the Rock Creek Unit, the ruderal wetlands will be converted to scrub-shrub wetland. Other actions included in the management direction intend to restore a mosaic of wetlands, riparian forests, oak savannas, prairies, and streams.

Habitats on the Riverboat Unit will largely remain the same as under current management, except that active water control management that maintains a 30-acre herbaceous wetland will be modified. The wetland will be allowed to evolve into a mixture of wet prairie and scrub-shrub wetland. Approximately 4 acres of riparian forest on this unit will convert to wet prairie.

At the Atfálat'i Unit, Chicken Creek will be restored to its historical footprint. The existing water diversion structure could be relocated to the east, allowing water management on approximately 158 acres of herbaceous wetland, 69 acres less than what is currently managed. These wetlands will be enhanced (e.g., recontouring ground surface and updating water control structures) to manage them more effectively. The remaining acres will be converted to a mixture of wet prairie, oak savanna, and scrub-shrub wetland.

Management of the Onion Flats Unit will take advantage of soils that are rare in the Willamette Valley and historically supported a rare scrub-shrub wetland type. Assuming further land acquisition occurs; Onion Flats Unit will convert from cooperative farming into a scrub-shrub wetland and oak savanna. These changes could benefit declining dusky Canada geese and the threatened Nelson's checker-mallow plant. The management direction also include restoring channelized Rock Creek to its historical footprint.

Management of the Wapato Lake Unit could include a mixture of free-flowing hydrology and intensive water control with the intention of a more natural hydrology being implemented over the long term. Actual management activities of the lake bed will be determined based upon a Wapato Lake water management planning study.

Integrated pest management (IPM). Non-native species, especially invasive species, and other pest plants and animals can disrupt native ecosystems and management of conservation lands. They can displace native plants and create monotypic habitats of little value to native fish and wildlife; they can prey upon native species; they can transmit diseases to other species, including humans; and they

can damage facilities used to manage habitats and provide public use opportunities. Species posing the greatest current threats to the refuge include Himalayan blackberry, English ivy, common carp, bullfrogs, nutria, Bermuda grass, and reed canarygrass. Species that have been detected on the refuge but were immediately removed include Japanese knotweed and purple loosestrife. In addition, snapping turtles have been documented in the Tualatin River, but have not been observed by refuge personnel. Species that pose a significant threat to the refuge, but have not been documented, include giant hogweed, zebra mussel, garlic mustard, and New Zealand mud snail. Control of such species is a high-priority refuge management activity. Because of their aggressive nature and high potential for harm, the refuge has zero tolerance for purple loosestrife and Japanese knotweed and will continue to take immediate action to remove these species from the refuge whenever they are found.

Other pest species, both native and non-native, such as beaver, feral cats, catfish, cocklebur, mosquito fish, poison hemlock, mosquitoes, sunfish, teasel, bull thistle, Canada thistle, velvetleaf, and tansy, can also limit the refuge's ability to provide high-quality habitats and public use programs. Appropriate management actions, including control efforts, will continue to be taken for these species, consistent with need and available funding.

An IPM approach will be used, where practicable, to eradicate, control, or contain pest and invasive species (herein collectively referred to as pests) on refuge lands. IPM will involve using methods based upon effectiveness, cost, and minimal ecological disruption, which considers minimum potential effects to nontarget species and the refuge environment. Pesticides may be used where physical, cultural, and biological methods or combinations thereof are impractical or incapable of providing adequate control, eradication, or containment. If a pesticide is needed on refuge lands, the most specific (selective) chemical available for the target species would be used unless considerations of persistence or other environmental and/or biotic hazards preclude it. Pesticide use will be further restricted because only pesticides registered with the U.S. Environmental Protection Agency (EPA) in full compliance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and as provided in regulations, orders, or permits issued by EPA may be applied on lands and waters under refuge jurisdiction.

Environmental harm by pest species refers to a biologically substantial decrease in environmental quality as indicated by a variety of potential factors such as declines in native species populations or communities, degraded habitat quality or long-term habitat loss, and/or altered ecological processes. Environmental harm may be a result of direct effects of pests on native species, including preying and feeding on them (e.g., bullfrogs eating native amphibians); causing or vectoring diseases; preventing them from reproducing or killing their young (e.g., pushing eggs out of nests); outcompeting them for food, nutrients, light, nest sites or other vital resources; or hybridizing with them so frequently that within a few generations, few if any truly native individuals remain. Environmental harm also can be the result of an indirect effect of pest species. For example, decreased waterfowl use may result from invasive plant infestations reducing the availability and/or abundance of native wetland plants that provide forage during winter.

See Appendix G for the refuge's IPM program documentation. Along with a more detailed discussion of IPM techniques, this documentation describes the selective use of pesticides for pest management on refuge lands, where necessary. Throughout the life of the CCP, most proposed pesticide uses on refuge lands will be evaluated for potential effects to refuge biological resources and environmental quality. These potential effects will be documented in ~~"c~~hemical profiles" (see Appendix G). Pesticide uses with appropriate and practical best management practices (BMPs) for habitat management as well as cropland/facilities maintenance would be approved for use on refuge

lands where there likely would be only minor, temporary, and localized effects to species and environmental quality based upon non-exceedance of threshold values in chemical profiles. However, pesticides may be used on refuge lands where substantial effects to species and the environment are possible (exceed threshold values) in order to protect human health and safety (e.g., to counter mosquito-borne disease).

Land acquisition and habitat protection. The approved refuge boundary for the Tualatin River National Wildlife Refuge totals 7,370 acres. As of February 2013, the Service had secured management authority over 2,217 acres. This authority was secured through fee title land acquisition, purchase of conservation easements, and management agreements. During the 15-year life of the CCP, the Service will continue actively securing management authority over lands and waters within the approved refuge boundary to protect habitat for native fish, wildlife, and plants and to provide opportunities for compatible wildlife-dependent public use. This high-priority effort will be accomplished with available funding under current management authorities, and will continue to be exclusively on a willing-seller basis.

The refuge currently has a land acquisition priority plan that was developed and outlines the five priority areas for land acquisition at the Sherwood Units. There is a focus on the top three areas for acquisition, and the plan includes maps and descriptions of each area. This plan is used extensively by refuge management to develop annual funding requests and work plans in cooperation with the realty program in the Regional Office. Most importantly, this plan provides a long-term guide for future planning. Ultimately, there is an opportunistic approach to acquisition as the Service will only purchase lands from willing sellers and timing often dictates property available for purchase.

Some residences and outbuildings acquired when lands were purchased for the refuge will be used to house refuge personnel, provide offices for Service personnel, and provide storage space. Outbuildings included with newly acquired lands will be opportunistically considered for reuse (e.g., to shelter environmental education activities or store equipment and supplies) or removed.

Partnerships. It is essential to partner with others to conduct programs and accomplish goals and objectives on national wildlife refuges. Tualatin River National Wildlife Refuge actively partners with a number of organizations, including other public agencies, nonprofit conservation organizations, schools, private businesses, and others to implement current programs. Partners provide funding, equipment and supplies, special expertise, and volunteers (see further discussion below). These partnerships will continue in the future.

Public uses and facilities in Atfálat'i Unit. At least the same types of public use opportunities and facilities currently available in the Atfálat'i Unit will continue to be available in the future.

Participation in planning and review of regional development activities. The Service will continue to participate in local planning and studies pertaining to future commercial, industrial, residential, and other urban development; transportation; recreation; contamination; and other potential concerns that may affect refuge resources. This includes maintaining relationships with local jurisdictions, other agencies, and private groups to stay abreast of ongoing planning, studies and current and potential developments. Outreach and education will continue to be used to raise awareness of refuge resources and their dependence on a healthy and functioning ecosystem.

Quality recreation programs. Refuge System policy provides specific criteria for managing compatible wildlife-dependent recreational uses (605 FW 1). This policy defines quality recreational programs as ones that:

- Are safe, accessible, and available to a diversity of citizens, and use facilities that blend into the environment;
- Promote responsible behavior and compliance with laws and regulations;
- Promote stewardship and conservation, understanding and appreciation of nature, and the refuge's role in resource management and conservation;
- Provide reasonable opportunities to experience wildlife;
- Minimize conflicts with fish, wildlife, and their habitats, other public uses, and neighboring landowners; and
- Use visitor satisfaction to define and evaluate programs.

Refuge programs will be developed and managed to ensure that high-quality opportunities are provided for all visitors.

Refuge revenue sharing. The Refuge Revenue Sharing Act provides a mechanism to make payments to counties in lieu of taxes. Lands acquired by the Service are removed from county tax rolls. However, this Act, amended in 1978, allows the Service to offset the tax losses by annually paying the county or other local units of government an amount that often equals or exceeds that which would have been collected from taxes if the lands had been in private ownership. This funding is based on congressional approval on an annual basis.

Regulatory compliance. Prior to implementation, all activities in the management direction will undergo appropriate reviews and consultations. Permits and clearances will be secured as necessary to comply with legal and policy requirements.

Response to mosquito-borne disease. Mosquito populations on refuge lands will continue to be allowed to fluctuate and function unimpeded unless they pose a threat to human health. Mosquitoes inhabiting the refuge's aquatic habitats are native invertebrates that provide a forage base for fish and wildlife, including migratory birds and anadromous fish. To protect human health, the state or a local vector control agency will be allowed to control mosquito populations on refuge lands. Pesticide treatments (larvicides, pupacides, or adulticides) will be allowed on refuge lands only if local, current population monitoring and/or disease surveillance data indicate refuge-based mosquitoes pose a health threat to humans. Mosquito treatments will be in accordance with IPM principles applicable to all pests. Pesticides proposed for mosquito control will use appropriate and practical BMPs, given potential effects documented in chemical profiles. Under Service policy, pesticides may be used on refuge lands for mosquito control even though substantial effects to species and the environment are possible (i.e., exceed threshold values) in order to protect human health and safety.

The mosquito management compatibility determination in Appendix B provides details regarding allowed mosquito population monitoring, disease surveillance, and treatments. As noted earlier, Appendix G, describes the refuge's IPM program, which is applicable to all pests, including mosquitoes.

Following adoption of this CCP, the refuge will develop a disease contingency plan (DCP) to address responses to mosquito-borne disease outbreaks on and/or adjacent to refuge lands. Much of the information contained in the compatibility determination for mosquito management will be

incorporated with additional specificity, where necessary, in the DCP. The DCP will also include information on the history of mosquito-borne diseases on and/or adjacent to the Refuge as well as measures to protect refuge visitors, Service-authorized agents, and Service employees when a health threat or emergency is identified by health officials.

Restoration of ruderal habitats. The refuge contains many tracts of land that consist of fallow farmland, undeveloped lands that contain mainly non-native vegetation, or lands that are otherwise not restored to native habitat types. These lands include both uplands and wetlands in degraded condition. On many of these tracts, the refuge has begun pretreatment work to restore native habitat types. Pretreatments may include mowing, discing, removal of non-native trees, application of herbicide to remove non-native plants, or other activities. These pretreatments are conducted with the expectation that the area will be restored to specific native habitat types as described in the habitat goals listed below in this chapter. There are currently 189 acres of ruderal upland and 74 acres of ruderal wetland that will be restored to native habitat types.

Site restrictions. Selected tracts of land within the refuge boundary are encumbered with legal restrictions that limit the manner in which those tracts can be managed for fish, wildlife, and public use (see Appendix J). These site-specific limitations originate with management agreements and mitigation requirements (USFWS 1992a, 2010d). These site restrictions will continue to apply under the management direction.

Sound professional judgment. Decisions regarding refuge management and actions taken to carry out these decisions will continue to be based on sound professional judgment. Federal regulations in 16 United States Code (USC) 668-668ee define sound professional judgment as ~~"~~a finding, determination, or decision that is consistent with principles of sound fish and wildlife management and administration, available science and resources, and adherence to the requirements of the National Wildlife Refuge System Administration Act of 1966 and other applicable laws. Included in this finding, determination, or decision is a refuge manager's field experience and knowledge of the particular refuge's resources."

Step-down management plans. This CCP provides broad, long-range guidance for overall management of the refuge and its principal programs. Further work, including more data gathering and more detailed analyses, would be needed to develop more specific guidance for selected programs and elements. In these cases, step-down management plans will be developed. Step-down management plans will satisfy NEPA requirements and other relevant compliance requirements, and the development of these plans will include appropriate opportunities for public involvement. The following plans are scheduled for development.

Disease contingency plan. This plan will be developed in partnership with mosquito abatement, public health, and animal health authorities from the State of Oregon, Washington County, and Yamhill County. This plan will describe mosquito abatement, avian influenza, and other public and wildlife health threats. It is scheduled for completion in 2015.

Elk management plan. This plan will be developed in partnership with the Willamette Valley National Wildlife Refuge Complex and ODFW. It will describe how elk will be managed on national wildlife refuges in the Willamette Valley. Consideration of elk viewing and/or hunting opportunities, as appropriate, will be included.

Facilities management plan. This plan will be developed within 5 years of the completion of the CCP. The plan will include: 1) preparation of a historic buildings assessment; 2) evaluation of quarters buildings to determine number needed, best locations, and maintenance costs; and 3) evaluation of potential locations for a small administrative and maintenance facility at the Wapato Lake Unit.

Fire management plan. The refuge's 2008 fire management plan has been revised and updated. This updated plan addresses the need for prescribed fire to support established habitat communities and was developed in consultation with DEQ. See Appendix O for the revised fire management plan.

Inventory and monitoring plan. The Refuge System Administration Act charges the Service to "monitor the status and trends of fish, wildlife, and plants in each refuge." The refuge will participate in development of an inventory and monitoring plan as part of a larger effort in the Willamette Valley. This plan will provide guidance for establishment of baseline inventories and subsequent monitoring activities to ensure they use common standards and are conducted with appropriate statistical rigor. These inventory and monitoring efforts will be designed to address refuge information needs for adaptive management. Data gathered will feed into efforts across larger geographic areas to detect ecological changes caused by pollution, development, climate change, and other major environmental stressors.

Support the protection and recovery of federally listed, state-listed, and other special-status species. The refuge is undertaking projects to enhance and restore native prairie and savanna habitat types that may support recovery of federally and state-listed plant species, such as Bradshaw's lomatium, Kincaid's lupine, Nelson's checker-mallow, Willamette daisy, and others. Whenever possible, as these projects proceed, planting and maintenance of these species will be conducted in accordance with applicable recovery plans to help facilitate downlisting or delisting. Restoration and maintenance of in-stream, off-channel, and other habitat types may benefit various native fish species including upper Willamette River Chinook salmon, Oregon chub, Pacific lamprey, coastal cutthroat trout, and upper Willamette River steelhead. In addition, most habitat types encountered on refuge lands could support some or all life phases of any number of listed or special-status species such as bald eagle, band-tailed pigeon, Fender's blue butterfly, streaked horned lark, northern red-legged frog, northwestern pond turtle, willow flycatcher, and others. When planning and implementing various restoration projects, consideration will be given to strategies that promote healthy populations of these species.

Urban refuge. The refuge is one of a handful of urban national wildlife refuges and was one of the first in the Refuge System specifically established under the Service's Urban Refuge Policy (Smith 1991; USFWS 1996). This policy states, in part, that the primary purpose for establishing urban refuges is to:

- "foster environmental awareness and outreach programs to develop an informed and involved citizenry that will support fish and wildlife conservation";
- "… provide public use benefits associated with fish and wildlife resources that include … bird watching, fishing, scientific research, environmental education, open space in an urban setting, and protection of cultural resources"; and
- include "education, interpretation and wildlife-oriented recreation … opportunities for partnerships with State and local governments, private individuals, or citizens groups … [and a] potential role of nonprofit or volunteer groups for management purposes."

In 2011, the Service published the new vision for the National Wildlife Refuge System –Conserving the Future" (USFWS 2011c) which, in part, sets forth updated recommendations for urban refuges. Recommendation 13 of the vision document –creates an urban refuge initiative that defines excellence in our existing urban refuges, establishes the framework for creating new urban refuge partnerships and implements a refuge presence in 10 demographically and geographically varied cities across America by 2015."

The refuge will continue in the future to be managed consistently with the guidance contained in the Urban Refuge Policy and strive to achieve the new standards of excellence that result from the new vision.

Visitor services. Existing visitor service programs will remain and new opportunities will be added (see Appendix P, Map 11). A youth waterfowl hunt program will be developed in the northern portion of the Riverboat Unit. Other expanded visitor services include: one to three additional wildlife photography blinds; an environmental education off-trail study area; a fishing program from the River Overlook; and a nature exploration play area. The refuge will explore opportunities to connect to regional trail projects.

At the Wapato Lake Unit, opportunities such as hunting and other compatible wildlife-dependent recreation and interpretation will be explored as adequate land and access are acquired and habitat restoration decisions are made.

Volunteers. With the exception of law enforcement, personnel management, contracting, and select other functions prohibited by law, volunteers are involved in almost all aspects of the refuge's habitat and wildlife, and visitor services programs. In fiscal year 2011, volunteers donated nearly 15,000 hours of support to the refuge (USFWS 2011f). This equals more than seven full-time personnel and is valued at nearly $327,000 (national volunteer value = $21.79/hour [Independent Sector 2011]).

As with partnerships, the level of volunteer involvement is essential to the variety, number, and quality of programs offered through the refuge. Volunteer contributions are especially valuable during times of static or declining budgets, and when grants and other funding are harder to secure. However, volunteers are not without cost. The success of the volunteer program relies heavily on management and oversight by the refuge's visitor services manager, the Friends of the Refuge, short-term interns, and grant-funded staff. Regardless, the refuge will continue in the future to encourage and support a large and active volunteer program.

Wapato Lake conceptual management. The Wapato Lake Unit was established in 2007 to restore the historic lake bed for the purpose of improving habitat conditions for a number of native species. The Wapato Lake Unit contains portions of the Tualatin River and tributary streams that may support listed fish species, as well as migratory birds including breeding landbirds and waterfowl species. It is the intent of the Service to restore the lake bed to protect, manage, and restore habitats for migratory birds, fish, and other native wildlife of the Willamette Valley (USFWS 2007b).

Management of this unit remains mostly conceptual as further analysis of the area is required before making specific management decisions on habitat restoration and public use opportunities. Future management decisions will support the purposes for which the Tualatin River National Wildlife Refuge was established as described in the 2007 *Tualatin River National Wildlife Refuge Proposed Wapato Lake Unit Land Conservation Plan and Environmental Assessment* (USFWS 2007b).

Key factors in establishment of the unit were to:

- Contribute to efforts across the Tualatin River Basin to improve watershed health and function;
- Protect patches of remnant rare native habitat such as herbaceous and scrub-shrub wetlands;
- Allow for the restoration of rare native habitat;
- Protect migratory bird habitat, especially wintering waterfowl and breeding neotropical songbirds;
- Improve and protect habitat for anadromous fish;
- Provide opportunities for people of all ages to enjoy wildlife-dependent recreation; and
- Enhance protection of cultural resources.

Currently, the Wapato Lake Unit is composed mostly of land that has been farmed since the late 1800s and early 1900s. The land is mostly agricultural fields that, when left alone, are invaded by reed canarygrass, which ultimately forms a monoculture. Reed canarygrass is an invasive plant that likes disturbed, moist soil conditions and prevents native plants from becoming established. It does this by overcrowding the site and taking essential nutrients from the soil and water that would otherwise be used by native plants. The levees that were constructed to facilitate delivery of water to the lake bed during summer months are overrun with Himalayan blackberry. The blackberry makes it nearly impossible to navigate the levees by foot, and they are also completely inaccessible by all-terrain vehicle (ATV) or other wheeled vehicles for maintenance purposes. The canals themselves are filled with water during the winter from the creeks and also during the summer months during irrigation. These canals may contain some fish species and invertebrates. The potential for restoring this area to a mixture of riparian forest, and scrub-shrub and herbaceous wetlands, is extremely high, and it is highly likely that there will be vast benefits to trust resources, including migratory birds and listed species. Restoration of this historic lake bed would lead to a diverse and rich area that would protect, restore, and provide a diversity of habitats for migratory birds, including songbirds, wading birds, shorebirds, wintering waterfowl, and resident and anadromous fish.

To help determine the level of restoration needed at Wapato Lake, the Service has engaged the United States Geological Survey (USGS) to conduct studies to assist with the refuge's planning efforts. Actual management activities of the Wapato Lake Unit will be determined based upon adaptive management and the outcome of the Wapato Lake water management planning study.

While there are many unknowns for the future of Wapato Lake, there are some things that will occur regardless of the restoration direction the Services chooses to take. Interim goals, as defined in the 2007 *Tualatin River National Wildlife Refuge Proposed Wapato Lake Unit Land Conservation Plan and Environmental Assessment*, reflect the core mission of the Service to protect wildlife resources and the purpose for which the Wapato Lake Unit was established. The refuge will provide public use and focus on habitat restoration.

Wapato Lake Water Management Planning Study. The Service is coordinating with the USGS's Oregon Water Science Center and others to conduct studies and evaluations to support planning for the Wapato Lake Unit (Buccola et al. ca. 2010). Results from these studies will allow the refuge to better define and evaluate the effects of water management and associated habitat restoration alternatives for Wapato Lake to benefit the habitat and species, as mentioned in the above section.

Interim water management at Wapato Lake. Water retention in and discharge from Wapato Lake will continue as they have in the recent past until a more detailed habitat management plan can be completed. That is, rain and naturally inflowing water will be allowed to fill the lake bed during the fall and winter. In the spring, the lake bed will be dewatered by pumping out and discharging water into the Tualatin River to allow cooperative farming to occur as an interim form of habitat management. Ongoing maintenance and repair of existing infrastructure will occur to the best of our ability and as appropriate, and no pumped discharges will be made with the large pump between May 1 and October 31 each year without prior approval of DEQ.

Although the Service recognizes the importance of irrigation water to the farming community, the delivery of irrigation water is not part of the Refuge System's mission or the official purposes for establishing the Tualatin River National Wildlife Refuge. Federal legislation mandates that, first and foremost, the mission of the Refuge System is wildlife conservation. In addition, before being allowed, any other use of a national wildlife refuge must first be determined compatible with the purposes for establishing the refuge. Regulations and policy establish specific guidance for making this determination.

Water quality. The Tualatin River is listed as a "water quality limited" waterway and as such was assigned a series of total maximum daily loads (TMDLs) for temperature, pH, chlorophyll a, bacteria, and dissolved oxygen. The existing TMDLs are currently being revised by DEQ. The refuge will continue to work with DEQ and other partners to address issues related to water quality and TMDLs in the Tualatin River.

Wilderness review. Service policy requires that a wilderness review be completed for each refuge as part of the CCP process. This review includes three phases: inventory, study, and recommendation. If the wilderness inventory determines that some refuge lands and/or waters satisfy minimum criteria for wilderness designation, wilderness study areas are designated and the review enters the second (study) phase. See Appendix D for more information on the refuge's wilderness review, which recommended that the refuge not undergo further study for inclusion into the wilderness system because it does not meet specific criteria required for wilderness designation.

Wildlife-dependent public uses. The Improvement Act identified six wildlife-dependent public uses. They are: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. These six wildlife-dependent public uses are to be given special consideration in refuge planning and management, and opportunities to allow these six uses are to be considered in each refuge CCP.

It is expected that participation in refuge visitor service programs would instill a sense of wonder; cultivate a connection with nature; foster a lifelong relationship with the refuge and the Refuge System; encourage a conservation ethic; and enhance the public's understanding of and appreciation for fish, wildlife, plants, and their habitats, as well as of refuge management programs to conserve these biological resources.

Table 2-1. Summary of Management Direction

Key Indicators	Management Direction
Acres of Each Habitat Type Under Management Direction*	
Bottomland riparian forest	433
Mixed coniferous/deciduous forest	103
Oak savanna	147
Oak/pine woodland	43
Wet prairie	138
Herbaceous wetland	193
Scrub-shrub wetland	205
Crops and improved pastures	0
Ruderal uplands	0
Ruderal wetlands	0
Developed land (buildings, etc.)	60
Water (river)	24
Restored acres of undetermined native habitat types at Wapato Lake Unit	871
Total acres*	2,217
Miles of Each Habitat Type	
River frontage	7.2
Streams—maintain	1.4
Streams—restore	2.7
Backwater slough—maintain	0.9
Backwater slough—restore	1.6
Species Posing Management Challenges	
Non-native, invasive, and pest plants	Continue IPM, with prescribed fire. Immediate early detection and rapid response actions to eliminate purple loosestrife, giant hogweed, garlic mustard, and Japanese knotweed if found.
Non-native, invasive, and pest animals	Continue IPM, plus eliminate problem beavers, feral cats, and nutria. Immediate action to eliminate New Zealand mud snail, snapping turtle, red-eared slider, and zebra mussel if found.
Mosquitoes	Continue to allow mosquito populations on the refuge to fluctuate and function unimpeded unless they pose a threat to human health. Mosquito treatments will be in accordance with IPM principles. Develop mosquito component of disease contingency plan in cooperation with state and/or local vector control agencies.
Canada geese	Continue to provide wintering sanctuary. Work with partner agencies to implement regional plans and agreements.
Roosevelt elk	Work with partner agencies to develop elk management plan.
Management of Special-status Species	
Wetland, riparian, and upland habitats and species	Continue to support recovery of Nelson's checker-mallow and explore options to assist recovery of other listed species.
Aquatic habitats and species	Continue to maintain and operate weirs, fish passage, and fish screening structures. Where appropriate, remove culverts and other passage barriers during restoration efforts.

Table 2-1. Summary of Management Direction

Key Indicators	Management Direction
Wapato Lake Management	
Habitat management	Interim management: Existing lake bed infrastructure will be maintained. Lake water levels and downstream discharges will continue as in the past. Long-term management will include more natural, free-flowing hydrology.
Public Information and Outreach	
General program	Expand information and outreach materials to use broader range of techniques, more diverse use of social media, and aimed at a broader audience.
Facilities and Access	
Facilities—Sherwood Units	Expand facilities to include: 1-3 additional wildlife photography blinds, 1 off-trail nature explore/play area, 1 off-trail environmental education study area. Evaluate and develop facilities management plan.
Facilities—Wapato Lake Unit	As habitat restoration proceeds, explore opportunities for hunting and other compatible wildlife-dependent recreation and interpretive facilities.
Access—Sherwood Units	Expand access to trails, blinds, and study/explore areas. Explore connecting refuge to existing regional trail systems. Conduct transportation and safety studies for new and existing access points.
Access—Wapato Lake Unit	As habitat restoration proceeds, explore opportunities for public access to portions of the unit in support of compatible wildlife-dependent recreation and education.
Refuge entrance and user fees	Refuge continues to have no entrance or user fees, but will continue to explore desirability of establishing an entrance fee. Refuge will also explore desirability of user fees in support of waterfowl hunting, photo blind use, and special events and activities.
Environmental Education	
Number of students served annually on refuge	5,000
Number of students served annually off-site	1,750
Number of youth served in informal (non-classroom-based) education programs	2,000
Number of teacher workshops offered annually	2
Outreach to schools	Expand to include schools within a 10-mile radius of Sherwood and Gaston.
Number of volunteer naturalists trained annually in support of the education program	25
Education opportunities offered near the Wapato Lake Unit	Expand to offer teacher training, education materials to be housed at local schools, and education programs/events at locations within the

Table 2-1. Summary of Management Direction

Key Indicators	Management Direction
	community (e.g., schools, parks).
Hunting and Fishing	
Hunting—Sherwood Units	Youth hunt program will be developed on the Riverboat Unit. Includes 2 to 5 hunting blinds.
Hunting—Wapato Lake Unit	Explore opportunities for waterfowl hunting in concurrence with habitat restoration planning and implementation.
Fishing	Fishing program will be developed at the existing River Overlook on the Atfálat'i Unit.
Urban Refuge Initiative	
Information clearinghouse for natural resources management	Provide information exchange on natural resource issues to encourage collaborative sharing within communities and organizations; agencies; businesses; and others.
Information clearinghouse for environmental education	Provide information exchange and materials to educators, schools, and communities, including social science research supporting the benefits of nature-based education to people, with a focus on children.
Bring more urban citizens to the refuge to experience nature.	Identify barriers to connecting urban people to natural areas; hire youth in natural resource jobs; develop a transportation strategy to bring urban audiences to the refuge.
Increase relevance of natural resources to urban citizens	Provide outreach that supports the value of natural resources for communities—for human health, economic health, watershed health; provide education materials that address conservation and community issues such as invasive species, pollinators, urban wildlife, and climate change.

*All acreage figures are based on GIS analysis using the data shown in the maps in Appendix P.

2.4 Goals, Objectives, and Strategies

Goals and objectives are the unifying elements of successful refuge management. They identify and focus management priorities, resolve issues, and link to legal mandates (including refuge purposes) for managing a refuge, Service policies that step down from legal mandates (e.g., Improvement Act), and the Refuge System Mission.

A CCP describes management actions that help bring a refuge closer to its vision. A vision broadly reflects the refuge purposes, the Refuge System mission and goals, other statutory requirements, and larger-scale plans as appropriate. Goals then define general targets in support of the vision, followed by SMART (Specific, Measurable, Achievable, Results-oriented, Time-fixed) objectives that direct efforts into incremental and measurable steps toward achieving those goals. Strategies identify specific tools and actions to accomplish objectives.

The goals for Tualatin River National Wildlife Refuge for the life of the CCP are presented in the tables on the following pages. Each goal is followed by the objectives that pertain to that goal. Some objectives pertain to multiple goals and have simply been placed in the most reasonable spot. Similarly, some strategies pertain to multiple objectives.

The goal order does **not** imply any priority in this CCP. Priority actions are identified in the staffing and funding analysis in Appendix C.

Readers, please note the following:

Below each objective statement are the strategies that could be employed to accomplish the objectives. Symbols used in the following tables include:

% percent sign
> greater than
< less than
≥ greater than or equal to
≤ less than or equal to

Refer to Appendix P, Maps 8 through 11.

Goal 1: Maintain, enhance, and restore bottomland riparian habitat consistent with the historical range of variability representative of the Willamette Valley ecosystem to support breeding and migratory landbirds and other native species.

Objective 1.1 Enhance and maintain bottomland riparian forest
Throughout the life of the CCP, enhance and maintain 322 acres of bottomland riparian forest on Tualatin River National Wildlife Refuge for the benefit of breeding and migrating landbirds (e.g., Pacific slope flycatcher, yellow warbler) and a diverse assemblage of other native species (e.g., northern red-legged frog). Bottomland riparian forest is characterized by the following: • >60% overstory canopy cover of trees (e.g., Oregon ash, bigleaf maple, Douglas-fir, grand fir) that are >50 feet tall (Altman 2000) • >20% understory canopy cover of trees (e.g., willow, red-osier dogwood, Pacific yew, cascara, and hazel) that are ≥12 feet tall • Habitat patches >100 feet wide along streams (Altman 2000) • 30%-80% understory cover of shrubs (e.g., snowberry, sword fern) 3-12 feet tall (Altman 2000) • Herbaceous layer dominated by native grasses and forbs • >5 snags/acre >6 inches diameter at breast height (DBH) with at least 2 per acre >10 inches DBH and 6 feet tall (Altman 2000) • <20% cover of invasive plants (e.g., reed canarygrass, Himalayan blackberry, English ivy, English holly)
Strategies Applied to Achieve Objective:
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological means, to control or eradicate invasive species (see Appendix G).
Map invasive plant distributions every 5 years, during the spring and summer months when most plants are easily identified.
Place protective tubes on naturally recruiting saplings/seedlings.
Establish a permanent biological technician position to conduct habitat maintenance and perform habitat inventory and monitoring such as vegetation parameters and wildlife species diversity and density.

Rationale: Bottomland riparian forest is a rare, native plant community in the Willamette Valley. It provides habitat for over 100 migrating and breeding landbird species (Roth et al. 2004) and summer habitat near wetlands for native amphibians. Enhancing and/or maintaining existing bottomland riparian forest will reduce additional habitat fragmentation that is occurring in the valley at large and is consistent with refuge purposes and the Service's BIDEH Policy. It provides habitat connectivity and movement corridors for many species. Riparian areas often serve as off-channel backwater habitat for outmigrating salmonid species during winter flooding. In addition, riparian areas help to slow, absorb, and filter rainwater and runoff. Riparian areas also provide shade and woody structure to adjacent streams, rivers, and wetlands. Some of the areas to be maintained under this objective were recently restored and will not reach a mature growth form for many years. They will not achieve the full attributes described above, but will provide a diversity of benefits as they continue to grow. Riparian areas are important to achieve purposes of the refuge to conserve fish and wildlife. Mapping invasive species will provide for a targeted approach to their removal or control, and provide a basis for adaptive management when evaluating efficacy of treatments. By using IPM techniques to maintain and enhance this habitat type the refuge will provide enhanced habitat for a myriad of fish and wildlife species. Placing tree protective tubes on naturally recruiting trees will help to both identify and protect trees during invasive species control, and protect them from herbivory by deer, voles, and other species. Bottomland riparian forest is a priority habitat type listed in the Oregon Conservation Strategy (ODFW 2006).

Objective 1.2 Restore bottomland riparian forest

By 2020, bottomland riparian forest will be restored from a mixture of ruderal upland and ruderal wetland habitat types. Then these 111 acres of bottomland riparian forest will be protected and maintained on the Tualatin River National Wildlife Refuge for the benefit of breeding and migrating landbirds (e.g., Pacific slope flycatcher, yellow warbler). Mature bottomland riparian forest is characterized by the following:

- >60% overstory canopy cover of trees (e.g., Oregon ash, bigleaf maple, Douglas-fir, grand fir) that are >50 feet tall (Altman 2000)
- >20% understory canopy cover of trees (e.g., willow, red-osier dogwood, Pacific yew, cascara, and hazel) that are ≥12 feet tall
- Habitat patches >100 feet wide along streams (Altman 2000)
- 30%-80% understory cover of shrubs (e.g., snowberry, sword fern) 3-12 feet tall (Altman 2000)
- Herbaceous layer dominated by native grasses and forbs
- >5 snags/acre >6 inches DBH with at least 2 per acre >10 inches DBH and 6 feet tall (Altman 2000)
- <20% cover of invasive plants (e.g., reed canarygrass, Himalayan blackberry, English ivy, English holly)
- Swales connecting to rivers or streams to provide backwater fish habitat and species diversity

Strategies Applied to Achieve Objective:

Pretreat for 1-2 years to exhaust non-native seed bank prior to restoration actions.
Plant native tree and shrub species at a high stocking density of 870-1,450 plants/acre.
Tube and mulch around planted saplings/seedlings to prevent girdling by small mammals and browsing by deer.
Seed native herbaceous species using local genotypes, where needed.
Where appropriate, construct swales using heavy equipment to increase plant diversity and connect with the river or nearby streams providing off-channel refugia for native fish.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological means, to control invasive species (see Appendix G).
Monitor survival and growth of planted woody species.
Map invasive plant distributions every 5 years, during the spring and summer months when most plants are easily identified.
Establish a permanent engineering equipment operator position to restore riparian forest.
Rationale: See rationale for Objective 1.1. Pretreatment is recommended for 1-2 years prior to planting native trees and shrubs in order to remove invasive plant seed sources in the soil. Pretreatments may consist of mechanical removal (e.g., mowing, discing) of invasive plant species, and/or application of Service-approved herbicide in accordance with the IPM plan (Appendix G). Planting trees and shrubs at a high density will ensure desired attributes of canopy and shrub cover are achieved while allowing for natural mortality of newly installed plants during the first few years. To ensure successful restoration, >70% survival of woody species is needed during the first year after planting. Tubing and mulching around newly planted trees and shrubs retain soil moisture, act as a weed barrier, and prevent girdling by small mammals. Where appropriate backwater swales can be constructed to provide floodplain connection with nearby streams or rivers. Backwater swales will enhance biodiversity of the flora and fauna in the area and provide enhanced habitat attributes for native resident and anadromous fish (Jeffres et al. 2008). Restoring this floodplain connection is one of the most critical areas to achieve benefit for aquatic, riparian, and upland species (ODFW 2006). Restored areas will not reach the full attributes described during the 15-year life span of the CCP, but management will be directed toward reaching those characteristics.

Goal 2: Maintain, enhance, and restore mixed coniferous/deciduous forest habitat to a historical range of variability representative of the Willamette Valley ecosystem in order to support breeding and migratory landbirds and other native species.

Objective 2.1 Enhance and maintain mixed coniferous/deciduous forest
Throughout the life of the CCP, enhance and maintain 52 acres of mixed coniferous/deciduous forest on the refuge for the benefit of breeding and migrating landbirds (e.g., orange-crowned warbler, Bewick's wren) and a diverse assemblage of other native species (e.g., black-tailed deer, northwestern salamander, little brown bat). Mixed coniferous/deciduous forest is characterized by the following: • 40%-60% canopy cover that is Douglas-fir–dominated with mixtures of grand fir, western red-cedar, western hemlock, bigleaf maple, Garry oak, Pacific dogwood, Pacific yew, and red alder • 10%-50% subcanopy trees (Spies and Franklin 1991) • >30% cover in understory layer <15 feet tall consisting of snowberry, hazel, sword fern, and other shrubs • >5 snags/acre >6 inches DBH with at least 2 per acre >10 inches DBH and 6 feet tall (Altman 2000) • <20% cover of non-native invasive plants (e.g., Himalayan blackberry, English ivy)
Strategies Applied to Achieve Objective:
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control or eradicate invasive species (see Appendix G).
Map invasive plant distributions every 5 years, during the spring and summer months when most plants

are easily identified.
Use common forest health practices including prescribed fire and mechanical removals to create variable age structure.
Create snags, where needed, using mechanical methods (e.g., girdling).
Rationale: Mixed coniferous/deciduous forests provide valuable habitat for breeding and migrating landbirds. Cavity-nesting birds such as woodpeckers benefit from snags and dying trees. Mannan and Meslow (1984) found higher abundance of bird species in forests with more and larger snags. Fallen trees and branches provide substrate for salamanders and nutrients for future plant growth. These habitats support a diversity of other native species (deer, bats, amphibians) to meet various life history requirements. Using common forest management strategies such as prescribed fire and mechanical manipulation will allow the refuge to create uneven age structures to support a variety of species needs. These strategies also address rising fire risks due to a changing climate, specifically hotter and drier summer conditions, which are projected to continue and accelerate into the future. Mapping invasive species will provide for a targeted approach to their removal or control, and provide a basis for adaptive management when evaluating efficacy of treatments.

Objective 2.2 Restore mixed coniferous/deciduous forest
By 2017, mixed coniferous/deciduous forest will be restored from ruderal uplands and oak savanna habitat types and then these 51 acres of mixed coniferous/deciduous forest will be protected and maintained on the refuge for the benefit of breeding and migrating landbirds (e.g., orange-crowned warbler, Bewick's wren) and a diverse assemblage of other native species (e.g., black-tailed deer, northwestern salamander, bat species). Mixed coniferous/deciduous forest is characterized by the following: • 40%-60% canopy cover that is Douglas-fir–dominated with mixtures of grand fir, western red-cedar, western hemlock, bigleaf maple, Garry oak, Pacific dogwood, Pacific yew, and red alder • 10%-50% subcanopy trees (Spies and Franklin 1991) • >30% cover in understory layer consisting of snowberry, hazel, sword fern, and other native shrubs • <20% cover of invasive plants (e.g., Himalayan blackberry, English ivy)
Strategies Applied to Achieve Objective:
See strategies for Objective 2.1.
Pretreat for 1-2 years to exhaust non-native seed bank prior to restoration actions.
Plant native tree and shrub species at a high stocking density of 870-1,450 plants/acre.
Tube and mulch around planted saplings/seedlings to prevent girdling by small mammals and browsing by deer.
Seed native herbaceous species using local genotypes, where needed.
Monitor survival and growth of planted woody species.
Map invasive plant distributions every 5 years, during the spring and summer months when most plants are easily identified.
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).
Use prescribed fire as appropriate to control invasive species and reduce the build-up of unwanted fuel.

Rationale: See rationale for Objective 2.1. Restoring mixed coniferous/deciduous forest near or adjacent to existing forest could create larger tracts of contiguous forest habitat beneficial to forest-dwelling species (songbirds), creating larger travel corridors, and helping to prevent invasion from edge species such as brown-headed cowbirds. These strategies fit into refuge purposes and Service policy of maintaining biological integrity and species diversity.

Pretreatment is recommended for 1-2 years prior to planting native trees and shrubs in order to remove invasive plant seed sources in the soils. Prescribed fire could be used to control invasives and clear understories of unwanted fuels. Tubing and mulching around newly planted trees and shrubs retain soil moisture, act as a weed barrier, and prevent girdling. Planting trees and shrubs at a high density will ensure desired attributes of canopy and shrub cover are achieved while allowing for natural mortality of newly installed plants during the first few years. To ensure successful restoration, >70% survival of woody species is needed during the first year after planting. Restored areas will not reach the full attributes described during the 15-year life span of the CCP, but management will be directed toward reaching those characteristics.

Goal 3: Maintain, enhance, and restore oak habitats to a historical range of variability representative of the Willamette Valley ecosystem in order to support breeding and migratory landbirds and other native species.

Objective 3.1 Enhance and maintain oak savanna

Throughout the life of the CCP, enhance and maintain 109 acres of oak savanna on the refuge for the benefit of breeding and resident landbirds (e.g., western bluebird, white-breasted nuthatch, acorn woodpecker) and a diverse assemblage of other native species (e.g., western gray squirrel, black-tailed deer). Oak savanna is characterized by the following attributes:

- Trees dominated by widely spaced (1/acre), mature Garry oak 16->40 inches DBH with cavities (Thilenius 1968)
- Native grass and forbs <3 feet tall in understory
- Few to no woody species in understory, where tree and shrub cover is <10%
- Viable and reproducing populations of listed plant species such as Nelson's checker-mallow
- <5% cover of invasive shrubs (e.g., Himalayan blackberry)
- <20% cover of non-native grasses (e.g., velvet grass) and <10% non-native forbs (e.g., Canada thistle, tansy)

Strategies Applied to Achieve Objective:

Use prescribed fire, with burn interval of 3-5 years, to reduce encroachment of woody species and to reduce thatch.

Plant listed species, as appropriate.

Use mechanical treatments (e.g., mowing) during late summer/early fall to promote native herbaceous ground cover.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Use mechanical thinning to reduce density of oak with removals limited to trees <15 inches DBH.

Use mechanical thinning to remove encroaching conifers, as needed.

Rationale: Oak savanna is a rare and unique habitat in the Willamette Valley that has been reduced to <1% of its historic extent; it provides habitat for migratory birds that are high priority and specific to

purposes of the refuge. Oak savanna habitat in the Willamette Valley supports five federally listed species (USFWS 2010b) and along with prairie habitats supports the greatest number of rare upland animals in the Willamette Valley (Titus et al. 1996). Fire historically maintained oak savanna habitat by removing competing vegetation and stimulating regeneration of native fire-associated plants. Fire suppression has allowed shrubs and conifers to encroach into oak savanna (ODFW 2006). Mowing during the fall season promotes native plant response while reducing the growth of undesirable trees and shrubs. Mowing during the fall will also reduce impacts to migratory birds by avoiding disturbance during their nesting cycle. Late summer/early fall prescribed fire on a rotational basis could help reduce encroachment of woody species such as Himalayan blackberry and poison oak and invigorate soil for establishment of native plants. Using IPM techniques ensures the best control of pest species with the lowest possible impact to fish and wildlife resources (Appendix G). Planting listed species will support recovery of plant and butterfly species identified in the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010b).

Objective 3.2 Restore oak savanna

By 2020, oak savanna will be restored from ruderal uplands and early successional riparian forest habitat types. These 38 acres of oak savanna will be protected and maintained on the refuge for the benefit of breeding and resident landbirds (e.g., western bluebird, chipping sparrow, grasshopper sparrow) and a diverse assemblage of other native species (e.g., coyote). Oak savanna is characterized by the following attributes:

- Scattered oaks (1/acre) of individual trees (Thilenius 1968) or tight small clusters
- 60%-80% ground cover composed of native grasses and forbs
- <5% cover of invasive shrubs (e.g., Himalayan blackberry)
- <20% cover of non-native grasses (e.g., velvet grass) and <10% non-native forbs (e.g., Canada thistle, tansy)

Strategies Applied to Achieve Objective:

Pretreat for 1-2 years to exhaust non-native seed bank prior to restoration actions.

Plant acorns, seedlings, and/or potted oaks in clusters of 10-100 at a spacing of 100-300 feet between clusters (5-50/acre).

Use tubing or other protection to protect seedlings and saplings from herbivores.

Plant native grasses and forbs.

Conduct supplemental watering during first year.

Plant appropriate listed species such as Nelson's checker-mallow and Willamette daisy.

Use prescribed fire during spring to control non-native species prior to initial planting.

Use prescribed fire during fall, with burn intervals of 3-5 years to reduce thatch and control invasive species.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Monitor plantings to determine survival and growth; replant if below target level or thin if too dense.

Rationale: See rationale for Objective 3.1. Restoring oak savanna habitat is consistent with refuge purposes, the Service's mission to support the recovery of listed species associated with rare and unique habitat (e.g., Kincaid's lupine, Willamette daisy), and with Service policy of maintaining BIDEH. Pretreatment will involve mowing, burning, and spraying of invasive shrub and grass species to create

open grassland settings for the establishment of native forbs and grasses associated with this habitat type, and will thus be beneficial to listed species adapted to the oak savanna community.

Prescribed fire use in the spring will help purge invasive plant seed banks prior to planting native species. Planting at a higher than desired density allows for natural mortality and provides a larger volume of oak substrate for wildlife while slow-growing oaks are small in the sapling stage. Oaks can later be thinned to achieve the final desired spacing. Placing tree protective tubes on trees will help to both identify and protect trees during invasive species control, and protect them from herbivory by deer, voles, and other species. Planting native grasses and forbs (wild flowers) is essential to restore the full suite of native vegetation for this plant community. Fall fires will be used to reduce thatch build-up and promote the health of native grass and forb communities. Protecting seedlings for up to 15 years will allow them to gain important establishment on the refuge. Intensive pretreatment is necessary to ensure establishment of a diverse native community and, in turn, the long-term success of oak savanna restoration. Planting and maintenance of listed species will aid in their recovery (USFWS 2010b).

Objective 3.3 Enhance and maintain oak/pine woodland

Throughout the life of the CCP, enhance and maintain 23 acres of oak/pine woodland on the refuge for the benefit of breeding and resident landbirds (e.g., white-breasted nuthatch, acorn woodpecker) and a diverse assemblage of other native species (e.g., western gray squirrel, black-tailed deer). Oak/pine woodland is characterized by the following attributes:

- Oaks up to 24″ DBH occasionally with trees exceeding 36″ DBH with a density of up to 425 trees/acre (Thilenius 1968) and ponderosa pine
- 1%-2% ground cover composed of native grasses and forbs
- 10%-80% cover of low shrubs
- <10% cover of invasive shrubs (e.g., Himalayan blackberry)
- <20% cover of non-native grasses (e.g., velvet grass) and <10% non-native forbs (e.g., Canada thistle, tansy)

Strategies Applied to Achieve Objective:

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control or eradicate invasive species (see Appendix G).

Map invasive plant distributions every 5 years, during the spring and summer months when most plants are easily identified.

Use common forest health practices including prescribed fire and mechanical removals to create variable age structure.

Create snags, where needed, using mechanical methods (e.g., girdling).

Rationale: Maintaining oak/pine woodland habitat is consistent with refuge purposes and with Service policy of maintaining BIDEH. Maintaining an oak/pine woodland community will provide valuable habitat for breeding and migrating landbirds. Cavity-nesting birds such as woodpeckers benefit from snags and dying trees. Mannan and Meslow (1984) found higher abundance of bird species in forests with more and larger snags. Fallen trees and branches provide substrate for salamanders and nutrients for future plant growth. These habitats support a diversity of other native species (deer, bats, amphibians) to meet various life history requirements. Using common forest management strategies such as prescribed fire and mechanical manipulation will allow the refuge to create uneven age structures to support a variety of species needs. These strategies also address rising fire risks due to a changing climate, specifically hotter and drier summer conditions, which are projected to continue and accelerate into the future. Mapping invasive species will provide for a targeted approach to their removal or control, and provide a basis for adaptive management when evaluating efficacy of treatments.

Objective 3.4 Restore oak/pine woodland

By 2020, oak/pine woodland will be restored from ruderal uplands and oak savanna habitat types. These 20 acres of oak/pine woodland will be protected and maintained on the refuge for the benefit of breeding and resident landbirds (e.g., Swainson's thrush, spotted towhee, western tanager) and a diverse assemblage of other native species (e.g., coyote). Oak/pine woodland is characterized by the following attributes:

- Oaks up to 24″ DBH, occasionally with trees exceeding 36″ DBH, (Thilenius 1968) and ponderosa pine, with a density of up to 425 total trees/acre
- 1%-2% ground cover composed of native grasses and forbs
- 10%-80% cover of low shrubs
- <10% cover of invasive shrubs (e.g., Himalayan blackberry)
- <20% cover of non-native grasses (e.g., velvet grass) and <10% non-native forbs (e.g., Canada thistle, tansy)

Strategies Applied to Achieve Objective:

Pretreat for 1-2 years to exhaust non-native seed bank prior to restoration actions.

Plant native tree and shrub species at a high stocking density of 870-1,450 plants/acre.

Tube and mulch around planted saplings/seedlings to prevent girdling by small mammals and browsing by deer.

Seed native herbaceous species using local genotypes, where needed.

Monitor survival and growth of planted woody species.

Map invasive plant distributions every 5 years, during the spring and summer months when most plants are easily identified.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Use prescribed fire as appropriate to control invasive species and reduce the build-up of unwanted fuel.

Rationale: Restoring oak/pine woodland habitat is consistent with refuge purposes and with Service policy of maintaining BIDEH. Pretreatment will involve mowing, burning, and spraying of invasive shrub and grass species for the establishment of native trees and shrubs associated with this habitat type, and will thus be beneficial to resident and migratory species adapted to the oak/pine woodland community.

Prescribed fire use in the spring will help purge invasive plant seed banks prior to planting native species. Planting at a higher than desired density allows for natural mortality and provides a larger volume of plant substrate for wildlife while plants are small in the sapling stage. Placing protective tubes on trees will help to both identify and protect trees during invasive species control, and protect them from herbivory by deer, voles, and other species. Protecting seedlings for up to 10 years will allow them to gain important establishment on the refuge. Intensive pretreatment is necessary to ensure establishment of a diverse native community and, in turn, the long-term success of oak/pine woodland restoration.

Goal 4: Maintain, enhance, and restore native Willamette Valley wet prairie habitat, with an emphasis on management for rare and listed plant species.

Objective 4.1 Enhance and maintain native wet prairie

Throughout the life of the CCP, enhance and maintain 27 acres of wet prairie habitat on the refuge for the benefit of migratory birds (e.g., Wilson's snipe, northern pintail, American kestrel, western meadowlark) and a diverse assemblage of other native species. Wet prairie habitats are characterized by the following:

- Diverse community of native sedges, rushes, native grasses (e.g., *Deschampsia* sp.) that may be >3 feet tall, and a diversity of native forbs (e.g., camas, blue-eyed grass, popcorn flower) (Titus et al. 1996; USFWS 2010b)
- Intermittent ponding of water and saturated soils from November to April (Titus et al. 1996)
- Very few scattered shrubs or trees (especially Garry oak) >66 feet apart
- <5% total canopy cover of shrubs and trees
- <20% cover of invasive plants (e.g., reed canarygrass, cocklebur, blackberry, Bermuda grass)

Strategies Applied to Achieve Objective:

Maintain/protect relic oaks at very low density.

Plant native grasses and forbs, where necessary, using local genotypes.

Plant appropriate listed species, such as Nelson's checker-mallow.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Use prescribed fire at burn intervals of 3-5 years.

Conduct haying or mowing after Aug 1 to protect ground-nesting birds and reduce woody encroachment.

Evaluate the potential for prescription grazing during later growing season.

Rationale: With less than 1% remaining, prairie habitats are one of the rarest plant communities in the Willamette Valley and provide important habitat for breeding and migrating birds. Loss of prairie habitat is due in large part to conversion to agriculture and urbanization as well as fire suppression during the past 150 years. Enhancing and maintaining wet prairie will support the purposes of the refuge and BIDEH. Prairie habitats support federally listed plant species including Nelson's checker-mallow, and provide opportunities to contribute to recovery of other federally listed plants. Wet prairies generally occur in the floodplain on heavy, poorly drained soil (USFWS 2010b).

Prescription grazing, mowing, and haying will occur in late season after seed has set and migratory bird nesting is complete. Determination of which method to use will depend on best available science, objectives, and availability of resources. Generally, haying or mowing will occur only once per year. These techniques are necessary to set back succession of woody plant species, reduce thatch, control invasive plants, and stimulate new growth of native plants. Planting listed species will support recovery of plant and butterfly species identified in the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010b). Historically, many habitats such as wet prairie were maintained by disturbance. The primary disturbance was fire, but also included flooding, wind, and storms (ODFW 2006). Regular disturbance regimes are essential to maintain prairie and prevent encroachment of woody species as well as to promote a diversity of native plant species. Burning can reduce thatch and stimulate growth and health of native plants. Timing of prescribed burns will depend on the objective of the burn (e.g., reduce thatch, address invasive species), weather, and plant response to burns, and may occur during spring, late summer, or fall. Mowing may be used in some years to control

the growth of woody species, but it does not reduce thatch. Mowing should be conducted after August 1 to protect ground-nesting birds. By August 1, most bird species have completed nesting and young have fledged.

Objective 4.2 Restore native wet prairie

By 2025, wet prairie will be restored from herbaceous wetland and early successional riparian forest habitat types. Then the refuge will protect and maintain 111 acres of wet prairie on the refuge for the benefit of migratory birds (e.g., Wilson's snipe, northern pintail, green-winged teal) and a diverse assemblage of other native species. Wet prairie habitat types are characterized by the following:

- Diverse community of native sedges, rushes, and native grasses (e.g., *Deschampsia* sp.) that may be >3 feet tall, and a diversity of native forbs (e.g., camas, blue-eyed grass, popcorn flower) (Titus et al. 1996; USFWS 2010b)
- Intermittent ponding of water, and saturated soils from November to April (Titus et al. 1996)
- Very few scattered shrubs or trees (especially Garry oak) >66 feet apart
- <5% total canopy cover of shrubs and trees
- <20% cover of invasive plants (e.g., reed canarygrass, cocklebur, blackberry, Bermuda grass)

Strategies Applied to Achieve Objective:

Pretreat (e.g., herbicide, discing) for 1-2 years to exhaust non-native seed bank prior to restoration actions.

Use prescribed fire during spring to control non-native species prior to initial planting.

Plant native grasses and forbs, where necessary, using local genotypes.

Maintain/protect relic Garry oaks at low density.

Plant listed species, as appropriate.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control or eradicate invasive species (see Appendix G).

Where appropriate, construct swales using heavy equipment to increase plant diversity and connect with the river or nearby streams, providing off-channel refugia for native fish.

Use mechanical treatments to remove encroaching woody species.

Evaluate the potential to use prescription grazing during later growing season.

Evaluate the potential use of prescription grazing, mowing, and/or haying after Aug 1 to protect ground-nesting birds.

Use prescribed fire at burn intervals of 3-5 years.

Rationale: See rationale for Objective 4.1. Restoring wet prairie is consistent with refuge purposes and the Service's mission to support recovery of listed species associated with this rare and unique habitat, and it fits the Service policy of BIDEH. Pretreatment will involve a rotation of herbicide, discing, and prescribed fire over a 1-2 year period to exhaust non-native seed banks and reduce aggressive invaders like reed canarygrass. This will prepare sites and better ensure the establishment of a diverse native community and, in turn, the long-term success of wet prairie. Planting listed species will aid in the recovery efforts as described in the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010b). Mechanical and chemical treatments such as mowing and spraying will reduce woody species and open up ground for native grasses and forbs. Periodic prescribed burns will maintain the integrity of the wet prairie, clearing thatch, encroaching non-natives, and invigorating growth of natives species.

Restoration sites will be selected considering connectivity with existing or to-be-restored prairie, both on and off refuge lands. Intensive pretreatment is necessary to ensure establishment of a diverse native community and, in turn, the long-term success of wet prairie restoration.

Goal 5: Maintain, enhance, and restore a diversity of wetlands to support migratory landbirds, waterbirds, and shorebirds with special emphasis on wintering waterfowl.

Objective 5.1 Enhance and maintain herbaceous wetland
Throughout the life of the CCP, enhance and maintain 193 acres of herbaceous wetland for the benefit of migrating and wintering waterfowl (e.g., northern pintail, cackling Canada goose, tundra swan) and a diverse assemblage of other native species (e.g., waterbirds, shorebirds). Herbaceous wetlands are characterized by the following: • Most wetlands with shallow water depths averaging 4-18 inches deep from October to June • Other wetlands with deeper water averaging 18-48 inches deep, sometimes year-round • >60% cover of desirable and/or native wetland plants including moist-soil annuals (e.g., smartweeds, wild millet, American slough grass), wapato, sedges, and rushes • In deeper water, >50% cover of submergent plants (e.g., *Potamogeton* sp., *Callitriche* sp.) • <20% cover of native emergent species (e.g., cattail, bulrush) that are >5 feet tall • <30% cover of undesirable/invasive plants including reed canarygrass • Presence of large woody debris • Minimal damage to wetland infrastructure by nutria
Strategies Applied to Achieve Objective:
Initiate flood-up to full pool from October through December.
Irrigate, as needed, during summer to stimulate early season wetland annual plants and/or control invasive species.
Initiate drawdown of 10%-20% of seasonal wetlands in early April to provide mudflats for migrating shorebirds.
Initiate drawdown of most seasonal wetlands between May and July to stimulate germination of moist-soil annual plants.
Allow selected wetlands to dewater by natural evapotranspiration to provide extended wet season for BIDEH species.
Use mowing and/or herbicides to remove encroaching woody vegetation.
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, water management, cultural, and biological methods, to control invasive species (see Appendix G).
Use mowing and discing as a disturbance regime to stimulate growth of desirable species.
Reconfigure water control structures and dikes/levees where necessary, to promote more precise water level management.
Install low-level berms, where necessary.
Work closely with National Oceanic and Atmospheric Administration (NOAA) Fisheries in the design and operation of flashboards, spillways, and other refuge water-control structures to enable proper operation to benefit water management without adversely affecting special-status fish species.
Use heavy equipment to recontour wetland basins to allow for complete drawdown and/or to promote water flow. Allowing for complete drainage will help reduce the presence of non-native species such as

reed canarygrass, bullfrogs, and carp.
Investigate the viability of using screens to exclude non-native species such as bullfrogs and carp from wetlands.
Use lethal control methods (e.g., shooting or trapping) to remove nutria and problem beaver.
Where necessary, plant trees along wetland boundaries to provide a buffer from disturbance such as hunting on neighboring lands.
Mow wetland margins prior to flood-up to provide waterfowl access to adjacent uplands.
Use prescribed fire to reduce extent of emergent plants and/or remove encroaching woody species (e.g., willow, ash).
Install logs, large trees, or root wads for turtle basking and waterfowl resting and preening.
Schedule strategic drawdowns to entrap invasive species such bullfrogs and carp.
Rationale: Historically, herbaceous wetlands were a dominant feature on the landscape within the Willamette Valley, but considerable wetland loss has occurred due to conversion to agriculture, urban development, and changes in hydrology such as dam building and channelizing streams and rivers (Taft and Haig 2003). A multitude of native fish and other animals use wetlands for at least part of their annual life cycles. Seasonal herbaceous wetlands are essential for providing moist-soil plant food resources for migratory waterfowl and waterbirds, and amphibians and reptiles. Flood-up/drawdown scenarios provide foraging substrate for spring and fall migratory shorebirds. Maintaining most wetlands with shallow water will benefit waterfowl, shorebirds, and wading birds. Using various water management scenarios (drawdown and irrigation) will set back Bermuda grass and cocklebur growth/expansion. Summer irrigation is used to both control certain invasive species (e.g., common cocklebur) and to stimulate growth of moist-soil plants. Maintaining some wetlands with deeper water in a permanent or semipermanent condition provides habitat for overwater nesters such as pied-billed grebes, marshbirds, turtles, etc. Many shallow wetland areas will naturally convert to forested areas if encroaching vegetation were not controlled. Mowing or herbicide application is periodically required to set back woody vegetation and reinvigorate annual plants. Reconfiguring water control structures and dikes/levees, and installing low-level berms, will provide greater water-level management flexibility for wetland habitat rotations. Heavy equipment can be used to recontour wetland basins for a more diverse topography and to allow complete drawdown. Allowing for complete drawdown will help control invasive species such as carp and bullfrogs. Removal of nutria will protect management infrastructure and habitat from degradation. Native turtles will benefit from basking logs placed in many of the refuge's wetlands.

Objective 5.2 Enhance and maintain scrub-shrub wetland
Throughout the life of the CCP, enhance and maintain 20 acres of scrub-shrub wetlands on the refuge for the benefit of breeding migratory birds (e.g., willow flycatcher, red-winged blackbird, common yellowthroat, sora) and a diverse assemblage of other native species (e.g., northern red-legged frog, northwestern salamander). Scrub-shrub wetlands are characterized by the following: • Water depths typically averaging 3-10 feet with some water remaining during most of the year • Vegetation dominated by willow species, rose, and Douglas spirea with some Oregon ash, red-osier dogwood, black cottonwood, and other species • Presence of large woody debris • <20% cover of invasive plants (e.g., reed canarygrass)
Strategies Applied to Achieve Objective:
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Map invasive plant distributions at least every 5 years.
Use prescribed fire to increase diversity in older stands.
Install logs, large trees, or root wads for turtle basking and waterfowl resting and preening structure.
Rationale: Scrub-shrub wetlands are a unique habitat type in the Willamette Valley, characterized mainly by peat soils. Scrub-shrub wetlands are important habitats for breeding and migrating landbirds and waterbirds. When breeding, native amphibians require these important habitats for egg mass attachment on emergent vegetation. Prescribed fire can be used to invigorate vegetation communities and to create mosaics of habitat patches where there are monotypic willow stands. Removing some willows will create openings and increase heterogeneity/diversity in habitat structure. In consideration of preserving peat soils, prescribed fire use will be timed with water inundation cycles. Changing climate, especially hotter and drier summer conditions, are projected to continue and accelerate. This could affect the ability of these wetlands to remain wet throughout the summer months, bringing potential new management needs. The refuge will monitor changing conditions and consider alternative strategies as needed, and practicable. Mapping invasive species will provide for a targeted approach to their removal or control, and provide a basis for adaptive management when evaluating efficacy of treatments.

Objective 5.3 Restore scrub-shrub wetland
By 2020, scrub-shrub wetlands will be restored from a mixture of ruderal wetlands, croplands, and herbaceous wetlands. The refuge will then protect and maintain 185 acres of scrub-shrub wetlands on the refuge for the benefit of breeding migratory birds (e.g., willow flycatcher, red-winged blackbird, common yellowthroat, sora) and a diverse assemblage of other native species (e.g., northern red-legged frog, northwestern salamander). Scrub-shrub wetlands are characterized by the following: • Water depths typically 3-10 feet with some water remaining during most of the year • Vegetation dominated by willow species, rose, and Douglas spirea with some Oregon ash, red-osier dogwood, and black cottonwood • Presence of large woody debris • <20% cover of invasive plants (e.g., reed canarygrass)
Strategies Applied to Achieve Objective:
Pretreat (e.g., herbicide, prescribed fire, discing) for 1-2 years to exhaust non-native seed bank prior to restoration actions.
Create swales using heavy equipment.
Install water control structures, spillways, levees, and/or low berms as necessary.
Plant cuttings, plugs, and potted plants of native shrubs and trees.
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).
Map invasive plant distributions at least every 5 years.
Establish a permanent refuge operations specialist position to oversee restoration and operations at the Wapato Lake Unit.
See also strategies under Objective 5.1.
Rationale: See rationale for Objective 5.2. Restoration of scrub-shrub wetlands will add and protect a significant amount of this unique habitat and associated species on the refuge in large contiguous tracts, helping to achieve refuge purposes and the Service policy of BIDEH.

Restoration of scrub-shrub wetlands in the Onion Flats Unit is dependent on further land acquisition. Without further acquisition any restoration efforts will impact neighboring lands and restrict the full spectrum of restoration desired.

Goal 6: Maintain, enhance, and, where feasible, restore streams and off-channel backwater slough habitats in order to benefit salmonids and other native aquatic species.

Objective 6.1 Enhance and maintain streams (in-channel) and backwater sloughs (off-channel)

Throughout the life of the CCP, enhance and maintain 7.2 miles of river frontage, 1.4 miles of streams, and 0.9 mile of backwater sloughs on the refuge for the benefit of salmonids (e.g., coastal cutthroat trout, steelhead), migratory birds (e.g., belted kingfisher), and a diverse assemblage of other native species (e.g., northwestern pond turtle, mink, Pacific lamprey).

In-channel stream is characterized by the following:

- Barrier-free river and stream channels
- Intact riparian areas along the banks with shade provided by large native trees
- Coarse woody debris inputs for in-stream structure

Backwater sloughs are characterized by the following:

- Temporary flooding and draining with a connection to nearby creek or river
- <20% cover of invasive plants (e.g., reed canarygrass, Canada thistle)
- Barrier-free sloughs with connections to stream or river channels providing for access and egress for native fish species during flood events
- Coarse woody debris for slough structure

Strategies Applied to Achieve Objective:

Where fish passage barriers exist, either remove or modify barriers to allow passage, for example on an unnamed creek at the Riverboat Unit and on Rock Creek at the Rock Creek Unit.

Plant cuttings, plugs, and potted plants for native shrubs and trees as necessary.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Maintain structures that enhance fish passage in tributary streams.

Place woody debris as necessary to provide subsurface structure for native fish, and basking areas for native turtles and other wildlife.

Inventory and monitor freshwater mussels.

Where necessary install erosion control mats along river/stream banks.

Use BMPs with respect to the refuge cropland management program, including unfarmed buffers to ensure minimal runoff and erosion into streams and rivers.

Rationale: River and stream habitat at the refuge includes the mainstem of the Tualatin River, and Chicken and Rock Creeks at the Sherwood Units; the Tualatin River, Wapato, Ayers, Scoggins, Harris, and Hill Creeks at the Wapato Lake Unit; and many smaller tributary perennial and ephemeral streams. Functioning stream corridors provide access for upstream adult salmonid migration as well as downstream and off-channel migrating, foraging, and sanctuary habitat for outmigrating juvenile fish. In addition, headwater streams are important breeding areas both for salmonids and lamprey species. Intact riparian areas adjacent to river and stream channels serve many functions including providing water-

quality benefits, shade, organic matter via leaf fall, and coarse woody debris. A host of wetland-dependent wildlife species thrive along river and stream channels including beaver, mink, muskrat, belted kingfisher, and northwestern pond turtle. Removing barriers such as culverts in the Rock Creek and Riverboat Units will enhance fish passage.

Objective 6.2 Restore streams (in-channel)

By 2027, restore 2.7 miles of in-channel stream on the refuge for the benefit of salmonids (e.g., coastal cutthroat trout, steelhead), migratory birds (e.g., belted kingfisher), and a diverse assemblage of other native species (e.g., northwestern pond turtle, mink, Pacific lamprey).

In-channel stream is characterized by the following:

- Barrier-free river and stream channels
- Intact riparian areas along the banks with shade provided by large native trees
- Coarse woody debris for in-stream structure

Strategies Applied to Achieve Objective:

By 2017: Develop a restoration plan for Chicken Creek.

By 2020: Develop a restoration plan for Rock Creek.

Conduct topographic surveys to determine location and elevation of stream channel and backwater channels/sloughs.

Locate and reestablish the historic channels of perennial streams (e.g., Chicken Creek, Rock Creek).

Use heavy equipment to remove plugs to reconnect historic oxbows to channels.

Remove culverts and other fish passage barriers on tributary streams including on an unnamed stream at the Riverboat Unit and on the Rock Creek Unit.

Improve river and stream connectivity with the floodplain (e.g., through removal or relocation of levees, channelized reaches, or other features restricting seasonal inundation of the floodplain).

Plant cuttings, plugs, and potted plants for native shrubs and trees.

Maintain structures that enhance fish passage in tributary streams.

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).

Place woody debris as necessary to provide subsurface structure for native fish, and basking areas for native turtles and other wildlife.

Install gravel bars as necessary for native fish and mussel habitat.

Use BMPs with respect to the refuge cropland management program, including unfarmed buffers, to ensure minimal runoff and erosion into streams and rivers.

Rationale: See rationale for Objective 6.1. Removing culverts and other fish passage barriers directly supports the strategies outlined by the Willamette Restoration Strategy (Jerrick 2001). Stream restoration activities will require additional analysis and regulatory compliance.

Objective 6.3 Restore backwater sloughs (off-channel)

By 2020, restore 1.6 miles of backwater sloughs on the refuge for the benefit of salmonids (e.g., coastal cutthroat trout, steelhead), migratory birds (e.g., belted kingfisher), and a diverse assemblage of other native species (e.g., northwestern pond turtle, mink, northern red-legged frog).

Backwater sloughs are characterized by the following: • Temporary flooding and draining with a connection to nearby creek or river • <20% cover of invasive plants (e.g., reed canarygrass, Canada thistle) • Barrier-free sloughs with connections to stream or river channels • Coarse woody debris for slough structure
Strategies Applied to Achieve Objective:
Conduct topographic surveys to determine location and elevation of backwater channels/sloughs.
Use heavy equipment to remove plugs to reconnect historic oxbows to channels, and to create new backwater areas in conjunction with other restoration activities (See Objectives 1.2, 4.2, and 5.3).
Improve river and stream connectivity with the floodplain (e.g., through removal or relocation of levees, channelized reaches, or other features restricting seasonal inundation of the floodplain).
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, cultural, and biological methods, to control invasive species (see Appendix G).
Place woody debris as necessary to provide subsurface structure for native fish, and basking areas for native turtles and other wildlife.
Use BMPs with respect to the refuge cropland management program, including unfarmed buffers, to ensure minimal runoff and erosion into backwater sloughs.
Rationale: Off-channel backwater areas have been shown to be important for spawning and juvenile rearing of native fish (Colvin et al. 2009). Henning et al. (2007) found that oxbow habitats were dominated by Coho salmon. Jeffres et al. (2008) found that Chinook salmon experienced higher growth rates in off-channel habitats than in perennial habitats. These ephemeral habitats may also provide breeding and foraging sites for amphibians such as northern red-legged frogs and northwestern salamanders. Backwater sloughs also provide a diversity of plant growth as they dry out in summer, providing a variety of benefits for native wildlife.

Goal 7: Cultivate and maintain croplands as an interim measure to control non-native invasive species.

Objective 7.1 Cultivate small cereal grain crops and green pasture at the Wapato Lake Unit
Prior to initiating restoration activities in the Wapato Lake lake bed and surrounding areas, use small grain croplands and green pastures as an interim measure to provide wildlife habitat while controlling weeds on acquired lands. Benefitting species include migrating and wintering waterfowl (e.g., tundra swan, northern pintail), raptors (e.g., northern harrier, red-tailed hawk), and landbirds (e.g., western meadowlark, savanna sparrow). Small grain croplands are characterized by the following: • Crops such as corn, wheat, barley, and oats • 70% harvested, 30% left standing • May have standing water or be completely flooded during rainy season Green pastures are characterized by the following: • Green forage crops such as clover and grass hay • Tall grasses during spring • Short grasses during fall and winter • May have standing water or be completely flooded during rainy season

Strategies Applied to Achieve Objective:
Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, water management, cultural, and biological methods, to control invasive species (Appendix G).
Conduct cooperative farming to grow and harvest small grain crops.
Leave 30% of small grain crops standing for winter waterfowl forage.
Conduct cooperative farming to grow and harvest green pasture.
Harvest 100% of green pasture during spring/summer.
Mow green pasture to <4 inches during late summer/early fall to provide forage for migrating and wintering waterfowl.
Explore the feasibility of refuge staff conducting farming operations on part or all refuge lands in a temporary cropping program.
Rationale: Growing cereal grains and green pasture on refuge lands as an interim measure helps reduce invasive plant species infestations prior to initiating restoration measures and provides benefits for migrating and wintering waterfowl, and other species. Selecting cereal grains versus green pasture is usually a decision based on market economics—which crops are most valuable to local farmers. Cooperative farming should benefit both the refuge in terms of wildlife value and the farmer in terms of economic value. Maintaining crops on the land prior to restoration helps control non-native invasive plant species such as reed canarygrass and Himalayan blackberry. Farming activities may include mowing, discing, application of approved herbicide, and planting of small grain crops, clover, or grass. Cooperative farming will be phased out as restoration efforts continue throughout the refuge. Acreage numbers presented in the management direction (0-871 acres) reflect the uncertainty of restoring the entire lake basin during the 15-year life span of the CCP. The range of acres suggested for restoration is due to the uncertainty of the direction of the Wapato Lake Unit restoration. Restoration will be dependent, in part, on the outcome of a hydrology study currently being conducted by the USGS. Conversion of croplands to native habitat types should benefit native species in the long term. Species using this area will likely transition as restoration is completed and new native habitats mature. Native fish species such as steelhead, coho, and lamprey will benefit from reconnecting the Wapato Lake lake bed with the Tualatin River and nearby tributary streams, while a host of waterfowl will benefit from restoration of herbaceous wetlands, and marsh birds and songbirds will use restored scrub-shrub wetlands. Cooperative farming is conducted by local growers who incur all costs associated with growing and harvesting crops. The cooperator is responsible for all aspects of farming including site preparation, seeding, application of any fertilizers or herbicides, harvesting, and any follow-up work necessary to remove the crop or prepare the field for the following year. Cooperators are required to leave a share of crops as determined by a cooperative agreement. For additional information see the compatibility determination in Appendix B. Harvesting green pasture is usually conducted during spring, and a follow-up cutting is conducted in fall to provide forage for wintering geese. Refuge staff may also conduct farming operations; however, all costs will be incurred by the refuge and all crops will be left for the benefit of wildlife.

Objective 7.2 Cultivate small cereal grain crops and green pasture at the Onion Flats Unit

Use small grain croplands and green pastures as an interim measure to provide wildlife habitat while controlling weeds on acquired lands. The long-term goal for this property will be to restore native habitat types. Benefitting species include migrating and wintering waterfowl (e.g., Canada goose, northern pintail), raptors (e.g., northern harrier, red-tailed hawk), and landbirds (e.g., western meadowlark, savanna sparrow).

Small grain croplands are characterized by the following:

- Crops such as corn, wheat, barley, and oats
- 70% harvested, 30% left standing
- May have standing water or be completely flooded during rainy season

Green pastures are characterized by the following:

- Green forage crops such as clover and grass hay
- Tall grasses during spring
- Short grasses during fall and winter
- May have standing water or be completely flooded during rainy season

Strategies Applied to Achieve Objective:

Use IPM techniques, including mechanical/physical (e.g., mowing), chemical, water management, cultural, and biological methods, to control invasive species (see Appendix G).

Conduct cooperative farming to grow and harvest small grain crops.

Leave 30% of small grain crops standing for winter waterfowl forage.

Conduct cooperative farming to grow and harvest green pasture.

Harvest 100% of green pasture during spring/summer.

Mow green pasture to <4 inches during late summer/early fall to provide forage for migrating and wintering waterfowl.

Explore the feasibility of refuge staff conducting farming operations on part or all refuge lands in a temporary cropping program.

Rationale: Growing cereal grains and green pasture on refuge lands as an interim measure helps reduce invasive plant species infestations prior to initiating restoration measures and provides benefits for migrating and wintering waterfowl, and other species. Due to the nature of the Onion Flats basin, restoration of Rock Creek (see Objective 6.2) and restoration of scrub-shrub wetland (see Objective 5.3) cannot proceed until sufficient interest in land (e.g., fee title, easement, or management agreement) is secured so that neighboring landowners are not impacted by refuge actions. The acreage numbers presented in the management direction (0-105 acres) reflect the uncertainty of acquiring an interest in land and restoring the basin during the 15-year life span of the CCP.

Conversion of croplands to native habitat types should benefit native species in the long term. Species using this area will likely transition as restoration is completed and new native habitats mature. Native fish species such as cutthroat trout and lamprey would benefit from restoration of Rock Creek, while a host of marsh birds and songbirds would use restored scrub-shrub wetlands.

Selecting cereal grains versus green pasture is usually a decision based on market economics—which crops are most valuable to local farmers. Cooperative farming should benefit both the refuge, in terms of wildlife value, and the farmer, in terms of economic value.

Maintaining crops on the land prior to restoration helps control non-native invasive plant species such as reed canarygrass and Himalayan blackberry. Farming activities may include mowing, discing, application of approved herbicide, and planting of small grain crops, clover, or grass. Cooperative farming will be phased out as restoration efforts continue throughout the refuge.

Cooperative farming is conducted by local growers who incur all costs associated with growing and harvesting crops. The cooperator is responsible for all aspects of farming including site preparation, seeding, application of any fertilizers or herbicides, harvesting, and any follow-up work necessary to remove the crop or prepare the field for the following year. Cooperators are required to leave a share of crops as determined by a cooperative agreement. For additional information see the compatibility determination in Appendix B.

Harvesting green pasture is usually conducted during spring, and a follow-up cutting is conducted in fall to provide forage for wintering geese.

Refuge staff may also conduct farming operations; however, all costs will be incurred by the refuge and all crops will be left for the benefit of wildlife.

Goal 8: Collect scientific information (surveys, scientific assessments, and research) necessary to support adaptive management decisions that are associated with Goals 1-7.

Objective 8.1 Inventory and monitoring surveys

Throughout the life of the CCP, conduct high-priority inventory and monitoring surveys that evaluate resource management and public use activities to facilitate adaptive management as well as provide baseline data. These surveys contribute to the protection, enhancement, restoration, use, and management of wildlife populations and their habitats on and off refuge lands. Specifically, they can be used to evaluate achievement of resource management objectives identified under Goals 1-7 in the CCP. These surveys will have the following attributes:

- Data collection techniques will likely have minimal animal mortality or disturbance and minimal habitat destruction
- Scale and accuracy of assessments will be appropriate for development and implementation of refuge habitat and wildlife management actions
- Minimum number of samples to meet statistical analysis requirements will be used to minimize long-term or cumulative impacts
- Proper cleaning of investigator equipment and clothing as well as quarantine methods, where necessary, will be required to minimize the potential spread or introduction of invasive species
- Projects will adhere to scientifically sound protocols for data collection, where available and applicable

Strategies Applied to Achieve Objective:

The following is a list of survey activities to support resource management decisions on the refuge. This list is not in order of priority.

Work with the Friends of the Refuge and other volunteers to conduct inventory and monitoring surveys.

Map invasive plant distributions throughout the refuge.

Monitor water levels in managed wetland basins.

Monitor survival and growth of planted woody species to evaluate restoration success as needed.
Conduct forest monitoring to assess snag density every 5 years.
Inventory and monitor restored wet prairies to gather baseline life history data and evaluate changes over time.
Monitor wetland and other vegetation types to determine management effectiveness as needed.
Monitor wintering waterfowl weekly from September 15 to March 15.
Monitor shorebirds weekly from April 1 to September 30.
Conduct monthly point count surveys for songbirds from April 1 to June 30.
Conduct songbird banding from May 1 to August 15 following Monitoring Avian Productivity and Survivorship (MAPS) protocol.
Monitor reptiles and amphibians (e.g., frogs, salamanders, turtles) as needed.
Monitor mammals as appropriate.
Inventory freshwater mussels in streams.
Monitor for listed fish species as appropriate (e.g., salmonids, lamprey).
Monitor water quality entering, within, and at discharge points of refuge wetlands.
Conduct periodic assessments to evaluate current habitat conditions.
Rationale: The Improvement Act requires the Service to ~~"~~monitor the status and trends of fish, wildlife, and plants in each refuge." Surveys will be used primarily to evaluate resource response to assess progress toward achieving refuge management objectives (under Goals 1-7 in this CCP) derived from the Refuge System mission, refuge purposes, and maintenance of BIDEH. Determining resource status and evaluating progress toward achieving objectives is essential to implementing adaptive management on Department of Interior lands. Specifically, results of surveys will be used to refine management strategies, where necessary, over time in order to achieve resource objectives. Surveys will provide the best available scientific information to promote transparent decision-making processes for resource management.

Objective 8.2 Research
Conduct high-priority research projects that provide the best science for habitat and wildlife management on and off refuge lands. Scientific findings gained through these projects will expand knowledge regarding the life history needs of species and species groups as well as identify or refine habitat and wildlife management actions. Research also will reduce uncertainty regarding wildlife and habitat responses to refuge management actions, which will help achieve desired outcomes reflected in resource management objectives and facilitate adaptive management. These research projects will have the following attributes: • Data collection will adhere to scientifically defensible protocols, where available and applicable, in order to develop the best science for resource management • Data collection techniques will likely have minimal animal mortality or disturbance and minimal habitat destruction • The minimum number of samples will be collected to meet statistical analysis requirements for identification and/or experimentation to minimize long-term or cumulative impacts • Proper cleaning methods will be used on investigator equipment and clothing, as well as quarantine methods, where necessary, to minimize the potential spread or introduction of

invasive species • Research projects will produce a summary report containing methods, results, and discussion of findings • Projects will often result in peer-reviewed articles in scientific journals and publications and/or symposiums
Strategies Applied to Achieve Objective:
The following is a list of research projects to support resource management decisions on the refuge. This list is not comprehensive and is not in order of priority.
Conduct soil and topographic surveys and hydrological modeling to determine surface water interactions between river levels and floodplain elevations, with an outcome of frequency and duration of flooding within the Tualatin River floodplain to support saturation requirements for Objectives 4.1, 4.2, 5.3, 5.4, 6.1, and 6.2.
Conduct detailed topographic survey of Wapato Lake and surrounding areas to use in restoration planning and evaluation.
Conduct hydrologic survey of Wapato Lake and the surrounding watershed to use in restoration planning and evaluation.
Conduct studies to determine water quality parameters within refuge impoundments, and the effects to water quality on streams and the Tualatin River.
Conduct study to evaluate timing of prescribed fire to best promote native herbaceous cover and control invasive plants.
Conduct studies to determine practical techniques (grazing, haying, mowing, herbicide application) for habitat management.
Conduct studies to determine BMPs for eradicating or controlling non-native invasive species.
Conduct studies of disturbance to wildlife from public use activities to determine compatibility and recommend any necessary modifications to reduce disturbance.
Investigate methods for reducing competition from non-native fish species in stream and floodplain habitat types.
Investigate species and habitat sensitivity to changing climate trends and climate vulnerability assessments; monitor results of climate modeling by University of Washington and others.
Partner with universities and other academic institutions to conduct scientific research.
Partner with USGS, other Federal and state agencies, and nongovernmental organizations to conduct research studies.
Rationale: Research projects on refuge lands will address a wide range of natural and cultural resource as well as public use management issues. Examples of research projects include habitat use and life history requirements for specific species/species groups, practical methods for habitat management and restoration, extent and severity of environmental contaminants, techniques to control or eradicate pest species, effects of climate change on environmental conditions and associated habitat/wildlife response, identification and analyses of paleontological specimens, modeling of wildlife populations, and assessing response of habitat/wildlife to disturbance from public uses. Projects may be species-specific or refuge-specific, or they may evaluate the relative contribution of the refuge to issues and trends affecting the larger landscape (e.g., ecoregion, region, flyway, national, international). Like monitoring, results of research projects would expand the best available scientific information and potentially reduce uncertainties to promote transparent decision-making processes for resource management over time on refuge lands. In combination with results of surveys, research will promote adaptive management on refuge lands. Scientific publications resulting from research on refuge lands will help increase the visibility of the Refuge System as a leader in the development of the best science for resource conservation and management.

Goal 9: Protect and manage the refuge's unique cultural resources for their cultural, scientific, and educational values, while consulting with appropriate Native American groups and preservation organizations and complying with historic preservation legislation.

Objective 9.1 Inventory, evaluate, monitor, and protect cultural resources to improve cultural resource management
Continue and improve cultural resource management that meets the requirements of the National Historic Preservation Act (NHPA), including consultation, identification, inventorying, monitoring, and protection of cultural resources.
Strategies Applied to Achieve Objective:
Through partnerships, expand on current cultural resource inventories in high probability areas on existing lands and newly acquired lands.
Develop partnership with the Tribes for cultural resource inventory, evaluation, and project monitoring, consistent with the regulations of the NHPA. Protect all identifiable archaeological sites by avoiding disturbance within the area.
Evaluate sites for eligibility for the National Register of Historic Places (NRHP).
Continue to identify cultural resources that coincide with existing and planned roads, facilities, public use areas, habitat projects, and research projects. Plan and implement activities to avoid or mitigate impacts as necessary.
Complete a comprehensive cultural review of the refuge and compile all site surveys, work requests, and reports for easy access by managers.
When funding is limited, low priority and unsafe buildings should be cataloged and considered for removal.
Monitor known archaeological and historical sites, as needed.
Provide refuge staff with training on managing historic, archaeological, and cultural resources.
Develop and implement a museum management plan (including inventory, storage, and use) for existing and new property.
Collect and catalog oral histories from local community members.
Rationale: Various Federal historic preservation laws and regulations, such as the Archaeological Resources Protection Act of 1979 and the NHPA, require the Service to implement the kind of program described under this objective. The refuge has currently identified numerous historic structures and archaeological sites throughout the refuge related to pioneer agriculture. The refuge has also been identified as a long-term occupation area of the Kalapuyan Tribe, and several prehistoric sites have also been discovered. This objective will serve to protect these important cultural resources. Developing a partnership with the Tribes would foster greater understanding of not only the refuge's cultural heritage, but the greater Willamette Valley region as well.

Objective 9.2 Provide interpretive and educational programs on the refuge's cultural resources
Expand education and interpretation for cultural resources through programs and materials that highlight the rich cultural heritage of the Tualatin River watershed and the Willamette Valley. Encourage understanding and appreciation of the relationships of past and present human interactions with wildlife and their habitats.
Strategies Applied to Achieve Objective:
Develop and strengthen partnership with the Tribes in order to provide high-quality educational and interpretive programs with a focus on natural and cultural resources of the refuge and the Tualatin River

watershed.
Consult with the Tribes and other preservation partners to identify the type of cultural resources information appropriate for public interpretation.
Expand the Wildlife Center exhibits to include exhibits highlighting Native American history and Euro-American land use.
Develop interpretive media (e.g., pamphlets, signs, and exhibits) that relate to cultural resources and the refuge.
Rationale: Preservation and protection of our cultural resources requires attention not only from the refuge but the public as well. Interpretation of these resources can raise public interest and appreciation for the rich history of the peoples who lived in the valley in earlier times and how they shaped the landscape the refuge now manages. This appreciation can lead to public support for the conservation, maintenance, identification, and protection of archaeological and historic sites.

Goal 10: Provide visitors, local residents, volunteers, and partners with opportunities to understand and appreciate fish and wildlife conservation as well as the purpose, ecology, and management of the refuge and the Refuge System.

Objective 10.1 Provide visitors with clear and accurate information
Visitors will be provided with clear and accurate information that will: • Describe what areas are open to the public • Articulate activities that are allowed and those that are prohibited and why • Describe how to safely and ethically experience the refuge • Be presented in a variety of graphic and written formats
Strategies Applied to Achieve Objective:
Provide informational signs and brochures, regulatory information, and trail maps.
Partner with others to keep the refuge Wildlife Center open a minimum of 5 days a week.
Maintain a refuge website that meets Service web standards.
Provide at least annual training for Wildlife Center volunteers and volunteer rovers to ensure they provide quality service and are well informed about the refuge, its resources, and rules and regulations.
Maintain all existing public use facilities.
Explore opportunities for one or two informational kiosks at or near the Wapato Lake Unit.
Hire a full-time, permanent law enforcement officer to provide both visitor and resource protection.
Rationale: Kiosks, signs, publications, and contact with refuge staff and volunteers are effective communication tools to welcome and orient visitors. These steps are necessary to provide a safe and enjoyable visit that both meets visitor needs and communicates what public use opportunities and facilities are available at the refuge. In addition, clear regulations and guidance promotes protection of refuge resources, reduces law enforcement violations, and maintains compatibility. A full-time law enforcement officer will provide greater protection of visitors and natural and cultural resources.

Objective 10.2 Conduct outreach and special events
Conduct outreach and special events that: • Describe the refuge and its place as part of the Refuge System • Promote understanding of the refuge's role in enhancing natural resources, protecting habitats and water quality, and providing educational and economic benefits to the community • Describe how the refuge is different from local parks • Focus on local residents, with an emphasis on serving urban and underserved populations, and families and youth that may not otherwise have opportunities to engage in programs about or activities on national wildlife refuges
Strategies Applied to Achieve Objective:
Partner with Friends of the Refuge and others to offer special programs and events to draw neighbors, area residents, and community partners to the refuge. Examples of events include Tualatin River Bird Festival, National Wildlife Refuge Week, and Spring Break Exploration Days.
Maintain a presence at community events where there is a high potential for delivering refuge messages. Examples include local county fairs, nature festivals, city events, and farmers' markets.
Develop a volunteer speakers' bureau to deliver presentations to local groups.
By 2015, investigate and develop a plan to use new/social media to expand refuge outreach.
Regularly use media like newspapers, television, magazines, and radio. Focus on news venues, as well as specialty outdoor, commerce, and travel venues.
Rationale: The area surrounding the refuge is becoming increasingly developed, and the population is expanding. The refuge opened to the public in 2006 and is still relatively unknown to many area residents and businesses. Outreach is needed for these new and growing audiences, in order to build interest in the refuge, bring visitors to the refuge, and build support for refuge programs and fish and wildlife conservation.

Objective 10.3 Plan for continuing and new public use opportunities
Plan for continuing and new public use opportunities that: • Emphasize the role that national wildlife refuges have in the conservation of fish and wildlife and their habitats • Prescribe a wide range of techniques and media that appeal to culturally and ethnically diverse audiences and can adapt to changing trends • Allow visitors to experience a variety of refuge habitats and associated wildlife • Ensure that public uses are accessible and adhere to the guidelines set forth in the Architectural Barriers Act
Strategies Applied to Achieve Objective:
By 2016, develop primary refuge interpretive, outreach, and educational themes.
By 2016, identify target audiences through a variety of means including demographic studies.
Use the Refuge System's visitor survey (USFWS and USGS, OMB #1018-0145) or other valid and approved method to gather information about visitors and their expectations and experiences. Use data to identify areas of growing public interests and to provide the information necessary to exercise adaptive management.
Use the Refuge System Visitor Estimation Workbook (USFWS 2005a), traffic counters, and program

attendance to estimate numbers of visitors participating in public use activities.
At least every 5 years, conduct an evaluation using *Visitor Services Standards: A Handbook for Evaluating Visitor Service Programs* (USFWS 2009b) for all visitor services programs of the refuge. Conduct evaluations of new programs within 1 year of implementation.
Every 3 years, invite an organization such as Access Recreation in Portland to conduct a courtesy accessibility evaluation of public use facilities. Develop and implement a plan to make needed corrections or improvements based on this evaluation.
By 2017, develop a comprehensive visitor services plan that prescribes all public use facilities and programs at both the Sherwood Units and the Wapato Lake Unit. Complete all relevant appropriateness and compatibility determinations.
Rationale: Established under the Urban Refuge Policy, the Tualatin River National Wildlife Refuge has a special role in sharing the mission of the Refuge System, how refuges are managed throughout the Refuge System, and how citizens can learn more about and support the Refuge System as a whole. Public use opportunities need to be designed and planned in a way that is aligned with primary messages. Opportunities that do not support primary messages should be eliminated from consideration. A comprehensive visitor services plan will use primary refuge messages and themes to prescribe long-term wildlife-dependent public use programs and the facilities that will support those programs. Examples of programs could include, but may not be limited to, wildlife observation areas, trails, interpretive exhibits, signs, photography blinds, auto tour routes, education study sites, and hunting and fishing facilities.

Objective 10.4 Improve and enhance public access to, from, and within the refuge
Improve and enhance public access to, from, and within the refuge in a manner that: • Is safe, well marked, and accessible where feasible • Promotes the use of alternative transportation to visit the refuge, thereby helping to reduce the refuge's carbon footprint • Poses minimal conflict with wildlife and habitat objectives • Promotes stewardship and conservation • Is coordinated with local communities and agencies planning transportation corridors near the refuge
Strategies Applied to Achieve Objective:
Continue to work with regional and local organizations to connect the refuge to existing and proposed land-based and water-based trail systems, such as Sherwood's Cedar Creek Trail (Otak 2009), Metro's Tonquin Trail, and Tualatin Riverkeepers' Tualatin River Water Trail, where feasible and compatible at existing refuge access points.
Partner with interested parties/organizations to identify potential locations for one public river access for nonmotorized boats in or near the refuge.
By 2015, partner with Oregon Department of Transportation (ODOT), local counties, TriMet, and the Western Federal Lands Highway Division of the Federal Highway Administration to conduct transportation access and safety studies for the existing refuge access from Highway 99W and Roy Rogers Road and any proposed new access points to the Sherwood Units.
If determined necessary, partner with transportation agencies to improve safety of existing access points.
Rationale: The demand for increased, enhanced, and improved public access to the refuge was a common theme of many public comments during scoping for the CCP. These comments also reflect a desire for improved public access within the refuge and for connectivity with existing and proposed land and water trails.

At present, public access to the refuge is primarily by automobile along Highway 99W and Roy Rogers Road, and by TriMet bus along Highway 99W. Of particular concern, the Highway 99W entrance was constructed in 2006 without a deceleration lane. This current entrance design was required by ODOT specifications and permit conditions, and the entrance resides within ODOT's right-of-way. Refuge visitors continue to express concern that the Highway 99W entrance is unsafe. This entrance warrants further evaluation and potential remedy.

Objective 10.5 Maintain a volunteer and internship program

Maintain a volunteer and internship program that:

- Assists with the habitat, biological, public use, maintenance, and administrative programs of the refuge
- Provides opportunities for citizens to engage in, learn about, and conduct the work of conservation
- Builds capacity to recruit, train, manage, and retain volunteers over the long term
- Fosters the development of conservation professionals

Strategies Applied to Achieve Objective:

Hire a full-time, permanent volunteer coordinator to manage current and expanding refuge-wide volunteer program.

Develop and conduct an annual refuge-wide volunteer needs assessment.

Develop a package of position descriptions that clearly define the responsibilities and roles of volunteers in all relevant refuge programs.

Continue to provide opportunities for young adults to gain work experience in natural and cultural resources planning and management, as well as visitor services management, and to explore career options in conservation fields. These opportunities may include programs such as internships, AmeriCorps placements, student employment and work/study programs, Youth Conservation Corps, and other youth employment initiatives.

Develop written training programs, manuals, and other resource training for volunteers.

Establish an advisory committee of volunteers that helps the refuge with oversight and day-to-day management of volunteer activities.

Construct a new bunkhouse and two recreational vehicle (RV) pads (with hookups) on the Tualatin River Unit near the maintenance facility to house volunteers.

Host annual volunteer appreciation event.

Rationale: Volunteers are necessary to meet the operational needs of the refuge. In fiscal year 2011, volunteers donated nearly 15,000 hours of support to the refuge (USFWS 2011f). This equals more than seven full-time personnel and is valued at nearly $327,000 (national volunteer value = $21.79/hour [Independent Sector 2011]). Expansion of the current volunteer program to fully meet the needs of the refuge over the life of the CCP will require a full-time volunteer coordinator. This need could be met through direct hiring of USFWS staff or by partnering with Friends of the Refuge to hire personnel.

It is critical for the Service to attract and nurture the future workforce in natural resource conservation. This priority is also reflected in the Department of Interior's Youth in the Great Outdoors initiative.

Objective 10.6 Maintain a close working relationship with the Friends of the Refuge
Maintain a relationship in which the Friends of the Refuge: • Assist with the refuge's habitat, biological, public use, and maintenance programs • Seek grants, funding, and sponsorships to support refuge programs
Strategies Applied to Achieve Objective:
Work with the Friends of the Refuge to establish a chapter that will provide support for the developing Wapato Lake Unit.
Continue to provide the Friends of the Refuge with office and storage space to successfully conduct their activities.
Maintain the current memorandum of understanding between the Service and the Friends of the Refuge.
Rationale: The Friends of Tualatin River National Wildlife Refuge is a nonprofit 501(c)(3) organization whose mission is to "support the Tualatin River National Wildlife Refuge." It is "dedicated to the protection and restoration of the refuge for the benefit of fish and wildlife, and for public education and recreation" (Friends of the Tualatin Refuge 2011). The Friends provide critical support to the refuge, supporting programs and activities that would otherwise not be feasible to conduct. The refuge maintains a memorandum of understanding with the Friends of the Refuge, partially under the authority of the Refuge System Volunteer and Community Partnership Enhancement Act of 1998.

Goal 11: Provide students and educators from the greater Portland area with compatible and high-quality opportunities to participate in environmental education.

Objective 11.1 Increase participation in the refuge's environmental education program
The goals for the refuge's environmental education program are to: • Remain of high quality • Not exceed capacity of refuge public use facilities • Coordinate with other regional natural areas and organizations that offer environmental education
Strategies Applied to Achieve Objective:
Hire a permanent, full-time environmental education specialist to manage all refuge education and interpretation programs.
Throughout the life of the CCP, increase the number of students participating in educator-led field trips from an average of 1,900 to at least 5,000 per year.
Throughout the life of the CCP, increase the number of students reached at off-site activities and events from an average of 700 to at least 1,750 per year.
Throughout the life of the CCP, increase the number of volunteers trained in support of the environmental education program from an average of 10 to at least 25 per year.
Offer programs that are tailored to youth outside of the traditional classroom (e.g., scouts, clubs). Increase the numbers of youth participating in these programs from an average of 800 to at least 2,000 per year.
Increase outreach about the refuge's environmental education program to teachers and administrators at schools within a 10-mile radius of Sherwood and of Gaston.
Continue to require teacher workshops prior to educators bringing class field trips to the refuge. Offer a

minimum of two teacher workshops annually.
By 2013, identify one off-trail area that students can use, when approved as part of a field trip registration and supervised by volunteers, to conduct educational activities.
By 2018, design and construct one off-trail nature exploration area that engages young children to experience unstructured outdoor play.
Rationale: Environmental education activities promote appreciation and knowledge of natural resources, foster a conservation ethic, and aid in understanding the important role people have in the environment. Ultimately, the highest goal of environmental education is to foster an aware and involved citizenry that takes an active role in conservation efforts. As such, environmental education is identified as one of the priority public uses of the Refuge System and, as an urban national wildlife refuge, is one of the top goals for the Tualatin River National Wildlife Refuge. Expanding the current environmental education program will reach more students and educators and foster integration into local school curricula. The current education program is carried primarily through internships, grants, and volunteers, and maintaining its current capacity is dependent on soft funding, which is funding that may or may not be available each year. Permanent maintenance of the current program and future increase in participation is dependent on hiring a full-time professional environmental education coordinator. Nature explore areas provide opportunities for children to experience nature first-hand through unstructured outdoor play. Richard Louv identified the importance of first-hand unstructured experience in nature and the prevalence of ~~"~~nature deficit disorder" as a serious issue in his book *Last Child in the Woods* (Louv 2005). Research supports Louv's arguments demonstrating that children's positive encounters with nature can lead to development of an environmental ethic (Chawla 1988; Palmberg and Kuru 2000; Wilson 1997).

Objective 11.2 Expand the environmental education program to include the Wapato Lake Unit
Same as Objective 11.1.
Strategies Applied to Achieve Objective:
By 2013, provide teacher training and curricula to educators within the schools and communities surrounding the Wapato Lake Unit.
By 2013, provide environmental education materials to educators in schools and communities surrounding the Wapato Lake Unit.
Explore the potential to partner with the City of Gaston to provide space and/or facilities for environmental education programs to occur at Brown Park.
By 2014, annually host at least two environmental education programs with the Tribes at the Wapato Lake Unit, both for tribal students and surrounding communities.
Rationale: Schools close to the Wapato Lake Unit offer a new audience that has yet to participate in refuge environmental education programs. The community, especially Gaston, has expressed a desire to have students learn about and experience the refuge. Although there are currently no public use facilities at the Wapato Lake Unit, the refuge can offer high-quality environmental education activities at schools, within the local community, and at the Atfálat'i Unit of the refuge.

Objective 11.3 Ensure that the environmental education program is high quality

The environmental education program should:

- Align with grade-level curricula and be age appropriate
- Correlate with national and state educational standards
- Use current and widely accepted techniques
- Appeal to a broad range of learning styles and provide interdisciplinary opportunities that link natural resources through all academic subject areas
- Incorporates landscape-level conservation issues (e.g. climate change, invasive species) in ways that are relevant to students and are presented in an age-appropriate manner
- Serve students across a range of economic, social, cultural, and ethnic diversity
- Be conducted to minimize impacts to fish, wildlife, plants, and their habitats; other compatible public uses; and refuge management programs and facilities
- Involve local communities, Friends of the Refuge, volunteers, and other partners
- Incorporate the importance of the Refuge System and the purposes, goals, and objectives of the refuge
- Provide experiences that are hands-on and integrate the resources of the refuge

Strategies Applied to Achieve Objective:

Conduct at least one training per year to ensure volunteers use high-quality and appropriate educational methods, techniques, and tools.

Loan educators and schools relevant supplies and materials such as binoculars, field guides, lesson kits, and water testing kits to support on-site field activities for environmental education.

Develop a training program for parent chaperones who accompany student field trips to the refuge.

Align refuge education materials, curricula, and techniques with the Oregon Environmental Literacy Plan, as appropriate. (Oregon Environmental Literacy Task Force 2010).

At least every 5 years, conduct a comprehensive evaluation of the environmental education program using the Guidelines for Excellence established by North American Association for Environmental Education ([NAAEE] 2004).

Explore the potential to extend the teacher-training program from 1-day workshops to long-term, one-on-one coaching with individual teachers.

Maintain memberships in organizations such as NAAEE, Environmental Education Association of Oregon, Portland's Regional Environmental Education Network, and Metro's Intertwine.

Rationale: Environmental education opportunities in the greater Portland area are plentiful, although few provide natural areas with facilities that accommodate student field trips (with shelter, classroom, and study areas) while also providing quality wildlife-oriented education opportunities. In addition, the past and projected population boom in proximity to the refuge may continue to create a larger demand for nature-based education programs within a short bus trip from local schools. However, several key factors limit schools' abilities to offer environmental education without the assistance of outside resources such as the refuge. At this time, environmental education is not mandated by the State of Oregon; teachers are increasingly pressured to meet current mandates and may not have the time to build skills, learn curricula, and seek out environmental education activities. Declining school budgets often limit teachers in their ability to provide transportation, cover substitute fees, purchase materials, and defray other costs associated with off-site field trips. By maintaining a high-quality education program, the refuge can offset these limitations in order to meet our environmental education goal. Education programs will be effective and offered in a way that will both attract educators and meet the learning mandates and objectives that schools are responsible for providing. The refuge can provide environmental education teaching materials (binoculars, field guides, water test kits, study skins, etc.) that schools would likely not have access to. In addition, the refuge can offer programs for youth outside the formal classroom (such as scouts and after-

school clubs) that are more affordable and not subject to daily limitations of the school day. Ensuring the long-term quality of the environmental education program, through evaluation and adaptive management, is dependent on the hiring of a full-time professional environmental education coordinator.

Goal 12: Provide refuge visitors with diverse, compatible, and high-quality opportunities to participate in wildlife-dependent recreation and interpretation.

Objective 12.1 Provide high-quality wildlife observation and wildlife photography opportunities
Provide high-quality wildlife observation and photography opportunities that: • Focus on major wildlife species and groups of wildlife species, including migratory birds • Incorporate a diversity of habitats found on the refuge • Use various types of facilities to view/photograph wildlife and their habitats • Are emphasized on a year-round basis • Satisfy a range of skill sets, from casual and beginning observers/photographers, to advanced and expert observers/photographers
Strategies Applied to Achieve Objective:
Enhance and maintain the existing seven wildlife observation structures, 1.1 miles of year-round trails, 3.1 miles of seasonal trails, one wildlife photography blind, and two restrooms.
Maintain seasonal trail closure from October 1 to April 30 on the Atfálat'i Unit to provide sanctuary for wintering waterfowl and maintain quality viewing opportunities.
Improve habitat conditions and maintain viewing "lanes" in close proximity to wildlife observation/photography facilities. These improvements could include items such as snag/log placements; removal of branches, trees, or other encroaching vegetation; and control of non-native vegetation within wetlands.
Explore the possibility of adding a material or substance to trail surfaces to both reduce the sound of footsteps on the trail and reduce weed encroachment.
Improve 400 feet of existing year-round trail to avoid winter flooding.
Explore adding trees and/or other vegetation along busy road corridors to reduce noise and create a more natural setting.
By 2016, construct and maintain one to three additional wildlife photography blinds and associated access trails on the Atfálat'i Unit of the refuge. Manage use through a reservation system.
Partner with the Friends of the Refuge, Tualatin River Photographic Society, and local wildlife organizations to assist with the funding, design, construction, maintenance, and management of new and existing wildlife observation and photography facilities.
Explore the desirability of user fees to help operate the wildlife observation and photography program, and maintain and repair associated facilities.
Maintain wildlife "Discovery Packs" for visitors to check out at the Wildlife Center. Packs will contain binoculars, field guides, and activities for outdoor nature exploration.
Maintain an up-to-date and accurate Watchable Wildlife leaflet and checklist of birds, mammals, reptiles, and amphibians.
Partner with Friends of the Refuge, Tualatin River Photographic Society, local wildlife organizations, agencies, and/or universities to offer regular programs on the Refuge oriented to increasing the knowledge and skills of wildlife observers and photographers. Evaluate the potential for revenue from a modest program-specific fee to support such programs.

At least every 5 years, conduct an evaluation of the wildlife observation and photography program using the Refuge System Birder Friendly Refuge criteria (USFWS 2008a).
Rationale: Opportunities to participate in wildlife observation and photography in the greater Portland area are plentiful. However, many areas lack the diversity and abundance of wildlife and the expanses that the refuge offers. The refuge also provides a relatively unique location for high-quality wildlife observation and photography by limiting nonwildlife-dependent activities such as biking, jogging, dog walking, and other activities that may otherwise conflict with and disturb wildlife. Wildlife observation and photography programs are designed to provide a diversity of wildlife viewing opportunities in a manner that minimizes disturbance to wildlife. Many of the various wildlife observation facilities provide excellent photography opportunities. In addition, the refuge has one existing photography blind that can be reserved on a first-come, first-served basis, on Wednesdays, Saturdays, and Sundays throughout the year. The 0.2-mile spur trail to the photography blind is closed to all other users during the winter seasonal trail closure period. Demand for the blind is growing. Wildlife photographers have expressed concern that the blind does not offer a consistent quality experience because it faces south and photographs must be taken toward the sun most times during the day. Opportunities may exist to offer additional photography blinds that do not face the sun. A 400-foot section of the year-round trail, located between the River Overlook and the riparian forest, floods during most winters—sometimes with water up to 16 inches deep. Pedestrians are forced to walk around the puddles and cause substantial trampling of vegetation. This section is impassable by strollers or wheelchairs when flooded. The trail section could be improved by relocating the trail farther toward the river, by building a boardwalk, or by raising the trail surface. Maintaining the existing public use seasonal trail closures from October 1 to April 30 would help provide needed sanctuary for wintering waterfowl, and other wildlife such as the bald eagles, in support of refuge purposes.

Objective 12.2 Provide high-quality interpretive programs
Provide high-quality interpretive programs that: • Follow the basic tenets of interpretation as defined in the Interpretive Process Model (Larsen 2003) • Incorporate a variety of materials and technology into interpretive materials, such as signs, publications, exhibits, and direct contact with staff and volunteers • Appeal to a variety of learning styles and facilitate self-discovery • Convey the key messages and purposes of the refuge • Explore interconnection of the natural and human environments • Empower individuals to adopt conservation-minded lifestyles • Emphasize first-hand experiences on the refuge
Strategies Applied to Achieve Objective:
Maintain existing interpretive facilities, including signs, exhibits, overlooks, and kiosks.
Annually, provide interpretive training for volunteer naturalists and participating refuge staff and partners.
By 2018, develop a partnership with the National Association for Interpretation to train refuge staff and long-term volunteers as Certified Interpretive Trainers and/or Certified Interpretive Guides.
Develop and publish an annual calendar of refuge presentations, special programs, and events. This will include volunteers and guest speakers who conduct a variety of interpretive programs on topics that support refuge messages and themes.

Partner with the Tribes to provide interpretive programs at the refuge that focus on Native Americans' traditional uses of the refuge and surrounding areas; uses of native fish, wildlife, and plants; and other indigenous knowledge.
Every 10 years, partner with Certified Interpretive Trainer(s) to conduct an audit or review of the refuge's interpretive programs to measure adherence to the Interpretive Process Model (Larsen 2003).
Rationale: Interpretation is a communication method whereby visitors and program participants forge emotional and intellectual connections between their own interests and the significance of refuge resources, and management of the refuge and the Refuge System. Interpretation differs from formal education in that participants are self-motivated, have a choice as to whether or not to participate, and are not part of a formal class seeking an educational objective. The refuge currently documents 90,000 annual visitors, only 4,000 of whom participate in formal education programs. Most of the remaining visitors come in small groups, with their families, or alone. Interpretation is a key method to connect the public with the primary messages of the refuge.

Objective 12.3 Provide opportunities for youth to participate in high-quality waterfowl hunting on the Riverboat Unit of the refuge

Waterfowl hunting on the Riverboat Unit should:

- Place a priority on safety (hunters are spaced appropriately, spatial separation exists between hunt areas and areas open to other recreational use, law enforcement presence is adequate, etc.)
- Include clear and concise regulations that are readily available
- Pose minimal conflict with wildlife and habitat objectives
- Pose minimal conflict with other priority public use activities
- Pose minimal conflict with neighboring lands
- Promote stewardship and conservation
- Provide youth with quality hunting experiences that include hunter education and mentorships in coordination with ODFW
- Promote understanding and appreciation of natural resources
- Provide reliable/reasonable opportunity to experience wildlife
- Use accessible facilities that blend into the landscape

Strategies Applied to Achieve Objective:
By 2015, complete all requirements to open the Riverboat Unit of the refuge to waterfowl hunting for youth.
Work closely with ODFW, local sporting organizations, and local hunters to develop a youth waterfowl hunt plan that includes hunter safety and mentorships.
By 2016, construct and maintain two to five hunting blinds and associated access trails on the Riverboat Unit. Manage use through a reservation and/or lottery system.
Explore the potential for local sporting organizations to provide volunteers, funding, and other resources needed to operate the youth hunting program, and maintain and repair associated facilities.
Rationale: Opportunities to hunt in the greater Portland area are increasingly scarce due to an ever-growing population, urbanization, and a relative lack of public lands open to these uses. Hunting (both for and against) was the subject of more letters and e-mails received during scoping for the CCP than any other topic. In particular, the community has expressed a very strong interest in sharing hunting traditions with youth. Opening the refuge to waterfowl hunting will provide youth an opportunity to hunt in proximity to the urban area, in uncrowded and in relatively natural environments. In addition, youth hunts will reinforce ODFW programs that expose young people to hunting heritage, education, and mentorships. Refuge

hunting opportunities will be consistent with state hunting regulations, and with management plans for applicable game species and the PFC's plans for cackling Canada geese (PFC 1999) and dusky Canada geese (PFC 2008).

Objective 12.4 Provide opportunities for high-quality fishing in the Tualatin River

Fishing opportunities in the Tualatin River should:

- Include clear and concise regulations that are readily available
- Pose minimal conflict with wildlife and habitat objectives
- Pose minimal conflict with other ~~"b~~big six" priority public uses
- Pose minimal conflict with neighboring lands
- Promote stewardship and conservation
- Focus on youth, families, and disabled persons
- Promote understanding and appreciation of natural resources
- Provide reliable and reasonable opportunities to experience wildlife
- Use the existing River Overlook on the Atfálat'i Unit of the refuge

Strategies Applied to Achieve Objective:

By 2016, complete all requirements to open the refuge to fishing on the Atfálat'i Unit.

Work closely with ODFW, local sporting organizations, and local anglers to develop a fishing plan.

Explore the desirability of user fees to help operate the fishing program, and maintain and repair associated facilities.

Explore the potential for local sporting organizations to provide volunteers, funding, and other resources needed to operate the fishing program, and maintain and repair associated facilities in lieu of or to offset user fees.

By 2017, offer at least one special fishing event annually on the refuge and/or elsewhere in the local community. This could be a Take Me Fishing event, could coincide with Oregon's free fishing day(s) or National Fishing and Boating Week, and/or could be a separate local event at an area such as Henry Hagg Lake.

Work with partners to support and/or promote other fishing opportunities that are not on but near the refuge and/or within the Tualatin River watershed.

Rationale: Fishing opportunities on the Tualatin River, especially for families and disabled persons, are scarce. Opening the refuge to fishing will provide the public an opportunity to fish in proximity to the urban area, in an uncrowded and natural environment, and at a reasonable cost. Special emphasis will be placed on family-oriented and accessible fishing opportunities in order to introduce fishing to urban audiences who may otherwise not regularly experience this high-priority wildlife-dependent activity.

As part of an earlier planning and evaluation effort, fishing was determined compatible on the Atfálat'i Unit (USFWS 2003a). Refuge fishing opportunities will be consistent with state fishing regulations.

Objective 12.5 Explore opportunities to offer high-quality waterfowl hunting at the Wapato Lake Unit

As land acquisition progresses and habitat restoration is completed on the Wapato Lake Unit, explore opportunities to offer high-quality waterfowl hunting that:

- Place a priority on safety (hunters are spaced appropriately, spatial separation exists between hunt areas and areas open to other recreational use, law enforcement presence is adequate, etc.)
- Include clear and concise regulations that are readily available

- Pose minimal conflict with wildlife and habitat objectives
- Pose minimal conflict with other priority public use activities
- Pose minimal conflict with neighboring lands
- Promote stewardship and conservation
- Provide the public with quality hunting experiences that include hunter education and mentorship in coordination with ODFW
- Promote understanding and appreciation of natural resources
- Provide reliable/reasonable opportunity to experience wildlife
- Use accessible facilities that blend into the landscape

Strategies Applied to Achieve Objective:

Concurrent with habitat restoration research and planning (see Objective 8.2), explore the feasibility of providing safe parking and access to hunting facilities, such as blinds and associated trails.

If hunting is determined feasible, complete all requirements to open the Wapato Lake Unit of the refuge to waterfowl hunting within 2 years after restoration planning is completed.

Work closely with ODFW, local sporting organizations, and local hunters to develop a waterfowl hunt plan.

Concurrent with restoration, construct hunting blinds and associated access trails on the Wapato Lake Unit. Implement and maintain a hunting program. Manage use through a reservation and/or lottery system.

Explore the desirability of user fees to help operate the hunting program, and maintain and repair associated facilities.

Explore the potential for local sporting organizations to provide volunteers, funding, and other resources needed to operate the hunting program, and maintain and repair associated facilities in lieu of or to offset user fees.

Rationale: Opportunities to hunt in the greater Portland area are increasingly scarce due to an ever-growing population, urbanization, and a relative lack of public lands open to these uses. Hunting was the subject of more letters and e-mails received (both for and against) during scoping for the CCP than any other topic.

Opening the refuge to waterfowl hunting will provide the public an opportunity to hunt in proximity to the urban area, in uncrowded and relatively natural environments, and at a reasonable cost. The habitat and wildlife objectives for Wapato Lake Unit are very likely to support quality waterfowl hunts. Refuge hunting opportunities will be consistent with state hunting regulations, and with management plans for applicable game species and the PFC's plans for cackling Canada geese (PFC 1999) and dusky Canada geese (PFC 2008).

Goal 13: Build a broad-based natural resource conservation constituency with a focus on urban audiences to create a conservation ethic within urban communities; increase relevance of habitat conservation, wildlife heritage, and the Refuge System in the eyes of urban citizens; and instill a sense of empowerment for urban communities to work together to actively support conservation, in both local and global settings.

Objective 13.1 Serve as a gathering place and clearinghouse for natural resource conservation–related information and resources to be shared among community organizations, agencies, educators, businesses, urban planners and builders, and other stakeholders

Serve as a gathering place and clearinghouse for natural resource conservation–related information and resources to be shared among community organizations, agencies, educators, businesses, urban planners

and builders, and other stakeholders that: • Provides an information exchange location for conservation partner resources as well as Refuge System information • Encourages a collaborative approach to information sharing • Is accurate, current, scientific, credible, and responsive to public requests and needs
Strategies Applied to Achieve Objective:
Develop a guide to sustainable land management and construction practices employed by the refuge, and share with interested partners such as urban planners, developers, and individuals.
Develop a self-guided walking tour of the refuge's sustainability features. This may include leaflets, exhibits, and/or technology-based information such as podcasts and QR codes.
Develop a reference library of natural resource/conservation education curricula, techniques, and materials. Provide access to formal and informal educators, parents, schools, and youth clubs.
Provide a resource library of land conservation incentives, and cost-sharing and financial assistance opportunities through organizations such as UFSWS Partners for Fish and Wildlife; Natural Resources Conservation Service; ODFW; Oregon Watersheds Enhancement Board; soil and water conservation districts; and watershed councils.
Engage refuge staff and Friends of the Refuge leadership in urban land use and open space planning in communities surrounding the refuge to encourage development that favors wildlife corridors, watershed protection, and high-quality nature-based recreation.
Provide technical assistance and/or subject matter experts to local communities for both wildlife and habitat restoration and management, and nature-based recreation and education.
Host one open house per year that highlights urban refuge–related conservation challenges, progress, opportunities, research, and initiatives.
In cooperation with Intertwine, use the refuge's Wildlife Center to host and facilitate dialogue regarding conservation-related urban planning efforts.
Establish a conservation leadership program that encourages urban youth aged 18 to 25 to contribute to community conservation needs.
In cooperation with the Service Natural Resources Program Center's Branch of Social Science, collect scientific literature, research, and materials supporting social values of connecting people with nature. Provide this information to partners and the public.
Rationale: As an urban refuge, Tualatin River National Wildlife Refuge can be a catalyst for building a natural resource conservation constituency among urban dwellers. The refuge is strategically located near more than 2 million people in the Portland-Salem metropolitan area and is accessible to countless local and regional jurisdictions, schools, agencies, nonprofit organizations, and commercial organizations. Conservation information is plentiful, but there are few places where information is centrally accessible. While the refuge cannot provide comprehensive conservation information, the refuge can partner with entities such as the Intertwine Alliance (www.theintertwine.org), ODFW, USFWS Partners for Wildlife Program, and others to leverage collective resources. In addition, the refuge can serve as an example of wildlife habitat restoration and sound land management techniques, as well as high-quality nature-based recreation and education. The USFWS ―Conserving the Future" vision document (USFWS 2011c) states that ―As leaders, partners, and role models in conservation efforts, we can seek to inspire others to work with us …."

Objective 13.2 Provide urban people tangible opportunities to experience nature and actively participate in the work of conservation

Provide urban people tangible opportunities to experience nature and actively participate in the work of conservation in a way that:

- Appeals to and reflects the diverse communities and people of the Portland-Salem metropolitan area. (Diversity may be measured in economic, educational, cultural, ethnic, and language terms)
- Builds comfort for those unfamiliar with or lacking experience in nature
- Focuses on urban citizens, with an emphasis on families and children
- Incorporates standards of excellence for urban refuges as defined in recommendation 13 of the USFWS "Conserving the Future" vision document (USFWS 2011c)
- Uses the refuge's land base to connect people with nature

Strategies Applied to Achieve Objective:

Incorporate objectives and strategies for public activities as defined for Goals 10, 11, and 12.

Become a partner in national and regional outreach organizations such as Children in Nature Network, Nature Rocks, Intertwine Alliance, and other similar groups.

Hire urban youth (ages 18-25) through direct hires or through partnerships with organizations such as Northwest Youth Corps, Confluence Environmental Center, and Youth Conservation Corps of Oregon. Youth would participate in the work of habitat conservation on the refuge and in the community.

By researching literature and relevant publications, identify barriers to connecting the Portland-Salem metropolitan area's urban population with nature. Use results to adapt refuge outreach, education, and interpretation programs as appropriate.

Use the refuge's nature explore area (see Objective 11.1) to promote development of similar play areas in urban communities.

Develop a transportation outreach strategy for letting urban audiences know how to access the refuge using existing and future planned infrastructure (bus stop, bike lanes, and regional trail systems).

Rationale: Many organizations are recognizing an increasing disconnect between people (especially children) and the natural world. In addition, our society is more ethnically and socially diverse and increasingly more urban, with 80% of Americans living in urban or suburban areas. Nature therefore seems to be, or is, farther away from the majority of Americans than ever before. As urban dwellers have competing priorities, technology is replacing place-based opportunities, and natural places may be harder to access, people have fewer experiences in nature (USFWS 2011c). The Oregon Parks and Recreation Department (OPRD) recognizes several demographic and social changes, including fewer youth learning outdoor skills, a (lack of) physical activity crisis, and an increasingly diverse Oregon population (OPRD 2008). These types of changes have led to an increased disconnect between people and the natural world, to the detriment of physical and mental health, as well as decreasing understanding, awareness, and support of conservation efforts. It is critical to provide nature-based facilities and programs to provide opportunities for diverse urban publics to reconnect with their natural environment, for the benefit of both wildlife and people. Key to the effort is providing nature-based experiences starting in childhood to prepare youth with a foundation for facing future environmental challenges (Chawla 1988; Palmberg and Kuru 2000).

Objective 13.3 Share how the conservation of natural resources is relevant to urban communities

Share how the conservation of natural resources is relevant to urban communities in a way that:

- Builds support for conservation of the refuge and other natural spaces
- Reaches a demographic that mirrors the diversity of the Portland-Salem metropolitan area
- Promotes dialogue and partnerships to further identify connections between the value of the

natural world and the well-being of people • Increases environmental literacy of citizens (see Rationale for definition of environmental literacy)
Strategies Applied to Achieve Objective:
Complete an economic benefits study demonstrating the refuge's economic contribution to local community, and share with local jurisdictions, tourism organizations, city planners, and community leaders.
Partner with local health care providers and organizations to promote the value of nature-based activities in support of mental and physical health for community members.
Identify and/or develop projects in and near the refuge, such as a water quality monitoring station or bioswale, to measure and demonstrate the value of natural systems to improving watershed health.
Develop outreach and interpretive materials to address landscape-level conservation issues/challenges that affect habitats and wildlife, as well as agriculture areas and communities. Examples of topics may include: the value of pollinators for native landscapes and for agricultural crops and urban gardens; the threats of non-native and invasive species; the ever-increasing interaction with wildlife in urban neighborhoods; and the effect of climate change.
Seek partner(s) to develop traveling exhibit and/or outreach materials demonstrating the value of natural spaces for improved mental and physical health. Display at local libraries, museums, schools, hospitals, other urban refuges or natural areas, and other urban community centers.
Rationale: Increasing the relevance of natural systems to urban people will build increased awareness of and support for conservation and, therefore, human well-being. The National Park Service (NPS), through its "Healthy Parks Healthy People US" strategic plan states that "human health is dependent upon the health of all species and the planet we share" (NPS 2011). Even more traditional nonprofit organizations such as The Nature Conservancy and Trust for Public Lands recognize the need for an increasing urban focus to stay viable in the minds of citizens (Grist.org 2012; Trust for Public Lands 2003). The Nature Conservancy's chief scientist is quoted as saying "Conservation is facing a crisis of irrelevance—it is an enterprise that is not urgent to most people…. If conservation is to build the support it needs, it must energize young urban dwellers, who now make up most of the world. The best way to get city people to care about conservation is to do conservation where they live, so that nature is seen as relevant and connected to modern life" (Grist.org 2012). Also critical to gaining this support is an increased need for people to understand the interrelationship between environment, society, and economy. In 2009, the State of Oregon passed into law the "No Oregon Child Left Inside Act" (HB2544), which created a task force that, in 2010, defined environmental literacy as "an individual's understanding, skills and motivation to make responsible decisions that consider his or her relationships to natural systems, communities and future generations" (Oregon Environmental Literacy Task Force 2010). Through the strategies listed above, the refuge can increase relevance to people's everyday lives through their food sources, water sources, and personal health, as well as increase environmental literacy of citizens to behave in a way that contributes to conservation.

Document continues on the following page.

Chapter 3
Physical Environment

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Chapter 3 Physical Environment

3.1 Climate

3.1.1 General Climate

Tualatin River National Wildlife Refuge (the refuge) is located in Washington and Yamhill Counties in northwestern Oregon (see Appendix P, Map 1). The refuge is located at the northern end of the Willamette Valley in the Tualatin River watershed, between the Coast Range mountains and the Willamette River (see Appendix P, Map 1). Much of the refuge lies within the Tualatin River floodplain. Major tributaries that drain into the refuge include Chicken and South Rock Creeks in the Sherwood Units (see Appendix P, Map 6), and Wapato, Hill, Ayers, Harris, and Scoggins Creeks at the Wapato Lake Unit (see Appendix P, Map 7). Many smaller perennial and ephemeral streams also drain into the basin. Elevation within the Sherwood Units ranges from about 105 feet to 300 feet. Elevation at the Wapato Lake Unit varies from about 160 to 240 feet, with the majority of the lake bed at about 170 feet. The Tualatin River Valley consists of low foothills, terraces, alluvial fans, and floodplains. The floodplains are subject to frequent flooding during winter and spring. However, changes due to agriculture, urbanization, and flood control projects have altered historic flooding patterns.

Photo 3-1. Frozen wetlands on the Atfálat'i Unit, January 2008. Peter Schmidt/ USFWS.

The northern Willamette Valley exhibits a general maritime climate with cool, wet winters and warm, dry summers. Temporal patterns of climate variability in Oregon are primarily influenced by the Pacific Ocean, namely the El Niño/Southern Oscillation (Oregon Climate Change Research Institute [OCCRI] 2010). Precipitation averages about 42 inches per year (Table 3-1) and occurs mainly from November through March. Average temperatures are lowest from December through February and highest on average during July and August (Table 3-1). Severe weather events are rare

but may include summer temperatures above 100°Fahrenheit (F), winter snow and ice storms, flooding of the Tualatin River and tributaries, high winds, and periods of subfreezing weather. Flooding of the river and tributaries typically occurs during December and January when the ground has become saturated and rainfall increases (Figure 3-1).

Table 3-1. Monthly Average Temperatures and Monthly Rainfall April 2008-March 2009

Month	Average Temperature*	Average Precipitation**
January	40.0	6.74
February	41.3	3.63
March	45.3	4.36
April	48.5	2.95
May	58.9	2.59
June	61.8	1.15
July	68.8	0.21
August	69.6	0.74
September	65.2	1.01
October	53.5	3.62
November	49.2	7.12
December	37.5	8.23
Total		42.35

* National Oceanic and Atmospheric Administration (NOAA) National Weather Service for Portland, Oregon.

**Average from refuge rain gauge 2003-2010.

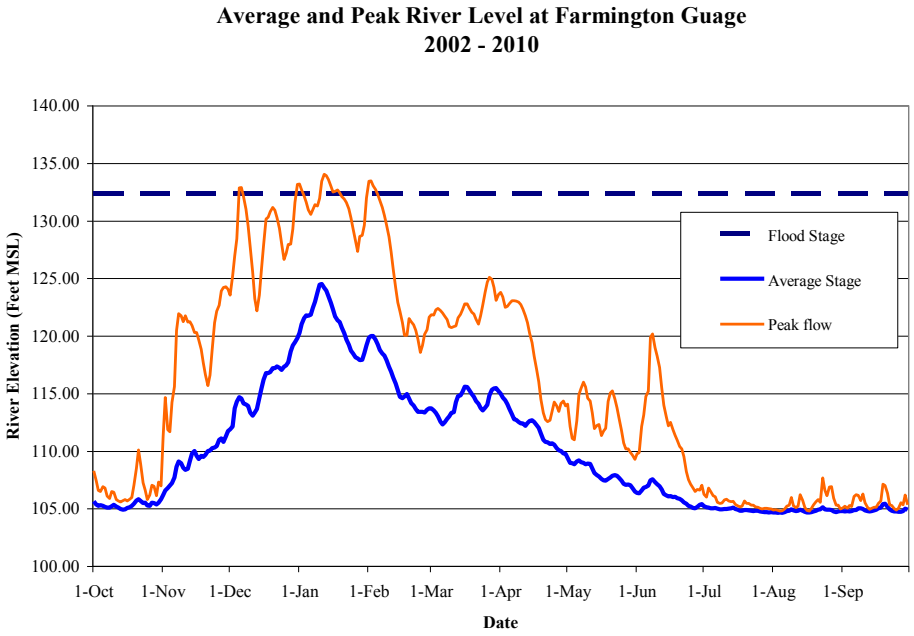

Figure 3-1. Average and peak river levels measured in feet above mean sea level (MSL) at Farmington gauge approximately 8 miles upstream from the westernmost parcel in the Sherwood Units.

3.1.2 Climate Change

As stated in U.S. Department of the Interior (USDOI) Secretarial Order 3226 (USDOI 2009) and the Service's climate change strategic plan (USFWS 2010c), the Service considers and analyzes climate change in its decisions, long-range plans, and other activities. Also, refuge efforts contribute to carbon sequestration through habitat restoration and protection efforts. A 1999 U.S. Department of Energy report, *Carbon Sequestration Research and Development* (U.S. Department of Energy 1999), concluded that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere. The report defines carbon sequestration as "the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere."

Greenhouse gases (GHG) occur naturally in the Earth's atmosphere, but are also added by human activities. This happens primarily through the burning of fossil fuels, such as coal, oil, and natural gas, which release carbon dioxide into the atmosphere. Over the past century, atmospheric carbon dioxide (as measured from ice cores) has increased due to human activities, and the average Earth temperature has increased approximately 0.7°Celcius (C) or about 1.3°F (NOAA 2011a; OCCRI 2010) (Figure 3-2), and it continues to increase.

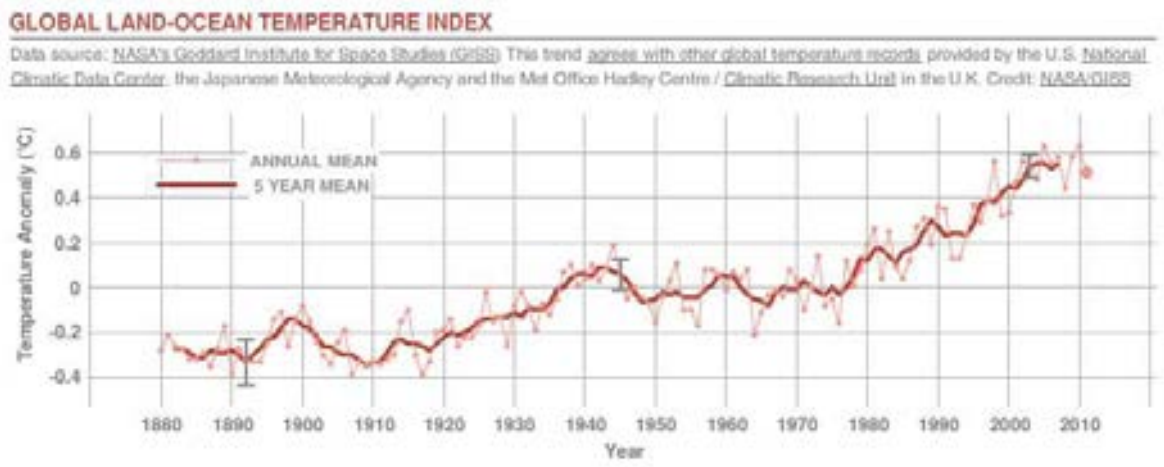

Figure 3-2. Global surface temperature (NASA 2012).

The greenhouse effect is a natural phenomenon that assists in regulating and warming the temperature of our planet. Just as a glass ceiling traps heat inside a greenhouse, certain gases in the atmosphere, called greenhouse gases, absorb heat from sunlight. The primary GHGs occurring in the atmosphere include carbon dioxide, water vapor, methane, and nitrous oxide. Carbon dioxide is produced in the largest quantities, accounting for more than half of the current impact on the Earth's climate.

The terms "climate" and "climate change" are defined by the Intergovernmental Panel on Climate Change (IPCC). "Climate" refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007b:78). The term "climate change" thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007b:78).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Examples include warming of the global climate system, and substantial increases in precipitation in some regions of the world and decreases in other regions. (For these and other examples, see *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [IPCC 2007a:30] and *Technical Summary* [Solomon et al. 2007:35-54, 82-85].) In the Pacific Northwest, increased GHGs and warmer temperatures have resulted in a number of physical and chemical impacts. These include changes in snowpack, stream flow timing and volume, flooding and landslides, sea levels, ocean temperatures and acidity, and disturbance regimes such as wildfires, insects, and disease outbreaks (United States Global Change Research Program [USGCRP] 2009). All of these changes will cause major perturbations to ecosystem conditions, possibly imperiling species that evolved in response to local conditions.

Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-twentieth century cannot be explained by natural variability in climate, and is "very likely" (defined by the IPCC as 90 percent or higher probability) due to the observed increase in GHG concentrations in the atmosphere as a result of human activities,

particularly carbon dioxide emissions from use of fossil fuels (IPCC 2007b:5-6, Figures SPM.3 and SPM.4; Solomon et al. 2007:21-35). Further confirmation of the role of GHGs comes from analyses by Huber and Knutti (2011:4), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Looking toward the future, the University of Washington Climate Impacts Group (CIG) has projected changes in mean annual temperature and precipitation for the Pacific Northwest based on "statistical downscaling" an ensemble of 20 global climate models and two carbon emissions scenarios for each model run (Mote and Salathé 2009, 2010). The CIG also performed projections using two regional climate simulations with the same two emissions scenarios (Salathé et al. 2010). These two approaches provide the projected changes described below.

3.1.2.1 Temperature: Historical Trends and Projections

The Pacific Northwest experiences wide temperature variability based on geography (for example, the Olympic, Coast, and Cascade mountain ranges enhance a moderating maritime influence west of the Cascades) and seasonal and year-to-year variability (e.g., associated with the El Niño-Southern Oscillation) (Salathé et al. 2010). In the Pacific Northwest, regionally averaged temperature rose 1.5°F between 1920 and 2000, slightly more than the global average. Warming was largest for the winter months of January through March. Minimum daily temperatures have increased faster than maximum daily temperatures (Mote et al. 2005).

Historical climate data for Tualatin River National Wildlife Refuge are available from the United States Historical Climatology Network (USHCN), a high-quality data set of daily and monthly records of basic meteorological variables from 1,218 observing stations across the 48 conterminous states. The data have been corrected to remove biases or heterogeneities from non-climatic effects such as urbanization or other landscape changes, station moves, and instrument and time-of-observation changes.

The USHCN Forest Grove, Oregon, station is the station closest to the refuge, and temperature data are shown in Figure 3-3. There has been a statistically significant increase of 1.36°F ($p = 0.001$) in average annual temperature from 1925 to 2010 at the Forest Grove station, similar to the regional average. Much of the increase is due to the increase in minimum temperature (increase of 1.53°F, $p = 0.000$) rather than maximum temperature (increase of 1.1°F, $p = 0.025$). In the past 30 years, temperature increases have been particularly pronounced during summer months (Table 3-2).

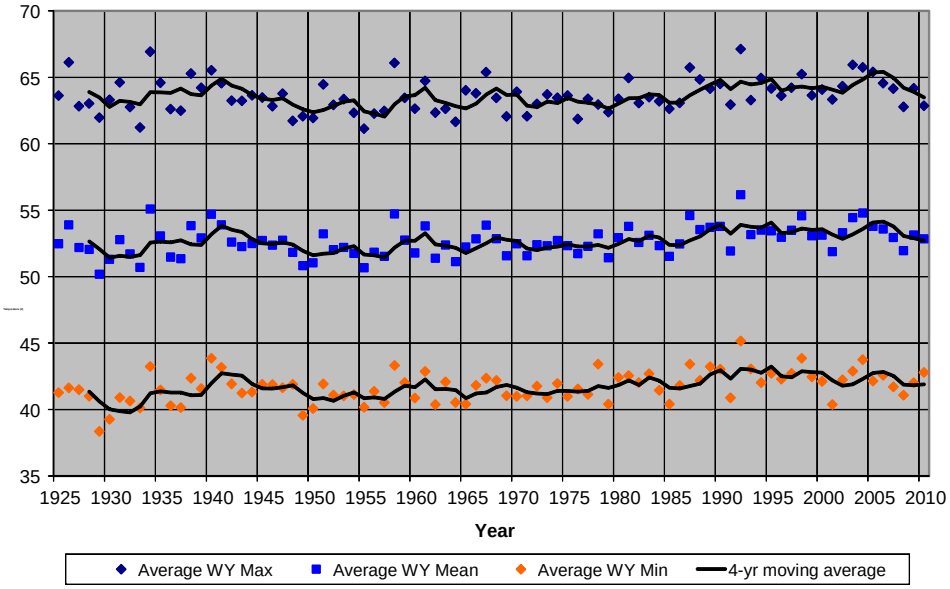

Figure 3-3. Water year temperature 1925-2010. USHCN Station: Forest Grove, Oregon (352997).

Table 3-2. Seasonal Temperature Trends, 1981-2010 (Monthly Records)

	Monthly Absolute Change		
	Temp. Max	**Temp. Avg.**	**Temp. Min.**
Winter (Dec-Feb)	+0.54°F	+0.18°F	−0.21°F
Spring (march-May)	−0.23°F	−0.44°F	−0.64°F
Summer (Jun-Aug)	+1.36°F	+1.07°F	+0.79°F
Fall (Sept-Nov)	−0.36°F	−0.41°F	−0.48°F

* Forest Grove, Oregon United States Historical Climatology Network Observation Station

Looking to future projections, researchers have refined global circulation models so that they are useful at a regional scale, in our case, for the Pacific Northwest. One approach involves statistical downscaling of 20 global climate models, which projects that average annual temperature would increase by 2.0°F by the decade of the 2020s for the Pacific Northwest, 3.2°F by the decade of the 2040s, and 5.3°F by the decade of the 2080s, relative to the 1970-1999 average temperature (Mote and Salathé 2009, 2010). This is substantially greater than the 1.5°F increase in average annual temperature observed in the Pacific Northwest during the twentieth century. Seasonally, summer temperatures are projected to increase the most. One important note is that actual global emissions of GHGs in the past decade have exceeded even the highest emissions scenario (the A2 scenario), a scenario that was not modeled by Mote and Salathé in 2009 and 2010, or Salathé et al. in 2010 (discussed below). The authors used more moderate emissions scenarios. If these emission trends continue, temperature increases could turn out to be much greater than projected.

Another approach involves two regional climate simulations (Salathé et al. 2010). These findings support the warming increases described above, with small variations. West of the Cascades, both regional climate change models predict warming in all seasons (when compared to current average air temperatures) (Salathé et al. 2010). Increases in air temperature are forecasted to be the greatest in summer and spring (including increased frequency of heat waves, which are three or more consecutive days with a daily heat index of over 89.6°F or 32°C), while increased marine cloudiness in fall and winter may dampen temperature increases during those seasons (Salathé et al. 2010).

It should be noted that these projections are not intended to be predictions of actual conditions on any given date. Models represent the average response over climatological timescales (i.e., on a multi-decadal timescales) rather than precise behavior at exact dates. As discussed above, the Pacific Northwest's long-term climate includes a high degree of interannual and decadal variability, and this is projected to continue. However, long-term trends and projections indicate that overall temperatures are increasing and will continue to do so.

3.1.2.2 Precipitation: Historical Trends and Projections

Longer-term precipitation trends in the Pacific Northwest are more variable than temperature and vary with the period of record selected for analysis (Mote et al. 2005). The Pacific Northwest experiences this wide precipitation variability due to geography (e.g., the Olympic, Coast, and Cascade mountain ranges cause orographic, or upward, lift of air masses and precipitation) and seasonal and year-to-year variability (e.g., variation associated the El Niño Southern Oscillation and other longer-term oscillations) (Salathé et al. 2010). Looking at the period 1920 to 2000, precipitation has increased almost everywhere in the region, though not in a uniform fashion. Most of that increase occurred during the first part of the record (Mote et al. 2005).

The Forest Grove USHCN station (the closest station to the refuge) provides historical precipitation data, shown in Figure 3-4. There is no statistically significant trend, but note the year-to-year variability, such as flood risk during El Niño years in the late 1990s, which can provide management challenges for the refuge.

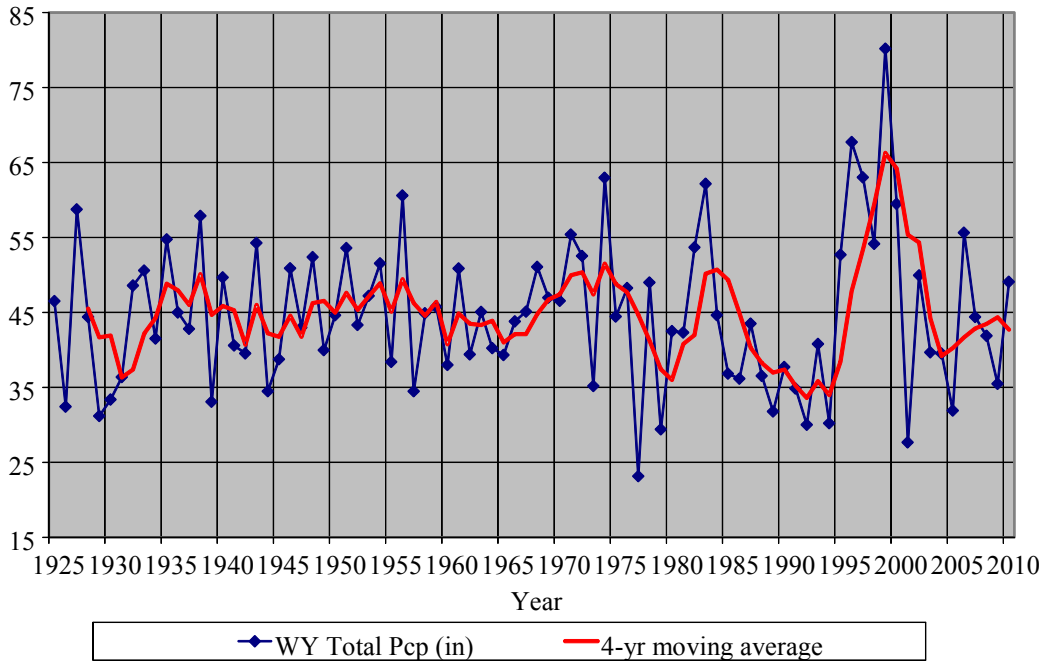

Figure 3-4. Water year total precipitation 1925-2010. USHCN Station: Forest Grove, Oregon.

The other significant trend found from the Forest Grove USHCN observation station is a 37 percent decline in summer precipitation in the last 30 years (Figure 3-5).

Figure 3-5. Summer (Jun-Aug) total precipitation, 1925-2010. USHCN Station: Forest Grove, Oregon (352997).

West of the Cascades, projections of future precipitation levels vary by model, with a majority of models projecting an annual increase in precipitation (Mote and Salathé 2010) and some models projecting a decrease relative to current observations (Leung et al. 2004). A strong seasonal pattern in altered precipitation relative to current levels is foreseen, as well as increases in the number of extreme precipitation events (daily precipitation exceeding the twentieth-century 95th percentile) (Salathé et al. 2010). Seasonal increases in precipitation are projected for fall, winter, and spring, and little change or a slight decline in precipitation for summer (Salathé et al. 2010). Regional climate change models project conflicting results for the spring season, with one model showing a substantial decline in precipitation while the second shows increases in precipitation (Salathé et al. 2010).

3.1.2.3 Stream Flow Changes

In addition to changes in the amount of precipitation, a major concern in the Pacific Northwest is change in the form of winter precipitation expected due to warmer temperatures. The CIG has modeled changes in current and future peak snowpack versus October through March precipitation for watersheds in the Columbia River Basin and the coastal watersheds of Oregon and Washington. Generally, there is a large shift in the form of winter precipitation from snow to rain, with lower elevation basins affected before upper elevation basins (Elsner et al. 2010). As these changes occur, there would likely be a tendency for higher winter flows and possible increased risk of flooding in transition watersheds (those not dominated by snow processes and those not rain-dominant), earlier snowmelt and runoff from peaks, and lower summer stream flows (Hamlet and Lettenmaier 2007). The Tualatin River watershed is a rain-dominant system, and these changes may not be significant to the refuge.

3.2 Hydrology

3.2.1 Regional Hydrology

The refuge lies within the Tualatin River watershed, which is a part of the Willamette River Basin (see Appendix P, Map 3). The Tualatin River is one of the most northern tributaries in the Willamette River watershed and is about 80 miles long (Tualatin River Watershed Council [TRWC] 1998). The river flows roughly eastward from the Coast Range mountains in Washington County, Oregon, to its confluence with the Willamette River in Clackamas County, Oregon, near the City of West Linn. The elevation at the headwaters of the Tualatin River is approximately 1,980 feet, and there are four large elevation drops in the river before it enters the Tualatin Valley plain at an elevation of 240 feet. Where the Tualatin River meets Wapato Lake, the elevation is about 170 feet, and where the Tualatin River meets the Willamette River, it is 58 feet in elevation. The Tualatin River drainage basin is approximately 43 miles long and 29 miles wide, covering an area of 712 square miles (TRWC 1998). Annually, more than 1.1 million acre-feet of water flow out of this watershed into the Willamette River. Nearly 85 percent of this flow is discharged during November through March.

The river can be characterized in four distinct reaches with varying degrees of flows and gradients (Table 3-3).

Table 3-3. Approximate Reaches of the Tualatin River As it Flows from the Coast Range Mountains (river mile 80) to its Confluence with the Willamette River (river mile 0)

Reach	Description	River mile	Elevation Gradient (feet/mile)	Description
1	Mountain	80-58	80.4	Forested, fast-moving mountain streams, rock channels
2	Meander	58-33	2.8	Transition from timberland to farmland, major floodplain storage, logjams
3	Reservoir	33-3.4	0.2	Flat, "reservoir like" flow with heavy sedimentation, recreational use
4	Riffle	3.4-0.0	10.1	Steep gradient, short series of shallow pools and riffles

The first reach of the river starts in the mountains and is characterized by forested, fast-moving mountain streams with rock channels. As the river flows through the basin, it slowly transitions from forested areas into more open habitat, and the flow changes from fast to slow flowing. The Tualatin River has five major and numerous minor tributary streams. Streams entering the river within the refuge include Wapato, Ayers, Hill, Harris, and Scoggins Creeks in the Wapato Lake Unit, and Chicken and Rock Creeks in the Sherwood Units. Average daily flow rate in the Tualatin River measured at the West Linn gauging station, approximately 1.7 miles from the confluence with the Willamette River, ranged from a low of 80 cubic feet per second (cfs) to a high of 4,150 cfs between 1928 and 2010 (Figure 3-6). These figures do not include water that is diverted upstream of this gauging station into Oswego Lake.

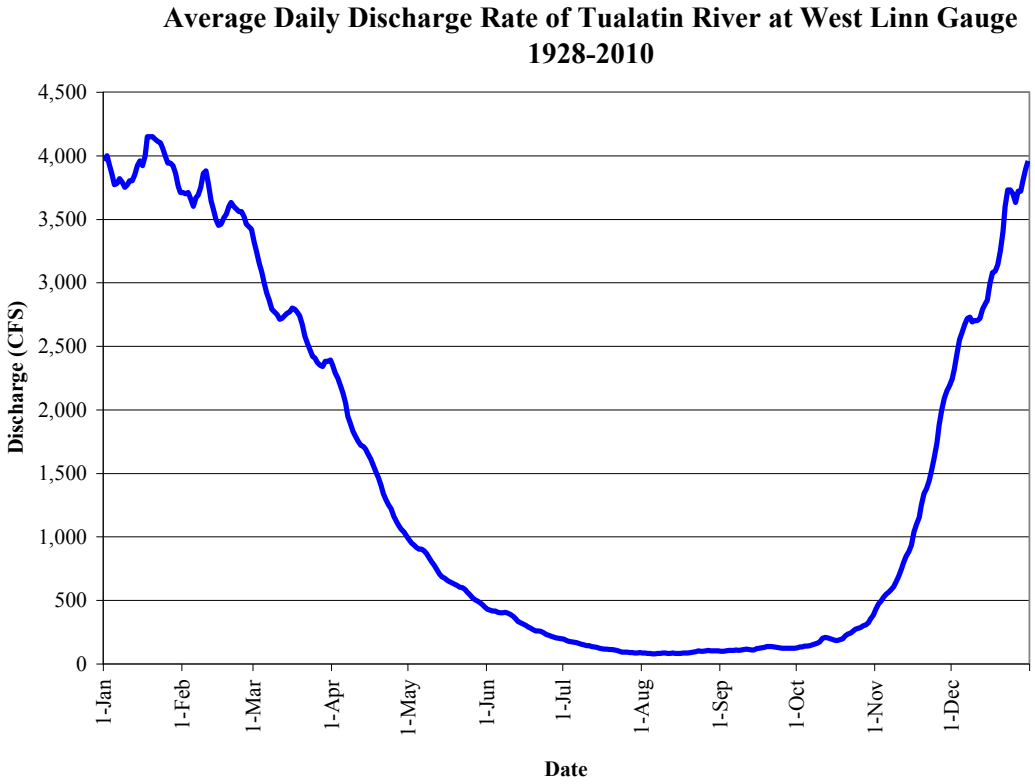

Figure 3-6. Average daily discharge rate (cfs) measured on the Tualatin River at the West Linn gauging station.

In general, stream flow in the Tualatin River Basin reflects patterns of precipitation with high winter and low summer flows (Figure 3-6). River elevation measured at the Farmington gauge is typically at summer flows (<110 feet) from late April or early May until late October when precipitation begins to fill the river basin). Flooding in tributary streams is typically more prevalent during short-term heavy rainfall after the surrounding watershed is saturated by early season rainfall. In particular, the Chicken Creek watershed, which includes Cedar Creek, flows from the City of Sherwood and experiences heavy flooding. The population of Sherwood has increased from about 3,000 in 1990 to over 18,000 in 2010, and this has led to an increase in urban development (U.S. Census Bureau 2011). This change has created increased impervious surfaces (e.g., roads, rooftops) and has led to an increase in runoff and higher peak flows in Chicken Creek that flow into the refuge.

Photo 3-2. Chicken Creek flooding. Peter Schmidt/USFWS.

There are two dams affecting water flows within the basin: Scoggins dam on Scoggins Creek, creating Henry Hagg Lake, and the Lake Oswego diversion dam, which shunts water to Oswego Lake. In addition, Barney Reservoir on the Trask River diverts water to the Tualatin River during summer to augment flows. Henry Hagg Lake has a capacity of 53,600 acre-feet of water and is managed by the Bureau of Reclamation (USDOI 2011). A large part of refuge lands, both in the Sherwood Units and the Wapato Lake Unit, lie within the jurisdictional boundary of the Tualatin Valley Irrigation District. This district was formed to deliver irrigation water associated with the Henry Hagg Lake project. As members of the district with attached water rights, the refuge is required to pay approximately $14,500 a year for irrigation on lands that fall within the district.

3.2.2 Refuge-specific Hydrology

Water Rights: The refuge has a complex system of irrigation ditches, springs, creeks, and water control structures for moving water within the refuge to fill the various wetland cells and for irrigation purposes in the cooperative farming program. The refuge has 51 water rights with priority dates ranging from 1890 to 2000. Sources of water include wells, ditches, unnamed creeks, springs, overland flow and runoff, Chicken Creek, Hill Creek, Rock Creek, Scoggins Creek, and the Tualatin River. The purposes of the water rights are primarily for irrigation and wildlife use, and to ensure that water is diverted for use on approximately 1,157 acres of wet prairie, scrub-shrub, and herbaceous wetlands at the Sherwood Units and the lake bed at the Wapato Lake Unit. In addition, the Service voluntarily selected 15 irrigation water rights for in-stream leases, which aids in restoration and protection of over 4 cfs of stream flow in Rock Creek and the Tualatin River.

Table 3-4 summarizes the water rights of the refuge.

Table 3-4. Summary of Water Rights for the Refuge

Priority Date	Application No.	Certificate No.	Source Name	Flow Rate (cfs)	Place of Use/Storage (Acres/Acre-Feet)
Groundwater					
25-Jul-50	G-2325	33116	Well	0.026	2.9
30-Sep-68	G-4614	45012	Sump well	0.07	
27-Oct-88	G-11863	72443	Well	0.35	
19-Oct-06	G-16740		Three wells	0.13	
In stream Lease					
02-Mar-51	IL-809	20149	Rock Creek	0.34	
05-Dec-28	IL-867	8117	Rock Creek	0.38	
05-Dec-28	IL-867	8117	Rock Creek	0.38	
1-01-1890	IL-869	29185	Cummings ditch	0.1	
16-Jun-50	IL-868	22918	Tualatin River	0.35	
1-01-1890	IL-870	29186	Rock Creek and unnamed ditches	0.338	
1-01-1890	IL-871	29191	Rock Creek	0.044	
1-01-1890	IL-872	29192	Unnamed ditches	0.037	
1-01-1890	IL-873	29193	Rock Creek	0.1	
1-01-1890	IL-874	29195	Springs and ditch	0.044	
1-01-1890	IL-875	29202	Cummings Ditch and unnamed ditches	0.231	
1-01-1890	IL-876	29282	Rock Creek	0.063	
25-May-53	IL-890	81965	Tualatin River	0.97	
Reservoir					
23-Jun-97	R-83470		Chicken Creek		579 Acre-Feet
01-Jul-97	R-83496		Runoff		180 Acre-Feet
12-Aug-97	R-83529		Runoff and Chicken Creek		40 Acre-Feet
08-Aug-00	R-84503		Tualatin River, overland flow		100 Acre-Feet

Table 3-4. Summary of Water Rights for the Refuge

Priority Date	Application No.	Certificate No.	Source Name	Flow Rate (cfs)	Place of Use/Storage (Acres/Acre-Feet)
25-Jul-01	R-84813		Runoff		10 Acre-Feet
24-Apr-03	R-85570	84056	Overland flow/runoff		1.6 Acre-Feet
24-Apr-03	R-85571	84055	Overland flow/runoff		2.9 Acre-Feet
24-Apr-03	R-85572	84054	Overland flow/runoff		2 Acre-Feet
24-Apr-03	R-85573	84053	Overland flow/runoff		1.8 Acre-Feet
06-May-05	R-86279		Runoff		60 Acre-Feet
Surface Water					
29-Dec-28	S-12500	14092	Tualatin River	6.93	553.8 Acres
29-Dec-28	S-12500	14093	Tualatin River	2.03	162.3 Acres
29-Aug-30	S-13702	14096	Chicken Creek (Cedar Creek)	1.8	143.3 Acres
19-Nov-35	S-16153	24368	Chicken Creek	1.01	80.8 Acres
04-Sep-36	S-16568	45451	Hill Creek	0.06	4 Acres
04-Sep-36	S-16568	45451	Tualatin River	.44	36 Acres
01-Aug-39	S-18312	19761	Tualatin River	1.08	21 Acres
26-Feb-40	S-18591	15099	Tualatin River	0.21	2.1 Acres
14-Nov-49	S-24270	22317	Rock Creek	0.044	3.5 Acres
25-Jul-50	S-25034	23148	Drainage ditch and unnamed stream	0.16	7 Acres
25-Jul-50	S-25035	20132	Unnamed drainage	0.024	2.9 Acres
12-Mar-51	S-25704	40860	Tualatin River	0.38	30 Acres
02-Jun-65	S-40957	40726	Tualatin River	0.6	50 Acres
31-Mar-71	S-48082	43946	Tualatin River	0.96	77.1 Acres
28-Jun-82	S-63714	64950	Chicken Creek	1.08	86.2 Acres
25-May-53	T-10246	81965	Tualatin River	0.13	
02-Jan-00		29187	Rock Creek		

Source: USFWS 2012.

The main season of water use is usually between November and May at select locations. This varies with water conditions as determined by annual precipitation. Adequate water is important to provide habitat for migratory birds and for irrigation of habitat restoration sites. During the winter, most wetland cells (including the Wapato Lake Unit lake bed) are kept full to provide water for both resident and wintering species.

Photo 3-3. Tualatin River flooding at the Tualatin River Unit, December 2007. Peter Schmidt/USFWS.

Sherwood Units: The floodplain of the Tualatin River is the dominant feature within the Sherwood Units (see Appendix P, Map 6). The Atfálat'i Unit is bordered by the Tualatin River, but water for wetlands in much of this unit comes from a diversion on Chicken Creek. The diversion allows gravity flow to fill five managed wetland cells in the unit. One additional wetland cell is filled by rain water and is managed as a permanent wetland with no outlet structure. Another wetland cell is also filled with rain water and overland runoff, but is managed as a seasonal wetland with a water control structure at the outlet.

On the Tualatin River Unit there are five wetland impoundments that normally fill with rain and overland runoff, but the largest wetland also has a pump with a fish screen in the Tualatin River that may be used to conduct early season flood-up or to augment rainfall during periods of drought. On the Riverboat Unit there are four impoundments, with a seasonal wetland filled using a water control structure to back up overland flow from springs and rainfall and, frequently, floods from high water in the Tualatin River. In addition, the seasonal wetland has a series of three low-capacity wells that are sometimes used to augment overland flow in early fall. There is also a scrub-shrub wetland, which is a closed water body and is filled by rainfall alone. During extreme flooding of the Tualatin River, the scrub-shrub wetland becomes a flow channel for river water. This unit has extensive floodplain connections to the river and is often saturated through the winter.

The Onion Flats Unit is a low-lying basin bisected by Rock Creek. The creek is channelized and straightened through this unit and is deeply incised. This area floods frequently as the Tualatin River water backs up Rock Creek, and also during periods of heavy rain. The Rock Creek Unit features its

namesake creek and is also largely channelized. This is a relatively small creek through this unit and rarely causes any major flooding.

During winter as the Tualatin River begins to reach bank full stage (elevation 128 above mean sea level), many backwater areas in riparian forest and wetland habitats begin to flood. Vegetation communities in these areas are adapted to frequent winter flooding, and fish and wildlife species use these areas for foraging and sanctuary. Inundation in these areas is typically intermittent and of short duration

Wapato Lake Unit: The Tualatin River bisects the Wapato Lake Unit acquisition boundary. Inputs to Wapato Lake proper were historically from Wapato, Ayers, and Hill Creeks, and from the river backing up into the lake (see Appendix P, Map 7). The historical Wapato Lake lake bed was severely altered during the late 1800s and early 1900s with the beginning of onion farming that required an extensive network of levees, ditches, canals, and a pump station to dewater the lake bed in late winter for spring planting. When the infrastructure was originally constructed by the landowners, Wapato, Ayers, and Hill Creeks were diverted around the outside of the levees to connect with the Tualatin River later. During fall and winter, the lake was allowed to fill with rain water, and it was pumped out in early spring for farming. In 1950s, the landowners of the lake bed supported the formation of the Wapato Improvement District (WID), a state-sponsored irrigation and drainage district. The WID was tasked with the maintenance and operations of the 5.5 miles of levees around the lake, a lift pump station, and interior ditches to continue facilitation of drainage of the lake for farming. In 2012, the WID voted to dissolve and all assets were donated to the Service. Currently the refuge has a cooperative farming program that uses much of the same infrastructure. In the northern part of the acquisition boundary, Scoggins and Harris Creeks are tributaries to the Tualatin River.

3.3 Topography and Bathymetry

The refuge area lies in the northwestern corner of the Willamette Valley, southwest of Portland, Oregon (see Appendix P, Map 1). Elevations on the refuge range from about 105 feet to 300 feet. The Tualatin River floodplain is relatively flat, with gradually sloping sides leading to upland forest types, agricultural lands, and developed areas. Major mountain features include the Coast Range to the west of the Wapato Lake Unit and Chehalem Ridge rising to 1,629 feet (Oregon Parks and Recreation Department 2011) between the Wapato Lake and Sherwood Units. The Tualatin River channel is deeply incised with steep banks throughout most of its length. Henry Hagg Lake is a 1,110-acre reservoir (ODFW 2011a) approximately 3 miles west of the Wapato Lake Unit.

Many refuge land parcels have had detailed topographic surveys completed prior to initiation of restoration projects. In the Sherwood Units, surveys were conducted on the Atfálat'i, Tualatin River, and Riverboat Units. The refuge is currently working with U.S. Geological Survey (USGS) and other partners to conduct a hydrogeomorphic survey at the Wapato Lake Unit that will provide a digital elevation model for the lake bed and surrounding area, as well as a water budget for future restoration planning.

3.4 Geology and Geomorphology

3.4.1 Origins and Development

During the Oligocene epoch roughly 35 million years ago (MYA), a line of sea floor subduction, which had run in a northeast direction from west of the Klamath Mountains to the Blue Mountains, moved to its current position several hundred miles to the west on its northern end. This change left a slab of what had been subducting sea floor attached to the continental margin and also moved the line of volcanic activity associated with remelting oceanic crust. Part of this slab, covered by shallow seas, ultimately became the floor of the Willamette River basin. Although volcanic eruptions had started building the southern Cascade Mountains millions of years earlier in the Eocene epoch, the northern Cascades lie on top of the slab and arose as volcanoes. Volcanic rocks in the western Cascades date from two principal periods of volcanic activity, one occurring 20 to 30 MYA and the other in the Miocene, 10 to 15 MYA; both periods included the entire length of the Cascades (Branscomb 2002). The Tualatin River Basin is underlain by 9,000-12,500 feet of sedimentary and volcanic rock (Popowski 1996; Wilson 1998). On top of this layer lie up to 900 feet of Columbia River basalt and another 1,200 feet of sediments from the late Miocene to Pleistocene.

The Coast Range arose as continental sediments carried eastward by the subducting oceanic plate were forced under the western edge of the slab, pushing it upward. The rise proceeded from south to north, the northern Coast Range not appearing until roughly 15 MYA. During this process, the area of the future Willamette Valley also rose, becoming dry land and draining its embayment by about 20 MYA. Although the direction of sea floor spread is southeastward toward the Oregon coast, the entire Pacific plate, including the spreading and subduction zones, is moving northward. The net effect for the Oregon Coast Range appears to be a slow movement north, evidence for which may be seen in the roughly 50-mile northward offset of the Columbia River at Portland and the sharply curved Olympic Mountains in western Washington State, where movement of the Coast Range encountered the more deeply rooted Vancouver Island. This northward tearing of the Coast Range may also have contributed to the formation of the Willamette Valley, the floor of which is now composed of multiple fault blocks. In contrast to its south end, the valley is spreading more in the north, possibly due to the thinner crust and reduced linkage with the subducting sea floor present there (Branscomb 2002).

3.4.2 Recent Geologic Events

Defining the northern limit of the Willamette River Basin, the Columbia River has reestablished its course from multiple dams created by slides, basalt flows, and ice. Reaching their maximum 13 MYA, basalt floods from the enormous Grande Ronde volcano in northeast Oregon flowed down the Columbia channel all the way to the river's mouth and into the Willamette Valley. In the Pliocene (3 to 11 MYA), western Oregon was a desert, and gravels produced during that time eroded into and covered the spreading valley floor.

Work performed by J. Harlan Bretz in the 1920s revealed that between 15,500 and 13,000 years ago, ice periodically dammed the Clark Fork River in Idaho east of Spokane, Washington, forming a lake in the present-day Missoula Valley of Montana covering some 3,100 square miles and containing 500 cubic miles of water. In a typical release occurring over less than two weeks, a quantity of water equal to half the present volume of Lake Michigan, more than the modern annual volume of all the

world's rivers, poured down the Columbia channel. These floods were known as the Missoula Floods. Backwater from these floods carried ice-rafted "erratic" rocks from Montana repeatedly into the Willamette Valley, filling it to about 400 feet above current sea level. Evidence in the geologic record suggests that these floods entered the Tualatin River Valley at least 22 times during this time period (Wilson 1998). This vigorous overflow southward across the divide between the Willamette River and Tualatin River Basins scoured multiple channels in the basaltic bedrock, dug small rock-bound basins, and left rock knobs barren of soil, forming a topography in the Rock Creek area just east of the City of Sherwood that is a miniature replica of the well-known scablands in eastern Washington. The sediments left by these floods form much of the present valley floor (Branscomb 2002). In the Tualatin River Basin, these overlying sediments have been classified as the Hillsboro Formation (Wilson 1998) and consist of about 900 feet of fluvial and lacustrine sediment overlying 95 feet of lateritic soil and weathered basalt of the Columbia River Basalt Group. This area is still geologically active as evidenced by the 1980 eruption of Mount Saint Helens 65 miles to the northeast.

3.5 Soils

Within the refuge boundaries there are 64 soil types described (U.S. Department of Agriculture [USDA] 1982). These can roughly be broken down into the following six categories: 1) clay, 2) loam, 3) silt loam, 4) silty clay loam, 5) stony silt loam, and 6) Xerochrepts. A majority of refuge lands in the floodplain contain clays, silty clay loams, and silty loams. Most of these lands were in agricultural production prior to purchase by the Service. On areas outside the floodplain, most of the soils are loams and silty loams that are well drained and primarily support mixed upland forest types.

There are two areas of particular historical interest—Onion Flats and Wapato Lake. These areas contain Labish Mucky Clay, a rare organic peat soil type that historically supported scrub-shrub and other wetland types. It is heavy, poorly drained soil, usually associated with old concave lake beds. These areas were drained for farming in the early twentieth century and continue to be cooperatively farmed by the refuge at present. The major crop in these areas was onion, but with a shift in economics, these areas now support small grains such as oats, corn, wheat, barley, and grass and clover crops.

Another area of interest is the Tonquin scablands along the Rock Creek drainage. This area contains soils of stony loam to Xerochrepts deposited by the ancient Missoula Floods, and is an area of rocky basalt outcrops and deep gravel. This soil varies greatly from highly porous, well-drained soil to highly impermeable rock creating perched wetlands. Much of the area surrounding refuge lands in the Rock Creek area is extensively mined for rock and gravel. Any organic soil existing within this area is relatively shallow, but still supports abundant native plant growth.

3.6 Fire

3.6.1 Historic Activity

For thousands of years prior to European settlement, fire played an important role in maintaining various habitat types within the Willamette Valley and in Oregon as a whole. Whether ignited by lightning or set by Native Americans, fire helped to maintain native habitat types by preventing woody species from encroaching into prairie habitat types, preventing build-up of volatile fuels in

forested areas, creating a mosaic of habitat types and successional stages, and recycling nutrients (ODFW 2006). Since at least the 1850s, fire suppression actions began to change the landscape of the Willamette Valley, and have resulted in a host of unintended consequences for ecological health, wildlife populations, and people.

In more open habitat types such as prairies and oak savanna, fires were essential for removing encroaching woody species (especially conifers), reducing thatch left by annual and perennial grasses and forbs, and providing habitat for wildlife, such as elk, acorn woodpeckers, and white-breasted nuthatch, dependent on open habitat types. Native Americans often burned open habitat types to promote food plants such as camas and tarweed, provide for more open travel corridors, and provide forage for elk, deer, and other game species that they hunted (ODFW 2006). In part, due to fire suppression, less than 1 percent of these habitats remain in the valley, as woody species, such as Douglas-fir, have moved in and changed the landscape.

Photo 3-4. Kalapuya people ignited fires to manage habitats for their needs. USFWS.

In forested areas, fires played an important role in maintaining a diversity of habitat structure. Drier forests historically experienced frequent fires (usually at less than 25-year intervals) that mainly burned understory plants, but left larger trees undamaged. In wetter forests such as those in the Coast Range, fires were less frequent (on the order of once every 100 years), but often burned the entire stand, setting the stage for early successional plant growth.

3.6.2 Recent Activity

In forested areas, fire suppression has increased the likelihood of wildfires that are unusually large and severe (ODFW 2006). In the late nineteenth and early twentieth centuries, logging operations combined with fire suppression throughout the Pacific Northwest created conditions for catastrophic fires. Vegetation composition within forests has also changed as a result of fire suppression. Historically, conifer-dominated forests had little undergrowth because of the shade imposed by the closed canopy and frequent fires that cleared brush and downed woody debris. However, with the onset of widespread fire-suppression activities, debris was allowed to accumulate, and brush and eventually understory trees began to grow and provide “ladder” fuels that led to canopy fires when a fire did occur.

In prairie and savanna habitat types, fire suppression often led to a complete change in vegetation structure as woody species such as shrubs and conifers invaded and shaded out other species. In addition to fire suppression, these open habitat types were often the first to be converted to agriculture or developed as home and town sites, thus exacerbating their decline.

Photo 3-5. Prescribed fire can be used to manage native habitats. Scott Swanson/ USFWS.

3.6.3 Current Conditions

The refuge currently has a fire management plan (USFWS 2002b) in place that covers wildland fire events and pile burning, but does not address prescribed fire. This plan states that all wildland fires, whether human-caused or lightning-induced, will be suppressed. Brush and debris piles that result from management activities will be burned by fully trained and equipped Service fire crews in accordance with national and regional policies. The refuge has updated the fire management plan, which now proposes the use of prescribed fire; this information can be found in Appendix O of the Comprehensive Conservation Plan (CCP).

Many of the habitat types on the refuge are fire-dependent vegetation communities. In the absence of prescribed fire, these habitat types are maintained with surrogates for fire such as mowing and discing. The introduction of non-native and invasive plant species such as reed canarygrass, velvet grass, cocklebur, and Bermuda grass during the past century have complicated maintenance of these native habitat types. Use of prescribed fire to maintain native habitat types may or may not address some of these issues.

3.7 Environmental Contaminants

In 1992, prior to formal establishment of the refuge, the Service conducted a pre-acquisition contaminant survey (USFWS 1992b) to assess possible contaminants affecting proposed refuge lands. The survey found that there were " …a variety of contaminant sources on and adjacent to the refuge including container nurseries, a tannery, a potato processing plant, an abandoned town dump, nonpoint source pollution from highways and industrial areas, agricultural runoff, dairy farms, auto

wrecking yards, electrical power lines, and possible hazardous wastes from farming and industrial operations."

In the Rock Creek drainage within the refuge acquisition boundary, but on lands not owned by the refuge, is the 33-acre site of a former tannery and battery company. The Frontier Leather Company (Frontier) began operating a tannery at the site in 1947. Two 3-acre sedimentation lagoons were constructed and placed in service in 1965. Frontier discharged wastewater to the sedimentation lagoons intermittently between 1965 and 1982. Between 1971 and 1974, chromium-treated hides were both stockpiled and buried at the facility. Frontier landfilled an estimated 21,000 cubic yards of chromium-containing wastes including chromium-treated hides and chromium-containing vacuum filter sludge. Some of the hides were later covered with approximately 2 feet of soil, but a large percentage of the landfill was not adequately consolidated and capped to control possible direct contact or surface water runoff. Landfilling of hides was discontinued in 1973 after analytical results from hide samples collected by the Department of Environmental Quality (DEQ) suggested that the hides could adversely impact soil, groundwater, or surface water quality (DEQ 2011c). Additionally, contaminants found in surface soil samples included antimony, trivalent chromium, lead, and mercury (DEQ 2011b). In addition to contaminants from the tannery, there are also contaminants from lead acid batteries at the tannery site, including lead, sulfuric acid, and battery casings (DEQ 2011b).

DEQ uncovered records from the former tannery indicating that tannery wastes were land-applied to pasture land at Ken Foster Farm (KFF) during the 1960s. The former KFF 40-acre farm site is on Murdock Road, in Sherwood, outside the refuge acquisition boundary, but adjacent to and upslope of the Rock Creek Unit. Investigations of the KFF confirmed the presence of high concentrations of chromium in surface soils consistent with land application of the tannery wastes. These contaminants could have migrated into the Rock Creek drainage, which flows through the refuge. In 2007, the U.S. Environmental Protection Agency (EPA) published findings from their assessment of the former KFF site confirming that several heavy metals, primarily chromium, lead, and mercury were present at elevated concentrations in site soils. Sampling performed to date indicates lead and chromium in site soils are attributable to historical land application of tannery wastes at the site (DEQ 2011a). Additional work at the KFF site is warranted, including completion of a comprehensive remedial investigation and risk assessment, feasibility study, and implementation of remedial action as necessary (DEQ 2011b).

3.8 Air Quality

The EPA has lead responsibility for the quality of air in the United States; through the 1990 Clean Air Act, the agency sets limits on the amount of pollutants that can be discharged into the air. More than 170 million tons of pollution are emitted annually into the air within the United States, through either stationary sources (such as industrial or power plants) or mobile source (such as automobiles, airplanes, trucks, buses, and trains). There are also natural sources of air pollution such as fires, dust storms, volcanic activity, and other processes. The EPA has identified six principal pollutants that are the focus of its national regulatory program: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.

The Oregon DEQ is responsible for protecting Oregon's air quality. DEQ monitors air pollution to ensure that communities meet national ambient air quality health standards (DEQ 2011c). There are three main pollutants that are of greatest concern in Oregon. These are:

- Ground-level ozone, commonly known as smog;
- Fine particulate matter (mostly from wood smoke, other combustion sources, cars, and dust) known as PM2.5 (2.5 micrometers and smaller in diameter); and
- Hazardous air pollutants (also called air toxics).

According to a 2010 DEQ report (DEQ 2011c), the PM2.5 level was below the Federal health level throughout Oregon. Ground-level ozone (smog) exceeded the Federal standards twice in Portland and once in Salem. They did not violate the standard, which requires four exceedance days. Forest fire smoke was light in 2010 and did not exceed the Federal health standard anywhere DEQ monitored. Air toxins, such as benzene and acetaldehyde, remain near or above the health benchmarks. The health benchmarks are concentration levels at which, if exposed over a lifetime, an individual's risk of getting cancer is increased by one in one million. Carbon monoxide and PM10 (particulate matter 10 micrometers in diameter and smaller) remained far below the Federal health standard. The pollutants have been trending down in the past 10 to 15 years.

According to Creative Methods (2011), Washington and Yamhill Counties received poor grades for air quality based on tons of emissions per square mile of the following pollutants (Table 3-5): carbon monoxide, lead and lead compounds, nitrogen oxides, volatile organic compounds, PM10, PM2.5, ammonia, sulfur dioxide, total hazardous air pollutants, and two particular hazardous air pollutants, diesel emissions and acrolein emissions.

Table 3-5. Letter Grades* of Selected Air Quality Measures Based on Tons Emission per Square Mile

County	CO	Pb	NOx	VOC	PM10	PM2.5	NH_3	SO_2	HAP	Diesel	Acrolein
Washington	F	C	D	D	D	F	C	D	D	F	D
Yamhill	D	D	C	D	D	D	C	C	C	C	D

*The grade "A" represents the best/cleanest emission densities in the United States, and "F" the worst/dirtiest in the United States.

CO: Carbon dioxide
Pb: Lead
NOx: Nitrogen oxides
VOC: Volatile organic compounds
PM10: Particulate matter less than or equal to 10 micrometers
PM2.5: Particulate matter less than or equal to 2.5 micrometers
NH_3: Ammonia
SO_2: Sulfur dioxide
HAP: Hazardous air pollutants

However, in actual tests of ambient air quality, only Yamhill County exceeded any air quality parameters. Based on these tests, EPA levels for quarterly levels of lead were exceeded (Creative Methods 2011).

As discussed in Section 3.6 above, prescribed fire can be a useful management tool, but smoke management is a concern and is governed in part by Oregon Administrative Rules (OARs) (OAR 2011).

3.9 Water Quality

3.9.1 Overview—Tualatin River Basin

The Tualatin River watershed lies almost completely within Washington County but also crosses Multnomah, Clackamas, Yamhill, Tillamook, and Columbia Counties. This watershed, or subbasin, is part of the larger Willamette River Basin. The Tualatin River drains more than 700 square miles of land on the west side of Portland's metropolitan area; its headwaters are in the Coast Range and it flows in an easterly direction to the confluence with the Willamette River. The Tualatin River Basin supports a growing population of more than 450,000 people and a wide range of urban, agricultural, and forest-derived activities (DEQ 2011d). The discharge of the river reflects seasonal rainfall, and most precipitation occurs between November and March. Seasonal stream flow is typically highest from December through April and lowest from July through October (USGS 2008). The low flow period occurs during the summer from May through October. Streams entering the river within the refuge include Wapato, Ayers, Hill, Harris, and Scoggins Creeks in the Wapato Lake Unit, and Chicken and Rock Creeks in the Sherwood Units.

The Oregon DEQ is the agency responsible for ensuring that the streams and rivers of Oregon are within standards set forth by the Federal Clean Water Act of 1972. In the past, as human activity increased in the subbasin, the Tualatin River experienced many water quality problems including algal blooms. Many streams in the Tualatin River subbasin do not meet Oregon water quality standards as these streams have high water temperatures and low dissolved oxygen levels that can harm fish and other aquatic life. Some water bodies have bacteria counts that are higher than Oregon's water quality standards recommend (DEQ 2011d). In response to these streams not meeting water quality standards, DEQ listed the Tualatin River as a "water-quality limited" stream. The term "water-quality limited" is used in the Clean Water Act to define streams that do not meet established water quality standards even after the implementation of standard controls. In 1984 and 1986, Tualatin River was listed due to low dissolved oxygen concentrations and nuisance levels of algae. Once a river has been designated as water-quality limited, the Clean Water Act requires that the DEQ develop thresholds for the amount of pollutants to be released in the river (USGS 2008).

Since the 1970s, DEQ has worked with other agencies and organizations to ensure actions are taken to improve water quality in the Tualatin River. These actions include closure of several water treatment plants that historically discharged high concentrations of ammonia and phosphorous, upgrades at remaining treatment facilities, implementation of management plans by agencies that address potential sources of pollutants, tree plantings along streams to facilitate cooler water temperatures, and the release of water from Henry Hagg Lake by Clean Water Services (CWS) during the critical summer months when water flow is low. All of these actions have contributed to improvement in the water quality of the Tualatin River.

CWS has worked further with DEQ to improve water quality in the Tualatin River. Water is released by CWS from Henry Hagg Lake and Barney Reservoir to improve the river's water quality. In 2004, CWS received a watershed-based permit from DEQ that provided a mechanism to offset a portion of the thermal loads from their wastewater treatment facilities with releases of stored water from the reservoirs. Reservoir releases during July and August are used to mitigate part of the thermal impacts from wastewater treatment facilities. CWS offsets the remainder of its thermal impact by planting riparian areas along tributaries, either directly within its service area or through a partnership with the Tualatin Soil and Water Conservation District on rural lands. During the rest of the summer, the

water is released to offset the effect of sediment oxygen demand on the dissolved oxygen levels in the river. Dissolved oxygen levels in the river downstream of the wastewater treatment facilities determine the ammonia limits for wastewater treatment facilities. The higher the dissolved oxygen levels, the more operational flexibility the wastewater treatment facilities have (CWS 2011).

Low dissolved oxygen levels can be a water quality issue in the lower Tualatin River. During the early parts of the summer, photosynthetic production of oxygen by algae effectively offsets the oxygen consumed by the decaying substances in the sediment of the river (sediment oxygen demand). In the fall, however, oxygen production by algae is reduced as the days become shorter and it no longer offsets the oxygen consumption by sediment oxygen demand. This can lead to low dissolved oxygen levels. Increasing stream flow reduces oxygen consumption by sediment oxygen demand because it shortens the contact time between the river water and the river sediments (CWS 2011).

In addition to the above actions, DEQ developed total maximum daily loads (TMDLs) as required by the Clean Water Act. The TMDLs are developed to meet established water quality standards. They define the amount of heat, bacteria, phosphorous, and ammonia that can be added while still being protective of the river (DEQ 2011d). DEQ first released TMDL loads (or amounts) in the 1980s for various sources in the Tualatin River Basin. There has been a revision of these TMDLs, and they are currently undergoing public review at the time of this writing. The establishment of TMDLs in the Tualatin River Basin prompted many management agencies to take actions to meet the load allocations set forth by the TMDLs.

3.9.2 Refuge-specific Water Quality

There are some data available on several creeks that enter the Tualatin River through the refuge. Chicken Creek, which supplies most of the water to the managed wetlands on the Atfálat'i Unit, enters the refuge through a diversion point from which water is then diverted to several different ponds using an irrigation canal. Over the years, as more urban development occurs upstream, the refuge has observed higher stream flows at the diversion. Higher flows have caused extra management responsibility and burden on the refuge to divert the water to the river to avoid flooding or damage to refuge infrastructure. In response to the increases in high flows, the refuge has installed some new infrastructure, including an emergency spillway to facilitate water reaching the river. In addition to high water flows, another concern of the refuge is the water quality of Chicken Creek, due to the runoff from urban development that occurs in the watershed. However, CWS has been monitoring the water quality for upper and lower Chicken Creek and as of date, all standards of temperature, dissolved oxygen, pH, and toxics are below applicable water quality criteria.

3.10 Visual Quality

The scenic beauty of the refuge plays in sharp contrast to the surrounding urban development of homes and roads. All features of visitor and administrative facilities have been designed and constructed to complement the natural refuge environment. Buildings are placed to welcome visitors at the entry point of the refuge, but not detract from wildlife observation. Where possible, structures are set into the landscape and/or provide views through or around the structure itself. Overlooks, kiosks, benches, signs, and railings are all low profile and colored to match the environment. This careful planning allows the visitor to experience the refuge without distractions.

3.11 Surrounding Land Use

The region surrounding the refuge is primarily a mix of urban and agricultural lands (see Appendix P, Map 2). The City of Sherwood in Oregon (population 17,930) abuts the southern and western boundaries of the Sherwood Units (U.S. Census Bureau 2011), the City of Tualatin (population 26,745) is to the east, and King City (population 2,965) is northeast of the refuge. The City of Gaston, Oregon (population 792), is adjacent to the west boundary of Wapato Lake Unit, and Forest Grove (population 21,448) is north of the refuge boundary by approximately 2 miles. Oregon's largest metropolitan center with Portland at its core is approximately 12 miles from the Sherwood Units and 23 miles from the Wapato Lake Unit. The population of Portland is 566,143; the population including its surrounding metropolitan area is approximately 2,260,000 (Portland Business Journal 2011). The population of Sherwood has increased by more than five times from 3,093 in 1990 (U.S. Census Bureau 2011) to the current level, and other cities in the surrounding area are also experiencing rapid population growth. In fact, some land within the refuge acquisition boundary has already been developed with housing and businesses.

The western part of the Sherwood Units and Wapato Lake Unit are characterized by a more rural nature, with active agriculture as well as scattered patches of potential wildlife habitat. Dominant agricultural practices include growing of nursery and greenhouse stock; field crops such as winter wheat, corn, grass hay, and clover and grass seed; orchards of fruit and nuts; wine grapes; berry crops; and row crops such as potatoes and onions. In 2009, Washington County produced $4,106,865 in agricultural products (Oregon State University 2011). Yamhill County is a more rural county with high production of both agricultural commodities and timber products. Yamhill County is the nation's leader in production of hazelnuts and the fifth-largest producer of grass seed; it has the third-largest acreage of rhubarb, and is number five nationally for llama production (Oregon Department of Agriculture 2012). Active timber harvest occurs both east and west of the Wapato Lake Unit in the Chehalem Ridge area and in the Coast Range, respectively.

Within the Tualatin River Basin there are a number of public and private lands managed for habitat and wildlife. The regional Metro government has an active green spaces program and has acquired and restored several land parcels. CWS maintains several land parcels that benefit wildlife, and other county and public entities maintain suitable wildlife habitat within the basin. In addition, private landowners maintain waterfowl hunting clubs throughout the area that benefit fish and wildlife. Other private landowners maintain habitat in a natural condition that also benefits fish and wildlife.

The lower reaches of the Tualatin River are navigable with small boats, and many recreationists take advantage of the river using canoes and kayaks. Fishing opportunities are limited; however, a few people use motor boats to fish for warm-water species during summer, and at least one person fishes for crayfish commercially on the river.

Document continues on the following page.

Chapter 4
Biological Environment

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Chapter 4 Biological Environment

4.1 Overview

4.1.1 Historic Land Use and Conditions

The Willamette Valley is an area of extremely fertile and rich soils that when mixed with the abundant rainfall and relatively mild temperatures of the region provide an ideal system for healthy natural ecosystems (see Appendix P, Map 1). With the presence of people, these natural ecosystems changed (see Appendix P, Map 2). Prior to European settlement in the 1850s, the Kalapuya were the first people of the valley, and one band, the Atfálatʻi, made their home here. At that time, much of the valley was covered by native grasses and forbs, with riparian forests and wet prairies along the rivers. The Atfálatʻi observed the benefits of lightning-strike fires and emulated those benefits by manually setting fires to serve their needs. Each year, they burned different parts of the valley to control insect pests and to keep woody plants from moving into uplands of grasslands and oak savannas. Fire also cleared foraging ground for elk and deer. This method of prescribed burning added nutrients into the soil and stimulated plant growth. However, with European settlement, fire ceased to exist on a consistent and rotational basis, thereby allowing woody plant species to invade the grasslands and resulting in less than 1 percent of this habitat remaining in the valley.

Historically, the Willamette Valley was home to large ungulates such as deer and elk. However, by 1898 elk populations had diminished to the point that the Oregon Legislature prohibited elk hunting until 1910 (a ban that was later extended to 1933). Bears and wolves were present, and bighorn sheep lived nearby in the Columbia River Gorge.

Sturgeon, steelhead, salmon, and other native fish were numerous in most rivers and streams; however, by 1898 fish stocks were declining and hatchery operations were underway (Oregon Department of Fish and Wildlife [ODFW] 2011b). Beaver, mink, and other wetland-dependent mammals found an abundant food source in the riparian forest of the Tualatin River. Trapping was in high demand here in the early 1800s, but declined as the demand for farmland increased. In 1899, a moratorium on beaver trapping was imposed, but it was lifted 20 years later. In 1931 beaver season was again closed as habitat conditions declined, and fish and wildlife resources continued to take a downward turn.

By the 1850s, the grasslands and prairies had been claimed by settlers for grazing and town sites. This left riparian forest for farmers who were beginning to move west. To use the land, the farmers cut, burned, and plowed riparian forest for farmlands. Widespread burning of habitats was eliminated to protect infrastructure and farmlands. Lack of periodic fire allowed succession of shrubs and trees into remaining prairie, woodland, and savanna habitat types, which eventually changed many of them to Douglas-fir-dominated forest.

Other habitats also saw modifications. Wetlands were drained for farming, and rivers and streams were channelized as flood control measures. Some areas were frequently flooded and were too wet to farm or develop and therefore were left as intact habitats. The flora and fauna of the valley began to change and support different species. This change continues as exotic species invade and once common native species decline. Christy et al. (2006) reported 1,404 plant species in the Portland area in 2006, and noted “today there are about half as many common native taxa as there were in 1925, and the number of rare natives has increased eleven-fold. Since 1925, the number of common exotic

taxa has nearly tripled, while the number of rare exotics has increased by 71. This trend is to be expected in an urbanizing environment, and as time goes on, more native species will become rare while the ranks of common exotic species will continue to increase."

Currently the Tualatin River Basin is a highly altered system with almost all the land within the watershed affected, at least to some degree, by timber harvest, agriculture, urbanization, dams, diversions, and stream channel alteration. However, many organizations and individuals are working to restore natural processes and habitats. Many species of native plants, fish, and wildlife still thrive in the basin, and opportunities exist to enhance and restore additional habitat for greater resource enrichment.

4.1.2 Biological Integrity, Diversity, and Environmental Health

The National Wildlife Refuge System Improvement Act of 1997 directs the U.S. Fish and Wildlife Service (Service; USFWS) to ensure that the biological integrity, diversity, and environmental health of the National Wildlife Refuge System (Refuge System) are maintained for the benefit of present and future generations of Americans. To meet this mandate, the Service developed a Biological Integrity, Diversity, and Environmental Health (BIDEH) Policy to provide implementation guidance. Elements of BIDEH are represented by native fish, wildlife, plants, and their habitats as well as those ecological processes that support them. The Refuge System policy on BIDEH provides guidance on consideration and protection of the broad spectrum of fish, wildlife, and habitat resources that represent BIDEH on refuges and in associated ecosystems. This policy provides refuges with a process for evaluating the best management direction to prevent the additional degradation of environmental conditions and to restore lost or severely degraded environmental components. It also provides guidelines for dealing with external threats to the BIDEH of a refuge and its ecosystems.

Maintaining and perpetuating the ecological integrity of the Tualatin River National Wildlife Refuge (the refuge) fits well within this policy. By providing for the full range of natural processes and native floral and faunal diversity, the refuge will be implementing this policy.

To preserve BIDEH, we examined priority habitat types and determined the species that were the best indicators of the health of those plant communities.

4.2 Selection of Priority Resources of Concern

4.2.1 Analysis of Priority Resources of Concern

Wildlife and habitat goals and objectives were designed directly around the habitat requirements of species designated as "priority resources of concern" (ROC). ROCs are called conservation targets in conservation planning methodologies used by other agencies and nongovernmental organizations (NGOs). In developing objectives, the comprehensive conservation plan (CCP) planning team followed the process outlined in the Service‟s *Writing Refuge Management Goals and Objectives: A Handbook* (Handbook) (Adamcik et al. 2004).

As defined in the Service‟s policy on habitat management plans, ROCs are "all plant and/or animal species, species groups, or communities specifically identified in refuge purpose(s), System Mission, or international, national, regional, state, or ecosystem conservation plans or acts. For example, waterfowl and shorebirds are a resource of concern on a refuge whose purpose is to protect

„migrating waterfowl and shorebirds.“ Federal or State threatened and endangered species on that same refuge are also a resource of concern under terms of the respective endangered species acts (620 FW 1.4G).” The Handbook goes on to say that “Habitats or plant communities are resources of concern when they are specifically identified in refuge purposes, when they support species or species groups identified in refuge purposes, when they support NWRS [Refuge System] resources of concern, and/or when they are important in the maintenance or restoration of biological integrity, diversity, and environmental health.” Therefore, ROCs for a refuge may be a species or species group, or the habitat/plant community that supports a priority species/species group.

In developing a list of ROCs, the planning team selected not only species mentioned in establishing documents for the refuge, but also species that captured the ecological attributes of habitat types required by larger suites of species (see Appendix E, Biological Resources Of Concern). The ecological attributes of habitats were analyzed with regard to the life history requirements of ROCs and are critical to sustaining the long-term viability of the ROC and other benefitting species. Ecological attributes of habitats include vegetation structure, species composition, age class, and patch size and/or connectivity with other habitat types; hydrologic regime; and disturbance events (e.g., flooding, fire). From the ROC list, we developed a list of focal species to represent each habitat type on the refuge. These provide measurable indicators that strongly correlate with the ability of a plant community to support a given species or group. The descriptions of habitat types on the refuge incorporate “desired” conditions that are based on scientific literature review and team members“ professional judgment. These desired conditions for specific ecological attributes were used to help design habitat objectives, as presented in Chapter 2.

Limiting factors were also considered in developing objectives. A limiting factor is a threat to, or degradation of, the natural processes responsible for creating and maintaining plant and animal communities. In developing objectives and strategies, the team gave priority to mitigating limiting factors that presented a high risk to ROCs. In many cases, limiting factors occur on a regional or landscape scale and are beyond the control of individual refuges. Therefore, objectives and strategies may seek to mimic, rather than restore, natural processes. For example, pumps and water control structures may be used to control water levels in wetlands in areas where natural hydrology has been altered. Also, the structure of plant communities used by ROCs can be created, rather than restoring the original native species composition. For example, mowing and/or grazing may be used to maintain a desirable vegetation structure in restoring native grassland communities when prescribed fire is impractical. With the consideration of BIDEH, the refuge will maintain all appropriate native habitat types and species. Table 4-1 lists the focal and benefitting species that were considered using the following criteria:

- The resource must be reflective of the refuge“s establishing purposes and the Refuge System mission;
- The resource must include the main natural habitat types found at the refuge;
- The resource must be recommended as a conservation priority during preplanning efforts; or
- The resource must be federally or state listed, be a candidate for listing, or be a species of concern.

Other criteria that were considered in the selection of the ROCs included:

- Species groups and/or refuge features of special management concern; or
- Species contributing to the biological diversity, integrity, and environmental health of the ecosystem or community.

Table 4-1. Focal Species and Other Benefitting Species for Each Priority Habitat Type

Habitat Type	Focal Species	Other Benefitting Species
Bottomland riparian forest	Pacific slope flycatcher	Yellow warbler, song sparrow, willow flycatcher, and rufous hummingbird
	Swainson‟s thrush	Beaver, northern red-legged frog, anadromous fish, yellow-breasted chat, and black-capped chickadee
	Brown creeper	Chestnut-backed chickadee, anadromous fish, downy woodpecker, and pileated woodpecker
	Western wood pewee	Wood duck, yellow warbler, warbling vireo, western screech owl, spring Chinook, winter steelhead, chorus frog, and hooded merganser
Mixed coniferous/deciduous forest	Orange-crowned warbler	Bewick‟s wren, spotted towhee, downy woodpecker, olive-sided flycatcher, and pileated woodpecker
Oak savanna	Western bluebird	Chipping sparrow, coyote, grasshopper sparrow, mourning dove, rufous hummingbird, and western meadowlark
	White-breasted nuthatch	Western gray squirrel, acorn woodpecker, black-tailed deer, and lesser goldfinch
Wet prairie	Wilson‟s snipe	American bittern, savanna sparrow, western meadowlark, northern harrier, dusky Canada goose, migrating and wintering waterfowl, and Nelson‟s checker-mallow
Herbaceous wetland	Northern pintail	Tundra swan, cackling Canada goose, wintering waterfowl, river otter, mink, northwestern pond turtle, bald eagle, and peregrine falcon (foraging)
	Greater yellowlegs	Least sandpiper, dunlin, killdeer, lesser yellowlegs, long-billed dowitcher, spotted sandpiper, tree swallow, and great blue heron
	Virginia rail	Wintering waterfowl, American bittern, sora, common yellowthroat, common garter snake, and chorus frog
Shrub-scrub wetland	Willow flycatcher	American bittern, sora, Virginia rail, red-winged blackbird, common yellowthroat, northern red-legged frog, and northwestern salamander
Rivers, streams, and backwater sloughs	Coastal cutthroat trout, winter steelhead	Northwestern pond turtle, mink, beaver, belted kingfisher, spring Chinook, and Pacific lamprey
Cropland	Cackling Canada goose	Tundra swan, dusky Canada goose, northern pintail, American wigeon, northern harrier, and western meadowlark

4.3 Habitat Types

4.3.1 Bottomland Riparian Forest

4.3.1.1 Overview

There are currently about 388 acres of riparian forest on the refuge supporting a myriad of breeding and migrating songbirds, amphibians and reptiles, resident mammals, and anadromous fish. Mature bottomland riparian forests are characterized by Oregon ash, bigleaf maple, scattered grand and Douglas-fir, and western red-cedar in the overstory, with sword fern, snowberry, and willow in the understory. There are many acres of this habitat type on the refuge that have been recently restored and would not have all these attributes yet. This forest type typically occurs in floodplains and other areas with moist soils. Plants here are adapted to winter and spring flooding and may be inundated or experience saturated soil for several months of the year. This habitat type is a priority habitat in the Oregon Conservation Strategy (ODFW 2006). It typically occurs along streams and rivers and provides movement corridors for wildlife among habitat patches.

Photo 4-1. Riparian forest during winter flooding. Peter Schmidt/USFWS.

4.3.1.2 Regional Distribution, Conditions, and Trends of Bottomland Riparian Forest

Bottomland riparian forest in the greater Willamette Valley has been severely reduced since historic times due to draining and timber harvest, conversion to agricultural and urban uses, and stream alterations. Riparian forest within the Tualatin River Basin is highly fragmented. Metro, Clean Water Services, and others are working to restore riparian forest on many of their land holdings within the basin. The refuge has also engaged in restoration of bottomland riparian forest on several sites within the Sherwood Units.

4.3.1.3 Key Species Supported

Bottomland riparian forest supports a host of bird species and guilds including warblers, woodpeckers, raptors, flycatchers, and hummingbirds. Amphibians such as northern red-legged frogs, salamanders, and rough-skinned newts may spend part of their life cycles in riparian forests. Reptiles such as western pond turtles and garter snakes frequently use these habitats to aestivate over winter or to escape the hot summer sun. Mammals such as beaver, mink, black-tailed deer, and bats use this habitat type for foraging, resting, and finding escape cover. Anadromous fish such as steelhead and Pacific lamprey migrate up rivers and creeks shaded by riparian forest. In winter, juvenile salmonids may benefit from riparian forests for foraging and escape during flood events.

4.3.1.4 Refuge Management Activities

In existing stands of riparian forest, management activities are typically limited to controlling non-native invasive plant species. Plants such as English ivy, nightshade, and Himalayan blackberry crowd out native plants, to which native wildlife are adapted. Non-native trees such as cherry, English hawthorn, and English holly are removed or girdled and treated with herbicide following integrated pest management (IPM) methods, to create snags.

In areas of new riparian forest restoration, native trees and shrubs are planted and maintained for several years to ensure successful establishment. Trees are typically planted and protected with tubes to prevent browsing by deer and other herbivores, and girdling by voles and other rodents. Grasses and non-native plants are mowed and/or sprayed with Service-approved herbicide between shrubs and trees to reduce competition and shading until the desired plants are of sufficient size to compete on their own. After 5 to 10 years, once the trees have reached sufficient size and girth to resist damage from herbivores, tree tubes are removed.

In some areas where natural recruitment of native plants is strong, management activities include placing tubes on naturally established trees and mowing non-native plants and grasses until the trees are tall enough to compete on their own.

4.3.2 Mixed Coniferous/Deciduous Forest

4.3.2.1 Overview

There are currently about 49 acres designated as mixed coniferous/deciduous forest on the refuge. This habitat type is typically above the floodplain on drier, well-drained soils. This forest type is dominated by Douglas-fir, with grand fir, western red-cedar, western hemlock, bigleaf maple, red alder, Pacific yew, and Pacific dogwood. The understory contains sword fern, snowberry, hazel, cascara, vine maple, and various other shrubs and forbs. Snags are an important habitat component in a mature forest. Snags provide foraging substrate and nesting cavities for a variety of bird species. This upland forest type supports a host of bird species and other wildlife.

Photo 4-2. Mixed coniferous/deciduous forest in the Rock Creek Unit. Peter Schmidt/USFWS.

4.3.2.2 Regional Distribution, Conditions, and Trends of Mixed Coniferous/Deciduous Forest

Historically, upland forest was the dominant habitat type in the greater Portland area (Christy et al. 2006). By the time the General Land Office surveys were undertaken in the 1850s, much of this habitat type was already burned or logged. In the area surrounding the refuge, there is no old-growth forest remaining, but there are some tracts of mature second growth with intact native understory plants and few invasives. The forests surrounding the refuge were logged during the late nineteenth and early twentieth centuries to provide lumber for an expanding population and to provide more agricultural land. Currently, remaining forest tracts occur in areas too steep to farm or build effectively, or on land managed for timber production. Some tracts of remaining forest are found on conservation lands such as those recently purchased and protected by Metro and others. This forest type has also expanded into areas that were historically oak woodland, oak savanna, or prairie, as a result of fire suppression.

4.3.2.3 Key Species Supported

A myriad of species spend all or part of their life cycles in mixed forest habitat types. A host of resident and migratory birds such as woodpeckers, owls, wood warblers, and corvids use mixed forests for foraging, resting, and nesting. Small mammals such as squirrels, shrews, and mice are abundant in mixed forest habitat types, and bats often roost in cracks and cavities of larger trees. Larger mammals such as black-tailed deer and coyotes are also present in smaller numbers. Reptiles and amphibians such as common garter snakes and chorus frogs also use this habitat type.

4.3.2.4 Refuge Management Activities

Management activities for this habitat type are similar to activities carried out in riparian forest. In established forest, management of invasive species is the primary activity, while maintenance of

planted trees and shrubs will be the focus in restoration areas. In addition, prescribed fire may be a management tool employed to manage fuel and provide a diversity of habitat structure.

4.3.3 Oak Habitat

4.3.3.1 Overview

There are currently about 149 acres of oak habitat on the refuge. This land is in various stages of restoration. Restored areas have been planted with oaks, ponderosa pine, native grasses, and other native species during the past 12 years. The oaks in these areas are in the sapling stage and range from 3 to 20 feet in height; they have not reached a mature stage. In some areas the ponderosa pines have grown quickly and may be reaching 30 feet in height and almost 12 inches DBH. Only a few relic oaks over 100 years old remain on refuge lands. Mature oak savanna is characterized by large single or a very small cluster of Garry oaks, generally widely scattered throughout a grassland with few to no shrubs and abundant native wildflowers. Oak/pine woodland is characterized by more densely growing trees with a scattering of shrubs in the understory. Snags may be present in small numbers, and areas of bare ground may also be present. Native grass species may include California oatgrass, California brome, meadow barley, Roemer‟s fescue, and blue wildrye. Native forb species include blue-eyed grass, tiger lily, tarweed, and pearly everlasting. Overall grass height is usually less than 3 feet. Sites are typically dry, but may have saturated soils for a short duration during winter. This habitat type was historically maintained by frequent, low-intensity fire, which prevented most shrubs and encroaching species, especially conifers, and maintained a low density of oaks. Currently the refuge manages this habitat type by annual mowing. However, mowing does not remove accumulated thatch, which may inhibit growth of some species of wildflowers. Spot spraying of herbicides is also employed to control invasive species such as Himalayan blackberry and Canada thistle. This habitat type is a priority habitat in the Oregon Conservation Strategy (ODFW 2006).

Photo 4-3. Garry oaks. © Ed Bustya.

4.3.3.2 Regional Distribution, Conditions, and Trends of Oak Savanna

Oak savanna is a rare habitat type in the Willamette Valley. Noss et al. (1995) reported a loss of 99.5 percent of this habitat type in the Willamette Valley since Euro-American settlement. Metro and other organizations are conserving and restoring this habitat type; however, few large areas with mature oaks remain in the Tualatin River Valley and distribution is fragmented. Restoration efforts may take up to 100 years before the habitat can support a full range of species.

4.3.3.3 Key Species Supported

Oak savanna supports a variety of species, especially grassland bird species, oak specialists, invertebrates, and listed plant species. Grassland birds such as western meadowlark and savanna sparrow nest and forage in grassland communities. Oak specialists such as acorn woodpecker, Lewis‟ woodpecker, white-breasted nuthatch, and western gray squirrel use oaks for nesting and foraging. Invertebrates such as Fender‟s blue butterfly rely on native savanna and prairie plants for survival. Listed plant species native to oak savanna habitats include Kincaid‟s lupine, Willamette daisy, and golden paintbrush (USFWS 2010b). Western pond turtles frequently use this habitat type for aestivating and overwintering.

4.3.3.4 Refuge Management Activities

The refuge has undertaken several oak savanna restoration projects and annually maintains these areas by mowing to reduce encroachment of woody species and by applying Service-approved herbicides, following IPM practices, to control non-native and invasive species. As land has been acquired, restoration activities have included cooperative farming as a means of purging weeds

through tilling and application of herbicide. Further application of herbicide is usually necessary prior to planting of native seed. Native seed may be drilled in using a no-till drill or may be broadcast following discing. Typically, native grasses are planted first and allowed to become established while using a broad-leaved-specific herbicide to control invasive species. Once native grass is established, native forbs are seeded. Research is still needed to determine best management practices for establishing native oak savanna plants in this area because restoration of this habitat type is still in its infancy.

4.3.4 Wet Prairie

4.3.4.1 Overview

Wet prairie covers about 27 acres on the refuge. Wet prairie is dominated by native herbaceous plants such as sedges, rushes, grasses, and forbs that are generally less than 3 feet tall. There are few to no trees or shrubs. Wet prairie is characterized by generally poorly drained soils that may be saturated or have standing water from November through April. These habitat types on the refuge are typically inundated by either back flooding of the river onto floodplain areas or by ponding of rainwater in shallow basins. There are currently two areas of wet prairie restoration on the refuge. One was planted in 2001-2002 with native grasses, oaks, and ponderosa pine. Plants in this area are well established. The other area was restored in 2005, but is currently being rehabilitated to remove invasive reed canarygrass. This habitat type is a priority habitat in the Oregon Conservation Strategy (ODFW 2006).

Photo 4-4. Wet prairie habitat, Atfálatʻi Unit. Kim Strassburg/USFWS.

4.3.4.2 Regional Distribution, Conditions, and Trends of Wet Prairie

Similar to oak savanna, this habitat type has undergone a dramatic decline since Euro-American settlement due to conversion to other uses and lack of fire, which has allowed the encroachment of woody species, thus changing the vegetation community. Noss et al. (1995) state that 99.9 percent of

all prairie habitats in the Willamette Valley have been lost. Much of the habitat that remains is in degraded condition due to the influence of invasive and non-native species and lack of periodic fire to properly maintain function. Further, restored sites are confounded by a lack of available native seed types to foster adequate diversity. However, more native seed and plant varieties are becoming available as more entities embark on restoration of wet prairies. As with other rare habitat types, Metro, Natural Resources Conservation Service, and other organizations are conducting restoration and enhancement of this habitat type throughout the Tualatin River Valley. As these projects proceed, knowledge is gained and shared about methods and tools used to effectively manage wet prairie habitats.

4.3.4.3 Key Species Supported

Wet prairie supports a number of listed plant species (Bradshaw's lomatium, Willamette daisy, Nelson's checker-mallow) and species of concern (upland larkspur, peacock larkspur, Sierra horkelia, Columbian whitetop aster) (USFWS 2010b). A number of other species use wet prairies during all or part of their life cycles. Chorus frogs, northern red-legged frogs, northwestern and long-toed salamanders, and rough-skinned newts breed and lay eggs in shallow, vegetated wet areas in spring; wading birds such as great blue herons and great egrets also forage in the shallow pools or dry margins of wet prairies. Wilson's snipe nest in the wet grasses of the prairie. Black-tailed deer forage on grasses and forbs, while mink hunt for birds and rodents. In winter, large numbers of waterfowl rest and forage on the numerous seeds and plants in the flooded prairie.

4.3.4.4 Refuge Management Activities

Refuge management includes restoration, enhancement, and maintenance of wet prairie. As with other habitat types, restoration usually begins with efforts to purge non-native and invasive plant species using mechanical means (mowing and discing) and/or application of Service-approved herbicide, following IPM practices. Plants may be installed as pots or plugs, or seeded using a no-till drill or broadcast method. Areas requiring enhancement may have plants installed as mentioned above and invasive species removed using mechanical means or spot spraying with herbicide. Current maintenance includes annual mowing to prevent encroachment of woody species and/or spot spraying with herbicide to control non-native and invasive species.

4.3.5 Herbaceous and Scrub-shrub Wetlands

4.3.5.1 Overview

There are currently about 294 acres of herbaceous wetland and 20 acres of scrub-shrub wetland habitat on the refuge. The herbaceous wetlands have all been restored, but the scrub-shrub wetlands are in various early stages of restoration. According to Christy et al. (2006), prior to Euro-American settlement, there were historically few wetlands in the vicinity of the refuge. Wetlands that existed at the time of Euro-American settlement were often drained by ditching, diversions, channelizing streams, and installing drain tiles to facilitate farming and development. The floodplain in the northern part of the Riverboat Unit had extensive scrub-shrub and herbaceous wetlands that were likely drained by the early twentieth century. Likewise, the majority of the Wapato Lake basin consisted of various wetland types. Even though they represent a small fraction of the landscape, wetlands play a vital role in the ecosystem, providing habitat for a variety of wetland-dependent plants and wildlife, and native resident and anadromous fish.

Herbaceous wetlands are characterized by areas with heavy, poorly drained clay soils. Wetlands may be saturated or flooded for a large part of the year, usually from the first fall rains until early to mid-summer. Water depths may range from just a few inches to 3 feet or more, with an average of 4 to 18 inches. The extent and depth of water is dynamic, changing throughout the season and year to year as periods of rain and flooding from creeks and rivers come and go. Plant composition includes perennial species such as sedges, rushes, wapato, common cattail, and softstem bulrush, and a large variety of annual plants such as smartweed, beggars tick, and wild millet.

Scrub-shrub wetlands are characterized by a somewhat more stable hydrological regime. Soils may range from heavy clay to organic peat soil, and water may be present year-round. Water is typically deeper than on herbaceous wetlands and may range from 1 to 10 feet deep at times. Plants include woody species dominated by willow, as well as Douglas spirea, swamp rose, red-osier dogwood, and emergent species such as cattails and softstem bulrush. Fewer annual plants would be expected in this habitat type. This habitat type is a priority habitat in the Oregon Conservation Strategy (ODFW 2006).

Photo 4-5. Herbaceous wetland plants provide habitat and food for wintering waterfowl. Kim Strassburg/USFWS.

4.3.5.2 Regional Distribution, Conditions, and Trends of Herbaceous and Scrub-shrub Wetlands

As noted above, considerable effort was historically expended to convert wetlands to human-oriented uses. However, the value of wetlands for many beneficial uses, and their intrinsic value, has been recognized, and substantial work has been accomplished to restore or create wetlands throughout the Tualatin River Basin for the benefit of both human endeavors and wildlife needs. Wetlands currently exist on every unit of the refuge. Many of these wetlands are intensively managed to mimic historic conditions by using water control structures, diversions, pumps, canals, and levees. Managing and maintaining these systems is expensive and time consuming, but provides a level of certainty that habitat would be available no matter what the seasonal climate might provide. Other wetlands are not managed and depend on seasonal rain to fill and evaporation to naturally draw down in summer.

In addition to wetlands on the refuge, Metro, Clean Water Services, local duck hunting clubs, and others have worked to restore or create wetlands in the Tualatin River Basin. These wetlands provide a host of benefits such as groundwater recharge, water quality benefits, dissipation of flood waters, and habitat for fish and wildlife.

4.3.5.3 Key Species Supported

Wetlands support a number of fish and wildlife species throughout their annual cycle. Marsh birds such as sora and Virginia rail, and songbirds such as common yellowthroat and marsh wren nest in or near wetlands. Mammals such as mink, muskrat, and beaver use wetlands. Amphibians such as chorus frogs, northern red-legged frogs, and salamanders use wetlands for breeding. Reptiles such as common garter snake and western pond turtle use wetlands during part of their annual life cycle. Migratory shorebirds such as least and western sandpipers, greater yellowlegs, and black-bellied plovers forage on wetland mudflats and margins. Waterfowl such as northern pintails and cackling Canada geese forage and rest on wetlands. Raptors such as bald eagles and peregrine falcons prey on waterfowl that use wetlands.

4.3.5.4 Refuge Management Activities

Of all habitat types encountered on the refuge, wetlands require the most management and maintenance. During fall and winter, water is managed to fill and maintain wetlands. Fish screens are maintained to allow water passage and to prevent both native and non-native fish from entering wetlands from diversions. Pumps are sometimes operated to begin filling wetlands prior to fall rains. Water control structures such as flashboard risers are managed to precisely control water levels in some wetlands. Supplemental planting of woody species such as willow is conducted in newly restored scrub-shrub wetlands. During spring, water levels in managed wetland basins are drawn down to stimulate growth of desirable wetland plant species. Invasive species may be controlled by timing of flooding, mechanical means such as mowing or discing, or application of Service-approved herbicide. In late summer, some wetland basins are mowed to reduce vegetation height at the wetland margin to allow waterfowl access to adjacent uplands. Some wetlands are periodically disced to stimulate growth of annual plants dependent on a disturbance regime. In newly restored scrub-shrub wetlands, mowing is conducted around woody species to reduce competition with invasives such as reed canarygrass.

4.3.6 Rivers, Streams, and Backwater Sloughs

4.3.6.1 Overview

The Tualatin River and several tributary streams run through or are adjacent to refuge lands (see Appendix P, Maps 6 and 7). In addition, several areas back up with water during periods of flooding or high water. These waterways have been impacted by alterations since the time of Euro-American settlement. Stream banks were fortified to prevent flooding; adjacent lands were drained and ditched, causing increased runoff and erosion; vegetation along stream banks was removed, reducing the amount of shade and resulting in increased water temperatures, reducing woody input, and causing additional erosion; timber harvest, farming activities, and urbanization caused increased runoff, chemical and trash inputs, and reduced groundwater recharge; and water diversions for industrial, agricultural, and municipal uses caused a reduction in water flow.

Tributary streams such as Chicken Creek and South Rock Creek in the Sherwood Units were channelized in the early twentieth century to facilitate drainage and farming of adjacent lands. Under the management direction, the refuge will restore at least parts of these creeks to their natural meandering channels. In addition, construction and/or reconnection of backwater sloughs will be explored on some refuge units. This habitat type is a priority habitat in the Oregon Conservation Strategy (ODFW 2006).

4.3.6.2 Regional Distribution, Conditions, and Trends of Rivers, Streams, and Backwater Sloughs

The Tualatin River and its tributaries have total maximum daily loads (TMDL) listed by the Oregon Department of Environmental Quality (DEQ) for several water quality parameters including temperature, dissolved oxygen, phosphorus, and bacteria (DEQ 2001). Efforts have been underway for several years in the Tualatin River Basin to reverse some of the negative effects that have taken place over the past 150 years. Many organizations have been promoting stewardship of the watershed and are engaged in restoration and enhancement projects that have greatly improved conditions in the river and local streams. The Service has partnered with the U.S. Geological Survey (USGS) and others to conduct a water quantity and quality study at Wapato Lake that will help inform and guide future refuge management activities at that unit. A few small backwater areas on the refuge have been enhanced to provide benefits to anadromous fish during flood events and provide benefits to native wildlife.

Photo 4-6. Backwater flooding along the Tualatin River. Peter Schmidt/USFWS.

4.3.6.3 Key Species Supported

Rivers, streams, backwater sloughs, and their streamside vegetation support a vast array of fish, wildlife, and plant species. Native resident and anadromous, and non-native fish species, may be found in local waters. Resident native fish include coastal cutthroat trout, rainbow trout, western brook lamprey, and three-spined stickleback. Native anadromous fish include steelhead and Pacific

lamprey. Non-native fish include a number of sunfish species, bass, catfish, mosquito fish, and carp. Coho salmon, which were not historically present in the Tualatin River system because they could not get over Willamette Falls during the fall when they migrate, were introduced into the system as mitigation for Scoggins Dam. The coho stocking program ended in 1998, but coho are still present and reproducing with help from fish ladders at the falls (ODFW 2011c).

Wildlife also abounds in and along waterways. Mammals such as beaver, mink, and muskrats are water-dependent furbearers. Birds of all types are associated with streams and rivers including mergansers, wood ducks, belted kingfishers, and ospreys. Many warblers and flycatchers are associated with streamside riparian habitats. Reptiles such as western pond turtles and painted turtles use the slow-moving lower reaches of the Tualatin River, often basking on logs in spring and summer. Amphibians such as rough-skinned newts are abundant in all waters of the refuge.

Many plant species thrive in and around refuge streams. Submergent vegetation such as pondweeds and wigeon grass grow in the slow-moving waters of the river and adjacent sloughs. Trees and shrubs commonly associated with streams include willow, Oregon ash, red-osier dogwood, Oregon grape, and Douglas spirea.

4.3.6.4 Refuge Management Activities

One of the major management activities related to streams is operation of a water diversion structure on Chicken Creek on the Atfálatʻi Unit. A portion of the water in Chicken Creek is diverted year-round to supply water to managed wetlands. In summer, a small maintenance flow is diverted to maintain freshwater flow to a minimal number of wetland acres. In fall and winter, more water is diverted to fill and maintain approximately 226 acres of wetlands. There is a fish passage structure associated with the diversion structure that was designed prior to listing of upper Willamette salmon and steelhead, and it may no longer be adequate based on current standards. There are fish screens on the structure to help prevent fish from entering the wetland system and becoming entrapped. Upstream and downstream of the diversion, the creek was channelized decades ago and runs straight to the Tualatin River. Under the management direction, Chicken Creek will be at least partially returned to its historical channel and a new diversion structure will be constructed in a different location and designed to current fish passage standards.

Similar to Chicken Creek, South Rock Creek is channelized through both the Rock Creek and Onion Flats Units. Under the management direction, this creek will also be restored.

Management of water in the Wapato Lake Unit is another important activity. Currently the refuge is maintaining cooperative farming operations in the lake bed and using the pumps in place to dewater the lake during spring. Until restoration begins, it is anticipated that this practice will continue.

Other management actions along streams include planting native vegetation, and controlling non-native and invasive species including reed canarygrass, English holly, and Himalayan blackberry.

4.3.7 Croplands

4.3.7.1 Overview

Cropland management is used as a tool when lands are acquired to provide wildlife habitat and control invasive species until restoration of the property to native habitats can commence. Croplands

are currently managed under cooperative farming agreements with local farmers who plant, maintain, and harvest select crops. A share of the crop is left for wildlife use. Crops grown include cereal grains, such as corn, wheat, barley, and oats. In the case of cereal grains the grower is required to leave 30 percent of crops standing as forage for wildlife. Another crop grown is green forage, such as pasture grass for hay or clover for seed. In this case, the grower harvests all the crop and then mows the area in late summer or early fall to provide green forage primarily for geese.

The refuge currently has cooperative farming agreements on the Onion Flats and Wapato Lake Units. Crops on the Onion Flats Unit are naturally flooded as fall rains begin and standing water accumulates or as the Tualatin River backs up into this area. Similarly, Wapato Lake starts to fill following fall and early winter rainy periods. Typically waterfowl will wait until rains begin before they begin foraging in grain fields, but they will begin to use green forage as soon as they arrive in fall. During periods of drought, when fields may not become flooded, waterfowl will begin to forage in dry grain fields after other sources of food in the vicinity have been depleted.

4.3.7.2 Regional Distribution, Conditions, and Trends of Croplands

The refuge is surrounded by a mixture of urban and rural land uses. There are many farms in the area supporting a variety of crop types including small grains and green forage. The primary difference in private management is that most small grains are tilled under after harvest in early fall to prepare for the next crop and green forage areas may also be tilled under if on a rotational schedule. However, many fields retain forage values for wildlife whether tilled or not. Many farmers rotate crops from year to year, and some crops may not be attractive to wildlife. Landowners may also convert field crops to orchards, berry crops, or nursery stock, which have different values for wildlife.

4.3.7.3 Key Species Supported

Croplands primarily support foraging for waterfowl such as dabbling ducks and grazers such as Canada geese and American wigeons. Other birds commonly observed in this habitat type include great blue herons, shorebirds, and grassland songbirds. Many small rodents such as Oregon voles reproduce here, providing a prey base for coyotes and raptors such as northern harriers, red-tailed hawks, and American kestrels.

4.3.7.4 Refuge Management Activities

Management activities are typically limited to overseeing cooperative farming activities and, in the case of the Wapato Lake Unit, managing water levels necessary for planting and irrigation.

4.3.8 Ruderal Lands

4.3.8.1 Overview

Currently there are approximately 181 acres of ruderal uplands and 68 acres of ruderal wetlands on the refuge. Ruderal uplands are lands that are typically above the annual floodplain but may experience occasional flooding from extreme events. These lands have been fallow for some time and typically are dominated by non-native vegetation. Ruderal wetlands are lands typically within the annual floodplain, or they are saturated or inundated during some part of the year. These lands were often former pasture lands used for summer grazing.

4.3.8.2 Regional Distribution, Conditions, and Trends of Ruderal Lands

Ruderal lands in the surrounding area are usually limited to farm field edges or transitions between habitat types that remain unmanaged. Occasionally, growers will abandon a field or orchard and weeds will invade, creating a ruderal condition. If the field is left unmanaged for some time, native species may pioneer into the area and begin to transform the tract to a mix of native and non-native species.

4.3.8.3 Key Species Supported

Ruderal lands may support a number of species such as great blue herons, sparrows, and grassland songbirds. Many small rodents such as Oregon voles reproduce here. Raptors such as red-tailed hawks and American kestrels may forage here.

4.3.8.4 Refuge Management Activities

Many of these lands have undergone pretreatment activities prior to restoration. Pretreatment activities may include removal of non-native trees, mowing, discing, or application of herbicide. It is the refuge‟s intention to convert ruderal lands to native habitat types.

4.4 Major Species Groups

A wide variety of fish and wildlife use refuge habitats during all or part of their life. Appendix E contains a listing of ROCs that inhabit the refuge, and Appendix N is a listing of all known plants, fish, and wildlife that have been documented on the refuge. Large numbers of waterfowl use refuge wetlands during fall and winter, and some remain to breed during spring and summer. Shorebirds and marsh birds use the refuge to some extent year-round, but peak numbers typically occur during spring. Some species in these guilds breed on refuge lands or nearby, while others are migrants. Both resident and migrating songbirds use all refuge habitat types. Many species of neotropical migrant songbirds breed here during spring and summer, and many species of raptors use the refuge during most seasons of the year. Mammals, amphibians, and reptiles are present on the refuge year-round, but some of these species are secretive and may not be readily observed during most of the year. Many species of fish, some of which are migrants, inhabit waterways on and adjacent to the refuge.

4.4.1 Waterfowl

Providing high-quality habitat for waterfowl has been one of the priorities on the refuge since its establishment. Waterfowl are primarily associated with wetlands; however, they also use upland grasslands and croplands. Detailed weekly winter waterfowl surveys have been conducted on the refuge since 2000, and the area surveyed has increased over time as land has been acquired and/or restored. Surveys are conducted from September through at least February each year. Typically, few numbers and species of waterfowl breed on the refuge and surrounding areas. A limited number of western Canada geese, mallards, gadwalls, cinnamon teal, hooded mergansers, and wood ducks annually raise a few broods. Buffleheads, northern shovelers, and blue-winged teal are rare breeders here. In early fall, waterfowl numbers remain low as migration begins (Figure 4-1); their numbers then increase sharply during November. Numbers remain relatively high to the end of January when waterfowl hunting season ends, and then birds tend to disperse to nearby private lands before migrating north near the end of March. The refuge lies in the Pacific Flyway, where birds migrate

primarily from breeding grounds in Alaska, British Columbia, Alberta, the Yukon, and Northwest Territories, and to a lesser extent from Saskatchewan. For many of these birds, the refuge is an important stopover to wintering areas in California and Mexico, and for others it is their southern terminus, where they spend the winter.

Photo 4-7. Waterfowl. Gary Kramer/USFWS.

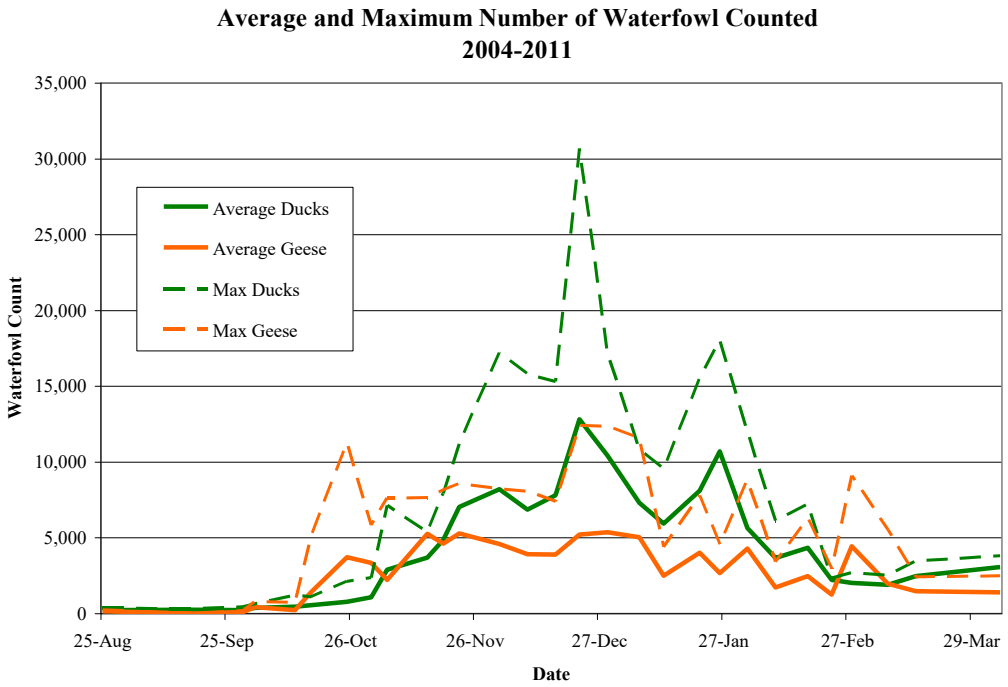

Figure 4-1. Average and maximum number of waterfowl counted on refuge lands during regular weekly surveys from 2004-2011.

Note: On December 16, 2010, a maximum of 71,601 ducks were counted, but this data point was removed to make the chart more readable.

4.4.2 Songbirds

The refuge supports a host of both resident and migratory songbirds that use all of the habitat types represented here. About 100 songbird species have been identified on the refuge and many of those species breed here. Point count surveys have been conducted to identify species using the refuge, and a bird banding program has been established under the Monitoring Avian Production and Survival protocol to assess productivity and survival of locally breeding birds. These surveys will help to determine long-term trends in songbird populations on both a local and regional scale.

4.4.3 Shorebirds

There are relatively few shorebirds that use the refuge, and species diversity is low. Twenty-one species have been recorded, but many of those are one-time or rare sightings. Killdeer, spotted sandpipers, and Wilson‟s snipe are among the most numerous; all of them breed at the refuge. Least and western sandpipers, dunlin, lesser yellowlegs, and long-billed dowitchers are also commonly sighted during migration. Regular weekly surveys are conducted from April through September on several of the Sherwood Units. Weekly counts average fewer than 50 individuals, but may number several hundred on rare occasions. Although some shorebirds do breed here, the majority of shorebirds are migrants, passing through during spring and late summer and fall. Typically, mudflats in wetland margins are available for shorebird foraging from early spring through summer as managed wetlands are drawn down on their annual cycle.

Photo 4-8. Long-billed dowitcher. © Ed Bustya.

4.4.4 Marsh Birds and Waders

Marsh birds use both herbaceous and scrub-shrub wetlands, and to a lesser extent adjacent uplands. Surveys for sora, Virginia rail, American bittern, American coot, and pied-billed grebe are conducted using recorded calls from April through June each year. Breeding has been verified on the refuge for each of these species, although they occur in relatively low numbers. Early spring drawdown of wetlands to meet other management objectives may have a negative effect on these species. The first

confirmed breeding of American bitterns on the refuge was observed at a recent scrub-shrub wetland restoration site.

Wading birds such as great blue herons, great egrets, and green herons are surveyed in conjunction with shorebird and waterfowl surveys. Great blue herons and great egrets are present nearly year-round on the refuge, while green herons are usually only observed during summer.

4.4.5 Raptors

At least 18 species of raptors have been recorded on the refuge including eagles, hawks, falcons, and owls. Bald eagles, red-tailed hawks, American kestrels, and great horned owls are year-round residents. Other species such as peregrine falcons are usually only present during winter when waterfowl populations are high. Some species are regular summertime visitors, such as ospreys that forage on fish as wetlands are drawn down. Raptors are specialized in the habitat types that they use and may be observed in most habitat types on the refuge. Eagles and peregrine falcons use wetlands for hunting waterfowl. Great horned owls hunt rodents in the forest at night while Cooper"s hawks hunt in the forest during daylight in search of songbirds. Northern harriers hunt in the uplands, croplands, and wetlands during the day, while barn owls hunt open fields during the night and evening. The refuge has installed American kestrel nesting boxes and will monitor these from time to time to determine nesting success. There are no other surveys that specifically target raptors, although raptors are recorded during songbird point count surveys.

Photo 4-9. American kestrel. Robert Burton/USFWS.

4.4.6 Mammals

Many mammal species, large and small, use the various habitat types on the refuge. Large mammals such as black-tailed deer and the occasional elk are observed on the refuge. Smaller mammal species such as coyote, river otter, bobcat, raccoon, beaver, muskrat, and mink are present on the refuge, but are less frequently observed. No regular surveys are conducted for the above-mentioned groups of

mammals. Smaller, yet more numerous, are squirrels, voles, mice, and shrews. Bats are also known to use refuge lands, but no surveys have been conducted to determine species present. From 2003 to 2005, a small mammal survey was conducted, which identified 14 species on one parcel. By far the most numerous species in this study was deer mouse.

Photo 4-10. Black-tailed deer at Atfálatʻi Unit. Peter Schmidt/USFWS.

4.4.7 Fish

Numerous fish species have been noted using the waters in and adjacent to refuge lands. The refuge has conducted fish trapping in refuge wetlands following river flood events to determine if salmonids were entering wetlands from the river and subsequently escaping as water levels receded. No salmonid species were detected during any surveys. Several species of both native and non-native fish were detected during these surveys. Native species included western brook lamprey, three-spined stickleback, and sculpin. Non-native species included carp, mosquito fish, and bluegill. From 1999 to 2001, ODFW conducted fish surveys in the Tualatin River Basin (Leader 2001) and recorded 16 species of fish from seven families. The survey noted that only 0.16 percent of the total sample were non-native fish.

Upper Willamette River steelhead were listed as threatened species in August 1999 (Federal Register 1999a) and Chinook salmon were listed as threatened species in March 1999 (Federal Register 1999b), and critical habitat was designated in 2005 (Federal Register 2005) in the upper Tualatin River Basin (roughly defined as the Tualatin River and its tributaries upstream of Highway 219 near Hillsboro), excluding North Rock Creek. Leader (2001) identified both rainbow trout (genetically identical to steelhead) and Chinook salmon in the Tualatin River system. Coho salmon, while not native to the Tualatin River system, were introduced and are now a self-sustaining population in the basin.

Non-native fish such as carp, bass, catfish, and sunfishes are disruptive to and can outcompete native species. Carp uproot and consume submergent vegetation important to native species and cause

turbidity, thus inhibiting further growth of vegetation. Bass, catfish, and sunfishes directly consume native species, such as red-legged frogs, and also indirectly affect native species by consuming food such as invertebrates that native species forage upon.

Native fish species such as lampreys, sculpin, and three-spined sticklebacks have also been recorded in refuge waters and are an important part of the aquatic community. The presence of lampreys is a good indicator of water quality as they will not persist in poor-quality habitats. Three-spined sticklebacks, which were numerous in our sampling, may be beneficial in removing mosquito larvae from slow-moving waterways (Sharp 2000).

4.4.8 Reptiles

Reptiles observed on the refuge include western pond, painted, and non-native red-eared slider turtles, alligator lizards, rubber boa, and various varieties of garter snakes. Non-native snapping turtles have been documented in the Tualatin River but have not been observed by refuge staff or volunteers. Turtles are commonly observed basking on logs in the river or on herbaceous wetlands. Garter snakes are observed in most open habitat types throughout spring and summer. No surveys for reptiles are currently being conducted.

Photo 4-11. Garter snake. © Ed Bustya

4.4.9 Amphibians

Many species of amphibians have been documented on the refuge including chorus frogs, red-legged frogs, and non-native bullfrogs; long-toed and northwestern salamanders; and rough-skinned newts. These species breed in refuge wetlands and use adjacent uplands for part of their life cycles. Surveys for amphibian egg masses were conducted in late winter and spring during 2010 and 2011 on several refuge wetlands. Results showed red-legged frogs, chorus frogs, and long-toed salamanders were breeding in refuge wetlands.

4.5 Threatened, Endangered, and Other Special Status Species

One goal of the Refuge System is "to conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered." In the policy clarifying the mission of the Refuge System, it is stated, "We protect and manage candidate and proposed species to enhance their status and help preclude the need for listing." In accordance with this policy, the CCP planning team considered species with Federal or state status, and other special-status species, in the planning process.

Currently there is one plant species (Nelson‟s checker-mallow) that is federally listed as threatened, and two fish species (upper Willamette River run Chinook, and upper Willamette River run steelhead) that are federally threatened and occur or could occur on the refuge. These three species are also state-listed as threatened. Meadow checker-mallow is a state-listed candidate plant species that occurs on several areas of the refuge. Birds considered species of concern that have been observed on the refuge are olive-sided flycatcher, yellow-breasted chat, acorn woodpecker, Lewis‟ woodpecker, and band-tailed pigeon. Reptiles and amphibians considered species of concern include western pond turtle and northern red-legged frog. Fish species considered species of concern that may occur in refuge waters are Pacific lamprey and coastal cutthroat trout.

Photo 4-12. Nelson‟s checker-mallow. Jeff Dillon/USFWS.

In February 2008, Nelson‟s checker-mallow was planted in seven plots on three of the Sherwood Units: Atfálat‟i, Tualatin River, and Riverboat. Nelson‟s checker-mallow was known to occur on one parcel of the Atfálat‟i Unit prior to this planting effort. In 2010, additional plants were added to the plots on the Atfálat‟i and Riverboat Units. The plants have experienced good survival since installation and will continue to be monitored.

4.6 Invasive and Nuisance Species

Refuge personnel expend considerable resources in terms of funding and staff and volunteer time managing invasive and nuisance species each year to provide quality habitat for native species. Management of invasive and non-native species follows the practices set forth and described in the IPM Plan in Appendix G. This plan describes priorities for response by the refuge and the various methods used to manage these species. The refuge has and will continue to follow the practice of "Early Detection and Rapid Response" (EDRR). Preventing the introduction of invasive species is the first line of defense in the battle against new invasions. However, it is inevitable that new introductions will occur. The next best line of defense is to manage these invasions through EDRR. EDRR is the principle of targeting noxious weed infestations when they first arrive in a given area, while their populations are small and localized. This effort greatly increases the likelihood that new invasions are addressed immediately, before the species can become established and widespread.

Table 4-2 lists the target non-native and invasive species for the refuge; however, this list is not comprehensive. Plant species are by far the most problematic, but non-native fish and wildlife species also have important direct and indirect impacts to native habitat types, native fish and wildlife, and refuge infrastructure.

Table 4-2. Common and Scientific Names of Target Non-native Invasive Species on Refuge

Common Name	Scientific Name	State Noxious Weed*
Plant Species		
Bermuda grass	*Cynodon dactylon*	
Bull thistle	*Circium vulgare*	B
Canada thistle	*Circium arvense*	B
Cocklebur	*Xanthium strumarium*	B
Cut leaf teasel	*Dipsacus fullonum*	B
English holly	*Ilex aquifolium*	
English ivy	*Hedera helix*	B
Field bindweed	*Convolvulus arvensis*	B
Himalayan blackberry	*Rubus discolor*	B
Japanese knotweed	*Polygonum cuspidatum*	B
Poison hemlock	*Conium maculatum*	B
Purple loosestrife	*Lythrum salicaria*	B
Red hawthorn	*Crataegus monogyna*	
Reed canarygrass	*Phalaris arundinacea*	
Scotch broom	*Cytisus scoparius*	B
Tansy	*Tanacetum vulgare*	
Velvet grass	*Holcus lanatus*	
Velvetleaf	*Abutilon theophrasti*	B
Wildlife Species		
Bullfrog	*Rana catesbeiana*	
Nutria	*Myocastor coypus*	
Feral cat	*Felis catus*	
Red-eared slider (turtle)	*Trachemys scripta elegans*	

Table 4-2. Common and Scientific Names of Target Non-native Invasive Species on Refuge

Common Name	Scientific Name	State Noxious Weed*
European starling	*Sturnus vulgaris*	
House sparrow	*Passer domesticus*	
Fish Species		
Bass	*Micropterus* sp.	
Catfish	*Ameiurus* sp.	
Common carp	*Cyprinus carpio*	
Mosquito fish	*Gambusia affinis*	
Sunfish	Family Centrarchidae	

*State B-listed plants are those defined as "a weed of economic importance which is regionally abundant, but which may have limited distribution in some counties" (ODA 2012).

There are species such as reed canarygrass listed in Table 4-2 that are not on the state"s list of noxious weeds but are very problematic for the refuge because of their aggressive nature, difficulty of control, and abundant distribution. This list is not presented in priority order, and some plant species may be treated more aggressively in one season than another depending on staff availability, extent of distribution, or threat presented to native wildlife or habitats. The invasive plant species listed above often form a monoculture and compete with native plants. Many species of native wildlife have evolved with native plants and either cannot use non-native plants or have reduced benefits from them. Many plants such as Himalayan blackberry form very dense thickets that may actually hinder wildlife movement. Reed canarygrass invades wetlands, forming dense monocultures and preventing beneficial native plants from growing. Both purple loosestrife and Japanese knotweed have been found on the refuge and have been vigorously removed before they could become established. Invasive tree species such as English holly and red hawthorn crowd out native species and spread prolifically by means of thousands of seeds annually per tree. These trees are removed as time allows in established habitat types and are vigorously controlled in new restoration areas.

Invasive wildlife regularly observed on the refuge include nutria and bullfrogs. Nutria, a native of South America, were introduced for fur farming and escaped or were released as fur prices dropped. They are well established in our area, and eradication efforts would only be successful if adopted on a regional basis. Climate change may contribute to their spread if winter climate becomes more favorable for breeding and survival. Nutria directly affect wetland and adjacent habitat types by foraging on native plants, and they also affect native wildlife such as muskrats by direct competition and displacement. They affect refuge infrastructure such as levees and water control structures by burrowing into levees, causing leakage through the levees and/or causing cave-ins of dens presenting safety hazards to vehicles traveling on levees; they also burrow along the side of culverts, causing a "piping" effect whereby water leaking along the outside of the pipe erodes the earthen material and causes a washout of the pipe. Lethal means such as shooting and trapping, wherever feasible, are used to control nutria.

Bullfrogs, which are native to the southeastern United States, eat native frogs and many other wildlife species such as ducklings. Bullfrogs thrive in wetlands that retain water year-round and can be at least partially controlled by completely drawing down wetlands during summer. The refuge contains managed wetlands that cannot be completely drawn down due to either incorrectly situated water control structures or incorrectly contoured basins that do not allow for complete drainage.

European starlings are cavity nesters and displace and sometimes kill native cavity nesters such as Western bluebirds, American kestrels, and white-breasted nuthatches.

Photo 4-13. Non-native nutria. Peter Schmidt/USFWS.

The Tualatin River watershed contains many species of non-native fish. These species were either brought in for sport fishing, as commercial species, or were accidentally introduced. Non-native fish displace and compete directly with native species by preying on native species, and/or disrupting native plant growth. Sunfish may eat larval amphibians and native fish, carp eat submergent vegetation important to wildlife species and cause turbidity, which further reduces plant growth, and bass eat native fish and wildlife species. Completely drawing down wetlands in summer may help reduce these species on a site-specific basis, but they likely will not be eradicated in the watershed as a whole. As mentioned above in the discussion on bullfrogs, drawing down the wetlands completely would help reduce non-native fish on a localized basis but is not a likely scenario. Screening water diversions from creeks and the river would help reduce the presence of non-native as well as native fish in wetland areas.

Nuisance species on the refuge may include such native animals as beavers, elk, Canada geese, and others, depending on circumstances. Beavers are native and are encouraged in most areas. However, they can become problematic by plugging up water control structures on a daily basis or cutting down trees in restoration areas. Sometimes it is necessary to control beavers using lethal means. Relocation is seldom successful as most suitable beaver habitat is already occupied and problem beavers are likely to return to their original capture site. Elk have not been a problem on the refuge to date, but with acquisition and restoration of large tracts of land in the Wapato Lake Unit this may be an issue in the future. ODFW considers the Willamette Valley an “elk de-emphasis zone” to prevent conflicts with agricultural interests. A population of elk residing on refuge lands and foraging on neighboring agricultural lands would cause conflict with neighboring landowners. In addition, elk crossing Highway 47 or Springhill Road to and from refuge property would create a safety hazard to vehicles.

4.7 Wildlife and Habitat Research, Inventory, and Monitoring

There are several regular inventory and monitoring surveys, and occasional research studies, conducted on the refuge. Table 4-3 lists the regular surveys that are conducted almost every year to determine habitat conditions, restoration/enhancement response to management activities, and wildlife response and population trends. In addition, research is conducted by refuge staff or outside organizations such as universities and USGS to help inform management decisions.

Table 4-3. Regular Surveys Conducted on Refuge Lands and Their Usual Timetables

Habitat Type or Guild	Survey Type	Timetable
American kestrel	Nest box	Spring/early summer
Amphibians	Egg mass	Late winter/spring
Fish	Trapping/identification	Winter/flooding
Marsh birds	Recorded call-back	April-June
Nelson‟s checker-mallow	Inventory	June-July
Shorebirds	Instantaneous scan	April-September
Songbirds	Point count	April-June
Songbirds	Monitoring Avian Production and Survivorship mist netting	May-August
Tree and shrub	Fixed plots: survival and growth	Summer/early fall
Wading birds	Instantaneous scan	Year-round
Waterfowl	Instantaneous scan	September-February
Western bluebird	Nest box	Spring/summer
Wetlands	Transects: plant species/density	Summer/early fall

In addition to surveys listed in Table 4-3, other surveys are conducted periodically by refuge staff and others:

- Mosquito larvae surveys were conducted during summer for several seasons and revealed very low numbers of larvae in refuge wetlands.
- A feasibility study was conducted in 2004 to determine if boxes for cavity nesting waterfowl would be beneficial. The study revealed adequate natural cavities existed on the refuge and brood water was limited.
- A survey for freshwater mussels was conducted in 2009 and revealed the presence of native western pearlshell mussels in Chicken Creek.
- USGS conducted a survey for non-native crayfish and found none in waters in and adjacent to the refuge.
- University researchers conducted a study over a three-year period to inventory small mammals and determine prevalence of hanta virus.
- Extensive surveys have been conducted by qualified volunteers to identify, collect, and catalog plant species throughout the refuge.

- Refuge staff and volunteers have undertaken a project to map invasive plant species throughout the refuge using global positioning system (GPS)/geographic information system (GIS).
- In 2011 the refuge began a collaborative study with USGS and other partners to obtain a detailed topographic survey and water quantity/quality study at the Wapato Lake Unit to guide future restoration efforts.

Chapter 5
Human Environment

USFWS

Chapter 5 Human Environment

5.1 Cultural Resources

Archaeological and other cultural resources are important components of our nation's heritage. The U.S. Fish and Wildlife Service (Service; USFWS) is committed to protecting valuable evidence of plant, animal, and human interactions with each other and the landscape over time. An example of an interaction would be the importance of specific plants to Kalapuya Indians, or the use of fire to burn open spaces that then provided habitat for elk and deer. These interactions may include previously recorded or yet undocumented historic, cultural, archaeological, and paleontological resources as well as traditional cultural properties and the historic built environment. Protection of cultural resources is legally mandated under numerous Federal laws and regulations. Foremost among these are the National Historic Preservation Act (NHPA) as amended, the Antiquities Act, the Historic Sites Act, the Archaeological Resources Protection Act (ARPA) as amended, and the Native American Graves Protection and Repatriation Act (NAGPRA). The Service's Native American Policy of 1994 articulates the general principles guiding the Service's relationships with Tribal governments in the conservation of fish and wildlife resources (USFWS 1994). Additionally, the Tualatin River National Wildlife Refuge (the refuge) seeks to maintain a working relationship and consult on a regular basis with the Tribes that are or were traditionally tied to lands and waters within the refuge.

Since cultural resources encompass many elements and time periods, the following simple temporal divisions were used to distinguish and categorize this brief review of the following resources.

- Pre-recorded history
- Pre-contact Native American traditions
- Post-contact traditions (Native American, Early British, and United States)
- Recent U.S. settlement and economic development period
- Historic and prehistoric sites on the refuge

Cultural resources can be of significant cultural, scientific, and educational importance. It is essential that the Service look beyond compliance with cultural resource laws to ensure protection of these nonrenewable resources. Of critical importance is the development of close working relationships with those that express affinity with the refuge's cultural resources, such as Native Americans, historians, and educators.

There are seven recorded prehistoric sites and six recorded historic sites within the refuge boundaries. Other historic sites and features may exist on the refuge that have not been recorded. Several prehistoric and historic sites and/or features have been recorded within 1 mile of the refuge.

Two of the historic sites within refuge boundaries have been evaluated and determined ineligible to the National Register of Historic Places (NRHP). One site has been determined eligible to the NRHP. It is highly probable that additional archaeological sites will be exposed by human actions or natural causes in future.

5.1.1 Prehistoric and Ethnographic Resources

5.1.1.1 Prehistoric and Ethnographic Setting of the Refuge Region

The meandering Tualatin River and its banks are home to native fish, beaver, deer, raptors, songbirds, and plants, all of which have been impacted as their habitats have been altered due to agriculture, urban development, and changes in land use practices. Yet these resources were abundant when the Atfálat'i (At-fahl-a-ti) Tribe of Kalapuya Indians lived, hunted, and gathered food on the Tualatin River floodplain.

Archaeological research on the refuge has revealed a history of humans hunting and gathering that dates back over 2,000 years. Camas, tarweed, and wapato were some of the most important plant foods. Long before the Wapato Lake Unit of the refuge was turned into an irrigated agricultural area by settlers in the late nineteenth century, it was an important place where all the villages of Atfálat'i Kalapuya gathered in autumn to harvest wapato. The Kalapuya routinely burned the valley floor for a variety of benefits: to increase grazing for game animals such as elk and deer, to maintain and spread camas habitat, to increase production of acorns, and to prepare for tarweed harvest, to name a few.

As Zenk (1976:358) reported:

> … each Tualatin winter-village group had its own tarweed-producing area within which individuals (at least, we would presume, wealthy individuals) owned their own sub-plots. These areas were set on fire about August. Women then went out with rawhide buckets and paddles; the seeds were beaten from the plants into the buckets. It is stated that each "lot" (individually owned plot) might produce 10-20 bushels of seeds.

Understanding these past land uses by the valley's original inhabitants offers critical lessons and has important ramifications regarding habitat restoration and management decisions on the refuge today. What food or tools they could not obtain along the river and its environs, the Kalapuyans obtained via trade with their neighbors. Obsidian, a volcanic rock used to make arrow points, has been found from as far away as the east side of the Cascades. Historical accounts (Zenk 1976) suggest that the Tualatin River Valley, including the area of the refuge, supported at least 20 native winter villages.

Wapato Lake was a major habitation location for the Tualatin Indians, also known as the Wapato Lake Indians, one of approximately 13 groups of Kalapuya people. The territory of the Kalapuyans extended throughout most of the Willamette River Valley as far south as the Umpqua River. Named for the wapato plant that grew in and was harvested from it, Wapato Lake served as a seasonal community gathering place for the bands of Kalapuyans.

The first recorded contact between Euro-Americans and the Kalapuyans occurred in 1812, when the Kalapuyan population may have been as great as 10,000 people. From 1812 to the 1840s, Kalapuyans had many contacts with fur traders. Though it occurred even before recorded contact, the smallpox epidemic of 1782-1783 and the later malaria epidemic of the 1830s had dramatic impacts on the Kalapuyan population, and on other native groups. Other new illnesses soon followed. By the 1850s there were few Atfálat'i left to claim their traditional lands, and the survivors were ultimately removed to the Grand Ronde Reservation.

Euro-American settlers began arriving in the 1840s, displacing the native population and turning the fertile Tualatin River bottomlands to agricultural purposes. Land clearing and the construction of

farming infrastructure such as dikes and ditches drained Wapato Lake and changed the landscape from one of riparian forest to agricultural fields. Towns grew up around the homes of the earliest settlers, intensified by the development of a Portland-to-Corvallis railroad that began in the late 1860s. Many towns bear the names of their founders or influential early landowners (e.g., Gaston, Seghers, Dilley).

Photo 5-1. For thousands of years, the Kalapuya people called Willamette Valley their home. Smithsonian Library (Wilkes 1845:223).

5.1.1.2 Known Prehistoric Sites

There are seven prehistoric archaeological sites recorded on the refuge. These sites are located throughout the refuge on both the Sherwood (three sites) and Wapato Lake (four sites) Units. In addition to the prehistoric sites, there is also a collection of artifacts donated to Portland State University by a private landowner. These artifacts came from property within and immediately adjacent to the refuge. Currently, the status and location of the collection is unknown. Table 5-1 summarizes the sites and surveys.

Table 5-1. Prehistoric Resources within Refuge Boundaries

Site#	Unit	Date Recorded	Site Type	Materials	NRHP Eligibility	Notes
35WN17	Wapato Lake	1977		Recorded based on informants' descriptions	Potentially eligible	State Historic Preservation Office (SHPO) report 11951 (testing)
35WN19	Wapato Lake	1977		Recorded based on informants' descriptions	Potentially eligible	SHPO report 9734 (survey)
35WN29	Wapato Lake	1982	Lithic scatter	Pestle, projectile points, fire-cracked rocks (FCR), charcoal	Potentially eligible	
35WN30	Wapato Lake	1982	Lithic scatter	Obsidian flake, FCR, basalt debitage	Potentially eligible	
34WN43	Atfálat'i	1997	Lithic scatter/FCR/artifact concentration	Period III (40000 BC-250 BC) and Period IV (250 BC-AD 1700)	Eligible	Tested
34WN44	Atfálat'i	1997	Lithic scatter/FCR/artifact concentration		Potentially eligible	
35WN46	Atfálat'i	2001	Lithic scatter		Eligible	Tested

5.1.2 Historic Resources

5.1.2.1 Known Historic Sites

Parcels acquired within the approved boundaries of the Tualatin River National Wildlife Refuge often come with standing structures associated with the area's agricultural history. After being acquired, several of these historic farm complexes and/or residential structures have been

documented and evaluated by the Service's Cultural Resources Branch (Table 5-2). Upon evaluation and determination of noneligibility to the NRHP, the subject buildings may be slated for removal through demolition and salvage if they pose a risk to humans or wildlife. In one case, a historic structure was determined eligible, and the necessary documentary steps were taken to mitigate its removal in compliance with the NHPA.

Photo 5-2. Onion barns are part of the historic structure of the refuge. Nick Valentine/USFWS.

Table 5-2. Historic Resources within Refuge Boundaries

Site Name	Site Type/Features/ Materials/Notes	Condition (integrity)	NRHP Eligibility
Cranfield Homestead	Estimated located as per 1852 General Land Office (GLO) map (GLO 1952)	Some brick/ceramic/glass observed	N/A
McKinney Field	Estimated located as per 1852 GLO map	No existing evidence	N/A
White-Ditmman Onion Barn	Onion barn reflecting agricultural function. A memorandum of agreement (MOA) was prepared to document it before demolition	Demolished	Eligible
Naujock House	Built in 1891 by emigrants from Germany who arrived in the area in 1876. Replaced earlier log house	In use, modified	Not eligible
Naujock Barn and	Gambrel roof barn, built in	Not in use	Not eligible

Table 5-2. Historic Resources within Refuge Boundaries

Site Name	Site Type/Features/ Materials/Notes	Condition (integrity)	NRHP Eligibility
Granary	1930s along with brick building (granary and potato cellar). SHPO recommended retaining or if necessary, salvaging site		
Cereghino Farm Complex	Onion drying barn, house, and outbuildings associated with onion farm complex. House is used for office space and other buildings are used for storage or are vacant		Not evaluated

5.2 Refuge Facilities

There are numerous refuge facilities that require upkeep and maintenance, which are performed by one maintenance employee and volunteers, as available. These facilities serve both the visitor services and biological programs, and range from boundary fencing to residences to public use facilities. In addition, there are structures that serve as offices for other Service programs, such as the Cultural Resources Program Office.

5.2.1 Boundary Fences and Markers

There are approximately 8.4 miles of boundary fence around various tracts of the refuge. The majority of the fencing is around tracts on the Riverboat Unit.

5.2.2 Entrance and Access Points

The primary public entrance to the refuge, opened in 2006, is from Oregon State Highway 99W, between Sherwood and King City. This entrance is allowed through a permit issued by the Oregon Department of Transportation (ODOT) and was constructed according to ODOT specifications, which do not include a deceleration lane from the highway to the refuge or an acceleration lane from the refuge to the highway. This has caused some safety concerns for visitors. Four state highway recreation signs direct visitors into the refuge. A secondary public entrance off of Washington County's Roy Rogers Road provides access to the west side of the Atfálat'i Unit and the Wayside Overlook (see Figure 5-1 and Appendix P, Map 10). There are no other public access points to the refuge. The refuge has provided input to a number of regional trail planning projects that have the potential of connecting to refuge access points. These include Tonquin Trail planning by Metro, a tri-county regional government that serves Multnomah, Clackamas, and Washington Counties; Cedar Creek Trail planning by the City of Sherwood; and West Bull Mountain Concept Plan by Washington County.

Figure 5-1. Public use facilities and regulations.

5.2.3 Administrative Facilities

Administrative facilities are located on the Atfálat'i Unit of the refuge. The 4,058-square-foot refuge headquarters, completed in 2007, includes staff offices and other work area amenities consisting of a documents work area, conference room, reception area, and space for volunteers. New facilities, including the refuge headquarters, Wildlife Center, environmental education shelter, fee collection booth, and parking lots have all been designed and constructed to meet sustainable design standards of the silver level of LEED (Leadership in Energy and Environmental Design). There is a fire suppression pump and a water storage building that serves the public use facilities and refuge headquarters.

There are other refuge buildings being used by Service Regional Office employees as offices including the Cultural Resources Program Office located at the Onion Flats Unit.

The shop area on the Tualatin River Unit contains facilities that include a 3,750-square-foot shop containing the maintenance office, vehicle/equipment repair bays, and tool storage. There are another six buildings located at the shop area that support refuge maintenance functions. These include three pole barns used for equipment storage, a hazardous materials storage building, a wooden lean-to for equipment implement storage, and a storage shed for environmental education materials.

The refuge has numerous barns, outbuildings, and homes (houses and mobile homes) that came with the land when property was acquired. Many of these buildings are in poor condition and need to either be demolished or undergo a complete overhaul to be functional. There are seventeen barns and outbuildings scattered throughout the Sherwood Units and four at the Wapato Lake Unit. Along with the barns and outbuildings, there are two houses and one manufactured trailer on the Sherwood Units, and two homes and one manufactured trailer at the Wapato Lake Unit. Altogether, there are 31 buildings on the refuge.

5.2.4 Roads, Trails, and Parking Areas

Tualatin River National Wildlife Refuge opened its Atfálat'i Unit to the public in 2006 after two years of construction that provided access from adjacent highways and a variety of outdoor wildlife recreation and education features. Roads and parking features include: a 0.3-mile headquarters entrance road and bus turnaround with parking for 60 cars plus three buses/recreational vehicles (RVs); a 0.1-mile wayside entrance road with parking for six cars and one RV; and five bicycle racks. In the fall of 2010, both entry roads and parking lots were upgraded from gravel to a combination of pervious paver parking stalls and asphalted driving lanes—all stormwater flows into a bioswale in the center of the parking areas. The bioswale is designed to both slow the rate of stormwater runoff and provide natural filtration and water quality treatment.

Trail features include: a 1.1-mile year-round trail; a 0.2-mile photography blind spur trail; two foot bridges; a 3.1-mile seasonal trail, which is part of a gravel refuge road used by staff; a plaza overlook; a bioswale overlook; a wetland observation deck; a wayside overlook; a river overlook; a wildlife photography blind; and five environmental education study sites. All trail features were opened with the refuge in 2006, except for the bioswale overlook, which was completed in 2011. Numerous informational, regulatory, and directional signs are located throughout the refuge's public use areas. The refuge is open daily from dawn to dusk. To provide these high-quality facilities and maintain compatible wildlife-dependent recreation, dense riparian vegetation plantings were planted

in 2004 and 2005 along the planned trail corridor. These screens now provide "natural blinds" where visitors can observe wildlife while minimizing disturbance to the wildlife they are enjoying.

There are roads and parking areas that are not open to the public and serve solely administrative functions. Parking lots for the various residences and other structures include tracts on the Riverboat Unit (Harmon and Naujock tracts), Onion Flats Unit (Cereghino tract), Riverboat Unit (Dennis tract), and Wapato Lake Unit (Losey and Beecher tracts) and total 64,826 square feet of gravel and asphalt lots. Administrative roads throughout the refuge total 11.5 miles and are used to access areas for habitat management and maintenance. These roads are mostly gravel and require regular maintenance and upkeep. There is also a concrete road bridge that crosses Chicken Creek on the Atfálat'i Unit.

Photo 5-3. Wetland observation deck. USFWS.

5.2.5 Visitor Facilities

Outdoor facilities are complemented by a state-of-the-art, sustainably built Wildlife Center, which opened in 2008. The Wildlife Center encompasses 6,316 square feet, and includes an exhibit room, environmental education field laboratory, information desk, a Friends of the Refuge nature store, an indoor viewing area, and a multipurpose room. The center is currently open Tuesday through Sunday year-round. The center is typically closed on major holidays and for one to two weeks spanning the New Year holiday. Friends of the Refuge help staff the daily operation of the center by recruiting and training volunteers. The environmental education shelter, designed primarily to provide cover and education space for students visiting the refuge, was completed in the fall of 2010. The shelter can accommodate up to 65 students at a time. Approximately 25 percent of refuge visitors and students visit the Wildlife Center and/or environmental education shelter annually.

Photo 5-4. Wildlife Center. Kim Strassburg/USFWS.

5.2.6 Easements and Agreements

There is an intergovernmental agreement in place between the Service and Metro that has established a framework for the refuge to manage a portion of a property owned by Metro known as the Heritage Pine Natural Area. The property is approximately 50 acres in size, and the Service is performing restoration of a mixture of bottomland riparian forest, herbaceous wetland, and wet prairie habitats. Additionally, the Service is responsible for all funding, restoration, management, operations, and maintenance of the property. This agreement is for 10 years, with the option to extend upon agreement by both parties.

In 1992, the Service purchased a voluntary conservation easement on what is now the Wapato Lake Unit to manage the land for the purpose of habitat restoration. In agreement with the landowner, the refuge has the right to establish or reestablish habitat through various management tools. The purposes of this easement are the preservation and maintenance of wetland and floodplain areas as well as protection and enhancement of plant and animal habitat and populations. Easements are a cost-effective method of conservation, allowing us to work with landowners to protect the habitat on their land.

There are also several access easements that allow staff to access refuge property via private property. These are located at the Onion Flats, Riverboat, and Wapato Lake Units.

Photo 5-5. Water control structure. USFWS.

5.2.7 Dikes, Irrigation, Water Control Structures, and Pump Houses

The refuge manages herbaceous wetlands on several units. To manage these wetlands, the refuge manipulates water levels using a system of dikes, levees, water control structures, and pump houses. For the Steinborn tract on the Atfálat'i Unit, the main source of water is Chicken Creek, which was channelized to facilitate farming and is diverted to an irrigation canal to allow further diversion into specific wetland impoundments. At the point where Chicken Creek enters the refuge, there are fish ladders that were installed to facilitate fish movement past the diversion structure from the river to headwaters. There is also a fish screen in place to prevent fish from moving into the irrigation canal. To move the water through the five impoundments totaling 234 acres, a system of 15 water control structures and 2.23 miles of levees and dikes are used. There is a dilapidated pump that was used prior to refuge acquisition for farming and irrigation purposes. The refuge does not use the pump for its habitat management purposes.

The other tract on the Atfálat'i Unit that has managed wetlands is the Heritage Pine Natural Area, which is managed by the Service under a cooperative agreement with Metro, as described in Section 5.2.6. This unit has one herbaceous wetland of 6 acres that is managed by one water control structure, and receives water only from rainfall.

On the Tualatin River Unit, there are five wetland impoundments totaling 35 acres on the Dennis tract. Four of these are seasonal and rely on rainfall as their source of water. The main impoundment is also seasonal and is fed primarily by rainfall supplemented by a pump that uses water from the Tualatin River. The system for this unit contains one water control structure, the aforementioned pump, and 0.40 mile of levees and dikes.

On the Riverboat Unit, 48 acres make up four wetland impoundments that are managed by a system of two water control structures, three low-capacity wells, and 0.10 mile of levees and dikes. All four

wetlands received their water primarily from rainfall; however, the main wetland unit can also get limited water pumped from the wells.

There is a concrete pumphouse located on the Onion Flats Unit that was historically used for irrigation purposes prior to refuge acquisition. This pumphouse has fallen into disrepair and is not used by the refuge for habitat management purposes.

5.3 Public Use Overview

5.3.1 Public Use Program History

One of Tualatin River National Wildlife Refuge's current management priorities is to "provide high quality opportunities for wildlands and wildlife-dependent recreation and environmental education to enhance public appreciation, understanding, and enjoyment of the refuge's fish, wildlife, habitats, and cultural resources, with emphasis towards urban residents" (USFWS 2003a). This stems from the refuge's establishment under the guidelines of the Service's Urban Refuge Policy (341 FW 1) (Smith 1991), which strives to connect large populations of people to the concept of national wildlife refuges. In addition, the communities surrounding the refuge have expressed a desire for the refuge to provide a natural legacy where future generations can enjoy and learn about the outdoors. This foundation has led to a robust public use program at the refuge. The overarching goals of the visitor services program closely mirror national efforts to implement one of the six highest priorities of the Service, namely "Connecting People with Nature—Ensuring the Future of Conservation" (USFWS 2008b).

5.3.1.1 Visitor Experience

The protection of fish and wildlife and their habitats on the refuge provides the public with high-quality wildlife-oriented recreation, education, and interpretation opportunities. Visitors of all ages can experience the beauty of the Tualatin River Valley, view abundant wildlife, and discover how this urban national wildlife refuge represents the National Wildlife Refuge System (Refuge System). The Wildlife Center serves as a springboard by introducing the public to the refuge and its purposes, helping visitors hone their wildlife observation skills, and encouraging visitors to get outside and experience first-hand the wildlife wonders of the refuge. Throughout their visit, whether walking on trails, participating in an education program, or enjoying exhibits, visitors are reminded that they play a role in the health and future of the refuge, the watershed, the Refuge System, and ultimately of fish and wildlife conservation.

5.3.2 Open and Closed Areas

The Atfálat'i Unit is open year-round during daylight hours for wildlife-dependent recreation and education. Access within this unit is limited to defined public use areas. Most of the use originates from the headquarters parking area and Wildlife Center, and is concentrated along the year-round trail and its associated features (see Figure 5-1 and Appendix P, Map 10). The spur trail to the wildlife photography blind is open year-round by registration only. From May 1 through September 30, visitors are permitted to walk on 3.1 miles of service roads. From October 1 through April 30, these service roads are closed to all public entry to provide sanctuary for wildlife.

All other areas of the refuge are currently closed to public use.

5.3.3 Annual Visitation

Demand for interpretive and educational programs has soared, and visitation has been increasing steadily since the refuge opened to the public in 2006. Current visitation is approximately 100,000 people per year, 4,000 of whom participate in formal, curriculum-based education programs (USFWS 2010a). Since the Wildlife Center opened in 2008, it has received as many as 25,000 annual visitors. Projections indicate that refuge public facilities could serve an estimated 200,000 to 300,000 visitors annually (USFWS 2003b).

5.3.4 Entrance and User Fees

In 2009, the refuge received official approval to establish an entrance fee program, but it has not implemented one to date (USFWS 2009a). Implementation of a fee program remains a possibility in the future and has been described in Chapter 2, Section 2.3, "Description of Management Direction."

A fee booth was constructed in 2008, but is currently unused. Each of the three trailhead kiosks include a fee canister and a sign explaining a potential future fee program.

5.3.5 Accessibility of Recreation Sites and Programs to Disabled Persons

Except as noted below, all refuge public use facilities are accessible to disabled visitors and conform to standards set forth in the Architectural Barriers Act (42 U.S. Code 4151 et seq.).

The exceptions are:

- The 200-yard spur trail to the Ridgetop Overlook reaches a maximum grade of 20 percent, but is designed to be wheelchair-accessible in all other respects.
- The 3.1 miles of service roads open to seasonal public use consist of uneven gravel surfaces.

5.3.6 Volunteers

The refuge has a robust volunteer program that is essential to maintaining current refuge operations. With the exception of law enforcement, personnel management, contracting, and select other functions prohibited by law, volunteers are involved in almost all aspects of the refuge's visitor services and habitat and wildlife programs. In fiscal year 2010, volunteers donated over 15,000 hours of support to the refuge (USFWS 2010a). This equals more than seven full-time personnel and is valued at more than $327,000 (national volunteer value = $21.79/hour [Independent Sector 2011]). Over 75 percent of the hours contributed were in support of wildlife-dependent public uses.

Photos 5-6 and 5-7. Volunteers assist with many aspects of refuge operations. USFWS.

5.4 Wildlife-dependent Public Uses

5.4.1 Hunting

Currently, hunting is not offered on the refuge.

5.4.2 Fishing

Currently, fishing is not offered on the refuge.

5.4.3 Wildlife Observation and Photography

The refuge provides a variety of facilities and programs that support high-quality wildlife observation and photography. Both the year-round and seasonal trails offer overlooks and observation points. For a complete description of trail lengths and features, refer to Section 5.2.4, "Roads, Trails, and Parking Areas." Nearly 70,000 pedestrians used the trails in fiscal year 2010. In addition, the refuge is a stop along the Willamette Valley Birding Trail and has been designated by the Audubon Society as an Important Bird Area.

The wildlife photography blind can be reserved at no charge on Wednesdays, Saturdays, and Sundays. The blind can accommodate two photographers at a time. Wildlife observation supporting materials are available to visitors, and include a spotting scope (indoor viewing area), Discovery Packs (loaner field guides and binoculars at no charge), wildlife sightings register, and refuge Watchable Wildlife checklist. In addition, numerous interpretive signs along the trail and within the Wildlife Center are designed to help visitors develop wildlife observation skills and learn about the specific wildlife and habitats of the refuge. The Wildlife Center also includes a gallery hall with a picture hanging system that primarily highlights refuge wildlife and nature photographs from photography contests, calendar entries, and student projects. Nearly 1,800 people participated in wildlife photography activities in fiscal year 2010.

Programs offered for wildlife observation and photography activities include partner-led bird walks, Friends of the Refuge's Tualatin River Photographic Society (workshops, trainings, monthly meetings, and nature photography contests), plant walks led by a volunteer botanist, and others as staff/volunteers are available. Additionally, Volunteer Trail Rovers welcome, meet, and interact with visitors along the trail, report wildlife sightings and visitor contacts, and help ensure visitor compliance with refuge rules.

Photo 5-8. Sunset wildlife watcher. Kim Strassburg/USFWS.

5.4.4 Environmental Education

The refuge, in coordination with local educators, has developed a robust curriculum-based environmental education program that is blossoming into a metropolitan resource for teachers, students, youth group leaders, and families. The environmental education program is a key focus of refuge public use activities.

In 2005, the refuge and Friends of the Refuge partnered with a team of elementary and middle school teachers to develop and implement an environmental education program that would be in place by 2006, when the refuge was to open to the public. The result was a written curriculum called *Rhythms of the Refuge: Open Your Eyes to Wildlife*. This curriculum includes a field trip guide and pre-visit, on-site, and post-visit lessons for kindergarten through eighth-grade students. The refuge also supports the use of and offers workshops for national curricula such as *Project Wild*; *Project Flying Wild; Project Learning Tree*; *Growing Up Wild*; *Project Aquatic Wild*; *and 4H Wildlife Stewards*. Modeled after other national wildlife refuge programs, the curriculum is paired with required teacher workshops that prepare educators to bring their students to the refuge, relying on teachers to lead field trips and refuge volunteer naturalists to assist and accompany class visits. The day-to-day coordination of the education field trip program is generally managed by interns, grant-funded short-term staff, and volunteers. Environmental education training for staff/volunteers consists of a four-day class for volunteer naturalists; on-the-job shadowing for interns; coaching by refuge staff and long-term volunteers; online college courses for staff/interns; and regional workshops/trainings with partners. The emphasis on training has resulted in a high-quality program that follows national and statewide standard practices for environmental education.

The refuge offers facilities and equipment specifically in support of the environmental education program. These include a classroom and student patio that accommodates 36 students; the environmental education shelter, which accommodates 65 students; trailhead restrooms; five study sites along the year-round trail, each of which accommodates 15 students at a time and provides exposure to different habitat types on the refuge; learning materials (e.g., study skins, microscopes, craft supplies); and field investigation equipment (e.g., binoculars, field guides, water quality test kits).

The education program has developed strong partnerships within the community that facilitate quality education. Examples of partners include Friends of the Refuge, Oregon Natural Resources Education Program (Oregon State University), Sherwood School District, 4-H (Oregon State University), Tualatin Riverkeepers, Sherwood Foundation for the Arts, and YMCA of Sherwood.

On-site programs: In fiscal year 2010, the refuge provided teacher workshops for 280 educators. Those who attend the workshops can register their classes to visit the refuge for a field trip. A maximum of 70 students, plus required chaperones, can be accommodated at any given time. In fiscal year 2010, 1,306 students participated in on-site field trip programs. Although no formal program is offered for high school and college students, the refuge will tailor a visit based on the needs of the students/classes. Local schools occasionally transport physically and learning-disabled students to the refuge for short walks and/or visits to the Wildlife Center. No programs currently exist for these students; however, volunteers will welcome and orient groups as needed. The refuge also draws youth groups for whom learning occurs outside the formal school day. Examples include boy/girl scouts, after-school clubs, summer youth programs and day camps, and pre-school. In fiscal year 2010, 917 students attended informal youth programs.

Off-site programs: The refuge participates in off-site programs when funding and staff are available. Examples of such programs include school-based nature festivals/events, outdoor schools, career days, and special requests. In fiscal year 2010, 1,665 students participated in off-site environmental education programs.

Photo 5-9. Students explore and learn at the refuge. USFWS.

5.4.5 Interpretation/Outreach

The refuge has a variety of interpretive and informational media and programs that strive to accomplish a number of objectives, such as welcoming and orienting visitors; conveying the importance of native wildlife, their habitats, and the interconnectedness of lands and waters; encouraging nature exploration and appreciation; exploring the refuge's cultural history; describing the refuge's resources; introducing the Refuge System; and describing ways in which people are part of and can help care for the natural environment. All interpretive approaches follow the basic tenets of the Service's Interpretive Development Model (605 FW 7, Interpretation). Staff and volunteers are offered training in interpretive techniques.

Interpretive facilities include a 1,200-square-foot exhibit hall within the Wildlife Center; numerous outdoor interpretive panels, kiosks, sculptural elements, and trailside signs; temporary exhibits in the atrium of the Wildlife Center; and publications such as general leaflets and trail maps. Outreach tools include the refuge website; online and printed calendar postings by local partners such as Washington County Visitors Association and Metro Greenscene; newspaper articles and radio spots; flyers; complementary online media such as the Friends of the Refuge website and Facebook page; and the Tualatin River Bird Festival website.

A number of "in-person" interpretive programs are typically offered throughout the year, generally led by staff, volunteers, and partners. These are scheduled opportunistically depending on staff and volunteer availability and expertise. Nearly 2,500 people attended interpretive programs in fiscal year 2010. These programs included owl prowls; nature tours; plant identification walks; birding tours;

Puddle Stompers pre-school program; and workshops (e.g., rain gardens, birding). Oftentimes, other organizations bring visitors in large groups to either participate in refuge-led activities or to participate in wildlife-dependent activities on their own (e.g., senior groups, Audubon Society outings, walking clubs). The refuge requires that groups larger than 15 people but not exceeding 50 people register ahead of their visit, and while at the refuge, follow a certain set of requirements. Key requirements include breaking large groups into groups of 15 or fewer people and staggering these smaller groups along the trail; encouraging carpooling; and not charging participants commercial guiding fees. The refuge does acknowledge that group organizers may recover operating costs, such as transportation, for visits to the refuge.

Several on-site special events occur on the refuge. The primary event, held annually in May, is the Tualatin River Bird Festival, which is hosted in partnership with Friends of the Refuge. Starting in May 2011, the event grew from a one-day festival with an average of 700 attendees to a three-day festival that attracted over 3,500 participants. Other smaller events, offered less frequently, include National Wildlife Refuge Week, Spring Break Exploration Days, Family Adventure Days, and a native plant sale, attracting 100 to 200 participants each. Refuge staff and/or volunteers attend local off-site special events as schedules and funding allow. Common off-site venues include nature festivals and health fairs, reaching 300 to 500 people annually.

Photo 5-10. Interpretive programs connect visitors to refuge resources. Bjorn Fredrickson/USFWS.

5.5 Non-wildlife-dependent Recreation

Non-wildlife-dependent recreation activities are not permitted on the refuge. Kiosks, brochures, and informational and regulatory signs articulate prohibited activities.

5.6 Illegal Uses and Law Enforcement

Law enforcement issues that currently occur on the refuge are primarily trespass in closed areas, presence of dogs, jogging and bicycling, and other non-wildlife-dependent uses. Other illegal uses

include low-flying aircraft, trash dumping, theft (vehicle break-in, stolen gas and tools), and using the refuge facilities to access and steal from neighboring business. These illegal uses persist due to lack of public knowledge and support as well as limited law enforcement capability. Currently there is a zone law enforcement officer stationed at the refuge, but their duties require them to be frequently off-site.

5.7 Area Outdoor Recreational Opportunities and Trends

5.7.1 Nearby Recreational Opportunities

The refuge lies just 15 miles southwest of downtown Portland and is located within the Portland metropolitan area, which is known for its natural areas and parks. Metro boasts over 16,000 acres of protected lands, most of which are open to the public. In addition, the greater Portland area is home to thousands of acres of local/city parks, gardens, arboretums, state and local wildlife areas, state parks, nature centers, multi-use trails, and the 5,000+ acre Forest Park. Many of these areas are connected by bike, pedestrian, and boat corridors. These nearby facilities provide a wide range of recreational opportunities such as hiking, bicycling, wildlife observation, fishing, hunting, picnicking, environmental education, interpretation, guided nature tours, outdoor photography, nature festivals, camping, canoeing/kayaking/rafting, sports, and agritourism sites (e.g., vineyards and "u-pick" produce and tree farms). Portland sits at the mouth of the Columbia River Gorge Scenic Area and is the closest major city to Mount Hood and Willamette National Forests. The highways that skirt the refuge are major corridors providing access to the Oregon coast.

5.7.2 Outdoor Recreation Trends and Demographics

Participation in wildlife-associated recreation has been measured by the Service to determine trends and economic impacts, both at national and state levels. The latest survey, completed in 2006, found that 87.5 million (over 38%) of U.S. residents 16 years and older participated in wildlife-related recreation. During that year, 30.0 million people fished, 12.5 million hunted, and 71.1 million participated in at least one type of wildlife-watching activity such as observing, feeding (e.g., backyard bird feeders), or photographing fish and other wildlife in the United States. Participation by Oregonians is higher than the national average. In 2006, 53 percent of Oregonians participated in wildlife-associated recreation, both within and outside of Oregon. More specifically, 44 percent of Oregonians participated in wildlife-watching and 19 percent in hunting and fishing (U.S. Department of the Interior [USDOI] et al. 2007).

Oregon Parks and Recreation Department (OPRD) is responsible for providing guidance, information, and recommendations to Federal, state, and local units of government, as well as the private sector, in making policy and planning decisions regarding outdoor recreation in Oregon. They do this in the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The latest SCORP is a five-year plan covering outdoor recreation in Oregon from 2008 through 2012 (OPRD 2008).

The OPRD began the SCORP planning process in September 2005. The agency took a proactive approach in addressing a limited number of previously identified and defined issues. Key findings from the 2008-2012 SCORP and the 2005-2014 statewide trails planning efforts identified a number of important demographic and social changes specifically facing outdoor recreation providers in the coming years, including: 1) a rapidly aging Oregon population, 2) fewer Oregon youth learning outdoor skills, and 3) an increasingly diverse Oregon population. An additional identified issue

related to human health is the physical inactivity within the population. Key findings especially relevant to the Service regarding these issues are summarized below.

A Rapidly Aging Oregon Population

- On average across all activities, respondents expect to spend 28 percent more days recreating 10 years from now than they currently do.
- The most popular outdoor recreation activities for Oregonians between the ages of 42 and 80 included walking, picnicking, sightseeing, visiting historic sites, and ocean beach activities. A comparison across age categories for the top five activities by the level of participation leads to the following conclusions: Walking is the top activity across all age categories (40-79); jogging is a top activity between the ages of 40-59, but is also popular for those in their 70s; bicycling is a top activity between the ages of 40-64; sightseeing is a top activity between the ages of 45-74; bird watching is a top activity between the ages of 55-79; and RV/trailer camping is a top activity between the ages of 55-74.
- The top five activities in terms of future participation intensity 10 years from now included walking, bicycling, jogging, bird watching, and day hiking.
- Ensuring clean and well-maintained parks and facilities was the most important management action leading to a large increase in recreation, followed by developing walking/hiking trails closer to home and providing more free-of-charge recreation opportunities.
- Over a third of Oregon Boomers, people born between 1946 and 1964, and Pre-Boomers, who were born between 1926 and 1945, volunteered in their community, with an average time commitment of 5.3 hours per week. Of those who volunteered, 43 percent expect future changes in their volunteer activities, with most of the changes involving greater volunteerism: more time, more projects at current volunteer opportunities, and new volunteer opportunities.

Fewer Oregon Youth Learning Outdoor Skills

- The most popular outdoor activities for parents were walking, viewing natural features, and relaxing/hanging out. For children, the most popular were walking, followed by outdoor sports/games, relaxing/hanging out, and general play at neighborhood parks/playgrounds.
- The more a parent engages in an outdoor recreation activity, the more their child does. Participation varies across child age, with both the number of activities and the number of activity-days peaking among 12 to 14 year olds and decreasing for 15 to 17 year olds.
- Rural children spend more days, on average, in outdoor activities relative to urban and suburban children. Suburban children spend the least amount of days engaged in outdoor activities. Outdoor abilities have decreased more, on average, among urban and suburban households.
- Outdoor sports programs and day camps were the most popular types of outdoor recreation programs with respect to past participation. Many parents indicated that it was very likely their children would participate in outdoor sports programs (62%), multiday camps (49%), outdoor adventure trips (45%), and day camps (45%) in the future.

An Increasingly Diverse Oregon Population

- Walking for pleasure was the most common favorite activity for both Hispanics and Asians, with fishing and soccer being the next most common for Hispanics and hiking and fishing the next most common for Asians.
- Both Hispanic and Asian study respondents most commonly did their favorite activity with members of their immediate family. Asians were more likely than Hispanics to do activities alone, as were older respondents relative to younger respondents.
- The most common location for Hispanic and Asian respondents to do their favorite activity was in a park or other area outside their town or city. Males were more likely than females to engage in their favorite activity further from home.
- Survey results suggest that both the Hispanic and Asian populations in Oregon engage in outdoor recreation less than the general population.
- Walking for pleasure was also the activity respondents spent the most days engaged in during the past year. Hispanics engage more intensely than Asians in jogging/running, day hiking, picnicking, fishing, viewing natural features, visiting nature centers, and visiting historic sites.
- The most common activities respondents would like to do more often, or start doing, were walking for Asians and walking and camping for Hispanics. The factor that would most help make this happen is availability of partners, followed by more time.
- For the Hispanic population, being in the outdoors, relaxing, and having fun were the most important motivators or reasons for participating in outdoor activities. For the Asian population, relaxing, fitness, and having fun were the top motivators.
- Ensuring clean and well-maintained parks and facilities were the most important management action, followed by keeping parks safe from crime and providing more free-of-charge recreation opportunities and expanded facilities.

Several management recommendations from the SCORP are relevant to the types of outdoor recreation Tualatin River National Wildlife Refuge provides; relevant recommendations from the SCORP are as follows:

- Develop accessible trails in remote settings in close proximity to urban areas of the state.
- Create a statewide interagency volunteer information website or other communications medium to match Boomer volunteers with recreation or natural resource projects in Oregon.
- Greater priority for trail acquisition and development projects in OPRD-administered grant program (Multnomah, Clackamas, and Washington Counties are considered “high priority” based on increase in aging population).
- Develop a statewide youth outdoor programming framework and funding source to focus youth programming efforts across Oregon to address a specific set of key measurable objectives.
- Create a new Outdoor Recreation Section within Oregon Recreation and Park Association addressing the areas of outdoor recreation and environmental education.
- Provide funding and assistance for innovative park designs to connect youth with nature in high-priority counties and communities … in OPRD-administered grant programs (Multnomah, Clackamas, and Washington Counties are considered “high priority” based on increase in youth population).
- Encourage organizational cultural change within public recreation agencies/organizations to effectively address the diversity issue.

- Develop recommendations for addressing language barriers to encourage underrepresented population use of outdoor recreation facilities and programs
- Create a customer service training module related to serving the outdoor recreation needs of an increasingly diverse population.
- Develop and implement a regional youth framework to encourage underrepresented youth participation in outdoor recreation activities through partnerships and investments in school-based recreation clubs.

5.8 Socioeconomic Environment

5.8.1 Population and Area Economy

Oregon's population (3,782,991) ranks twenty-seventh in the nation. State land area covers 95,997 square miles compared to 3,537,438 square miles (United States), with a population density of 40 persons per square mile compared to 87 nationwide. Located in Washington and Yamhill Counties, Tualatin River National Wildlife Refuge is a 30-minute drive from downtown Portland and only minutes away from the Cities of Sherwood, Tigard, Tualatin, Newberg, Forest Grove, and Hillsboro.

The greater Portland metropolitan area, including Washington, Multnomah, Clackamas, Yamhill, and Marion Counties, is the economic hub for the refuge. Table 5-3 shows the population and area economy. Between 1999 and 2009, the population of Oregon increased 11 percent compared with a 10 percent increase for the United States as a whole. Employment for Clackamas, Marion, and Yamhill Counties increased at a greater rate (see Table 5-3) compared to the rest of Oregon (8 percent) and the United States (8 percent). Only Yamhill and Marion Counties exceeded the increase in per capita income compared with Oregon and the United States as a whole (USFWS 2011b).

Table 5-3. Tualatin River National Wildlife Refuge Summary of Area Economy, 2009

	Population		Employment		Per Capita Income	
	2009	Percent change 1999-2009	2009	Percent change 1999-2009	2009	Percent change 1999-2009
Clackamas County	386.1	15%	219.2	18%	$44,362	−1%
Marion County	318.0	13%	173.2	10%	$33,415	5%
Multnomah County	726.9	11%	560.5	4%	$41,154	3%
Washington County	537.3	23%	284.1	6%	$40,112	−3%
Yamhill County	99.0	17%	44.0	13%	$33,434	9%
Oregon	3,825.7	11%	2,202.7	8%	$36,785	4%

Table 5-3. Tualatin River National Wildlife Refuge Summary of Area Economy, 2009

	Population		Employment		Per Capita Income	
	2009	Percent change 1999-2009	2009	Percent change 1999-2009	2009	Percent change 1999-2009
United States	307,006.6	10%	173,809.2	8%	$40,285	9%

Source: U.S. Department of Commerce 2011.

Note: Population and employment are in thousands; per capita income in 2010 dollars.

Document continues on the following page.

Appendices

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Appendix A Appropriate Use Findings and Justifications

USFWS

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Appendix A. Appropriate Use Findings

Introduction

The Appropriate Refuge Uses Policy (603 FW 1), finalized in 2006, outlines the process that the U.S. Fish and Wildlife Service (USFWS; Service) uses to determine when general public uses on refuges may be considered. Priority public uses, previously defined as wildlife-dependent uses under the National Wildlife Refuge System Improvement Act of 1997 (hunting, fishing, wildlife observation and photography, environmental education and interpretation), are generally exempt from appropriate use review. Other exempt uses include situations where the Service does not have adequate jurisdiction to control the activity and refuge management activities. Other existing, proposed, or requested public uses are required to undergo the appropriateness screening.

The policy provides refuge managers with a consistent procedure to screen and document decisions concerning public uses, with the use of the following questions:

a) Do we have jurisdiction over the use?
b) Does the use comply with applicable laws and regulations (federal, state, tribal, and local)?
c) Is the use consistent with applicable executive orders and Department and Service policies?
d) Is the use consistent with public safety?
e) Is the use consistent with goals and objectives in an approved management plan or other document?
f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?
g) Is the use manageable within available budget and staff?
h) Will this be manageable in the future within existing resources?
i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?
j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality, compatible, wildlife-dependent recreation into the future?

Uses marked "no" for questions (a) or (b) are not evaluated further. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. When a use is determined to be appropriate, a refuge manager must then decide if the use is compatible before allowing it on a refuge.

The following forms show which uses have been determined appropriate and which determined not appropriate. Narrative answers for negative findings follow the forms.

Appropriate Use Justification, Attachment 1

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Bicycling/Jogging

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✓
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✓ Appropriate ____

Refuge Manager: Eric Palmer Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge (the refuge)

Use: Bicycling/jogging on the refuge

Summary: Jogging and bicycling are currently not allowed on the refuge. However, the refuge gets occasional requests to allow these uses, including opportunities to connect the refuge with regional trail systems. These uses have been determined to be not appropriate at the current time.

Further explanation of the answers from US. Fish and Wildlife Service (USFWS) Form 3-2319 is provided below:

(e) These uses are not consistent with the goals and objectives of the comprehensive conservation plan (CCP) due to the potential for joggers and bicyclists to disturb wildlife or interfer with other priority wildlife-dependent public uses.

(f) While the 2003 refuge environmental assessment (EA) (USFWS 2003a) for the Wildlife Center and visitor services facilities addressed several activities and limited trail use to foot traffic only, it did not specifically address jogging or bicycling.

(g) and (h) Due to the urban nature of the refuge, the potential demand for these uses would be very high. The amount of oversight needed to adequately carry out this activity would require additional resources that are not available with current resources.

(i) The uses present no benefits to the refuge's natural or cultural resources and are not thought to contribute to the public's understanding or appreciation of those resources.

(j) Currently, these uses cannot be accommodated without impairing existing wildlife-dependent recreational uses. Animals show greater flight response to humans moving unpredictably than to humans following a distinct path. Also, rapid movements by joggers and cyclists are more disturbing to wildlife than slower moving hikers. Burger (1981) examined the effects of human activity on roosting and migrating birds at a coastal bay refuge along the Atlantic coast. Human activities that involved rapid movements or close proximity to roosting birds, such as jogging, even on pathways, caused the birds to flush; in comparison, slow-walking bird watchers and people walking on paths around ponds did not usually cause birds to flush.

However, as stated under Objective 10.4 of this CCP (Chapter 2), we will explore opportunities with partners to connect with regional trails while ensuring the uses minimize disturbance. At that time, we would re-evaluate the appropriateness of the uses.

References

Burger, J. 1981. The effects of human activity on birds at a coastal bay. Biological Conservation 21:231-241.

USFWS (U.S. Fish and Wildlife Service). 2003a. Tualatin River National Wildlife Refuge environmental assessment, Wildlife Center and visitor services facilities, Washington County, Oregon. U.S. Fish and Wildlife Service, Portland, OR. 318 pp.

Appropriate Uses Justification, Attachment 2

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Boat Access

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✓
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✓ **Appropriate** ____

Refuge Manager: Eric Hake Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: [signature] Date: 4/25/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Boat access

Summary: Access to or from the refuge by boat is currently not allowed. However, the refuge receives occasional requests to allow this use, including opportunities to connect the refuge with future planned water trail systems. This use has been determined to be not appropriate at the current time.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(d) No safe facilities currently exist for providing boat access to and/or from the refuge. River banks are steep and slippery and create a significant safety risk, especially when rainy or when river levels are running high.

(f) An assessment for provision of a boat launch facility off of Roy Rogers Road was conducted in the refuge environmental assessment for the Wildlife Center and visitor services facilities (USFWS 2003a). This use was examined but eliminated from further study for a number of reasons, including considerable resource damage that would occur to construct a boat launch that was safe and accessible; impacts to fish and riparian species; and the potential of other jurisdictions to provide nearby river access points.

(g) and (h) Due to the urban nature of the refuge, the potential demand for this use would be very high. The amount of oversight needed to adequately carry out this activity would require additional resources that are not available now or in future budget and staff projections. Also, construction would need to occur to develop a boat launch and this most likely would cause direct resource damage.

(j) Currently the use cannot be accommodated without impairing existing wildlife-dependent recreational uses. However, as stated under Objective 10.4 in this CCP, the refuge will "partner with interested parties/organizations to identify potential locations for one public river access for nonmotorized boats in or near the refuge." At that time, if a location is identified on the refuge, refuge staff would re-evaluate the appropriateness of the use.

References

USFWS. 2003a. Tualatin River National Wildlife Refuge environmental assessment, Wildlife Center and visitor services facilities, Washington County, Oregon. U.S. Fish and Wildlife Service, Portland, OR. 318 pp.

Appropriate Uses Justification, Attachment 3

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Commercial or Recreational Trapping

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✓ **Appropriate** ____

Refuge Manager: Eric Halmay Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: [signature] Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Commercial or recreational trapping

Summary: Commercial and/or recreational trapping does not contribute to the goals of the refuge and would require more oversight from staff than is currently available. This use was determined to be not appropriate.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(e) There are no refuge management plans that address commercial or recreational trapping. This use is not consistent with the goals and objectives as written in the CCP. The use would significantly conflict with wildlife.

(g) and (h) Current limited budget and staff time would be diverted from priority wildlife-dependent public use and management activities to administer commercial or recreational trapping activities. Future management of commercial or recreational trapping would not be achievable with existing resources. Providing appropriate oversight of the use would exceed existing and future projections of budget and staff.

(i) Commercial or recreational trapping would not contribute to the public's understanding and appreciation of cultural or natural resources.

Appropriate Uses Justification, Attachment 4

Finding of Appropriateness of a Refuge Use

Refuge Name: Tualatin River National Wildlife Refuge
Use: Commercial Visitor Services

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (federal, state, tribal, and local)?	✓	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public's understanding and appreciation of the Refuge's natural or cultural resources, or is the use beneficial to the Refuge's natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No _X_

When the refuge manager finds the use **appropriate** based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate__X___

Refuge Manager: Eric Hake Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Date: 4/23/13

A compatibility determination is required before the use may be allowed. **FWS Form 3-2319 02/06**

Refuge: Tualatin River National Wildlife Refuge

Use: Commercial visitor services

Summary: Commercial visitor services on the refuge cover a broad range of wildlife-dependent recreation and education activities that are led by any organization or individual that charges a fee to participate in the activity. Activities could include, but are not limited to: birding tours, plant identification, wildlife photography, art, interpretive programs, guided trail walks, training workshops, summer youth camp, nature classes, and other similar non-consumptive uses. These uses will occur in areas and facilities that are open to the public and will support the identified wildlife-dependent public uses of the refuge. Organizations conducting commercial visitor services will require a Special Use Permit (SUP), except for the Friends of Tualatin River Refuge (Friends) for which commercial activities are governed by statute under an existing Memorandum of Understanding.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(c) As defined in federal regulations (50 Code of Federal Regulations [CFR] 29.1), a commercial recreational use is a use that generates revenue or that results in a commodity that is or can be sold for income or revenue.

The Appropriate Use policy (603 FW 1) specifically references commercial uses of this kind. The policy states that "Commercial uses of a refuge may be considered appropriate if they are a refuge management economic activity (see 50 CFR 25.12), if they directly support a priority general public use, or if they are specifically authorized by statute."

(d) Through SUP review and/or coordination with the Friends of the Refuge group, the refuge will ensure that each approved activity is consistent with public safety. If necessary, stipulations to ensure public safety will be included in the project's SUP.

(e) The use is consistent with Goals 10, 11, and 12 of the CCP. Requests will be approved in instances where they can provide meaningful public appreciation of natural resources in support of the refuge's wildlife-dependent recreation and education programs.

(j) The refuge will ensure that the activities do not impair existing or future wildlife-dependent recreational use of the refuge during individual project review, prior to issuing SUPs and/or approvals.

Appropriate Uses Justification, Attachment 5

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Cooperative Farming

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✓
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate ✓

Refuge Manager: Eric Hahn Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Cooperative farming on the refuge

Summary: Cooperative farming is currently allowed on the refuge. Seventy percent of small grain croplands (corn, wheat, barley, and oats) are harvested, while 30 percent are left standing, and green pastures (clover and hay grass) are harvested and mowed at less than 4 inches in the fall for grazing waterfowl. Cooperative farming is an interim management tool used to control invasive plant species. This use has been determined to be appropriate.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(e) Cooperative farming is consistent with Goal 7 in Chapter 2 of the CCP. Cultivating and maintaining small croplands helps control non-native invasive species such as reed canarygrass and Himalayan blackberry prior to restoration of native habitats.

(f) The use is ongoing on the Onion Flats and Wapato Lake Units of the refuge as an interim management tool prior to restoring acquired lands.

(g) Cooperative farming is conducted by local growers who incur all costs associated with growing and harvesting crops. The cooperator is responsible for all aspects of farming including site preparation, seeding, application of any fertilizers or herbicides, harvesting, and any follow-up work necessary to remove the crop or prepare the field for the following year. Cooperators are required to leave a share of crops as determined by a cooperative agreement.

(i) As mentioned in the description of the management direction in Chapter 2 of this CCP, cooperative farming contributes to the public's understanding and appreciation of the refuge's natural resources by providing public use and focus on habitat restoration.

Appropriate Uses Justification, Attachment 6

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Dog walking and training

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✓

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✓ Appropriate ____

Refuge Manager: Eric Hahn Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: [signature] Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Dog walking and training

Summary: Dog walking and training have been determined to be not appropriate due to wildlife disturbance and lack of a contribution to the refuge's cultural or natural resources. This use is not considered a wildlife-dependent use.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(e) The amount of disturbance that would be created by these uses is considered inconsistent with other goals and objectives in the CCP.

(i) These uses are not likely to contribute to public understanding of the refuge's natural or cultural resources. The uses are not likely to be beneficial to the refuge's natural or cultural resources, and could be detrimental to those resources.

(j) It is likely that these uses would degrade the quality of the visitor experience and would impair existing wildlife-dependent uses. Dogs elicit a greater response from wildlife than people on foot alone (Hoopes 1993; MacArthur et al. 1982). The presence of dogs may flush incubating birds from nests (Yalden and Yalden 1990), disrupt breeding displays (Baydack 1986), disrupt foraging activity in shorebirds (Hoopes 1993), and disturb roosting activity in ducks (Keller 1991). For mule deer in Colorado, the presence of a dog resulted in a greater area of influence, alert and flush distance, and distance moved than when a pedestrian was alone (Miller et al. 2001). Many of these authors indicated that dogs with people, dogs on leash, or loose dogs provoked the most pronounced disturbance reactions from their study animals. Indirectly, domestic dogs can also potentially introduce diseases and transport parasites into wildlife habitats (Sime 1999).

References

Baydack, R.K. 1986. Sharp-tailed grouse response to lek disturbance in the Carberry Sand Hills of Manitoba. Colorado State University. Fort Collins, Colorado.

Hoopes, E.M. 1993. Relationship between human recreation and piping plover foraging ecology and chick survival. M.S. thesis. University of Massachusetts, Amherst, MA.

Keller, V. 1991. Effects of human disturbance on eider ducklings *Somateria mollissima* in an estuarine habitat in Scotland. Biological Conservation 58:213-228.

MacArthur, R.A., V. Geist, and R.H. Johnston. 1982. Cardiac and behavioral responses of mountain sheep to human disturbance. Journal of Wildlife Management 46:351-358.

Miller, S.G., R.L. Knight, and C.K. Clinton. 2001. Wildlife responses to pedestrians and dogs. Wildlife Society Bulletin 29:124-132.

Sime, C.A. 1999. Domestic dogs in wildlife habitats. Pages 8.1-8.17 in: G. Joslin and H. Youmans, coordinators. Effects of recreation on Rocky Mountain wildlife: a review for Montana. Committee on Effects of Recreation on Wildlife, Montana chapter, Wildlife Society. 307 pp.

Yalden, P.E. and D. Yalden. 1990. Recreational disturbance of breeding golden plovers (*Pluvialis apricarious*). Biological Conservation 51:243-262.

Appropriate Uses Justification, Attachment 7

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Geocaching

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?		✓
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		
(d) Is the use consistent with public safety?		
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✓ **Appropriate** ____

Refuge Manager: Eric Hahus Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Geocaching

Summary: Geocaching, also known as letterboxing, is an outdoor activity in which participants use a global positioning system (GPS) device or other navigational technique to hide and seek containers called "geocaches" or "caches." When physical placement is not involved and instead participants take a photograph of themselves in front of the defined feature or record some information about such a feature, the use is known as "virtual geocaching." This appropriate use determination covers only physical geocaching.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(b) According to 50 CFR 27.93, abandoning, discarding, or otherwise leaving any personal property in any national wildlife refuge is prohibited.

Due to the negative finding on (b), the use was not evaluated further and is considered inappropriate.

Appropriate Uses Justification, Attachment 8

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Mosquito and disease vector management

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ **Appropriate** ✓

Refuge Manager: Eric Holms Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Mosquito and disease vector management

Summary: In the interest of human health and public safety, mosquito and disease vector management has been determined to be an appropriate use to help control the spread of mosquito-borne diseases.

Further explanation of the answers from USFWS Form 3-2319 is provided below:

(e) Mosquito and disease vector management is consistent with the management direction described in Chapter 2 of this CCP. With the spread of mosquito-borne diseases across the country, refuges have come under increasing pressure to manage mosquito populations that are bred or harbored within refuge boundaries. The refuge will refer to the interim guidance for refuges that the Director of the Service has produced until the Service policy document is finalized.

(f) This is the first time the use has been formally proposed.

(g) The use will be manageable within available budget and staff. Monitoring and control of target mosquito larvae will be conducted by the Washington County Mosquito Control District (District). The District will be responsible for staffing and expenditures for sampling and pesticide applications. Refuge staff resources will be needed to review annual proposals, prepare SUPs, and monitor District personnel to ensure compliance.

(h) Future mosquito and disease vector management will be conducted by non-refuge staff with minimal refuge staff oversight.

(i) Providing information on mosquito-borne diseases is beneficial to the public. Arboviral (arthropod-borne viral) diseases are a potential concern. These include West Nile virus, western equine encephalitis, and St. Louis encephalitis.

(j) The impacts of mosquito monitoring and treatment would be localized and temporary. The treatments and monitoring will be conducted in areas closed to public use, meaning they would likely not conflict with any wildlife-dependent public uses in the future. Any mosquito control undertaken will have minimal impact on any priority wildlife-dependent public use program. The disturbance of wildlife by District staff is minimized to the extent practicable by restricting access to sensitive areas and by controlling the type of access. The impacts anticipated from the logistical activities resulting from the proposed monitoring and treatment actions on wildlife are minimal.

Appropriate Uses Justification, Attachment 9

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tualatin River National Wildlife Refuge

Use: Research and monitoring

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate___ **Appropriate** ✓

Refuge Manager: Eric Hahn Date: 4/23/13

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Date: 4/23/13

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Refuge: Tualatin River National Wildlife Refuge

Use: Research and monitoring

Summary: Research and monitoring on refuge lands are fundamentally valuable as they make available scientific information for resource management decisions. The refuge receives requests from universities and other organizations to conduct scientific research and monitoring efforts within the refuge. These uses have been ongoing on the refuge for many years, and are consistent with the CCP goals. Research and monitoring are determined to be appropriate uses.

Further explanation of the answers from FWS Form 3-2319 is provided below:

(e) Research and monitoring are consistent with Goal 8 of this CCP. Conducting research and monitoring studies will provide the refuge with the best science with which to conduct refuge operations. Determining resource status and evaluating progress toward achieving objectives is essential to implementing adaptive management on the refuge. Research projects on refuge lands would address a wide range of natural and public use management issues. Examples of research projects include habitat use and life history requirements for specific species/species groups, practical methods for habitat management and restoration, extent and severity of environmental contaminants, techniques to control or eradicate pest species, effects of climate change on environmental conditions and associated habitat/wildlife response, modeling of wildlife populations, and assessing response of habitat/wildlife to disturbance from public uses.

(f) This is the first time these uses have been formally proposed.

(g) The use will be manageable within available budget and staff. Proposed research and monitoring will be conducted by outside entities, not refuge staff. Minimal refuge staff time is anticipated for project oversight.

(h) Future use will not be conducted by refuge staff, but by outside personnel, with minimal refuge staff oversight.

(i) Providing information on current status and trends of fish and wildlife populations is beneficial for public education and interpretation.

(j) Any research or monitoring project would be undertaken such that it would have minimal interference with any priority wildlife-dependent public use program.

Appendix B Compatibility Determinations

Appendix A
Appropriate Use Findings

Appendix B
Compatibility Determinations

Appendix C
Implementation

Appendix D
Wilderness Review

Appendix E
Biological Resources of Concern

Appendix F
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Appendix I
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Appendix B. Compatibility Determinations

B.1 Introduction

Compatibility determinations (CDs) developed during the comprehensive conservation plan (CCP) planning process evaluated uses that are projected to occur under the management direction. The evaluation of funds needed for management and implementation of each use also assume implementation as described under the management direction. Chapter 6 of the draft CCP/environmental assessment (EA) contains an analysis of the impacts of public uses to wildlife and habitats. That portion of the document is incorporated through reference into this set of CDs.

B.1.1 Uses Evaluated at This Time

The following section includes full CDs for all refuge uses that are required to be evaluated at this time. According to Service policy, CDs will be completed for all uses described under a CCP that have been determined to be appropriate. Existing wildlife-dependent recreational uses must also be reevaluated and new CDs prepared during development of a CCP.

According to the Service's compatibility policy, uses other than wildlife-dependent recreational uses are not explicitly required to be reevaluated in concert with preparation of a CCP, unless conditions of the use have changed or unless significant new information relative to the use and its effects have become available, or the existing CDs are more than 10 years old. However, the Service planning policy recommends preparing CDs for all individual uses, specific use programs, or groups of related uses associated with the CCP management direction.

B.1.2 Compatibility—Legal and Historical Context

Compatibility is a tool refuge managers use to ensure that recreational and other uses do not interfere with wildlife conservation, the primary focus of the refuge. Compatibility is not new to the Refuge System and dates back to 1918 as a concept. As policy, it has been used since 1962. The Refuge Recreation Act of 1962 directed the Secretary of the Interior to allow only those public uses of refuge lands that were ~~"~~compatible with the primary purposes for which the area was established."

Legally, refuges are closed to all public uses until officially opened through a compatibility determination. Regulations require that adequate funds be available for administration and protection of refuges before opening them to any public uses. However, wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) are to receive enhanced consideration and cannot be rejected simply for lack of funding resources unless the refuge has made a concerted effort to seek out funds from all potential partners. Once found compatible, wildlife-dependent recreational uses are deemed the priority public uses at the refuge. If a use is found not compatible, the refuge manager is legally precluded from approving it. However, a use found not compatible may be modified such that it can be found compatible. Economic uses that are conducted by or authorized by the refuge also require compatibility determinations.

Under compatibility policy, uses are defined as recreational, economic/commercial, or management uses of a refuge by the public or a non-Refuge System entity. Uses generally providing an economic return (even if conducted for the purposes of habitat management) are also subject to compatibility

determinations. The Service does not prepare compatibility determinations for uses when the Service does not have jurisdiction. For example, the Service may have limited jurisdiction over refuge areas where property rights are vested by others, where legally binding agreements exist, or where there are treaty rights held by tribes. In addition, aircraft overflights, emergency actions, some activities on navigable waters, and activities by other federal agencies on "overlay refuges" are exempt from the compatibility review process.

New compatibility regulations, required by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act), were adopted by the Service in October 2000 (http://refuges.fws.gov/policymakers/nwrpolicies.html). The regulations require that a use must be compatible with both the mission of the Refuge System and the purposes of the individual refuge. This standard helps to ensure consistency in application across the Refuge System. The Act also requires that compatibility determinations be in writing and that the public have an opportunity to comment on most use evaluations.

The Refuge System mission emphasizes that the needs of fish, wildlife, and plants must be of primary consideration. The Improvement Act defined a compatible use as one that "... in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the Refuge." Sound professional judgment is defined under the Improvement Act as "... a finding, determination, or decision, that is consistent with principles of sound fish and wildlife management and administration, available science and resources ...." Compatibility for priority wildlife-dependent uses may depend on the level or extent of a use.

Court interpretations of the compatibility standard have found that compatibility is a biological standard and cannot be used to balance or weigh economic, political, or recreational interests against the primary purpose of the Refuge (Defenders of Wildlife v. Andrus [Ruby Lake Refuge]). The Service recognizes that compatibility determinations are complex. For this reason, refuge managers are required to consider "principles of sound fish and wildlife management" and "best available science" in making these determinations (House of Representatives 1997).

Evaluations of the existing uses on the Tualatin River National Wildlife Refuge are based on the professional judgment of refuge and planning personnel, including observations of refuge uses and reviews of appropriate scientific literature.

In July 2006, the Service published its Appropriate Refuge Uses Policy (603 FW 1). Under this policy, most proposed uses must also undergo a review prior to compatibility. Uses excepted from the policy include the "Big Six" uses and uses under reserved rights—see the policy for more detail.

B.1.3 References

Defenders of Wildlife v. Andrus (Ruby Lake Refuge I). Case 2098 (D.D.C. 1978). Environmental Reporter 11:873.

House of Representatives. 1997. Report 105-106 on National Wildlife Refuge System Improvement Act. Available at: http://www.fws.gov/Refuges/policiesandbudget/HR1420_part1.html.

B.2 Compatibility Determination for Wildlife Observation, Wildlife Photography, and Interpretation at Tualatin River National Wildlife Refuge

Use: Wildlife observation, wildlife photography, and interpretation

Station Name: Tualatin River National Wildlife Refuge (the refuge)

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S. Code [U.S.C.] § 742a. et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources … ” 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Use:

This compatibility determination (CD) examines wildlife observation, wildlife photography, and interpretation as described under the management direction of the Tualatin River National Wildlife Refuge (refuge) comprehensive conservation plan (CCP). There is substantial overlap between activities associated with wildlife observation, wildlife photography, and interpretation where participants are engaged in self-directed learning about the natural and cultural resources on the refuge, and as such these uses are evaluated together in this CD. This use will foster an aware and involved citizenry that will take an active role in conservation.

Visitors typically engage in wildlife observation, wildlife photography, and interpretation uses at the refuge Wildlife Center, along the year-round and seasonal trails, at a number of overlooks, and at the

wildlife photography blind—all located on the Atfálat'i Unit of the refuge. Projections indicate that refuge public facilities could serve an estimated 200,000 to 300,000 visitors annually (U.S. Fish and Wildlife Service [Service; USFWS] 2003a). Currently, nearly 100,000 people visit the refuge annually. See Sections 5.3 and 5.4 of the refuge CCP for a complete description of visitor use statistics.

The highest visitor use generally occurs spring through fall, though there is some use throughout the year. The seasonal trail is open from May 1 through September 30 to minimize disturbance to migrating and wintering waterfowl. Visitor use is limited to developed facilities, and other areas of the refuge remain closed to general public use. Visitors are limited to pedestrian use only—bicycling, dog walking, and jogging are prohibited. Maps, brochures, kiosks, and directional and regulatory signs will be provided to visitors to communicate activities that are encouraged and those that are prohibited.

Group size is usually small (families, individuals, and couples constitute the majority of groups) but occasionally larger groups use the refuge. Local nonprofit groups (e.g., Audubon Society, walking clubs, parent groups) as well as for-profit organizations (tour buses) frequently visit the refuge and lead field trips on the trails and/or visit the Wildlife Center. As is currently the case, groups of 15 people or more must: make advance reservations; be limited to no more than 50 people; break up into subgroups of 15 people or less when on trails; strive to carpool or provide group transportation; follow all refuge regulations; and not charge any fee to their participants. Any organization that charges a fee to their participants will be subject to the stipulations in the commercial visitor services CD. Fundraising activities (including providing guided tours and hosting special events and meetings) conducted by Friends of the Tualatin River National Wildlife Refuge (Friends of the Refuge) are not subject to the commercial visitor services CD, but are subject to refuge approval, per the memorandum of understanding (MOU) between the Service and the Friends of the Refuge.

The CCP provides more opportunities for developing wildlife observation, photography, and interpretation programs and structured visitor experiences with enhanced facilities and improved access. Actions described in the management direction are as follows.

Up to three additional wildlife photography blinds will be constructed on the Atfálat'i Unit of the refuge. Access trails to the blind(s) will be developed with minimal footprint and be constructed out of gravel or other low-impact and low-maintenance material. Use of the blind(s) will be managed on a reservation basis for up to two people at a time. Blinds will be available up to three days a week, from dawn to dusk. For both wildlife photography and observation areas, the refuge will maintain ~~"v~~iewing lanes" by selectively trimming branches, mowing tall grass, and/or occasionally removing vegetation. In addition, areas around these facilities may be enhanced to maximize wildlife use of the area. Examples of enhancements include planting vegetation for additional habitat; providing habitat structure such as basking logs; increasing vegetation cover to serve as a natural blind; and adding trees and/or shrubs to minimize ~~"u~~rban noise" from off-refuge sources (i.e., roads, industrial activities). Though no public use facilities currently exist at the Wapato Lake Unit, one or two additional kiosks are planned and have potential to be developed off-refuge in partnership with local city and county jurisdictions.

Several regional land and water trail systems outside of the refuge being studied by local jurisdictions and organizations have the potential of connecting to the refuge. However, at this time, no specific location for connection has been proposed; therefore, additional appropriateness and CDs for new trails will be completed at a later date. The refuge supports providing additional wildlife observation,

photography, and interpretation opportunities by linking to regional trail systems and plans to continue working with local organizations to explore this further.

Wildlife observation, photography, and interpretation will continue to occur primarily informally as self-guided activities on the refuge. Refer to Section 5.4 in Chapter 5 for a complete description of existing programs. In addition, regular staff-, volunteer-, or partner-led tours, workshops, and demonstrations will be expanded to diversify the visitor experience and opportunities for these uses. Increased outreach and program offerings will likely result in increased visitation to the refuge. Refuge-approved and guided activities may include the use of the Wildlife Center or other refuge public use facilities, and may occasionally occur after dark when the refuge is normally closed to the public. The Friends of the Refuge may also conduct similar activities in support of wildlife observation, photography, and interpretation. These programs will require pre-approval by the refuge manager and will be subject to all of the same regulations as the general public (i.e., no special access to closed areas will be granted) and stipulations of this CD.

Virtual geocaching (drawing people to specific sites via electronic means) is considered a legitimate form of interpretation under this CD. Virtual geocaching may only be conducted on areas otherwise open to the public. Physical geocaching (the actual placement of objects in the landscape by the public) is not appropriate (see Appendix A) and is not included as a form of interpretation.

A number of existing and new special events, hosted by the refuge or in partnership with the Friends of the Refuge, could occur on the refuge in support of wildlife-dependent recreation and education activities. Examples include, but are not limited to, Tualatin River Bird Festival, National Wildlife Refuge Week, Spring Break Exploration Days, native plant sales, and one-time celebratory events such as dedications, groundbreakings, and grand openings. Special events typically last anywhere from 4 hours to all day, and may include multiple back-to-back days. Past events have attracted over 1,200 a day and may attract more, up to 2,000 people a day, in the future. Special event activities typically include, but are not limited to, guided nature walks; evening programs; indoor and outdoor temporary exhibits; self-guided tours/walks; hands-on educational activities; live animal shows; workshops; nature-related music (generally in the plaza area of the Wildlife Center); awards ceremonies for nature photography contests; and keynote speakers. Activities are limited to the areas of the refuge open to the public. Any special event activity occurring outside the public use areas will be subject to case-by-case refuge manager approval and, if necessary, a special use permit (SUP).

In support of enhanced wildlife observation, photography, and interpretation programs described in the CCP, the refuge will continue to pursue additional volunteers and interns. This will include providing bunkhouses or recreational vehicle (RV) pads to support long-term housing on the refuge. These facilities will be located in areas such as the maintenance and shop facility on the Tualatin River Unit and/or within proximity of existing or newly acquired quarters buildings.

Availability of Resources:

Estimated costs for operating the wildlife observation, photography, and interpretation programs as envisioned under the management direction are displayed in the following table. With assistance from Friends of the Refuge, grants, volunteers, and other partners, the refuge currently has sufficient staff and funding to support these programs at their current levels. Additional resources will be needed to fully implement the uses and strategies described in the CCP.

Costs to Administer and Manage Wildlife Observation, Wildlife Photography, and Interpretation under the CCP

Activity or Project	One-time Expenses ($)	Recurring Expenses ($/year)
Volunteer Coordinator		55,000
Law Enforcement Officer		78,500
Develop new kiosks at Wapato Lake Unit	20,000	
Maintain Wildlife Center and exhibits		5,000
Host special events		5,000
Transportation study	30,000	
Maintain parking lots, trails, overlooks, blinds, signs, outdoor exhibits		15,000
Construct up to 3 additional photo blinds and associated trails	40,000	
Construct RV pads and bunkhouse	300,000	5,000
Maintain existing and develop new signage and publications	5,000	5,000
Program oversight: Visitor Services Manager		20,000
Total	395,000	188,500

Anticipated Impacts of Use:

General Impacts Expected:

A general assessment of impacts resulting from wildlife observation, photography, and interpretation uses has been compiled from the literature and is briefly summarized below.

Disturbance intensity (frequency, distance, etc.): Human activities on recreational lands, trails, and other access points can result in direct effects on wildlife. Disturbance responses can depend upon the activity type, recreationists' behavior, and the distance, duration, frequency, predictability, timing, and visibility of the use (Knight and Cole 1995). Disturbance to migrant shorebirds on eastern coastal bays was found to increase as the total number of disturbances and recreationists increased and the duration of the disturbance and distance from the disturbance decreased (Burger 1986). Flushing, especially repetitive flushing, can strongly impact patterns of many bird species. Migratory birds have been observed to be more sensitive than resident species to disturbance (Klein 1989), and in the case of the eastern coastal migrant shorebirds, the percentage of observed shorebirds that were flushed and did not return increased by 53 percent from 1982 to 2002, suggesting that the birds were not adapting to the presence of people by habituation and were being affected in the long term (Burger et al. 2004).

Nest predation for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1976), and waterfowl (Boyle and Samson 1985) tends to increase in areas

more frequently visited by people where disturbance flushes birds away from their nests and creates vulnerabilities during nesting seasons. Frequency is a major factor, and songbirds have been found to alter behavior after repeated human disturbance, particularly red-winged blackbirds, goldfinches, and American robins, which became much more aggressive toward humans who repeatedly visited their nests (Knight and Temple 1986a, 1986b, 1986c).

Set-back distances for public use facilities have been found to be important in limiting human disturbance to wildlife. In Florida, 15 species of colonial waterbirds nesting at 17 colonies were exposed to three different human disturbance mechanisms to determine recommended set-back distances for protecting mixed-species nesting assemblages (Rodgers and Smith 1995). In general, a recommended set-back distance of about 100 meters (m) for wading bird colonies and 180 m for mixed tern/skimmer colonies was found to be adequate to effectively buffer sites from human disturbance caused by approach of pedestrians and motor boats (Rodgers and Smith 1995). In Nebraska, roosting sandhill cranes avoided sites near human disturbance features at 500 m from nearest paved road, 400 m from nearest gravel road, and 400 m from a single dwelling structure (Norling et al. 1992). Klein (1989) studied the effect of visitation on migrant and resident waterbirds at Ding Darling National Wildlife Refuge, finding that resident birds were less sensitive to human disturbance than migrants. Migrant ducks were particularly sensitive when they first arrived on-site in the fall. They usually remained at a distance of more than 80 m [from a visitor footpath on a dike], even at very low visitor levels. Herons, egrets, brown pelicans, and anhingas were most likely to habituate to humans, thus exposing them to direct disturbance as they fed on or near the dike. Shorebirds showed intermediate sensitivity. Strauss (1990) observed piping plover chicks spent less time feeding (50% versus 91%) and more time running (33% versus 2%), fighting with other chicks (4% versus 0.1%), and standing alert (9% versus 0.1%) when pedestrians or moving vehicles were closer than 100 m than when they were undisturbed. In addition, plover chicks spent less time out on the feeding flats (8% versus 97%) and more time up in the grass (66% versus 0.1%) during periods of human disturbance.

Conversely, wildlife tends to habituate best to disturbance that is predictable, as indicated by sandhill cranes in Florida and in Nebraska that nested within 400 m of highways, railroads, mines, and power lines, which provided a predictable background disturbance (Dwyer and Tanner 1992; Norling et al. 1992). Taylor and Knight (2003) found that for mule deer, the area of influence around off-trail areas was much greater than for on-trail areas, suggesting habituation to trails. However, the time it takes for wildlife to habituate, and what wildlife use is like compared to pre-disturbance uses, remains a question.

Group size: Disturbance impact to wildlife in relation to visitor group size is not a well-documented research area; however, a few studies have analyzed these impacts. Most animals flee from humans, and large groups of people may represent greater perceived risk of predation (Geist et al. 2005). Remacha et al. (2011) analyzed visitor group size influences on the number and variety of birds observed during guided educational tours in a forested area in central Spain, with group sizes ranging from 7 to 20 people. The study showed that increasing visitor group sizes had an impact on wildlife, as large groups were associated with decreased bird numbers; additionally, the study found that birds may demonstrate reduced tolerance when faced with large groups of visitors, not only reducing their frequency of occurrence but also reducing the number of individuals. The study concluded that reducing the group size of visitors helps minimize the negative impacts on wildlife and also allows visitors to watch more wildlife (Remacha et al. 2011).

Another study by Beale and Monaghan (2004) on human disturbance effects to seabird colonies at St. Abbs Head National Nature Reserve in Scotland examined the variation in nesting success for two birds, kittiwakes and guillemots, as a function of different disturbance regimes, including varying the average number of people per hour and people load, which takes into consideration the number of visitors and their distance from the nest. Human disturbance was found to have a significant negative effect on nesting success in both species of birds. Increasing visitor numbers by 8.5 percent resulted in a 22 percent increase in the failure rate of kittiwakes and a 13 percent increase in the failure rate for guillemots. Beale and Monaghan concluded that perhaps the most likely explanation is that nesting birds perceive people to be a potential predator and show appropriate anti-predator physiological responses, which interferes with energy resources available for nesting. The results showed that safe distances, or buffer zones, depend on the numbers of people visiting an area and that both numbers and distance matter in determining disturbance effects.

In addition to group size, loudness has also been found as an important variable in whether birds altered their behavior. A study was conducted at the Arthur B. Marshall Loxahatchee National Wildlife Refuge in Florida between 1992 and 1994 to observe foraging behavior of birds at the refuge and understand how people affect foraging birds (Burger and Gochfeld 1991). Variation in feeding behavior was largely explained by whether people were present, the number of people present, and the amount of noise made by the people (Burger and Gochfeld 1991). For all species, time devoted to feeding and number of strikes or pecks decreased while people were present and as the noise made by people increased; interestingly, loudness was found to be more important than the number of people present (Burger and Gochfeld 1991). Noise level is not necessarily correlated with number of people present, but larger groups might be more prone to producing noise than small groups or individuals.

Literature suggests that organizing visitors in small numbers is recommended for groups, but also spreading out visits and locations of visits is recommended to mitigate disturbance across the landscape.

Pedestrian (hiking) versus vehicular access: It is widely accepted that wildlife are frequently more sensitive to disturbance from people on foot than in vehicles (Grubb and King 1991; MacArthur et al. 1982; Pease et al. 2005; Skagen 1980). Numerous studies have confirmed that people on foot can cause a variety of disturbance reactions in wildlife, including flushing or displacement (Erwin 1989; Fraser et al. 1985; Freddy 1986; Pease et al. 2005), heart rate increases (MacArthur et al. 1982), altered foraging patterns (Burger and Gochfeld 1991), and even, in some cases, diminished reproductive success (Boyle and Samson 1985).

A study on seven species of dabbling ducks at the Back Bay National Wildlife Refuge in Virginia found a significant difference between vehicular (diesel truck and electric passenger tram) and nonvehicular (pedestrian and bicyclist) treatments in the number of ducks that were flushed. In this study, 90 percent of the birds showed an observable response to nonvehicular treatments, of which 43 percent flew; the proportion of ducks that flew was greatest when they were located less than 100 m from the disturbance (Pease et al. 2005). In a review of several studies of the reaction of waterfowl and other wetland birds to people on foot, it was found that distances greater than 100 m in general did not result in a behavioral response (DeLong 2002). Mule deer in sagebrush-grassland habitat in Utah showed a 96 percent probability of flushing at 100 m from the line of movement of off-trail recreationists, with the probability not dropping to 70 percent until the perpendicular distance increased to 390 m (Taylor and Knight 2003).

These studies and others have shown that the severity of the effects depends upon the wildlife's distance from the disturbance and its duration, frequency, predictability, and visibility to wildlife (Knight and Cole 1995). In a logistic regression analyzing mule deer, pronghorn antelope, and bison response to mountain biking and hiking on- and off-trail, Taylor and Knight (2003) found that the variables best explaining wildlife response included wildlife species, perpendicular distance of animals to trail (closest distance of animal to trail, regardless of recreationist position), trail position (on-trail or off-trail), and degree of vegetation cover.

Wildlife photography: Wildlife photography in particular can be a more disturbing activity because photographers are more likely to leave vehicles and wander off-trail, approach wildlife, and remain close for an extended period of time to capture a detailed photograph, as observed at Ding Darling National Wildlife Refuge and other places (Dobb 1998; Klein 1993; Morton 1995). This may also apply to the experience of the user, as avid wildlife viewers tend to intentionally seek out rare or spectacular species and/or are more eager to see the most viewing opportunities in the limited amount of time (e.g., bird listing), and thus potentially pose a larger negative impact to wildlife (Knight and Cole 1995). People engaged in wildlife observation and photography react to the presence of birds and thus are generally more unpredictable on foot depending on excitement level, curiosity, and desire to observe closely.

Refuge-specific Impacts:

People engaging in wildlife observation, photography, or interpretation generally access the refuge by motorized vehicles traveling on public roads and parking lots. Additional wildlife photography blinds and associated access trails of less than 0.25 mile each will be added under the CCP. Minimal effect as a whole will occur as a result of new wildlife observation and photography facilities constructed under the CCP. Interpretive signs were not included as an impact as the assumption is that signs do not displace habitat.

Pedestrian access: Pedestrian use of the refuge creates the highest potential for disturbance or damage to natural resources. Foot travel associated with wildlife observation or photography could potentially result in temporary and minor vegetation trampling. Foot travel may also potentially create disturbance in or near any habitat. During the wintering season, pedestrian access is limited to the year-round trail. This limits pedestrian human disturbance during the season of highest waterbird activity at the vast majority of key wintertime wildlife congregation areas (primarily wetlands and upland fields) and allows wildlife to habituate to the few areas where humans and wildlife may both be regularly present. Outside the winter season, people may access the seasonal trail as well.

Some interpretive programs are large, organized special events that differ in character from the more informal day-to-day observation and interpretive activities. These types of programs create more disturbance and can overfill parking facilities to the point where parking lots fill and off-site parking and shuttle service is necessary to avoid safety issues and parking off roadways.

Both refuge visitation and the number of facilities and emphasis devoted to wildlife observation, photography, and interpretation are projected to increase under the CCP. Given this, future disturbance effects are likely to be somewhat higher than present. Most studies cited above have demonstrated immediate, rather than long-term responses to disturbance. Long-term responses are inherently more difficult and expensive to determine. Given that wildlife observation, photography, and interpretation are not typically loud or intense kinds of activities, the area of habitat within a known distance of human activity centers (trails, kiosks, blinds, etc.) is considered a reasonable

indicator to evaluate the disturbance effects of public uses on refuge wildlife. As mentioned previously, in a review of several studies of the reaction of waterfowl and other wetland birds to people on foot, distances greater than 328 feet (100 m) generally did not result in a behavioral response (DeLong 2002).

Public education that informs photographers of ethical and least intrusive methods could reduce some impacts. Careful placement and camouflaging of additional photography blinds will likely reduce disturbance from wildlife photographers.

Although disturbance to wildlife from these activities will be higher than at present, the overall effect to refuge wildlife is expected to be minor. In addition, if disturbance to wildlife or damage to habitat reaches unacceptable levels, the refuge will limit access to areas where unacceptable impacts occur (see stipulations).

Impacts to Listed Species:

No direct impact to listed species is anticipated to occur as a result of the wildlife observation, photography, or interpretation programs. Any unanticipated future impacts will be reduced by ensuring that the public avoids or severely limits activity in areas hosting rare species.

Impacts to Other Priority Public Uses:

Wildlife observation, photography, and interpretation generally result in little disturbance to other visitors. However, some wildlife observers may inadvertently flush animals being observed or photographed by others. This conflict is expected to be minimal.

No significant effects to roads, trails, or other infrastructure from wildlife observation, photography, and interpretation programs are foreseen. Normal road, trail, and facility maintenance will continue to be necessary. Additional facility construction or upgrade, if needed, is addressed in the Availability of Resources section.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- Motorized vehicles and bicycles will be limited to designated public roads and parking lots. Bicycles will not be allowed outside of parking areas.
- Registration will be required for organized groups of 15 people or more.

- Electric wheelchairs shall be allowed on trails for persons with disabilities.
- During special events, tours must avoid sensitive sites occupied by rare species.
- Wintertime sanctuary closures will be maintained. The refuge will be open dawn to dusk daily. Evening guided activities are approved by the refuge manager on a case-by-case basis.
- Dogs are not allowed outside of vehicles. Registered service animals are an exception.
- Signs, pamphlets, and verbal instructions and other public education from refuge staff and volunteers will promote appropriate use of facilities to minimize wildlife and habitat disturbance. Examples include promoting ethical wildlife observation/photography behavior by sharing regulations including the prohibition of audio bird calling devices or off-trail use.
- Periodic monitoring and evaluation of sites and programs will be conducted to assess if objectives are being met and ensure that the resource is not being unacceptably degraded. If disturbance to wildlife or damage to habitat reaches unacceptable levels, the refuge will avoid or limit activities in areas where unacceptable impacts occur.

Justification:

As wildlife-dependent recreational uses, wildlife observation, photography, and interpretation receive enhanced consideration in the CCP planning process. Given the location of wintertime sanctuary closed areas and the locations of wildlife viewing, photography, and interpretation facilities, these uses are expected to have a minor direct impact on refuge resources. The associated disturbance to wildlife from these activities under CCP, though larger than at present, is also expected to be minor. It is anticipated that wildlife populations will find sufficient food resources and resting places such that their abundance and use of the refuge will not be measurably lessened from allowing these activities to occur. The relatively limited number of individual animals and plants expected to be adversely affected will not cause populations to materially decline, the physiological condition and production of refuge species will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted. Thus, allowing wildlife photography, observation, interpretation to occur under the stipulations described above will not materially detract from or interfere with the purposes for which the refuge was established or the refuge mission. Wildlife observation, photography, and interpretation provide visitors with the joy of experiencing wildlife on their public lands, and as such, help fulfill the mission of the National Wildlife Refuge System (Refuge System).

Mandatory 10- or 15-year Re-evaluation Date (provide month and year for "allowed" uses):

__2028__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

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Signatures:

Prepared by: Kim Strassky 4/23/13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: Erin Halms 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: Lord. Wirt 4-23-13
(Signature) (Date)

Document continues on the following page.

B.3 Compatibility Determination for Waterfowl Hunting at Tualatin River National Wildlife Refuge

Use: Waterfowl hunting

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a. *et seq*.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Use:

The Service plans to allow hunting of ducks, geese, and coots in accordance with state and Federal regulations and refuge-specific special conditions. A youth waterfowl hunt will be conducted on the Oleson parcel of the Riverboat Unit.

Hunting will take place during regular state seasons, which generally run from October to January, but dates are subject to change annually and based on evaluation of the program success. Youth hunts will be conducted on selected days in coordination with Oregon Department of Fish and Wildlife. Youth hunting will be allowed using two to five blinds on the Riverboat Unit, but this may change depending on the quality of the hunt. A maximum of two youth and two supervising (but nonhunting) adults will be accommodated in each blind. Blind assignments will be conducted via lottery prior to each hunt date. Although dogs are generally prohibited for all other uses on the refuge, they are a vital part of the waterfowl hunting tradition and can reduce the loss of waterfowl, thus reducing the

overall impact to the resource. Because of their role in retrieving waterfowl, dogs used for waterfowl retrieval purposes are allowed on the refuge for waterfowl hunting.

In accordance with the National Wildlife Refuge System Administration Act of 1966, as amended, hunting is a priority wildlife-dependent public use. Public land for waterfowl hunting is in limited supply, especially near large metropolitan areas (U.S. Department of the Interior [USDOI] et al. 2007) such as Portland. In general, there has been a static or declining trend in hunting participation relative to population growth in the United States (USFWS 2004) since 1985. The trend also indicates a declining number of young hunters. From 1991 to 2001, the number of Americans 16 years of age and older who hunted declined by 7 percent. However, in Oregon from 1991 to 2001, hunter participation increased by 2 percent (USFWS 2004). According to Raftovich et al. (2011) there were approximately 21,400 active waterfowl hunters in Oregon during 2010. Opportunities to hunt in the greater Portland area are increasingly scarce due to an ever-growing population, urbanization, and a relative lack of public lands open to these uses. Hunting (both for and against) was the subject of more letters and e-mails received during scoping for the CCP than any other topic. In particular, the community has expressed a very strong interest in sharing hunting traditions with youth. Opening the refuge to waterfowl hunting will provide the public an opportunity to hunt in proximity to the urban area, in uncrowded and relatively natural environments, and at a reasonable cost. The habitat and wildlife objectives for the Riverboat Unit are very likely to support quality waterfowl hunts as the refuge will be restoring habitat used by waterfowl. Refuge hunting opportunities will be offered consistent with state hunting regulations, and with management plans for applicable species and the Pacific Flyway Council's (PFC's) plans for cackling Canada geese (PFC 1999) and dusky Canada geese (PFC 2008).

Hunters have helped buy land for the Refuge System for nearly 70 years through the purchase of Migratory Bird Hunting and Conservation Stamps—also known as Duck Stamps—and continue to support and advocate for refuges and conservation. Hunters also participate and share in wildlife photography, education, and interpretation while hunting. These activities will tend to promote and support the mission of the Refuge System.

Tualatin River National Wildlife Refuge was established under, or to fulfill the purpose of, the Migratory Bird Conservation Act (16 U.S.C. § 715a-715r), or through approval of the Migratory Bird Conservation Committee, as an ~~"in~~violate sanctuary for migratory birds, or for any other management purpose, for migratory birds." On units of the Refuge System or portions thereof established as an ~~"in~~violate sanctuary," the Service may only allow hunting of migratory gamebirds on no more than 40 percent of that refuge, or portion, at any one time unless the Service finds that taking of any such species in more than 40 percent of such an area will be beneficial to the species (National Wildlife Refuge System Administration Act and Migratory Bird Conservation Act).

Availability of Resources:

Administering the refuge hunt program requires substantial staff time, equipment, and funding. To provide a quality hunting experience, access trails, parking lots, signs, and other facilities must be maintained annually. The refuge does not have a law enforcement officer on staff and must rely on zone officers or partnering law enforcement agencies to ensure compliance with state and Federal regulations and refuge-specific special conditions. Funding associated with facilities maintenance (roads, parking areas, signs, etc.) is included in other refuge programs requiring the same support.

Increased volunteer assistance, stronger existing partnerships, and new partnerships will be sought to support these programs in an effective, safe, and compatible manner. Refuge staff will increase volunteer recruitment efforts. Volunteers, interns, and various user groups when provided appropriate training can assist the refuge with monitoring, education and interpretation programs, and maintenance projects. With additional assistance as described above, staffing and funding is expected to be sufficient to manage these uses.

Costs to Administer and Manage Hunting under the CCP

Category and Itemization for Waterfowl Hunting Program	One-time Expenses	Annual Expenses
Develop youth hunting program opening package	$10,000	
Construct youth hunting blinds	$15,000	
Develop signage and brochures	$2,000	$500
Administration and management		$5,000
Maintenance		$2,000
Law enforcement staff		$5,000
Total one-time expenses for youth waterfowl hunting program	**$27,000**	
Total annual expenses for youth waterfowl hunting program		**$12,500**

Anticipated Impacts of the Use:

Short-term Impacts:

Short-term impacts include disturbance to wetland habitat to install hunting blinds. Blinds will be installed during late summer when wetland water levels are low or dry, migratory waterfowl are not present, and locally nesting birds have hatched their young. Short-term impacts will also include disturbance of migratory waterfowl and other wildlife during hunting activities. Direct take of waterfowl will occur, and take of some non-target species might also occur. The presence of hunters and dogs, sounds of gunfire, and the sight of hunters traveling to and from hunt areas can disturb wildlife species such as pied-billed grebe, great blue heron, bald eagle, and tundra swan, which forage in refuge wetlands. This disturbance, especially when repeated over a period of time, may result in some wildlife species altering their behavior or moving to other areas. Hunting will occur outside of the breeding season. No significant effects are expected for refuge fish populations.

Long-term Impacts:

Long-term impacts include loss of some vegetation surrounding hunting blinds and impacts to migratory waterfowl and other wildlife species from repeated disturbance. The hunting blind itself will have a ~~f~~ootprint" of vegetation disturbance and trampling of vegetation by hunters using the blind. Migratory waterfowl and other wildlife species will be disturbed during times when hunting is occurring, and to some extent some will avoid the hunt area during nonhunting days as well. Annual maintenance of hunting blinds will also cause disturbance to both habitat and wildlife in the vicinity of the blinds.

Although hunting directly impacts individuals, the amount of waterfowl harvest is not expected to change or to have a measurable effect on refuge, Willamette Valley, or Pacific Flyway populations, as waterfowl hunting activity is not extremely high in the highly urbanized Willamette Valley. Hunting may be either compensatory or additive to natural mortality (Anderson 1995). Compensatory mortality occurs when hunting substitutes for other forms of mortality (disease, competition, predation, severe weather, etc.). Additive mortality occurs when hunting compounds the total mortality. In some cases, hunting can be used as a management tool to control populations. In concert with Canada, Mexico, and multi-state flyway councils, the Service and state wildlife agencies regulate hunting so that harvest does not reduce populations to unsustainable levels.

Direct effects of hunting on waterfowl are mortality, wounding, and disturbance (DeLong 2002). Hunting can alter behavior (e.g., foraging time), population structure, and distribution patterns of wildlife (Bartelt 1987; Cole and Knight 1990; Madsen 1985; Owens 1977; Raveling 1979; Thomas 1983; White-Robinson 1982). In Denmark, hunting was documented to affect the diversity and number of birds using a site (Madsen 1995). Avian diversity changed from predominantly mute swan and mallard to a more even distribution of a greater number of species when a sanctuary was established. Hence, species diversity increased with the elimination of hunting. There also appears to be an inverse relationship between the numbers of birds using an area and hunting intensity (DeLong 2002). In Connecticut, lesser scaup were observed to forage less in areas that were heavily hunted (Cronan 1957). In California, the numbers of northern pintails on Sacramento Refuge's non-hunt areas increased after the first week of hunting and remained high until the season was over in early January (Heitmeyer and Raveling 1988). Following the close of hunting season, ducks generally increased their use of the hunt area; however, use was lower than before the hunting season began.

Human disturbance to wintering birds and other wildlife using the open waters of the refuge will occur as a result of hunting activity. Migratory and wintering waterfowl generally attempt to minimize time spent in flight and maximize foraging time because flight requires considerably more energy than any other activity other than egg laying. Human disturbance associated with hunting includes loud noises and rapid movements, such as those produced by shotguns and dogs. This disturbance, especially when repeated over a period of time, compels waterfowl to change food habits, feed only at night, lose weight, or desert feeding areas (Madsen 1995; Wolder 1993). Disturbance levels from hunting activity outside Chincoteague Refuge were found to be high enough to force wintering black ducks into a pattern of nocturnal feeding within surrounding salt marsh and diurnal resting within refuge impoundments (Morton et al. 1989a, 1989b). Unhunted populations have been documented to behave differently from hunted ones (Wood 1993).

The impacts noted above can be reduced by the presence of adjacent sanctuary areas where hunting does not occur, and birds can feed and rest relatively undisturbed. Sanctuaries or non-hunt areas have been identified as the most common solution to disturbance problems caused from hunting (Havera et al. 1992). Prolonged and extensive disturbances may cause large numbers of waterfowl to leave disturbed areas and migrate elsewhere (Madsen 1995; Paulus 1984). In Denmark, hunting disturbance effects were experimentally tested by establishing two sanctuaries (Madsen 1995). Over a five-year period, these sanctuaries became two of the most important staging areas for coastal waterfowl. Numbers of dabbling ducks and geese increased fourfold to 20-fold within the sanctuary (Madsen 1995). On the refuge, all units except the Atfálat'i and Riverboat Units will be closed to public entry, and with numerous wetlands and sloughs available, these other units act as a sanctuary during the waterfowl season.

Cumulative Impacts:

The hunting of waterfowl in the United States is based upon a thorough regulatory setting process that involves numerous sources of waterfowl population and harvest monitoring data. Waterfowl populations throughout North America are managed through an administrative process known as flyways, of which there are four (Pacific, Central, Mississippi, and Atlantic). Oregon is included in the Pacific Flyway.

National Environmental Policy Act (NEPA) considerations incorporated by the Service for hunted migratory gamebird species are addressed by the programmatic document *Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds*, which was filed with the U.S. Environmental Protection Agency (EPA) on June 9, 1988. The Service published the record of decision for this document on August 18, 1988 (53 Federal Register [FR] 31341). This document is in the process of being updated; in August 2009, the *Draft Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Hunting of Migratory Birds* was released (USDOI 2009). Annual NEPA considerations for waterfowl hunting frameworks are covered under a separate environmental assessment and finding of no significant impact.

The Migratory Bird Treaty Act stipulates that all hunting seasons for migratory gamebirds be closed unless specifically opened by the Secretary of the Interior. The Service annually promulgates regulations establishing the Migratory Bird Hunting Frameworks. The frameworks are essentially permissive in that hunting of migratory birds will not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

The Migratory Bird Hunting Frameworks provide season dates, bag limits, and other options for the states to select that should result in the level of harvest determined to be appropriate based upon Service-prepared annual biological assessments detailing the status of migratory game bird populations. In North America, the process for establishing waterfowl hunting regulations is conducted annually. In the United States, the process involves a number of scheduled meetings (Flyway Study Committees, Flyway Councils, Service Regulations Committee, etc.) in which information regarding the status of waterfowl populations and their habitats is presented to individuals within the agencies responsible for setting hunting regulations. In addition, public hearings are held, and the proposed regulations are published in the Federal Register to allow public comment.

For waterfowl, annual assessments used in establishing the frameworks include the Breeding Population and Habitat Survey, which is conducted throughout portions of the United States and Canada. This survey is used to establish a Waterfowl Population Status Report annually. In addition, the number of waterfowl hunters and resulting harvest are closely monitored through both the Harvest Information Program and the Parts Collection Survey. Since 1995, such information has been used to support the adaptive harvest management (AHM) process for setting duck-hunting regulations. Under AHM, a number of decision-making protocols determine the choice (package) of predetermined regulations (appropriate levels of harvest) that constitute the framework offered to the states that year. Each state's wildlife commission then selects season dates, bag limits, shooting hours, and other options from the Flyway package. Their selections can be more restrictive but not more liberal than AHM allows. Thus, the level of hunting opportunity afforded each state depends on the annual status of waterfowl populations.

Season dates and bag limits for national wildlife refuges open to hunting are never longer or larger than state regulations. In fact, season dates and bag limits may be more restrictive than the state allows. Each national wildlife refuge considers the cumulative impacts to hunted migratory species through the Migratory Bird Hunting Frameworks published annually in the Service's regulations on migratory bird hunting.

According to Raftovich et al. (2011) total waterfowl harvest in Oregon during 2009-2010 was estimated at 464,500 out of a total Pacific Flyway harvest of 3,458,700, or approximately 13 percent of the flyway total. It is estimated that refuge youth hunters will annually harvest approximately 144 waterfowl. The total estimated annual harvest will be less than 1/10 of one percent of the Oregon and Pacific Flyway harvests.

The cumulative effects of disturbance to nonhunted birds and other species under the CCP are expected to be minor. Hunting seasons will not coincide with the nesting season; thus, reproduction will not be reduced by hunting. Disturbance to foraging or resting migrating or resident birds might occur, but will be minor because of the small amount of area allowed for these hunts relative to the size of the refuge and the limited time parameters for hunting. Disturbance to other taxa will be unlikely or negligible. Encounters with reptiles and amphibians in the early fall will be few and should not have cumulative negative effects on reptile and amphibian populations. Refuge regulations further mitigate possible disturbance by hunters to nonhunted wildlife. Vehicles will be restricted to roads, and the harassment or taking of any wildlife other than the game species legal for the season will not be permitted.

Hunting has the potential to disturb refuge visitors engaged in other priority public uses, and mitigation measures to avoid user conflict will be undertaken. For example, the youth waterfowl hunt will be conducted on the Riverboat Unit, a location that is not open to other public uses.

Waterfowl hunting opportunity helps to better provide a priority public ~~"b~~big six" use, and this use is currently not provided at the refuge. Providing opportunities for youth is an important initiative in the Service and helps address a public desire to see more hunting opportunities for youth.

There could be some indirect beneficial impacts from implementing a hunting program on the refuge. Refuge hunting can contribute to wildlife and habitat conservation and provide educational and sociological benefits. The hunting community in general remains the largest support base for funding land acquisitions in the Refuge System through the purchase of Duck Stamps. Refuges provide an opportunity for a high-quality waterfowl hunting experience to all citizens regardless of economic standing. Many individual refuges have developed extensive public information and education programs bringing hunters into contact with refuge activities and facilitating awareness of wildlife issues beyond hunting.

Summary of Effects:

The Service concludes that hunting on the Tualatin River National Wildlife Refuge, as planned under the CCP, will not have a significant impact on local, regional, or Pacific Flyway waterfowl populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting take, will be a tiny fraction of estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and state regulatory processes.

This hunt will not add to cumulative impacts to waterfowl stemming from hunting on national wildlife refuges. Several points support this conclusion: 1) the proportion of the national waterfowl harvest that occurs on national wildlife refuges is only 6 percent (USDOI 2009); 2) there are no waterfowl populations that exist wholly and exclusively on national wildlife refuges; 3) annual hunting regulations within the United States are established at levels consistent with the current population status; 4) refuges cannot permit more liberal seasons than provided for in Federal frameworks; and 5) refuges purchased with funds derived from Federal Duck Stamps must limit hunting to 40 percent of the available area.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- Hunting will be conducted in accordance with all Federal, state, and refuge-specific regulations.
- Only ducks, geese, and coots may be taken in accordance with state regulations.
- Hunting will only be allowed from established blinds or blind sites.
- The hunting program will be conducted as outlined in Chapter 2 of the CCP and follow a step-down hunting management plan.
- Hunting program leaflets and 50 Code of Federal Regulations [CFR] 32 will be updated as necessary.
- Law enforcement patrols will be conducted on a regular basis to ensure compliance with state, Federal, and refuge regulations.
- The refuge will ensure safety and minimize conflict with other priority public uses by providing information about hunting boundaries and seasons to the general public and those engaging in other refuge programs. Information will be provided at interpretive kiosks, on the refuge website, and in refuge offices.
- Camping, overnight use, and fires will be prohibited.
- Habitat will be managed for the benefit of wildlife.

Justification:

Under the National Wildlife Refuge System Administration Act of 1966, as amended, hunting is a wildlife-dependent recreational activity, which receives enhanced consideration in the CCP planning process and is to be encouraged on national wildlife refuges if compatible with refuge purposes. This refuge hunting program is designed to provide a high-quality, safe experience, with a reasonable opportunity to harvest waterfowl. Despite the direct and indirect impacts associated with waterfowl

hunting, waterfowl populations are unlikely to be affected significantly by the hunting program. Waterfowl population objectives and allowable harvests are determined on a flyway basis using an established annual regulatory process as described above. Limited hunt seasons and days, no-hunt zones, and established winter sanctuary on the majority of the acreage of the Tualatin River National Wildlife Refuge ensure that wintering and migrating waterfowl, as well as non-target species, find adequate food and rest areas on the refuge even during the hunting season.

In addition, by respecting seasons and limits, purchasing all required licenses, and paying Federal excise taxes on hunting equipment and ammunition, individual hunters make a big contribution toward ensuring the future of many species of wildlife and habitat for the future. By paying the Federal excise tax on hunting equipment, hunters are contributing hundreds of millions of dollars for conservation programs that benefit many wildlife species, both hunted and nonhunted. Each year, nearly $200 million in hunters' Federal excise taxes are distributed to state agencies to support wildlife management programs, the purchase of lands open to hunters, and hunter education and safety classes. Since 1934, the Service has spent more than $1 billion Migratory Bird Conservation Fund dollars from sales of Federal Duck Stamps (USFWS 2011d). Proceeds from the Federal Duck Stamp, a required purchase for adult hunters of migratory waterfowl, have purchased more than five million acres of important waterfowl habitat, including land in the Tualatin River NWR. These lands support waterfowl and many other wildlife species, and are often open to hunting (USFWS 2011e). Thus, allowing waterfowl hunting under the stipulations described above will not materially detract from or interfere with the purposes for which the refuge was established or the refuge mission.

Mandatory 10- or 15-Year Re-evaluation Date (provide month and year for "allowed" uses only):

__2028__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

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Signatures:

Prepared by: _____ 23 April 13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: _____ 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: _____ 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: _____ 4-23-13
(Signature) (Date)

Document continues on the following page.

B.4 Compatibility Determination for Research, Scientific Collecting, and Surveys at Tualatin River National Wildlife Refuge

Uses: Research, scientific collecting, and surveys

Research: Planned, organized, and systematic investigation of a scientific nature

Scientific collecting: Gathering of refuge natural resources or cultural artifacts for scientific purposes

Surveys: Scientific inventory or monitoring

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a. et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purposes:

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Uses:

Refuge staff receives periodic requests from non-Service entities (e.g., universities, state agencies, other Federal agencies, non-governmental organizations) to conduct research, scientific collecting, and surveys on refuge lands. These project requests can involve a wide range of natural and cultural resources as well as public use management issues including basic absence/presence surveys, collection of new species for identification, habitat use and life history requirements for specific species/species groups, practical methods for habitat restoration, extent and severity of environmental

contaminants, techniques to control or eradicate pest species, effects of climate change on environmental conditions and associated habitat/wildlife response, identification and analyses of paleontological specimens, wilderness character, modeling of wildlife populations, bioprospecting, and assessing response of habitat/wildlife to disturbance from public uses. Projects may be species-specific or refuge-specific, or evaluate the relative contribution of the refuge lands to larger landscapes (e.g., ecoregion, region, flyway, national, international) and issues and trends.

The Service's Research and Management Studies and Appropriate Refuge Uses policies indicate priority for scientific investigatory studies that contribute to the enhancement, protection, use, preservation, and management of native wildlife populations and their habitats as well as their natural diversity. Projects that contribute to refuge-specific needs for resource and/or wilderness management goals and objectives, where applicable, will be given a higher priority over other requests.

Research, scientific collecting, and surveys may be conducted on any and all refuge-managed lands during any part of the year as appropriate. Research, scientific collecting, and surveys may be conducted in cooperation with other Federal, state, or local agencies; colleges and universities; nonprofit organizations; consultants; or individuals. These studies are conducted to better inform refuge management decisions and increase general knowledge about the flora, fauna, and abiotic factors affecting refuge habitats.

Availability of Resources:

Refuge staff responsibilities for projects by non-Service entities will primarily be limited to the following: review of proposals, preparation of SUPs and other compliance documents (e.g., Section 7 of the Endangered Species Act of 1973, Section 106 of the National Historic Preservation Act), and monitoring of project implementation to ensure that impacts and conflicts remain within acceptable levels (compatible) over time. Additional administrative, logistical, and operational support may also be provided depending on each specific request. Estimated costs for one-time (e.g., SUP preparation) and annually recurring tasks by refuge staff and other Service employees will be determined for each project. Sufficient funding in the general operating budget of the refuge must be available to cover expenses for these projects. The terms and conditions for funding and staff support necessary to administer each project on the refuge will be clearly stated in the SUP(s).

The refuge has the following staffing and funding to administratively support and monitor research that is currently taking place on refuge lands (see table below). Any substantial increase in the number of projects will create a need for additional resources to oversee the administration and monitoring of the investigators and their projects. Any substantial additional costs above those listed below may result in finding a project not compatible unless expenses are offset by the investigator(s), sponsoring agency, or organization.

Current Refuge Staffing and Funding to Support and Monitor Research

Category and Itemization	One-time Expenses	Annual Expenses
Administration and management		$10,000

Anticipated Impacts of the Uses:

Use of the refuge to conduct research, scientific collecting, and surveys will generally provide information that will benefit fish, wildlife, plants, and their habitats. Scientific findings gained through these projects provide important information regarding life history needs of species and species groups, and identify or refine management actions to achieve resource management objectives in refuge management plans (especially CCPs). Reducing uncertainty regarding wildlife and habitat responses to refuge management actions to achieve desired outcomes reflected in resource management objectives is essential for adaptive management in accordance with 522 DM 1.

If project methods impact or conflict with refuge-specific resources, priority wildlife-dependent public uses, other high-priority research, or refuge habitat and wildlife management programs, then for the project to be compatible it must be clearly demonstrated that the project's scientific findings will contribute to resource management and that the project cannot be conducted off refuge lands. The investigator(s) must identify methods/strategies necessary to minimize or eliminate potential impact(s) and conflict(s) in advance. If unacceptable impacts cannot be avoided, then the project will not be determined compatible. Projects that represent public or private economic use of natural resources of any national wildlife refuge (e.g., bioprospecting) must contribute to the achievement of the national wildlife refuge purposes or the Refuge System mission to be compatible.

Impacts will be project- and site-specific, where they will vary depending upon the nature and scope of fieldwork. Data collection techniques will generally have minimal animal mortality or disturbance, minimal habitat destruction, no introduction of contaminants, and no introduction of nonindigenous species. Projects involving the collection of biotic samples (plants or animals) or requiring intensive ground-based data or sample collection will have short-term impacts. To reduce impacts, the minimum number of samples (e.g., water, soils, vegetative litter, plants, macroinvertebrates, vertebrates) will be collected for identification and/or experimentation and statistical analysis. Where possible, researchers will coordinate and share collections to reduce sampling needed for multiple projects. For example, if one investigator collects fish for a diet study and another researcher examines otoliths, then it may be possible to accomplish sampling for both projects with one collection effort.

Investigator(s) obtaining required state and Federal collecting permits will also ensure minimal impacts to fish, wildlife, plants, and their habitats. If projects result in long-term or cumulative effects to federally listed species and/or critical habitat, a Section 7 consultation under the Endangered Species Act will be required. Only projects that have no effect or that have ~~"n~~not likely to adversely affect" determinations will be considered compatible.

There is potential for the spread of invasive plants and/or pathogens from ground disturbance and/or transportation of project equipment and personnel, but it will be minimized or eliminated by requiring proper cleaning of investigator equipment and clothing as well as quarantine methods, where necessary. If after all practical measures are taken, unacceptable spread of invasive species is still expected to occur, the project will be found not compatible.

There also could be localized and temporary effects from vegetation trampling, collecting of soil and plant samples, or trapping and handling of wildlife. Impacts may also occur from infrastructure necessary to support a project (e.g., permanent transect or plot markers, exclosure devices, monitoring equipment, solar panels to power unattended monitoring equipment). Some level of disturbance is expected with these projects, especially if investigators enter areas closed to the public

and collect samples or handle wildlife. However, wildlife disturbance (including altered behavior) will usually be localized and temporary in nature. Where long-term or unacceptable cumulative effects cannot be avoided, the project will not be found compatible.

At least 3 months before initiation of fieldwork (unless an exception is made by prior approval of the refuge manager), project investigator(s) must submit a detailed proposal. Project proposals will be reviewed by refuge staff and others, as needed, to assess the potential impacts (short, long-term, and cumulative) relative to the benefits of the investigation to refuge management issues and understanding of natural systems. This assessment will form the primary basis for allowing or denying a specific project. Projects that result in unacceptable refuge impacts will not be found compatible.

If a proposal is approved, the refuge manager will issue an SUP(s) with required stipulations (terms and conditions) of the project to avoid and/or minimize potential impacts to refuge resources as well as conflicts with other public use activities and refuge field management operations. After approval, projects will be monitored during implementation to ensure impacts and conflicts remain within acceptable levels based upon documented stipulations.

The combination of stipulations identified above and conditions included in any SUP(s) will ensure that proposed projects contribute to the enhancement, protection, conservation, and management of native fish and wildlife populations and their habitats on the refuge. As a result, these projects will help fulfill refuge purpose(s); contribute to the mission of the Refuge System; and maintain the biological integrity, diversity, and environmental health of the refuge.

Projects that are not covered by the CCP (objectives under Goal 8 [Collect scientific information—surveys, scientific assessments, and research]) will require additional NEPA documentation.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____Use is Not Compatible

__X__Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Each project will require an SUP. Annual or other short-term SUPs are preferred; however, some permits will be for a longer period, if needed, to allow completion of the project. Renewals will be subject to refuge manager review and approval based on timely submission of and content in progress reports, compliance with SUP stipulations, and required permits.

- Projects will adhere to scientifically defensible protocols for data collection, where available and applicable.

- Investigators must possess appropriate permits and comply with conditions of state or Federal permits for their projects.
- If unacceptable impacts to natural resources or conflicts arise or are documented by refuge staff, then the refuge manager can suspend, modify conditions of, or terminate an ongoing project already permitted by SUP(s) on the refuge.
- Progress reports are required at least annually for multiple-year projects. The minimum required elements for a progress report will be provided to investigator(s).
- Final reports are due after completion of the project unless negotiated otherwise with the refuge manager.
- Continuation of existing projects will require approval by the refuge manager.
- Refuge staff will be given the opportunity to review draft manuscript(s) from the project before manuscripts are submitted to a scientific journal(s) for consideration of publication.
- Refuge staff will be provided with copies (reprints) of all publications resulting from a refuge project.
- Refuge staff will be provided with copies of raw data (preferably electronic database format) at the conclusion of the project.
- Upon completion of the project or annually, all equipment and markers (unless required for long-term projects) must be removed and sites must restored to the refuge manager's satisfaction. Conditions for clean-up and removal of equipment and physical markers will be stipulated in the SUP(s).
- All samples collected on refuge lands are the property of the Service even while in the possession of the investigator(s). Any future work with previously collected samples not clearly identified in the project proposal will require submission of a subsequent proposal for review and approval. In addition, a new SUP will be required for additional project work. For samples or specimens to be stored at other facilities (e.g., museums), a memorandum of understand will be necessary.
- Sampling equipment as well as investigator(s) clothing and vehicles (e.g., all-terrain vehicles [ATVs], boats) will be thoroughly cleaned (free of dirt and plant material) before being allowed on refuge lands to prevent the introduction and/or spread of pests .
- The Refuge System, specific refuge, names of refuge staff, and other Service personnel that supported or contributed to the project will be appropriately cited and acknowledged in all written and oral presentations resulting from projects on refuge lands.
- Refuge staff may accompany investigator(s) in the field at any time.
- Investigator(s) and support staff will follow all refuge-specific regulations that specify access and travel on the refuge.
- There may be other permits or paperwork required in addition to the SUP.

Justification:

Research, scientific collecting, and surveys on refuge lands are inherently valuable to the Service because they expand scientific information available for resource management decisions. In addition, only projects that directly or indirectly contribute to the enhancement, protection, use, preservation, and management of refuge fish and wildlife populations and their habitats will generally be authorized on refuge lands. By allowing the use to occur under the stipulations described above, it is anticipated that fish and wildlife species will experience minimal disturbance. Additionally, it is anticipated that monitoring, as needed, will prevent unacceptable or irreversible impacts to fish, wildlife, plants, and their habitats. Allowing the use as described above will not materially detract

from or interfere with the purposes for which the refuge was established or the mission of the Refuge System.

Mandatory 10- or 15-Year Re-evaluation Date (provide month and year for "allowed" uses only):

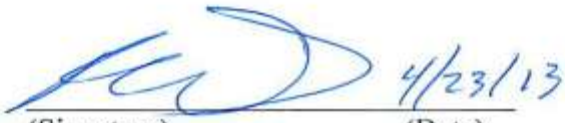
_____ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

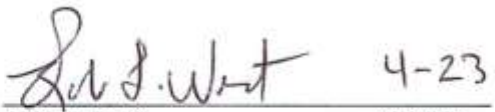
__2023__ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

Signatures:

Prepared by: 23 APRIL 13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor:  4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System:  4-23-13
(Signature) (Date)

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B.5 Compatibility Determination for Mosquito and Disease Vector Management on Tualatin River National Wildlife Refuge

Use: Mosquito and disease vector management

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a. et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1996, as amended [16 U.S.C. 668dd et seq.]).

Description of Use:

With the spread of mosquito-borne diseases across the country, national wildlife refuges have come under increasing pressure to manage mosquito populations that are bred or harbored within refuge boundaries. The Service has produced interim guidance for refuges (USFWS 2005b) to be used until the Service policy document is finalized. Tualatin River National Wildlife Refuge will adhere to the interim guidance, and our mosquito management program will follow the response matrix presented in the following table. The refuge currently has sufficient staff and funding to support this use.

Example of Mosquito-borne Disease Health Threat and Response Matrix

Current Conditions		Threat Level	Refuge Response
Health Threat Category[1]	**Refuge Mosquito Populations[2]**		
No documented existing or historical health threat/emergency	No action threshold	1	Remove/manage artificial mosquito breeding sites such as tires, tanks, or similar debris/containers. Allow compatible monitoring.
Documented human health threat/emergency	Below action threshold	2	Response as in threat level 1, plus: evaluate compatible nonpesticide management options such as water level management and vegetation removal to reduce mosquito production.
	Above action threshold	3	Response as in threat level 2, plus: allow compatible site-specific larviciding of infested areas as determined by monitoring.
Officially determined existing human health emergency	Below action threshold	4	Response as in threat level 2, plus: increase monitoring and disease surveillance.
	Above action threshold	5	Response as in threat levels 3 and 4, plus: allow compatible site-specific larviciding, pupaciding, or adulticiding of infested areas as determined by monitoring data. Identify ways to minimize treatment area to avoid non-target effects

[1] Health threat/emergency as determined by Federal and/or state/local public health or wildlife management authorities with jurisdiction inclusive of refuge boundaries and/or neighboring public health authorities.

[2] Action thresholds represent mosquito population levels that may require intervention measures. Thresholds will be developed in collaboration with Federal and/or state/local public health or wildlife management authorities and vector control districts. They must be species- and life stage-specific.

Annual precipitation and water management fill many wetlands on the refuge. This water and vegetation provides egg-laying sites for mosquitoes. When high water levels recede, the eggs hatch, larvae grow rapidly, and adults feed for two weeks or more until they breed, lay eggs, and then die. Under certain conditions the refuge may provide suitable habitat for multiple hatches of mosquitoes in a single summer.

Arboviral (arthropod-borne viral) diseases are a potential concern. These include West Nile virus, western equine encephalitis, and St. Louis encephalitis. Between 1964 and 2010 there has only been

one reported case of human infection by western equine encephalitis in Oregon (Centers for Disease Control [CDC] 2012a). St. Louis encephalitis in a human was documented in Oregon in 2003, the first case in more than 30 years (Oregon Department of Human Services 2012).

Although West Nile virus was first documented in the eastern United States, it has been moving west since that time. West Nile virus first appeared in Oregon in 2004. The first human, avian, and equine West Nile virus cases in Oregon were all diagnosed in August 2004. In 2010, no humans were diagnosed with West Nile virus infection (Oregon Health Authority Office of Disease Prevention and Epidemiology 2011). Moreover, less than 1 percent of humans who are exposed to and infected with West Nile virus become seriously ill. The fatality rate of those who do develop serious illness is 3 to 15 percent. Most human infections of West Nile virus are asymptomatic or characterized by mild flu-like symptoms. Persons over 50 years of age are more likely to develop severe illness (CDC 2012b).

The refuge, in cooperation with Washington County Health and Human Services (HHS) and Yamhill County Public Health (YCPH), proposes to monitor and control larval mosquito species that have been determined to have a negative effect on public health adjacent to the refuge. Monitoring generally takes place between early April and late September.

The HHS/YCPH staff proposes to monitor and control mosquito larvae with *Bacillus thuringiensis* var. *israelensis*, which is frequently referred to as *B.t.i.* (EPA Registration No. 73049-10), when established thresholds are exceeded and human health risks exist as indicated through monitoring. Monitoring and larval treatments will be restricted to shallowly flooded (<8 inches) vegetation that represents mosquito breeding habitat. From 2005 through 2008, refuge staff conducted monitoring for mosquito larvae on the Atfálat'i, Tualatin River, and Riverboat Units of the refuge (Figure D-1), and the results were given to Washington County's vector control personnel.

To protect sensitive resources such as eagle nesting and roosting areas and listed plant species, and to reduce the spread of invasive plant species, sampling periods and frequency as well as type of access (four-wheel-drive vehicle, ATV, foot traffic only) will be determined by the refuge in late winter/early spring. Because the locations of sensitive resources may change over time, the refuge will establish sampling and treatment stipulations on an annual basis through the SUP process.

The HHS/YCPH may also monitor adult mosquito populations from May to September using dry ice traps, or other approved methods, as part of the county-wide surveillance for the presence of mosquito-borne human health diseases.

The protocol for mosquito control when monitoring wetlands for mosquito larvae is to treat with the larvicide *B.t.i.* when the larvae reach established threshold levels and a human health threat has been documented. The treatment threshold used by the HHS/YCPH will be determined and specified in the annual SUP.

Mosquito larvae numbers within the refuge are affected by a number of factors such as weather conditions, precipitation, and time of year. The primary factor contributing to the production of mosquitoes, however, is the water level fluctuation along shorelines, where mosquitoes lay their eggs. Water level fluctuations are primarily due to precipitation and refuge water management activities. Due to the uncertainty of water levels resulting from the above factors, and subsequent mosquito hatches, the total amount of larvicide to be used and the times, dates, and exact locations of application (magnitude and frequency) cannot be predicted. In some cases, certain areas may need repeated treatments.

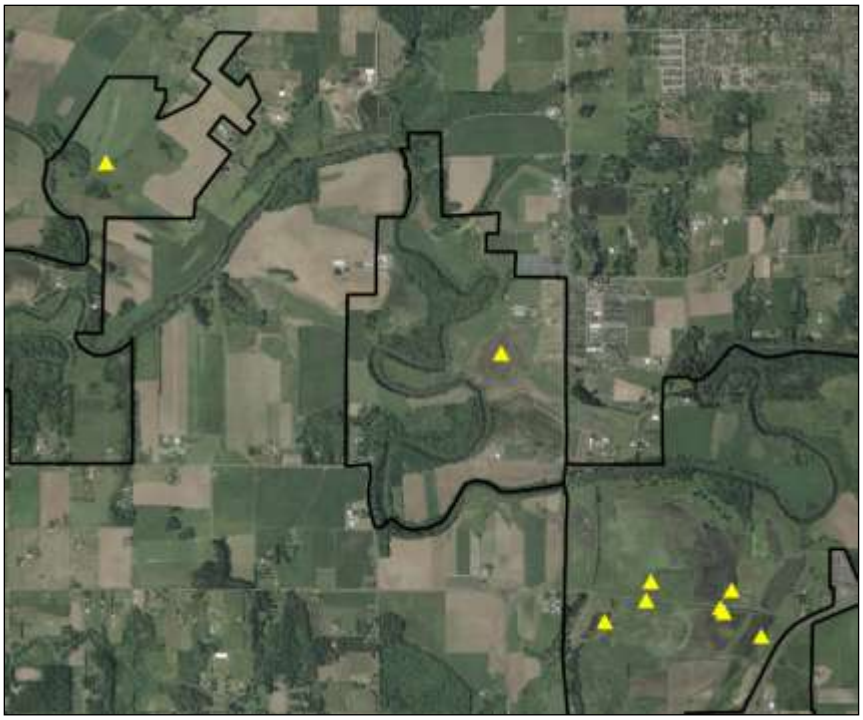

Figure D-1. Mosquito monitoring locations.

The refuge and the HHS/YCPH will establish larval abundance thresholds associated with human health threats through the SUP process to protect public health and reduce impacts to fish and wildlife populations. If mosquito larvae dip numbers reach threshold levels and a human health risk is present, HHS/YCPH staff will request approval from the refuge manager to apply *B.t.i*, at a rate consistent with label directions; this will be done as soon as possible after a threat to human health is documented.

As proposed, *B.t.i* may be applied according to label directions as often as once every two to three weeks until a human health threat is removed. The bacteria are grown on high-protein bases (fishmeal, soy flour), which are then formulated onto corncob pellets, enabling them to be broadcast over the treatment area by a handheld or ATV-mounted spreader. *B.t.i.* is a selective microbial insecticide targeting mosquito larvae; however, studies during the mid-1990s in the Midwest (Hershey et al. 1995) found that other Dipteran species (flies) can also be impacted, including chironomids, an important fish and wildlife food source. *B.t.i.* has practically no acute or chronic toxicity to mammals, fish, birds, or vegetation (EPA 1998a). It produces protein endo-toxins that, when ingested by the susceptible insect, cause paralysis of cells in the gut, interfering with normal digestion and feeding.

All applications are required to be reported to the refuge and included in an annual report submitted to the refuge by the HHS/YCPH. The extent and frequency of treatments is likely to vary annually in response to water levels, weather conditions, and larvae distribution.

In accordance with the 2005 Interim Mosquito Management Policy and the response matrix (see table titled *Example of Mosquito-borne Disease Health Threat and Response Matrix*), the Service may also permit the use of approved adulticides and/or pupacides on refuge lands in response to a declaration of a human health threat or emergency by a Federal, state, or local public health agency.

A human health emergency indicates an imminent risk of serious human disease or death and represents the highest level of mosquito-associated health threats. Human health emergencies will be determined by Federal, state, or local public health authorities and documented with local and current mosquito population and disease monitoring data. With the exception of vaccines to protect horses against West Nile virus and western equine encephalomyelitis, there are no vaccines that provide specific protection against these diseases. Mosquito control is the only practicable method currently available to protect the public from these diseases.

To date, refuge staff has not needed to permit the application of larvicides, pupacides, or adulticides due to public human health concerns.

The refuge will continue to evaluate measures to control mosquitoes that pose a threat to human health while limiting the risk associated with the use of chemical control. Water level manipulation is possible in many refuge wetland basins where mosquito larvae have been found. In the event that a human health emergency is declared and the use of pesticides is authorized, the refuge will work with the HHS/YCPH to identify which portions of the refuge are supporting species of mosquitoes that may serve as disease vectors and reduce the treatment area to the extent practicable.

Availability of Resources:

The HHS/YCPH is responsible for staffing and expenditures for sampling and pesticide applications (mainly *B.t.i.*). Refuge staff resources are needed to review annual proposals, prepare SUPs, and monitor HHS/YCPH personnel to ensure compliance (see table below).

Costs to Administer and Manage Vector Control Programs at the Refuge.

Activity or Project	One-time Expenses ($)	Recurring Expenses ($/year)
Development and issuance of SUP		$500.00
Total		$500.00

Anticipated Impacts of Use:

This use has three principal, potential impacts on refuge lands, waters, or interests.

1. The disturbance of wildlife caused by monitoring efforts and application of pesticides.
2. The impacts on wildlife from periodic elimination of mosquito larvae from the wetland community.
3. The impacts of pesticides on non-target organisms.

Impacts Associated with Disturbance of Wildlife Caused by the Monitoring Efforts:

Disturbance of wildlife by HHS/YCPH staff is minimized to the extent practicable by restricting access to sensitive areas and by controlling the type of access (four-wheel-drive vehicle, ATV, or foot traffic). Impacts anticipated from the logistical activities resulting from monitoring and treatment actions on wildlife are minimal. One or two HHS/YCPH employees will conduct these activities, and they will be restricted to refuge service roads and a minimum of off-road areas. The

speed limit for HHS/YCPH staff using vehicles on service roads is 15 miles per hour and ATVs are restricted to 5 miles per hour. Any necessary treatments will occur as soon as possible after monitoring activities. These activities cause short-term and temporary disturbance to wildlife. In the event of an identified public human health threat or emergency by the Oregon Health Authority, the data from these monitoring efforts will be used by the refuge for determining an appropriate course of action.

Impacts Associated with Application of Pesticides:

Where necessary and in accordance with the response matrix (see table titled *Example of Mosquito-borne Disease Health Threat and Response Matrix*), pesticides (larvicides, pupacides, and adulticides) will only be used on refuge lands for mosquito control after approval of a Pesticide Use Proposal (PUP). The Service's Pest Control Policy (7 RM 14) requires preparation and approval of a PUP before pesticides can be applied on refuge lands. In general, proposed pesticide uses on refuge lands will only be approved where there will likely be minor, temporary, or localized effects to fish and wildlife as well as minimal potential to degrade environmental quality. Potential effects to listed and non-listed species will be evaluated with quantitative ecological risk assessments and other screening measures. Potential effects to environmental quality will be based upon pesticide characteristics of environmental fate (water solubility, soil mobility, soil persistence, and volatilization) and other quantitative screening tools. Ecological risk assessments as well as characteristics of environmental fate and potential to degrade environmental quality for pesticides will be documented in chemical profiles. These profiles will include threshold values for quantitative measures of ecological risk assessments and screening tools for environmental fate that represent minimal potential effects to species and environmental quality. In general, only pesticide uses with appropriate best management practices on refuge lands that will potentially have minor, temporary, or localized effects on refuge biological and environmental quality (threshold values not exceeded) will be approved. However, pesticides may be used on refuge lands where substantial effects to species and the environment are possible (exceed threshold values) in order to protect human health and safety when a documented threat exists (e.g., mosquito-borne disease). The Service does not anticipate any short-term effects of the use directly on non-target invertebrates or indirectly to fish.

The refuge has developed an integrated pest management (IPM) plan (see Appendix G of refuge CCP) to manage mosquito populations. Based on adult mosquito control conducted in Washington County, pyrethroids such as Anvil are the most likely adulticides to be used to address a human health emergency. Pyrethroids are synthetic molecules that mimic natural pyrethrins that are extracted from plants in the chrysanthemum family. Pyrethroids are generally less toxic to terrestrial wildlife than other families of adulticides such as organophosphates. However, they are toxic to fish and aquatic invertebrates. The county has not used pupacides in recent years. Methoprene, a commonly used pupacide, is an insect growth regulator that prevents pupae from metamorphosing into adults. Methoprene has been found to be practically nontoxic to people and terrestrial vertebrates and poses minimal chronic and acute risk to fish, freshwater invertebrates (other than mosquitoes and closely related chironomids), and estuarine species at the doses tested (EPA 2001). Detailed mapping of areas where disease-carrying mosquitoes are present and the use of an ultra-low volume fogger will reduce the impacts to nontarget organisms. Other practices to reduce impacts to nontarget wildlife include application in the evening hours (when many insect pollinators are less active) and conducting applications when wind speeds are steady and low, and temperatures are lower.

Impacts on Wildlife from Periodic Elimination of Mosquito Larvae from the Wetland Community:

The Service does not anticipate long-term impacts to result from this use. Hershey et al. (1995) conducted a 6-year study on 27 wetlands in Wright County, Minnesota, consisting of 3 years of pretreatment sampling of aquatic invertebrates and other parameters, followed by 3 years of treatment with *B.t.i.* Insect densities and diversity were reduced by 57 to 83 percent in the second and third years of treatment, respectively. During this study, 179 genera of aquatic insects were examined, with chironomids (primarily midges) representing about half of the insect genera present at the beginning of the study. By the end of the study, however, only one to six genera dominated the treatment sites. Adverse impacts were primarily observed in the invertebrate tribes Chironomini and Tanytarsini. These tribes are ubiquitous and are represented in almost every wetland with chironomids. Although Hershey et al. (1995) found negative effects of *B.t.i.* on nontarget invertebrates; this study is not applicable in the case of Tualatin River National Wildlife Refuge for the following reasons.

1. Entire wetlands were treated with *B.t.i.* multiple times within and over several consecutive years in the Minnesota study. In contrast, the treatment area at Tualatin River National Wildlife Refuge will likely only include wetland margins where vegetation interfaces with open water.
2. Because of fluctuating water levels changing the location of the shallow flooded shoreline, it is unlikely *B.t.i.* applications will occur in the same area more than three times in a single year, and most areas will receive a single application. Stipulations in the SUP will limit the number of applications in a specific location during one season.

Recently completed invertebrate and salmonid research along the south Franz Lake shoreline (Franz Lake National Wildlife Refuge, Washington) has provided valuable information regarding the cumulative impacts of mosquito treatment and control measures that are applicable to the program at this refuge. The invertebrate study was conducted during the latter part of the application period (July to September). During this study, stable water levels from July to September resulted in three applications of *B.t.i*. to the same locations. No impacts to non-target invertebrates were reported as a result of these applications. Consequently, it is unlikely there will be negative cumulative direct impact on the invertebrate community or indirectly on fish and wildlife. Because there were no impacts to non-target invertebrates from *B.t.i.* treatment at Franz Lake, it is unlikely that native fish will be impacted from applications at Tualatin River National Wildlife Refuge.

Although mosquito larvae were reduced as a result of *B.t.i.* treatments at Franz Lake, there were no significant differences in the numbers of over 40 taxa of invertebrates, with 50 percent of the taxa being other insects that had been represented at shallow water sites. Based on results of the invertebrate survey, it is expected that alternative prey will be available for native fishes (including salmonids), as well as other wildlife that depend on larval or adult mosquitoes as forage.

Consequently, the Service concludes that monitoring and subsequent applications of *B.t.i.* will not have substantial short-term, long-term, or cumulative impacts on refuge fish and wildlife resources.

Impacts to Biological Integrity, Diversity, and Environmental Health:

Biological integrity, diversity, and environmental health can be simply defined as native fish, wildlife, plants, and their habitats as well as natural processes that support them. As described above, the impacts from larvicide application to most fish, wildlife, and plants will be temporary and

localized. Mosquito populations that are part of the biological integrity, diversity, and environmental health of the refuge will be impacted from control actions. Although numbers of mosquitoes will be temporarily and locally reduced, there will likely be no long-term or cumulative effects to mosquitoes and the species that feed upon them at the refuge. As part of the refuge's mosquito management plan, the refuge will assess the impacts of adulticide applications on biological integrity, diversity, and environmental health.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- The HHS/YCPH must apply for and receive an SUP annually from the refuge manager. The permit will specify conditions including, but not limited to, access restrictions, timing of applications, and measures required to limit the spread of invasive plants.
- Mosquito management will follow an IPM approach, and any compatible cultural and/or mechanical control methods will be identified and implemented before chemical control is permitted.
- Larvae control is to be conducted only when the HHS/YCPH determines that mosquitos breeding in specific units is widespread and poses a documented threat to human health.
- Only Service-approved pesticides may be applied on refuge wetlands and only after PUPs have been approved.
- The HHS/YCPH will contact the refuge manager at least one day in advance of each application. The refuge manager has final approval over all pesticide treatments.
- The HHS/YCPH will notify the refuge manager in the event that virus activity is detected within or near the refuge and will work with the refuge to determine whether additional surveillance or control actions are necessary.
- The HHS/YCPH must provide the refuge manager with monthly and annual reports of all control activities on the refuge.
- The refuge may rescind this CD at any time based on future Service policy determinations or scientific studies of the effects of pesticides on the environment or nontarget organisms.
- This CD will be reviewed when the Service finalizes its pending policy on mosquito management, and a new CD will be issued if this CD is not in full compliance with the new policy.

Justification:

Several suburban communities exist near the refuge within the flight range of adult mosquitoes (5 to 10 miles). Mosquito species capable of transmitting diseases to people may be present on the refuge, though the risk of transmission is generally low. The refuge's mosquito control program is consistent with the Service's 2005 Interim Mosquito Management Policy and will help manage mosquito populations that pose a threat to human health.

The refuge will ensure that its mosquito management program is consistent with national policies for disease control and will work with the HHS/YCPH to continue to identify new ways to use compatible mechanical and cultural control methods, reduce larvicide applications, and avoid impacts to sensitive resources.

In the event that compatible mechanical and cultural control methods are not effective or practicable, the use of the larvicide *B.t.i.* will help avoid ecologically significant impacts to nontarget organisms and help the HHS/YCPH avoid the need to apply adulticides, which are generally more toxic to nontarget organisms. For the following reasons, mosquito monitoring and *B.t.i.* treatments for control of mosquitoes on the refuge will not materially interfere with or detract from fulfilling the Refuge System mission or achieving refuge purposes.

- Under the worst-case scenario, a maximum of 18 acres or less than 1 percent of the total refuge acreage will be impacted by mosquito monitoring and treatment activities annually from April 1 through September 30.
- The invertebrate *B.t.i.* study indicated that no impacts to nontarget invertebrates were associated with three *B.t.i.* treatments for control of mosquito larvae on the shallowly flooded south shoreline of Franz Lake National Wildlife Refuge.
- Although mosquito larvae will be reduced from *B.t.i.* treatments, over 40 taxa of invertebrates, with 50 percent of the taxa represented by other insects, were found at shallow water sites (where treatments will occur) after treatment. Therefore, alternative prey is likely available for fish and other wildlife species.
- Monitoring and treatment activities will likely result in only temporary and localized disturbance to fish and wildlife.

Mandatory 10- or 15-year Re-evaluation Date (provide month and year for "allowed" uses):

_____ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

__2023__Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

References:

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Signatures:

Prepared by: Eric Halmay 4/25/13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: Eric Halmay 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: Rod J. West 4-23-13
(Signature) (Date)

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B.6 Compatibility Determination for Fishing at Tualatin River National Wildlife Refuge

Use: Fishing

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a. et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—…for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—…the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Use:

Fishing is one of the priority public uses that promote traditional outdoor recreation opportunity for the surrounding community. Very few opportunities exist on the Tualatin River for public fishing, in particular for disabled anglers. Fishing in the Tualatin River will be implemented at the existing River Overlook on the Atfálat'i Unit of the refuge—a cantilevered platform will provide access to fishing on the river below.

A wide variety of fish inhabit the Tualatin River mainstem, including warm-water, cold-water, and anadromous species, and the river will support a fishery for these species. Fisheries in the Tualatin River could include cold-water species such as rainbow trout and cutthroat trout; anadromous species such as upper Willamette River steelhead, Chinook salmon, and coho salmon; and warm-water species such as white crappie, bluegill, bullhead, and large-mouthed bass (Leader 2001). Generally, from May to August, under current Oregon Department of Fish and Wildlife (ODFW) regulations,

fishing could occur in the Tualatin River for trout species and coho salmon as identified in the special regulations for Tualatin River; a wide variety of warm-water species; crayfish; and bullfrogs. For purposes of regulations, ODFW considers rainbow trout over 20 inches to be steelhead (ODFW 2011d).

Recreational fishing will be allowed in accordance with all applicable laws and regulations of the State of Oregon; however, access will be limited to daylight hours only and cleaning of fish on-site will be prohibited. Access to the River Overlook from the public parking lot will be via the existing year-round trail. No other areas of the refuge will be open to fishing. The overlook and associated facilities will be provided during daylight hours and will be fully accessible to users under the guidelines of the Architectural Barriers Act. Limited removal or trimming of vegetation near the overlook will be necessary to minimize tangling of fishing lines. The overlook will comfortably accommodate three to four anglers at a time, plus up to 15 other visitors when fishing is not occurring. The maximum number of anglers anticipated annually will be 1,000, some of whom may be participants in special fishing events and clinics hosted by the refuge. Events will focus on fishing ethics and techniques, natural resource conservation, and environmental education.

Availability of Resources:

Direct annual recurring costs to administer and maintain a recreational fishing program are primarily in the form of staff time, publication of leaflets, and maintenance of overlook and trail facilities. The management direction of the CCP proposes that the desirability of a user fee be explored to help operate the fishing program and maintain and repair associated facilities. The refuge currently has sufficient staff and funding to offer the use.

Costs to Administer and Manage Fishing under the CCP

Activity or Project	One-time Expenses ($)	Recurring Expenses ($/year)
Development of fishing plan	$5,000	
Administration and maintenance of program		$15,000
Total	$5,000	$15,000

Anticipated Impacts of Use:

General Impacts:

A general assessment of impacts resulting from fishing has been compiled from the literature and is briefly summarized below.

Disturbance to Wildlife: Fishing as a solitary and stationary activity tends to be less disturbing to wildlife than hunting or motorized boating (Tuite et al. 1983). Fishing has the potential to cause disturbance to birds and other wildlife using open waters and tributaries where fishing occurs. Fishing activities may influence the composition of bird communities as well as distribution, abundance, and productivity of waterbirds (Bell and Austin 1985; Bordignon 1985; Bouffard 1982; Bouffard and Hanson 1997; Cooke 1987; Edwards and Bell 1985; Tydeman 1977). Anglers often fish in shallow, sheltered bays and creeks that birds prefer, which can negatively impact distribution

and abundance of waterfowl, grebes, and coots (Cooke 1987). Increases in anglers and associated shoreline activity have been found to discourage waterfowl from using otherwise suitable habitat (Jahn and Hunt 1964). When compared to non-fishing days and/or non-fishing rivers, anglers influenced the numbers, behavior, and diurnal distribution of avian scavengers present at sites along the Skagit and Toutle Rivers in Washington, disrupted feeding, and increased energy expenditure through avoidance flights (Knight and Knight 1984; Knight et al. 1991).

Stream Fishing Impacts: Shoreline activities related to stream fishing, such as human noise, will cause some birds to flush and go elsewhere. Waterbirds and waterfowl in particular use shorelines seasonally for resting, feeding, and nesting. Furthermore, anglers frequently show long periods of inactivity interspersed with short periods of rapid movements, which has the potential to disturb nearby wildlife (Bell and Austin 1985).

Refuge-specific Impacts:

Anglers accessing and using the River Overlook may occasionally disturb resident mammals, but the impact will likely not exceed that which already occurs from other pedestrians using the trail. Neotropical migratory songbirds and resident birds may be disturbed, but will likely remain in the general area. Waterfowl and shorebirds will likely experience minimal disturbance due to the dense tree and shrub buffer planting that separates the trail and overlook area from seasonal wetlands.

Impacts to Listed Species:

Upper Willamette River steelhead and Chinook salmon were both listed as threatened species in August and March 1999, respectively (Federal Register 1999a, Federal Register 1999b), and critical habitat was designated in 2005 (Federal Register 2005) in the upper Tualatin River Basin (roughly defined as the Tualatin River and its tributaries upstream of Highway 219 near Hillsboro, excluding Rock Creek). The use will not occur in designated critical habitat. No other listed species are known to exist in the area that will be designated for fishing. The recreational fishing program and associated facility are anticipated to have no effect on threatened species if anglers are held in compliance with ODFW and refuge regulations. The designated fishing season for trout and coho salmon according to ODFW regulations is generally May 31 to October 31. During the winter, listed species are migrating upstream to spawn, and then in late winter and early spring, the smolts would be outmigrating. The spring-summer-early fall period planned for fishing, especially at the refuge's location on the river, is generally considered to be too warm for these species to survive. By the end of April the temperature in the river near the planned fishing location is reaching a lethal range for salmonids. Local rainbow and cutthroat trout move up into tributaries that have cooler and more oxygenated water for them to survive.

Impacts to Nonlisted Species:

The majority of fish species expected to be caught are nonlisted fish such as small-mouth bass and bluegill. For fish that are released it is anticipated that there will be some mortality of these non-native species as a result from handling. However, with proper care and quick releases, these impacts are expected to be minimal. Some fish will be killed and kept in accordance with regulations. These direct impacts will likely be minimal and will not have a significant impact on overall populations of these species.

Impacts to Other Priority Public Uses:

Fishing is expected to result in occasional disturbance to other visitors. In addition, anglers may inadvertently flush wildlife that are being observed by other visitors. Occasional crowding may occur on the overlook due to multiple public uses occurring simultaneously. No significant effects to roads, trails, and other infrastructure from the fishing program are foreseen. Normal facility maintenance will continue to be necessary.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____Use is Not Compatible

__X__Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- Fishing will be opened only after a fishing package is completed in coordination with ODFW and draft and final regulations are published in the Federal Register.
- Fishing will be allowed only during daylight hours.
- Fires, off-trail use, and littering are prohibited.
- Information signs and/or publications will be provided to ensure anglers have access to all regulations that apply to the refuge and to fishing activities.
- All persons fishing shall be required to have a valid Oregon State fishing license and follow all applicable state regulations.
- Law enforcement patrols will be conducted on a periodic basis to ensure compliance with state and refuge regulations.
- Access to fishing will be limited to foot traffic along the existing trail. Persons with disabilities who are unable to access the River Overlook to fish will be accommodated on a case-by-case basis. This will require prior notification to the refuge.
- If disturbance to wildlife or damage to habitat results in unacceptable levels, the refuge will limit fishing access to reduce impacts.
- If conflict with other priority public uses, or overcrowding by anglers occurs, the refuge may institute techniques to reduce negative impacts to visitor experience. These may include limiting fishing to specific days and/or times; developing signage to inform visitors of fishing program opportunities; developing a permit system for anglers; and/or other methods as appropriate to the situation.

Justification:

As a wildlife-dependent recreational use, fishing receives enhanced consideration in the CCP planning process. Despite direct and indirect impacts associated with fishing, refuge riparian and

riverine species and their habitats are unlikely to be affected significantly by the fishing program on the refuge at the levels of use anticipated in the CCP. Other riparian and stream areas not subject to fishing disturbance will be maintained on other portions of the refuge. State regulations, including bag limits, ensure that harvesting of fish does not harm long-term populations. It is anticipated that wildlife populations will find sufficient food resources and resting places, and their abundance and use of the refuge will not be measurably lessened from disturbance by fishing. The relatively limited number of individual animals and plants expected to be adversely affected will not cause wildlife populations to materially decline, the physiological condition and production of refuge species will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted. Thus, allowing fishing to occur under the stipulations described above will not materially detract from or interfere with the purposes for which the refuge was established or the Refuge System mission.

Mandatory 10- or 15-year Re-evaluation Date (provide month and year for "allowed" uses):

__2028__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

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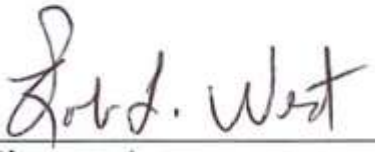
Signatures:

Prepared by: 4/23/13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System:  4-23-13
(Signature) (Date)

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B.7 Compatibility Determination for Environmental Education at Tualatin River National Wildlife Refuge

Use: Environmental education

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Use:

Environmental education refers to formal, curriculum-based education opportunities primarily for students and organizations. Environmental education fosters an aware and involved citizenry that takes an active role in conservation. The environmental education program at the refuge will be administered as described in Goal 13 of the CCP. Environmental education could occur in any season at the refuge. In practice, most environmental education will occur between September and June, during the school year. The total number of people served by the environmental education program is expected to grow to 10,000 over the 15-year life of the CCP. The program will continue to rely on volunteers for full implementation.

Environmental education activities will take place primarily within designated facilities designed to support the program. These include the year-round and seasonal trails, including overlooks; five trailside environmental education study sites; the environmental education shelter; an environmental

education classroom, and the Wildlife Center. Refer to Section 5.2 of the CCP for a complete description of current facilities. An off-trail study area described in the CCP management direction will only be used by students who are participating in refuge lesson plans that include off-trail activities. This area will be clearly marked for student use only, and the use will be overseen by trained refuge staff and/or volunteers. Additional off-trail use may include occasional refuge-led field trips to areas generally closed to the public that will provide educational value not available in the designated public use areas. Examples include activities such as, but not limited to, access for secondary or collegiate-level students studying hydric soils along wetland edges, students accompanying refuge staff on biological monitoring activities such as bird banding, and habitat surveys such as conducting vegetation transects. A nature explore area for young children described in the CCP management direction will be limited to less than 1 acre, be located adjacent to the year-round trail in an area where limited additional wildlife disturbance will occur, be bound by a barrier to contain the use, be primarily constructed with natural and/or sustainable materials, and be signed appropriately to guide the use.

Students and educators of all ages and grade levels will participate in curriculum-based education on the refuge. In addition to formal classroom participants, the environmental education program will serve home-school groups/families, pre-school groups, youth groups such as scouts, after-school clubs, and other informal organized groups such as summer youth programs. Generally, no more than 100 students (plus teachers and chaperones) will be visiting any given unit of the refuge at any given time, and advance reservations will be required. Educators wishing to bring K-8 students will be required to attend a teacher workshop prior to the field trip or have trained volunteers and/or refuge staff accompanying the group. Educators bringing high school and college students will be required to consult with refuge staff prior to their visit to both register and to obtain approval for planned activities. In all cases, educators will be instructed in how to teach and are expected to enforce "field trip etiquette" that is designed to minimize wildlife and habitat disturbance. To the greatest extent possible, the refuge will provide staff and/or volunteers to welcome and accompany field trips to the refuge.

The refuge will provide approved curricula and guidance to all teachers conducting education on the refuge. Activities generally fall into the same guidelines that are expected of all other visitors (refer to CD for wildlife observation, photography, and interpretation). However, additional activities may occur as part of refuge-approved lesson plans and when conducted by a trained volunteer or refuge staff. These may include, but are not limited to, capture, study, and release of small animals such as macroinvertebrates, frogs, snakes, insects, worms, etc; handling and return of features such as leaves, scat, and feathers; and collection of water, seeds, and soil taken either to the classroom or off-site for further study and analysis.

Availability of Resources:

Estimated costs for operating the environmental education program as envisioned under the CCP are displayed in the following table. With assistance from Friends of the Refuge, grants, volunteers, and other partners, the refuge currently has sufficient staff and funding to support these programs at their current levels. Additional resources will be needed to fully implement the uses and strategies described in the CCP.

Costs to Administer and Manage Environmental Education under the CCP

Activity or Project	One-time Expenses ($)	Recurring Expenses ($/year)
Environmental Education Specialist		67,500
Environmental Education Intern		25,000
Develop curricula resources for educators	10,000	2,000
Conduct annual teacher workshops		5,000
Provide and maintain educational equipment and materials	10,000	5,000
Conduct annual volunteer training		2,000
Maintain environmental education facilities		20,000
Develop additional signage and publications	5,000	1,000
Design and construct nature explore area	50,000	2,000
Program oversight: Visitor Services Manager		20,000
Total	$75,000	149,500

Anticipated Impacts of Use:

General Impacts:

A general assessment of impacts resulting from environmental education uses has been compiled from the literature and is briefly summarized below.

Disturbance Impacts: In general, impacts that could occur from environmental education programs will be similar to those expected from wildlife observation, photography, or interpretation activities. Such impacts will be expected to include temporary damage to vegetation resulting from trampling, disturbance to nesting birds, and disturbance to feeding or resting birds or other wildlife in the vicinity. Environmental education programs generally accommodate groups of participants, and studies have shown that increasing group size has an impact on wildlife (Beale and Monaghan 2004; Remacha et al. 2011). In addition to group size, loudness has also been found as an important variable to disturbance of wildlife, and loudness of people present can be more important than the number of people present (Burger and Gochfeld 1998). Studies showed that reducing group size, allowing safe distances, and reducing noise levels helps minimize negative impacts on wildlife (Beale and Monaghan 2004; Burger and Gochfeld 1991; Remacha et al. 2011). An unpublished study examined the effect of environmental education site activities at Blackhorse Lake on the Turnbull National Wildlife Refuge (Jose 1997). The study was designed to compare waterfowl presence and behavior patterns between the times when environmental education activities were occurring and when environmental education classes were not on-site. The study results indicated that fewer waterfowl were present in the study area when environmental education classes were on-site as compared to control times. The study also found more short flights undertaken by birds when classes were on-site. Redheads displayed the highest number of flight responses, followed by mallards. Ruddy ducks almost never flew but had the highest increase in directional swimming away from

classes. The study recommended that sites heavily used by smaller bodied birds, such as ruddy ducks, buffleheads, and teal, not be used as environmental education sites.

Conservation Benefits: Environmental education provides indirect beneficial impacts for visitors engaged in environmental education programs and activities. One study found that animal-oriented activities have an impact on the knowledge and attitudes of students involved in environmental education. Direct instruction methods in which children examined the anatomical and behavioral characteristics of live spiders and snakes promoted a positive attitude toward these animals (Kellert and Westervelt 1983; Kress 1975). Eighth graders engaged in wildlife-oriented activities were found to be more likely to recognize the importance of lower forms of animal life and preserving endangered species and to have greater tolerance for predators (LaHart 1974). Another study concluded, ~~"~~if one were to try to change attitudes, education without an experiential component might not be very effective" (Baird and Tolman 1982:12).

Refuge-specific Impacts:

Environmental education activities will be more localized and will occur less frequently than general wildlife observation. Larger group sizes will likely result in greater magnitude of disturbance to feeding, resting, or nesting birds or other wildlife in the vicinity; however, having groups accompanied by staff or trained naturalists will help mitigate this disturbance. Most of the sites to be used by environmental education groups are already regularly used by other wildlife viewers, so the additional impact by the environmental education program will likely be small. However, to the extent that students are encouraged to conduct hands-on studies of vegetation, insects, water, or less mobile wildlife, more off-trail use will be expected for this activity than for any other non-consumptive use, with attendant impacts that could be higher than for more typical wildlife observation activity.

Participation in environmental education programs is growing throughout Oregon and Washington. With the growth of participation in environmental education programs and the emphasis on these programs under the CCP, future effects can be expected to be higher than present. Nonetheless, environmental education activities will occur outside of wintertime sanctuary areas and outside of fragile habitats.

Impacts to Listed Species:

No direct impact to listed species is anticipated to occur as a result of the environmental education program. Any unanticipated future impacts will be reduced by ensuring that environmental education groups avoid or severely limit activity in areas hosting rare species.

Impacts to Other Priority Public Uses:

Environmental education may result in disturbance to other visitors. School groups, especially those dominated by younger primary school children, may be loud and may flush wildlife being enjoyed by other visitors. This effect is expected to be fairly minimal, since the majority of other visitors use the refuge on weekends and school groups will generally be present on weekdays.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____Use is Not Compatible

__X__Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- Environmental education facilities and activity areas shall be designated and/or constructed in locations that consider the site's potential for contributing to a diverse and rich curriculum and minimizing impacts to sensitive resources, including listed species and wintering waterfowl.
- Advance reservations will be required for all groups participating in environmental education activities.
- Educators will be required to use refuge-approved curricula and/or lesson plans.
- Adult supervision will be required for students up to twelfth grade.
- All groups will be instructed in trail and off-trail etiquette and ways to reduce wildlife and habitat disturbance during a ~~"~~welcome" session. During ~~"~~teach the teachers" workshops, instructors will review trail etiquette and how to minimize wildlife disturbances.
- Generally, no more than 100 students (plus teachers and chaperones) will be allowed on any given unit of the refuge at any given time. Classes will be asked to break up into smaller groups averaging 15 students.
- Signs, pamphlets, and verbal instructions from refuge staff and volunteers will promote appropriate use of facilities to minimize wildlife and habitat disturbance.
- Periodic monitoring and evaluation of sites and programs will be conducted to assess if objectives are being met and ensure the resource is not being unacceptably degraded. If disturbance to wildlife or damage to habitat reaches unacceptable levels, the refuge will avoid or limit environmental education activities in areas where unacceptable impacts occur.

Justification:

As a wildlife-dependent recreational use, environmental education receives enhanced consideration in the CCP planning process. Environmental education can provide students with the joy of experiencing wildlife on their public lands, and as such, helps fulfill the mission of the Refuge System. Based on the analysis presented above, this use will be expected to have a minor direct negative impact on refuge resources. By limiting the size of groups and locating environmental education activities in areas that are already regularly used, the additional disturbance to wildlife, though larger than at present, is also expected to be minor. It is anticipated that wildlife populations will find sufficient food resources and resting places such that their abundance and use of the refuge will not be measurably lessened from education activities. The relatively limited number of individual animals and plants expected to be adversely affected will not cause wildlife populations to

materially decline, the physiological condition and production of refuge species will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted. Thus, allowing environmental education activities to occur on selected areas of the refuge under the stipulations described above will not materially detract from or interfere with the purposes for which the refuge was established or the Refuge System's mission.

Mandatory 10- or 15-year Re-evaluation Date (provide month and year for "allowed" uses):

__2028__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

References:

Baird, D.D. and R.R. Tolman. 1982. Attitudes of high school students and biology teachers towards animals. Unpublished manuscript. Field Museum of Natural History, Division of Mammals. Chicago, IL.

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Signatures:

Prepared by: 4/23/13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: 4-23-13
(Signature) (Date)

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B.8 Compatibility Determination for Cooperative Farming at Tualatin River National Wildlife Refuge

Use: Cooperative farming

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a. et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Use:

Cooperative farming is an interim tool, and an effective one, that allows the refuge to manage invasive species while at the same time providing forage for wildlife. Prior to and during restoration of native habitats, invasive species can outcompete native plants, therefore reducing the success of native plants to become established. Cooperative farming will allow the refuge to control invasive plants, which will give native plants a greater chance of success when restoration occurs.

The refuge manages small grain croplands and pastures to:

- Provide wildlife habitat for migratory birds and other resident wildlife, and
- Prevent invasive plants from dominating the landscape prior to restoration of the land to native habitats.

Invasive plants have the potential to reduce habitat quality and forage opportunity and have been identified as one of the most serious threats to refuge habitats. Preventing infestation is the most effective strategy because if left without refuge intervention, agricultural lands acquired by the refuge will most likely convert to invasive weed parcels. Species such as reed canarygrass and Himalayan blackberry pose serious threats. The refuge continually monitors for new invasive plants as well. A variety of methods, including mechanical, herbicidal, and cultural treatments, are used to manage these invasive plant species. The refuge uses an IPM approach to control weeds (Appendix G), whereby management options are selected based on on-site conditions and not implemented until established thresholds are exceeded.

Various methods will continue to be evaluated for efficiency and appropriateness to treat invasive species. If one particular method is not expected to be effective or may have undesirable consequences (such as impacting grassland nesting birds), then the refuge will evaluate other methods until one is deemed appropriate for a particular situation.

Approximately 800 acres of the Wapato Lake and Onion Flats Units will be maintained in cooperative farming until restoration begins. The farming will occur through a cooperative farming program in which croplands will typically be planted and maintained by local area farmers who operate according to farming agreements. Farming typically occurs with planting in the late spring and early summer with harvesting in late summer and early fall. Cooperative farming agreements are a negotiated agreement between the refuge and the private farmer to manage the lands for both parties. To benefit wildlife, the refuge's share of 30 percent will be left in the field where it will be available to wildlife, primarily waterfowl. The types of small grain crops and pasture grasses proposed under the cooperative farming program include, but are not limited to, plantings of corn, spring and winter wheat, and clover. Implementation of cooperative farming is dependent on weather and other environmental conditions. Determination of location, small grain crop species or pasture grasses, and timing of farming are made annually dependent on refuge needs.

Availability of Resources:

Estimated costs for operating the cooperative farming program as envisioned under the CCP are costs associated with administrative functions and are displayed in the following table. These administrative functions include the personnel required to review farming proposals, execute cooperative agreements, and monitor the program. The refuge currently has sufficient staff and funding to support this use.

Costs Associated with Operation of Cooperative Farming Program

Category and Itemization	One-time Expenses ($)	Recurring Expenses ($/year)
Administrative support	0	$5,000
Total expenses	0	$5,000

Anticipated Impacts of Use:

Approximately 800 acres of land will be cooperatively farmed under the CCP management direction at the Wapato Lake and Onion Flats Units. These units will be farmed to manage for invasive species until such time that restoration begins.

General Impacts:

Direct impacts of cropland management include exposure of soils to wind erosion and impacts from farm machinery. During tillage, the soil is left bare prior to planting. The bare soil is exposed for much of the year to environmental factors that may alter its quality. Wind, heat, and precipitation are the most damaging factors that may affect the soil. Wind and precipitation can both lead to displacement of soil, increasing the rate of erosion, and heat can effectively bake the soil, causing it to become inhospitable to seed banks; it may even cause the soil to become dry and compacted, making it impossible for any vegetation to grow if tillage is not performed.

Compaction of the soil can also result from the use of farming equipment for seeding, causing undesirable increases in bulk density, while tilling may prevent the accumulation or accelerate the decomposition of organic matter and diminish earthworm populations.

Farming may also result in the use and introduction into the environment of chemical agents from pesticide use. Weed issues may greatly increase from ground disturbance and from movement of cultivating and harvesting equipment from field to field, therefore spreading invasive species' seeds. In addition, small mammals, reptiles, and amphibians may be subject to mortality from farm equipment, and nesting birds may be disrupted and have nests destroyed.

Refuge-specific Impacts:

There will be no loss of native habitats due to farming since areas proposed for farming were already in production prior to refuge acquisition. There will be some continued impact to soil quality, but the CCP management direction will reduce the acreage under cultivation; thus, there will be a minor beneficial impact on soil and water quality, compared to the present. There will be a minor negative impact on farming as the amount of land under cultivation will decrease.

The introduction and spread of weeds is expected to be minimal through proper decontamination practices such as equipment cleaning, mowing to prevent seed set and dispersal, and treatments to any source populations that have the potential to infect a field. Early detection and rapid response methods will be employed to ensure any new populations are treated and eradicated immediately. Cooperators will be required to clean their equipment prior to moving it both on to the refuge and across units of the refuge. This will help minimize the spread of undesirable plants. The refuge will continue to monitor farming sites for invasive weeds and will maintain an aggressive approach to invasive species control. In addition, the refuge will work with the County Weed Board to prevent, identify, and eradicate new infestations.

For weed species that are or become established, mechanical, cultural, and biological controls will be evaluated as methods of treatment. If these methods are not expected to be effective, then herbicidal applications may be necessary. Chemical applications will be subject to the provisions of the IPM plan. This plan directs the refuge to select the most effective herbicide that will have the least environmental degradation to soils, surface water, and groundwater, and the least impact to native wildlife and vegetation. Each approved herbicide used will undergo a chemical profile analysis; active ingredients will be analyzed for their risk quotient and this value compared to a Level of Concern for surrogate species, as established by the EPA. All applications of herbicides will conform to the specific pesticide label requirements.

Employment of this approach will provide for a moderate to minor risk from chemical exposure. However, some risks may still occur from factors not assessed under current protocols, such as intermingling of unlike chemicals in the field; species-specific sensitivity that differs from surrogate species; exposure through inhalation; exposure through ingestion of pesticide-contaminated soil; and other factors as described in the IPM plan.

Positive short-term effects are also anticipated. In addition to providing high-carbohydrate forage for wintering waterfowl, crop fields can benefit other bird species by providing some foraging habitat for a variety of seed-eating migratory bird species.

Impacts to Listed Species:

Currently there are no known listed species inhabiting farm fields. Should conflicts occur in the future, measures such as erecting protective barriers and/or transplanting listed populations out of harm's way will be enacted. Additionally, if deemed necessary, the cooperative farming program will be halted until all protective measures can be evaluated and implemented as necessary.

Impacts to Other Priority Public Uses:

Farming on the refuge does not occur in areas that are open to the public; therefore, there are no impacts to public uses.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____ Use is Not Compatible

__X__ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

- Cooperative farming agreements will be established with the cooperator per agency policy.
- Genetically modified seeds and other organisms will not be permitted for use in the farming program.
- Weeds will be controlled in accordance with the refuge's IPM program using methods such as crop rotation, mechanical treatment, biological controls, and approved pesticides.
- Herbicide applications may only be applied with prior refuge approval, and applicators must meet all state, Federal, and agency requirements.
- Equipment of cooperating farmers will be cleaned prior to being moved onto the refuge and between fields when working in areas with weed infestations.
- Cooperators will provide a record of herbicides used, including chemical name, amount used, date, location, and method of application.
- Diligence shall be exercised in the control of county-listed invasive weeds.

- Best management practices will be used to avoid fertilizer runoff into wetlands or leaching into groundwater and to minimize sedimentation of streams and water bodies. For example, nitrogen fertilizer applications will be avoided in the fall to help avoid waste and prevent fertilizer from leaching into groundwater, and buffer strips of dense vegetation will be left between farmland and wetlands to filter runoff and prevent sedimentation.
- Monitoring of the cropland farming program will be performed by qualified refuge staff.

Justification:

Cropland farming has been shown to be an effective habitat management practice performed to prevent invasive species from infesting a highly disturbed area until restoration of native vegetation can occur. Additionally, cropland farming provides high-quality food for wildlife species at the refuge. Wintering and migratory birds readily use agricultural crop fields to help meet their energy needs.

Although these large monocultures of planted grasses are not native, and do not support the diversity of species that native habitats do, it is critical to maintain these areas in production to keep them from becoming infested with noxious weeds. By conducting the farming program under the practices and stipulations above, it is anticipated that the program will contribute to the enhancement, protection, conservation, and management of native wildlife populations and their habitats on the refuge. As a result, cooperative farming contributes to achieving refuge purpose(s), contributes to the mission of the Refuge System, and helps maintain the biological integrity, diversity, and environmental health of the refuge. Allowing the use as described above will not materially detract from or interfere with the purposes for which the refuge was established or the mission of the Refuge System.

Mandatory 10- or 15-year Re-evaluation Date (provide month and year for "allowed" uses):

_____Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

__2023__Mandatory 10-year reevaluation date (for all uses other than wildlife-dependent public uses)

Signatures:

Prepared by: Eri Haley 4/25/13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: Erin Haley 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: Robert D. Wurt 4-23-13
(Signature) (Date)

B.9 Compatibility Determination for Commercial Visitor Services at Tualatin River National Wildlife Refuge

Use: Commercial visitor services

Station Name: Tualatin River National Wildlife Refuge

Date Established: 1992

Establishing and Acquisition Authority(ies):

Fish and Wildlife Act of 1956 (16 U.S.C. § 742a. et seq.)

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901-3932)

Refuge Purpose(s):

—… for the development, advancement, management, conservation, and protection of fish and wildlife resources …" 16 U.S.C. § 742f(a)(4) (Fish and Wildlife Act of 1956)

—… for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude …" 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

—… the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission:

—To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Administration Act of 1966, as amended [16 U.S.C 668dd et seq.]

Description of Use:

This CD addresses nonconsumptive commercial uses related to wildlife observation, wildlife photography, interpretation, and environmental education. This CD does not address consumptive uses such as commercial guiding for hunting and fishing, nor activities that are not related to natural, historical, or cultural subjects. Additionally, a variety of nonprofit and for-profit organizations, educational institutions, and individuals engage in leading natural resource- and environmental education-based activities on the refuge. Some of these organizations may request to charge fees for services they intend to provide. This CD covers the fee collection and program quality aspects of commercial visitor services. Refer to the CDs for wildlife observation, wildlife photography, and interpretation and for environmental education for a complete compatibility examination of the wildlife-dependent activities that apply to commercial visitor services.

By regulation, the Service may only authorize public or private economic use of natural resources on any national wildlife refuge, where it is determined that the use contributes to the achievement of the refuge's purpose or the Refuge System mission. Refuge System policy on management of specialized uses states that when monetary gain (profit) is the objective of a refuge recreational use, the use is to be managed as an economic and commercial use.

Commercial visitor services on the refuge cover a broad range of wildlife-dependent recreation and education activities that are led by any organization or individual that charges a fee to participate in the activity. Activities could include, but are not limited to, birding tours, plant identification, wildlife photography, art, interpretive programs, guided trail walks, training workshops, summer youth camp, nature classes, and other similar nonconsumptive uses. These uses will occur in areas and facilities that are open to the public and will support the identified wildlife-dependent public uses of the refuge. Organizations conducting commercial visitor services will require an SUP, except for the Friends of the Refuge commercial activities, which are governed by statute under an existing MOU.

Commercial visitor services most often will be expected to occur in groups. These uses may occur year-round on the refuge. They may be conducted on existing public use trails and overlooks and at times inside the Wildlife Center. It is not expected that uses will occur on closed areas of the refuge, unless specifically authorized and approved by the refuge manager.

An SUP will be required for all uses by organizations and/or individuals wishing to collect fees for services, regardless of for-profit or nonprofit status, with the exception of Friends of the Refuge. Friends of the Refuge fundraising and/or fee collection for providing programs will be governed by existing the MOU and/or partnership agreements between the Service and the Friends of the Refuge, except when the refuge manager determines that a proposed use falls outside the scope of any agreement. In such a case, an SUP will be required. In all cases, the refuge manager will require that any organization (including Friends of the Refuge) and/or individual requesting to charge a fee for visitor services complete a written request that includes the activity type, date(s) and time(s) requested, group size, purpose of visit, proposed fee structure, where the activity will occur, and other details determined necessary by the refuge manager.

The refuge will have the option to accompany any group on their activity to assess program quality, adherence to refuge regulations and SUP stipulations, and safety guidelines. The refuge may also provide training and/or materials to requestors to ensure that program participants and visitors are receiving high-quality information and services.

Refer to the Stipulations Necessary to Ensure Compatibility section in this document for more information.

Availability of Resources:

Estimated costs for operating the commercial visitor services program as envisioned under the CCP are displayed in the following table. These costs are to perform, review, and administer proposals and SUPs, and monitor those SUPs during the proposed action. With assistance from Friends of the Refuge, volunteers, and other partners, the refuge currently has sufficient staff and funding to support this use.

Costs to Administer and Manage Commercial Visitor Services

Activity or Project	One-time Expenses ($)	Recurring Expenses ($/year)
Visitor Services Manager and management of SUPs		$5,000

Anticipated Impacts of Use:

The anticipated impacts of use are fully discussed in the CDs for wildlife observation, wildlife photography, and interpretation, and for environmental education.

Refuge-specific Impacts:

Disturbances to wildlife and their habitats will be the same as those discussed in the CDs for wildlife observation, wildlife photography, and interpretation and for environmental education. If disturbance to wildlife or damage to habitat reaches unacceptable levels, the refuge will limit access to areas where unacceptable impacts occur (see stipulations).

It is expected that many organizations could offer high-quality wildlife-dependent recreation and education activities on the refuge. These services may enhance visitor experience, learning, and appreciation of the refuge and its natural and cultural resources. These types of services, if provided in a high-quality manner, will likely reach more people than the refuge can.

Impacts to Listed Species:

No direct impact to listed species is anticipated to occur as a result of commercial visitor services. Any unanticipated future impacts will be reduced by ensuring that the public avoids or severely limits activity in areas hosting listed species.

Impacts to Other Priority Public Uses:

Both refuge visitation and the number of facilities and emphasis devoted to wildlife observation, wildlife photography, interpretation, and education are projected to increase under the CCP. Conflict between commercial visitor services groups will be expected to increase. If conflict between user groups reaches unacceptable levels, the refuge will limit access to areas where unacceptable impacts occur (see stipulations).

No significant effects to roads, trails, or other infrastructure from commercial visitor services are expected. Normal road, trail, and facility maintenance will continue to be necessary. Additional facility construction or upgrade, if needed, is addressed in the Availability of Resources section.

Public Review and Comment:

Various opportunities were provided for the public to engage with the planning process. Appendix K details public involvement undertaken during development of the CCP. Written comments on the draft CCP/EA, which included this compatibility determination, were collected during the public comment period.

Determination (check one below):

____Use is Not Compatible

__X__Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

General Stipulations

- Stipulations in the CDs for wildlife observation, wildlife photography, and interpretation and for environmental education apply to commercial visitor services.
- Visitors are restricted to designated trails, sites, or facilities as determined by refuge staff. Use is open daily from dawn to dusk.
- All refuge rules and regulations apply, including group size and management, and safety guidelines.
- Commercial photographers/videographers should ensure proper credit is given to the refuge and the Service.
- Collection of natural objects such as plants, animals, minerals, antlers, and cultural resources is prohibited.
- If disturbance to wildlife or damage to habitat reaches unacceptable levels, the refuge will limit uses in areas where unacceptable impacts occur. Monitoring will be conducted to ensure that high-quality habitat for wildlife feeding, resting, and breeding is maintained.
- The refuge may provide training and/or materials to requestors to ensure that program participants and visitors are receiving high-quality information and services.

Special Use Permit

- An SUP will be required for all commercial visitor services. Guiding for hunting and fishing is not allowed on the refuge.
- Fee-based activities conducted by Friends of the Refuge will require approval by the refuge manager as governed by MOUs and/or partnership agreements.
- A standard permit form stipulating dates, times, and locations of use will be made available prior to the visit.
- SUPs for areas open to the public may be granted on a case-by-case basis or for up to 1 year, at the refuge manager's discretion.
- Special permission requests to closed habitat/wildlife sanctuary areas or other special considerations (e.g., access to the refuge after normal public visitation hours, setting up temporary equipment, requiring additional resources or staff) will require an SUP and permit fee, and may be granted on a case-by-case basis with no renewal.
- The SUP will be required to be readily available while conducting the permitted use on the refuge.
- Requests must demonstrate a means to enhance education, appreciation, and/or understanding of the refuge and the Refuge System. Failure to abide by any part of the SUP or regulations will be considered grounds for immediate revocation of the permit and could result in denial of future permit requests.

- Refuge can deny use for any reason such as to minimize crowding, avert conflict with other activities/visitors, and, if disturbance is excessive, the refuge reserves the right to scale the use appropriately.
- The refuge will have the option of accompany any group on their activity to assess program quality, adherence to refuge regulations and SUP stipulations, and safety guidelines.

Justification:

By allowing commercial visitor services as an economic use to occur under the stipulations described above, it is anticipated that wildlife species, which could be disturbed during the use, will find sufficient resources and resting places such that their abundance and use of the refuge will not be measurably lessened. Additionally, it is anticipated that use of SUPs will provide the refuge a tool for managing uses; protecting natural and cultural resources; reducing user conflicts; and mitigating disturbance impacts. The SUPs will also create an opportunity for communication and outreach between the refuge staff and users to increase knowledge and awareness of refuge regulations and ethical behavior. Commercial visitor services will provide visitors an organized and educational opportunity to view wildlife safely under the use stipulations. Additionally, providers of commercial visitor services may create end products that will provide an educational opportunity to a much broader distribution of people. Thus, the use will not materially interfere with or detract from the Refuge System mission, or the purposes for which the refuge was established.

Mandatory 10- or 15-year Re-evaluation Date (provide month and year for "allowed" uses):

_____Mandatory 15-year re-evaluation date (for wildlife-dependent public uses)

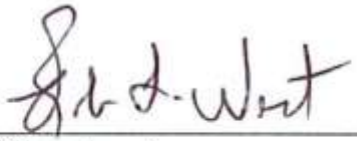
__2023_Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses)

Signatures:

Prepared by: 4/23/13
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: 4/23/13
(Signature) (Date)

Concurrence:
Refuge Supervisor: 4/23/13
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System:  4-23-13
(Signature) (Date)

Appendix C Implementation

USFWS

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Appendix C. Implementation

C.1 Overview and Historical Funding Picture

A comprehensive conservation plan (CCP) provides long-term guidance for management decisions, sets forth goals, objectives, and strategies needed to accomplish refuge purposes, and identifies the U.S. Fish and Wildlife Service's (Service's; USFWS's) best estimate of future needs. Often, a CCP provides detailed program planning levels that are substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. A CCP does not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.

Implementation of the management direction of the CCP requires increased funding, which will be sought through an increase in base funding (Congressional allocations), partnerships (both private and public), and grants. Activities and projects identified will be implemented as funds become available.

C.1.1 Operating Funds History

Operational management of refuge lands is accomplished by permanent and temporary staffing, volunteers, and partnerships. Operational management includes managing public use, law enforcement, cultural resources, biology, fire, maintenance, administration, and habitat/wildlife restoration/maintenance management programs.

In fiscal year 2011, the majority of the station's operating funds came from Congressional allocated base funding. This funds salaries and benefits for six permanent full-time employees, annual maintenance, and overhead expenses associated with maintaining public use and administrative facilities.

Other funding sources include the Bonneville Power Administration's (BPA's) Fish and Wildlife Program, Migratory Birds Program, and Refuge Roads Program, and American Recovery and Reinvestment Act (ARRA) youth programs. Without these additional funds, the majority of work in the habitat restoration and environmental education program that is accomplished each year will not happen.

C.1.2 Revenue Sharing

In lieu of property taxes, the Tualatin River National Wildlife Refuge (the refuge) annually provides revenue-sharing payments to Yamhill and Washington Counties. The U.S. Congress each year determines what percent of funds will be appropriated for all appraised Federal lands. Counties are not restricted in the use of these funds. If the refuge expands through the purchase of inholdings (privately owned lands within the current approved boundary) or through an expanded refuge boundary, additional payments in lieu of tax will be made to the counties.

C.2 Step-Down Plans

The Comprehensive Conservation Plan is one of several plans necessary for refuge management. The CCP provides guidance in the form of goals, objectives, and strategies for several refuge program areas but may lack some of the specifics needed for implementation. Step-down management plans will be developed for individual program areas within approximately 5 years after CCP completion. All step-down plans require appropriate NEPA compliance; implementation may require additional permits. Step-down plans for the refuge are listed in Table C-1. Project-specific plans, with appropriate NEPA compliance, may be prepared outside of these step-down plans.

Table C-1. Refuge Step-Down Plans

Step-Down Management Plans	Status (Date Completed and/or Date to be Prepared/Updated)
Wapato Lake Unit Habitat Management Plan – Land Protection Plan	Contingent on acquisition and results of planning study
Cultural Resources Museum Management Plan	2015
TDML Plan	2014
Visitor Services Plan update	2017
Hunt Plan – youth waterfowl	2015
Hunt Plan – adult waterfowl	Contingent on Wapato Lake Unit restoration
Fishing Plan	2016
Integrated Pest Management Plan	2012 (prepared concurrently with CCP, Appendix G)
Wildland Fire Management Plan	2012 (prepared concurrently with CCP, Appendix O)
Elk Management Plan	Will be prepared concurrently with Willamette Valley NWR Complex
Habitat Management Plans and Restoration Plans for each parcel	Varies; restoration plans will be developed prior to any restoration action being implemented
Disease Contingency Plan	2015
Facilities Management Plan	2017
Inventorying and Monitoring Plan	2015

C.3 Future Needs

C.3.1 Future Sources of Funds

Projects listed below were drawn from the goals, objectives, and strategies and could be implemented during the next 15 years. Many of these projects will be included in either the Refuge Operational Needs System (RONS) or the Refuge Management Information System (RMIS). Both are used to request funding from Congress.

Currently, a large backlog of maintenance needs exists on the refuge. In 2010, the deferred maintenance backlog for the Tualatin River National Wildlife Refuge was $1,450,347. Reduction of the backlog is an ongoing goal and is included here in the analysis of funding needs. The RONS documents proposed new projects to implement the CCP to meet refuge goals and objectives and legal mandates.

Several infrastructure and facility projects will be eligible for funding through construction, deferred maintenance, or Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) funds (i.e., Refuge Roads program).

Funds for other ~~"o~~ne-time costs" (see below) will be sought through increases in refuge base funding, special project funds, grants, Refuge Roads, or Federal Highway Administration funding.

C.3.2 Spending Priorities

Priorities are designated in Table C-2 for one-time and ongoing (recurring) projects (strategies) identified in the CCP. Priorities are designated as High (H), Medium (M), or Low (L). The rankings were determined according to the following criteria:

- A ~~"h~~igh"-ranked project/strategy is ongoing, needed immediately, or should be considered in the near future to successfully manage habitat and public use on refuges. It should directly support the ~~"r~~efuge purpose" or a ~~"b~~ig six" public use activity, and/or restore a ~~"th~~reatened or endangered" species or rare/unique habitat (oak savanna, wet prairie, etc.).
- A ~~"m~~edium"-ranked project/strategy is of a lesser degree of urgency, but also directly supports the ~~"r~~efuge purpose" or a ~~"b~~ig six" public use activity, and/or maintains and restores a ~~"th~~reatened or endangered" species or rare/unique habitat (oak savanna, wet prairie, etc.).
- A ~~"l~~ow"-ranked project/strategy maintains restored habitat or species and/or addresses a ~~"b~~ig six" public use activity that is not as widely sought out by the public as other ~~"b~~ig six" public use activities.

C.3.3 Operational Costs to Implement CCP

The following sections detail both one-time and recurring costs for various projects. Recurring costs reflect the future operational and maintenance costs associated with the project.

One-time Costs: One-time costs are project costs that have a startup cost associated with them, such as purchasing a new vehicle for wildlife and habitat monitoring or designing and installing an interpretive sign. Some are full project costs for those projects that can be completed in 3 years or less. These projects do not include permanent operational costs (staff salary and support). They can, however, include the cost of temporary or term salary associated with a short-term project. Salary for new positions and operational costs are reflected in operational or ~~"r~~ecurring" costs. Table C-2 compares both one-time and recurring costs across current and future management.

Operational and Maintenance (Recurring) Costs: Operational and maintenance costs reflect refuge spending of base funds allocated each year. These are also known as recurring costs and are usually associated with day-to-day operations and projects that last longer than 3 years. Operational costs use base funding in Service codes 1261, 1262, 1263, and 1264.

Maintenance includes preventive maintenance; cyclic maintenance; repairs; replacement of parts, components, or items of equipment; adjustments, lubrication, and cleaning (nonjanitorial) of equipment; painting; resurfacing; rehabilitation; special safety inspections; and other actions to ensure continuing service and to prevent breakdown. Maintenance also includes maintaining public use, administrative, historical, and shop buildings and facilities. Due to normal use and weather conditions, buildings and facilities need annual maintenance and repairs. Maintenance of habitat throughout the refuge as a result of the threat of invasive plants and animals and succession, and protection of threatened and endangered species is an annual occurrence.

Operational costs includes all costs associated with the operation of all programs including supplies and materials needed to support these programs, such as field supplies, brochures, media, and other interpretative materials, volunteer supplies, herbicide, fuel, overhead costs (electricity, phone, natural gas, office supplies, alarm systems for security and fire monitoring), training for staff and volunteers, and safety materials. These costs do reflect salaries for temporary positions, but do not include permanent staff salary.

Table C-2 displays estimated operating and maintenance costs for the major project items identified in the CCP. One column is based on an estimate of costs for implementing current management. The other reflects increased funding needs for increases in public uses and facilities, increased habitat restoration and conservation activities, and other strategies planned under the management direction described in Chapter 2.

Table C-2. Estimated Operating and Maintenance Costs for the Major Project Items Identified in the CCP

Goal/ Objective	Strategy	One-time Cost	Recurring Cost (annual)	Priority	Cost/Unit	Units/Total Cost	Current Management	Future Management
1/1.1	Maintenance of riparian forest (integrated pest management [IPM], monitoring)		X	M	$100	Acres	349	322
						Cost	$34,900	$32,200
1/1.2	Restore riparian forest (pretreatment, planting, seeding, mechanical methods)	X		H	*$6,400	Acres	39	111
						Cost	$249,600	$710,400
2/2.1	Maintenance of mixed forest (IPM, prescribed fire, monitoring, snag creation)		X	L	$250	Acres	49	52
						Cost	$12,250	$13,000
2/2.2	Restore mixed forest (pretreatment, planting, seeding, mechanical methods)	X		L	*$3,000	Acres	0	51
						Cost	$0	$153,000
3/3.1	Maintain oak savanna (prescribed fire, IPM, mowing, tree thinning, monitoring)		X	H	$250	Acres	149	109
						Cost	$37,250	$27,250
3/3.2	Restore oak savanna (pretreatment, plantings, seeding, prescribed fire)	X		H	*$910	Acres	0	38
						Cost	$0	$34,580
3/3.3	Maintain oak/pine woodland (IPM, prescribed fire, monitoring, snag creation)		X	H	$250	Acres	0	23
						Cost	$0	$5,750
3/3.4	Restore oak/pine woodland (pretreatment, planting, seeding, mechanical methods)	X		M	*$3,000	Acres	0	20
						Cost	$0	$60,000

Table C-2. Estimated Operating and Maintenance Costs for the Major Project Items Identified in the CCP

Goal/ Objective	Strategy	One-time Cost	Recurring Cost (annual)	Priority	Cost/Unit	Units/Total Cost	Current Management	Future Management
4/4.1	Maintain wet prairie (planting, IPM, prescribed fire, mowing/haying, monitoring)		X	M	$200	Acres	27	27
						Cost	$5,400	$5,400
4/4.2	Restore wet prairie (pretreatment, planting, seeding, monitoring)	X		H	$1,000	Acres	0	114
						Cost	$0	$114,000
5/5.1	Maintain herbaceous wetlands (irrigation, water manipulation, mowing/discing, IPM, contouring of wetlands, pest management, prescribed fire)		X	M	$250	Acres	294	187
						Cost	$73,500	$46,750
5/5.2	Enhance scrub-shrub wetlands (IPM, mowing/discing, pest management, planting, seeding)	X		H	$2,000	Acres	0	Approx. 700 acres max.
						Cost	$0	$1.4 million
5/5.3	Maintain scrub-shrub wetlands (IPM, prescribed fire, logs/trees for basking and resting structures, monitoring)		X	M	$150	Acres	20	20
						Cost	$3,000	$3,000
5/5.3	Restore scrub-shrub wetlands (pretreatment, creating swales, plantings, fish passageways)	X		H	**$2,350	Acres	0	180
						Cost	$0	$80,252 average

Table C-2. Estimated Operating and Maintenance Costs for the Major Project Items Identified in the CCP

Goal/ Objective	Strategy	One-time Cost	Recurring Cost (annual)	Priority	Cost/Unit	Units/Total Cost	Current Management	Future Management
6/6.1	Maintain streams and sloughs (install fish passageways, remove fish barriers, plantings, erosion control, IPM, best management practices [BMPs])		X	L	$1,000	Miles	7.2	7.2
						Cost	$7,200	$7,200
6/6.2 and 6.3	Restore streams and sloughs (topographical surveys, heavy equipment work, removal of barriers, plantings, erosion control)	X		H	$10,000	Miles	0	4.3
						Cost	$0	$43,000
7/7.1	Cooperative farming (administration)		X	L		Acres	909	0
						Cost	$2,000	$0
8/8.1	Inventorying and monitoring surveys (develop and continue surveys for refuge)		X	H		Cost	$100,000	$200,000
8/8.2	Conduct research (studies and investigations toward water quality, soils, IPM techniques, fishery resources, climate change)	X		L		Cost	$300,00	$200,000
9/9.1	Inventory, evaluate, monitor, and protect cultural resources		X	L		Cost	$2,500	$35,000
9/9.2	Cultural resources interpretation (tribal partnerships,	X		M		Cost	$0	$10,000

Table C-2. Estimated Operating and Maintenance Costs for the Major Project Items Identified in the CCP

Goal/ Objective	Strategy	One-time Cost	Recurring Cost (annual)	Priority	Cost/Unit	Units/Total Cost	Current Management	Future Management
	interpretative media and exhibits)							
10/10.1	Provide interpretive information to visitors (media, brochures, signs)	X		H		Cost	$0	$120,000
10/10.2	Outreach and special events		X	M		#Events	4	4
						Cost	$6,500	$6,500
10/10.3	Evaluation of visitor services	X		M		Cost	$0	$25,000
10/10.4	Public access (partnership on trails, safe highway access)		X	L		Cost	$0	$2,500
10/10.5	Volunteer program (develop/provide manuals, bunkhouse, and recreational vehicle [RV pads)	X		M		Cost	$0	$50,000
11—all	Environmental education (develop curricula, materials, and install nature explore area)	X		H		Cost	$0	$75,000
	Environmental education (programs/workshops and materials)		X	H		Cost	$40,000	$158,000
12/12.1 and 12.2	Wildlife observation, photography, and interpretation (kiosks, signs, photo blinds, bunkhouse for volunteers)	X		M		Cost	$0	$327,000

Table C-2. Estimated Operating and Maintenance Costs for the Major Project Items Identified in the CCP

Goal/ Objective	Strategy	One-time Cost	Recurring Cost (annual)	Priority	Cost/Unit	Units/Total Cost	Current Management	Future Management
	Wildlife observation, photography, and interpretation (new positions, facilities maintenance)		X	H		Cost	$30,000	$258,000
12/12.3 and 12.5	Waterfowl hunting—complete hunting package	X		M		Cost	$0	$90,000
	Waterfowl hunting—manage program		X	M		Cost	$0	$50,000
12/12.4	Fishing—complete fishing package	X		L		Cost	$0	$5,000
	Fishing—manage fishing program		X	L		Cost	$0	$15,000
All	Develop step-down plans	X		M	$15,000	# Plans	0	5
						Cost	$0	$75,000

*Cost was estimated from previous restoration contracts that included labor, plants (trees and grass), protective tree coverings, and other supplies.

**Since the acreage is undetermined for restoration at the Wapato Lake Unit due to a pending hydrological study, cost was estimated based on mean acreage.

C.3.4 Staffing Needs To Implement CCP

Personnel are needed to manage and enhance the quality and diversity of indigenous wildlife habitats on the Tualatin River National Wildlife Refuge. With the proper staffing to implement this plan, habitat management practices can be implemented and monitoring of flora and fauna responses to management can be applied, which will allow us to apply adaptive management strategies crucial for long-term success in meeting the mission, goals, and objectives of the refuge. Staff will interact with the public for education purposes and to provide for public safety. Maintenance staff will maintain facilities and equipment. Training of staff and coordination among staff, volunteers, and refuge partners will ensure that the mission and guiding principles of the National Wildlife Refuge System endure.

Table C-3 shows costs for permanent and seasonal staff needed each year. It does not include staff costs associated with special projects; these are summarized in Table C-2. Table C-3 is related to the Refuge Annual Performance Plan. The section of the table titled ―Present Core Staff' shows permanent full-time staff and temporary staff funded with base budgets and other Federal funding. It is important to note that partnerships with other organizations are crucial to achieving baseline objectives as described under current management. Future management staffing positions demonstrate additional staff needed to succeed with the goals of the CCP.

The proposed full development-level staffing plan will achieve optimum refuge outputs within this planning period (15 years). The rate at which this station achieves its full potential to fulfill the objectives and strategies contained in the CCP is dependent upon receiving adequate funding and staffing.

Table C-3. Staffing Needs for Major Project Items in CCP

Staff-Refuge Operations	Status*	Position*	Justifying Objective	Current Management	Future Management
Present core staff					
Project Leader	PFT	GS-0485-13	Current	X	X
Deputy Project Leader	PFT	GS-0485-12	Current	X	X
Wildlife Biologist	PFT	GS-0486-11	Current	X	X
Visitor Services Manager	PFT	GS-0025-11	Current	X	X
Maintenance Worker	PFT	WG-4749-8	Current	X	X
Administrative Officer	PFT	GS-0399-5 SCEP	Current	X	X
Biological Technician	TEMP	GS-0401-5	Current	X	X
Future Management staffing positions					

Table C-3. Staffing Needs for Major Project Items in CCP

Staff-Refuge Operations	Status*	Position*	Justifying Objective	Current Management	Future Management
Biological Technician	PFT	GS-0401-6/7	1.1		X
Refuge Operations Specialist	PFT	GS-0485-7/9/11	5.3		X
Park Ranger (law enforcement)	PFT	GS-0025-9	10.1		X
Volunteer Coordinator	PFT	GS-0025-6/7	10.5		X
Environmental Education Specialist	PFT	GS-0025-7/9	11.1		X
Engineering Equipment Operator	PFT	WG-5716-8	1.2		X

*Status and Position definitions:

PFT: Permanent full time
TEMP: Temporary position
GS: General schedule Federal employees
WG: Wage grade scale

Volunteer Program: The Tualatin River National Wildlife Refuge has a very active volunteer program that supports all programs of the refuge. During fiscal year 2011, more than 225 volunteers donated over 14,640 hours of their time to accomplishing the goals of refuge programs, including maintenance, public use, biological support, environmental education, habitat restoration and management, and administrative duties (Table C-4). The refuge provides transportation, training, supplies, equipment, and housing as needed in support of the volunteer program. The number of hours donated in 2010 was equivalent to $21.79 per hour as estimated by the Independent Sector (2011). The value of time donated equated to $328,000, or seven full-time employees.

Table C-4. Volunteer Contributions over a 5-year Time Frame (2007-2011)

Year	2007	2008	2009	2010	2011
Volunteers	340	558	477	205	226
Hours	6,629	13,178	14,309	15,065	14,641

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Wilderness Review

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Appendix D. Wilderness Review

D.1 Background

The Wilderness Act (Act) became Federal law in 1964 (16 U.S. Code [U.S.C.] 1131-1136). In Section 2(a) of the Act, the U.S. Congress expressed concern that " … an increasing human population, accompanied by expanding settlement and growing mechanization … [should not be allowed to] … occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition …." The Act also established the National Wilderness Preservation System (Wilderness System) and stated that areas in the Wilderness System " … shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness…."

Section 2(c) of the Act defined a wilderness area as one that " … in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

Section 3 of the Act required a review of Federal lands to determine their suitability for designation as a unit(s) of the Wilderness System. The U.S. Congress reserved to itself the authority to officially designate wilderness areas.

A wilderness review is the process used by the Service to determine whether to recommend lands or waters in the National Wildlife Refuge System to Congress for designation as wilderness. A wilderness review is required for refuges as part of the comprehensive conservation plan (CCP) planning process. Lands or waters that meet the minimum criteria for wilderness (610 FW 4) are identified in the CCP and further evaluated to determine whether they merit recommendation for inclusion in the Wilderness System.

For a refuge to be considered for wilderness designation, all or part of the refuge must:

- Be affected primarily by the forces of nature, with the human imprint substantially unnoticeable;
- Have outstanding opportunities for solitude or primitive and unconfined type of recreation;
- Have at least 5,000 contiguous acres or be sufficient in size to make practical its preservation and use in an unimpaired condition, or be capable of restoration to wilderness character through appropriate management, at the time of review; or
- Be a roadless island.

D.2 Conclusion

Tualatin River National Wildlife Refuge (the refuge) is not recommended for further study for inclusion in the Wilderness System because it does not meet the above criteria. The refuge is only 2,137 acres in size and the largest roadless block is approximately 800 acres. The size of this block is insufficient to make practicable its preservation and use as wilderness. The refuge also has considerable evidence of past human use, does not have outstanding opportunities for solitude or primitive and unconfined type of recreation, and is not a roadless island.

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Biological Resources of Concern

USFWS

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Appendix E. Biological Resources of Concern

E.1 Introduction and Background

Management direction of individual refuges is driven by refuge purposes and statutory mandates, coupled with species and habitat priorities. Management on a refuge should first and foremost address the individual refuge purposes. Additionally, management should address maintenance, follow policy and, where appropriate, restore biological integrity, diversity, and environmental health (BIDEH) (Table E-1) and manage for National Wildlife Refuge System (Refuge System) Resources of Concern (ROCs). With this approach, the refuge contributes to the goals of the Refuge System and achievement of its mission.

In concert with this approach, and as an initial step in planning, the comprehensive conservation plan (CCP) planning team for the Tualatin River National Wildlife Refuge (the refuge) identified ROCs for the refuge. As defined in the policy on Habitat Management Plans (620 FW 1G) ROCs are:

> *All plant and/or animal species, species groups, or communities specifically identified in refuge purpose(s), System mission, or international, national, regional, State, or ecosystem conservation plans or acts. For example, waterfowl and shorebirds are a resource of concern on a refuge whose purpose is to protect 'migrating waterfowl and shorebirds.' Federal or State threatened and endangered species on that same refuge are also a resource of concern under terms of the respective endangered species acts.*

To provide a framework for development of goals and objectives in the CCP, the planning team identified ROCs following the process outlined in the handbook *Identifying Refuge Resources of Concern and Management Priorities: A Handbook* (U.S. Fish and Wildlife Service 2009c).

E.2 Comprehensive Resources of Concern

A comprehensive list of potential ROCs was created early in the planning process. The planning team identified species, species groups, and communities of concern, based upon a review of the refuge's establishing history and purposes, a description of the key habitat types existing at the refuge, and a review of numerous conservation plans (see Sections 1.6, 1.7, and 1.8 of the CCP), many of which highlight priority species or habitats for conservation. The comprehensive ROCs list is contained in Table E-2.

Table E-1. Summary of BIDEH for Tualatin River National Wildlife Refuge

Habitats (plant communities) that Represent Existing BIDEH	Population/Habitat Attributes (age class, structure, seral stage, species composition)	Natural Processes Responsible for These Conditions	Limiting Factors
Bottomland Riparian Forest	Native overstory trees include Oregon ash, grand fir, big-leaf maple, Douglas-fir, and black cottonwood. Native subcanopy trees include black hawthorn, vine maple, cascara, Pacific ninebark, hazel, red alder, and Pacific yew. Native shrub layer includes snowberry, rose, red-osier dogwood, Douglas spirea, blue and red elderberry, red-flowering currant, Carex, and sword fern. Generally within the 100-year floodplain. *Potential Conservation Species: beaver, mink, downy woodpecker, northern red-legged frog, pileated woodpecker, Swainson's thrush, western wood peewee, wood duck, and yellow warbler.*	Functioning floodplain: infrequent major flood events (flood heavily once every 3-5 years), scouring of trees/herbaceous layers, deposition of silts. Frequent short-term flooding (may flood for a few days two to three times per year). Deposition of large woody debris in both the forest floor and river/stream channel. Flooding is the primary natural disturbance regime in Tualatin River Basin bottomland riparian forest.	Non-functioning floodplain and altered hydrology in refuge watershed. Floodplain alterations including ditching and tile drains associated with agricultural practices, urban and rural development leading to increased runoff, and summer water withdrawals for agriculture, industrial, and urban uses. Climate change may cause further changes in weather and/or flooding patterns. Invasive species such as reed canary grass, Himalayan blackberry, English hawthorn, English ivy, and holly.
Mixed Coniferous/deciduous Upland Forest	Native overstory trees include Douglas-fir, western red-cedar, big-leaf maple, western hemlock, Garry oak, Pacific Madrone, and some grand fir. Native subcanopy trees include black hawthorn, vine maple, cascara, hazel,	Relatively undisturbed forest with openings caused by wind storms. Infrequent fires. Cool, wet winters and mild summers.	Habitat fragmentation from agricultural and urban development. Invasive species such as Himalayan blackberry, English hawthorn, English ivy, and holly. Species composition

Table E-1. Summary of BIDEH for Tualatin River National Wildlife Refuge

Habitats (plant communities) that Represent Existing BIDEH	Population/Habitat Attributes (age class, structure, seral stage, species composition)	Natural Processes Responsible for These Conditions	Limiting Factors
	serviceberry, Pacific dogwood, and red alder. Native shrub layer includes snowberry, Oregon grape, Indian plum, Mock orange, red-flowering currant, and sword fern. Generally occurs above the 100-year floodplain. *Potential Conservation Species: brown creeper, chestnut-backed chickadee, Pacific slope flycatcher, black-tailed deer, olive-sided flycatcher, Swainson's thrush, and pileated woodpecker.*		may change with changes in precipitation or temperature due to climate change. Forest diseases such as Swiss needle cast may also increase due to climate change.
Wet Prairie	Few to no woody shrubs and trees. Native herbaceous species include sedges, rushes, tufted hairgrass, popcorn flower, Nelson's checker-mallow, and other forbs. *Potential Conservation Species: American kestrel, northern harrier, common yellowthroat, Nelson's checker-mallow, western meadowlark, Wilson's snipe, and sora.*	Periodic fire, poorly drained soils, and seasonal flooding. Typically a transition area between upland and wetland. Periodic grazing by large ungulates.	Invasive species especially reed canary grass and Himalayan blackberry. Fire suppression facilitates encroachment of woody species especially Oregon ash. With elk being removed from Willamette Valley habitats, no grazing by large ungulates. Draining and conversion to agriculture and urban development.
Oak Habitats	Widely scattered Garry oaks and/or Willamette	Frequent (approximately every	Agricultural and urban developments.

Table E-1. Summary of BIDEH for Tualatin River National Wildlife Refuge

Habitats (plant communities) that Represent Existing BIDEH	Population/Habitat Attributes (age class, structure, seral stage, species composition)	Natural Processes Responsible for These Conditions	Limiting Factors
	Valley ponderosa pine. Very few shrubs. Dominated by native grasses and forbs including Roemer's fescue, California oatgrass, California brome, blue wildrye, and meadow barley. *Potential Conservation Species: downy woodpecker, white-breasted nuthatch, western bluebird, western gray squirrel, and coyote.*	5 years) low-intensity fire; absence of ground disturbance; presence of acorn-dispersing animals (squirrels, jays, acorn woodpeckers); light grazing/browsing by native ungulates. Oak habitats were formerly maintained by Native Americans with fires of various frequencies.	Fire suppression causing conifer encroachment and competition by native trees and shrubs. Invasive species such as Himalayan blackberry and non-native grasses.
Herbaceous Wetland	Seasonal, semipermanent, and permanent wetlands characterized by annual vegetation and perennial emergent and submerged aquatic wetland plants. Few trees and shrubs. *Potential Conservation Species: waterfowl, canvasback, dusky and cackling Canada geese, tundra swans, shorebirds, sora, northern pintail, northwestern pond turtle, American bittern, and pied-billed grebe.*	Hydric soils flooded at least part of the year from rainfall accumulation or overflow from rivers and streams in the floodplain. Fluctuating water levels and deposition of sediments from flood waters. Infrequent fire. Consumption of vegetation by large concentrations of waterfowl. Functioning floodplain: infrequent major flood events (flood heavily once every 3-5 years), scouring of woody species, deposition of silts, and reduction of emergents.	Non-functioning floodplain and altered hydrology in the refuge watershed. Floodplain alterations including ditching and tile drains associated with agricultural practices, urban and rural development leading to increased runoff, and summer water withdrawals for agriculture, industrial, and urban uses. Encroachment of woody species. Invasive species including reed canary grass, velvetleaf, knotgrass (Bermuda grass), common

Table E-1. Summary of BIDEH for Tualatin River National Wildlife Refuge

Habitats (plant communities) that Represent Existing BIDEH	Population/Habitat Attributes (age class, structure, seral stage, species composition)	Natural Processes Responsible for These Conditions	Limiting Factors
			cocklebur, and nutria. Urban development with draining and filling of wetlands.
Scrub-shrub Wetland	Dominated by willow species, red-osier dogwood, rose, and spirea generally less than 20 ft. tall. Herbaceous plants include common cattail, sedges, and rushes. Typically characterized by deep organic peat soils. *Potential Conservation Species: willow flycatcher, common yellowthroat, American bittern, northern red-legged frog, and sora.*	Hydric soils flooded for a large part of the year from rainfall accumulation or functional floodplain causing overflow from rivers and streams.	Urban development with draining and filling of wetlands. Many of these habitat types were drained and converted to agriculture through draining, ditching, and tiling. Invasive species such as reed canary grass outcompete native plants.
Rivers, Streams, and Backwater Sloughs	Lower Tualatin River mainstem is characterized as low-gradient (about 1 foot/mile drop) and slow-flowing with riparian vegetation along the banks. Tributary streams may be low- to high-gradient. Sloughs may be inundated year-round or seasonally. Vegetation may include native riparian plant species such as Oregon ash, red-osier dogwood, willows, snowberry, twinberry, and Pacific ninebark.	Periodic flooding, scouring and movement of river/stream channel, inputs of coarse woody debris and leafy detritus, and occasional catastrophic flooding.	Dams; water removal for agricultural, industrial, urban, and rural uses; and ditching, tiling, and draining of adjacent lands. Changes in frequency, duration, and intensity of flood events. Poor water quality, such as water with low dissolved oxygen, high phosphorus, and high temperature. Climate change may exacerbate flooding frequency and/or water quality issues.

Table E-1. Summary of BIDEH for Tualatin River National Wildlife Refuge

Habitats (plant communities) that Represent Existing BIDEH	Population/Habitat Attributes (age class, structure, seral stage, species composition)	Natural Processes Responsible for These Conditions	Limiting Factors
	Potential Conservation Species: anadromous fish, beaver, mink, northwestern pond turtle, and wood duck.		Tualatin River channel is deeply incised and some tributary streams are highly modified into channelized sections with steep banks. Artificial fish passage barriers such as culverts and water diversion structures. Invasive species such as reed canary grass outcompete native plants.

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Acorn Woodpecker			FS						X		X									X		
Aleutian Canada Goose																				X		
Allen's Hummingbird					X	X																
American Acetropis Grass Bug			FS																			
American Bittern	X															X						
American Coot	X																					
American Kestrel	X	X									X										X	
American Wigeon	X						GBBDC															
Anadromous Fish	X																					
Backwater Streams and Sloughs	X																					

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Bald Eagle	X	X		ST	X				X											X		
Band-tailed Pigeon			FS			X	GBBDC			X	X											
Barn Owl	X																					
Beaver	X	X																				
Belted Kingfisher	X																					
Bewick's Wren											X											
Black-capped Chickadee	X																					
Black-headed Grosbeak	X																					
Black-tailed Deer	X	X																				
Black-throated Gray Warbler										X												
Bottomland Riparian Forest	X	X							X		X										X	
Bradshaw's			FE	SE					X													X

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Lomatium																						
Brown Creeper	X	X									X											
Bullock's Oriole											X											
Bushtit										X	X											
Cackling Canada Goose	X						GBBDC							X								
California Myotis									X													
Canvasback	X						GBBDC															
Chestnut-backed Chickadee		X							X													
Chinook Salmon (Upper Willamette Evolutionarily Significant Unit	X		FT						X												X	

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

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[ESU])																						
Chipping Sparrow									X		X											
Chorus Frog	X	X																				
Coho Salmon	X																					
Common Garter Snake	X																					
Common Yellowthroat	X																					
Cooper's Hawk		X								X	X											
Coyote		X																				
Cropland/Pasture	X																					
Cutthroat Trout (coastal)	X		FS																			

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

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Downy Woodpecker	X										X											
Dry Prairie	X																					
Dunlin	X														X							
Dusky Canada Goose	X	X					GBBDC		X								X			X		
Fender's Blue Butterfly		X	FE	SE					X											X		X
Fringed Myotis			FS																			
Forested Wetland	X	X																			X	
Garry Oak	X	X																			X	
Golden Paintbrush			FT	SE					X													X
Grasshopper Sparrow									X		X									X		

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

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Great Blue Heron	X	X							X													
Great Egret	X																					
Greater Scaup							GBBDC										X					
Greater Yellowlegs	X														X							
Green-winged Teal	X																					
Herbaceous Wetland	X	X																				
Hermit Warbler						X																
Hooded Merganser	X																					
Horned Lark (*strigata* ssp. only)		X	FC		X		BCC/BCR		X		X									X	X	

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
House Wren											X											
Hutton's Vireo										X												
Killdeer	X			ST											X						X	
Kincaid's Lupine	X		FT	ST					X													X
Least Sandpiper															X							
Lesser Goldfinch										X												
Lesser Scaup	X						GBBDC										X					
Lesser Yellowlegs					X										X							
Lewis's Woodpecker		X	FS		X	X	BCC/N			X	X									X	X	
Long-billed Curlew					X		BCC/N								X							
Long-billed															X							

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Dowitcher																						
Long-legged Myotis			FS																			
Mallard	X						GBBDC															
Mink	X	X																				
Mixed Coniferous/Deciduous Upland Forest	X	X																				
Mourning Dove							GBBDC															
Nelson's Checker-mallow	X	X	FT	ST					X													X
Neotropical Landbirds—Breeding	X																					

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

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Northern Flicker	X																					
Northern Harrier	X	X					BCC/N				X										X	
Northern Pintail	X	X					GBBDC										X					
Northern Pygmy Owl										X												
Northern Red-legged Frog	X	X	FS						X											X	X	
Northern Saw-whet Owl										X												
Northern Spotted Owl			FT	ST			FT			X										X		
Northwestern Pond Turtle	X	X	FS						X										X	X		
Northwestern Salamander	X																					

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Oak/Pine Savanna	X	X							X		X										X	X
Olive-sided Flycatcher	X	X	FS		X	X				X	X									X		
Orange-crowned Warbler											X											
Oregon Ash	X	X																				
Oregon Chub			FE	SE				X	X											X		
Pacific Lamprey	X		FS						X											X		
Pacific-slope Flycatcher		X								X	X											
Pale Larkspur (*Delphinium leucophaeum*)			FS	SE																		X
Peacock Larkspur	X		FS	SE					X													X

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
(*Delphinium pavonaceum*)																						
Peregrine Falcon	X	X			X		BCC/N		X											X		
Pied-billed Grebe	X															X						
Pileated Woodpecker	X	X																				
Ponderosa Pine (Willamette)	X																					
Purple Finch					X					X												
Purple Martin		X	FS						X		X									X		
Red Crossbill										X												
Red-breasted Sapsucker										X												
Red-eyed Vireo	X										X											

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Red-naped Sapsucker							BCC/N			X												
Red-shouldered Hawk											X											
Red-tailed Hawk	X	X																				
Red-winged Blackbird	X																					
Ring-necked Duck	X						GBBDC															
Ring-necked Pheasant	X																					
River Otter	X	X																				
Rufous Hummingbird					X	X	BCC/N				X											
Sandhill Crane																				X		

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Scrub-shrub Wetland	X	X																		X		
Sharp-shinned Hawk		X																				
Shorebirds—Migrating	X																			X	X	
Short-billed Dowitcher					X		BCC/N															
Short-eared Owl						X			X											X		
Silver-haired Bat			FS																			
Solitary Sandpiper					X																	
Song Sparrow	X																					
Sora	X	X														X						
Spotted	X																					

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Sandpiper																						
Steelhead (Upper Willamette ESU)	X	X	FT						X										X		X	
Steller's Jay										X												
Swainson's Thrush	X	X									X											
Taylor's Checkerspot Butterfly			FC						X													X
Thin-leaved Peavine (*Lathyrus holochlorus*)			FS																			
Townsend's Western Big-eared Bat			FS						X											X		

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Tree Swallow											X											
Tricolored Blackbird			FS			X														X		
Trumpeter Swan							GBBDC													X		
Tundra Swan	X	X											X								X	
Varied Thrush	X	X								X	X											
Vaux's Swift	X									X	X											
Vesper Sparrow (*affinis* ssp. only)			FS		X		BCC/BCR		X		X									X	X	
Virginia Rail	X															X						
Wapato	X	X																				
Warbling Vireo	X																					
Water Howellia			FT																			
Waterfowl—	X																					

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Cavity Nesting																						
Waterfowl—Migrating	X																					
Waterfowl—Wintering	X	X							X												X	
Wayside Aster (*Eucephalus vialis*)			FS						X													
Western Bluebird	X	X							X											X		
Western Brook Lamprey									X													
Western Canada Goose												X										
Western Gray Squirrel		X							X													

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Western Meadowlark	X	X							X		X									X		
Western Painted Turtle									X											X		
Western Screech Owl	X									X	X											
Western Toad																				X		
Western Wood Pewee	X										X											
Wetland	X								X				X	X	X	X	X	X		X	X	
Wet Prairie	X	X							X												X	X
White Rock Larkspur	X			SE					X													
White-breasted Nuthatch		X							X		X											

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
White-fronted Goose	X						GBBDC															
White-topped Aster				ST					X													X
Willamette Daisy			FE	SE					X													X
Willamette Floater (*Anodonta wahlametensis*)									X											X		
Willamette Valley Larkspur (*Delphinium oreganum*)			FS	SC																		X
Willow Flycatcher	X	X	FS		X	X			X		X											
Wilson's Snipe	X	X													X							

Table E-2. Potential Resources of Concern for Tualatin River National Wildlife Refuge

Species	Refuge Purpose Species	BIDEH	Federal Threatened and Endangered	State Threatened and Endangered	Bird Conservation Region 5 (2008)	Partners in Flight (PIF) Watch List	Birds of Management Concern (BMC) Region 1 Status 2005	Oregon Chub Recovery Plan	Oregon Conservation Strategy	PIF—Oregon/BCR 5, 2004	PIF: Conservation Strategy—Landbirds 1999, 2000	Pacific Flyway Management Plan: Western Canada Geese	Pacific Flyway Management Plan: Western Population Tundra Swans	Pacific Flyway Mgt. Plan: Cacklers	Shorebird Plan [1]	Waterbird Plan [2]	Waterfowl Plan [3]	Flyway Depredation [4]	Three Rivers Conservation Plan 2006	Nature Conservancy—WVPTGSEA	Pacific Coast Joint Venture (PCJV) Willamette Valley Implementation	Recovery Plan for Prairie Species
Wood Duck—Breeding	X	X					GBBDC															
Yellow Warbler	X										X											
Yellow-billed Cuckoo			FC		X		BCC/R				X									X	X	
Yellow-breasted Chat	X		FS						X		X											
Yellow-rumped Warbler	X																					
Yuma Myotis			FS																			

Possible Focal Species

Key:

Federal Threatened and Endangered Species

FE = Federal Endangered
FT = Federal Threatened

State Threatened and Endangered Species

SE = State Endangered
ST = State Threatened

FC = Federal Candidate
FS = Federal Species of Concern
SC = State Candidate
SS = State Sensitive

BMC Region 1 Designation Codes:

BCC/N = Birds of Conservation Concern/National
BCC/R = Birds of Conservation Concern/Regional
BCC/BCR = Birds of Conservation Concern/Bird Conservation Region
GBBDC = Gamebirds Below Desired Condition
GBADC = Game Birds Above Desired Condition
T/E = Threatened or Endangered under the Endangered Species Act

[1] U.S. Shorebird Conservation Plan (Brown et al. 2001)

[2] Waterbird Conservation for the Americas: the North American Waterbird Conservation Plan (Kushlan et al. 2002)

[3] North American Waterfowl Management Plan (North American Waterfowl Management Plan Committee 2004)

[4] Pacific Flyway Management Plan (Pacific Flyway Council 1998)

E.3 Priority Resources of Concern

The Comprehensive Resources of Concern list was further culled in developing a more targeted assemblage of Priority Resources of Concern (Table E-3). The Priority Resources of Concern table is comprised of 14 focal species, including birds and fish that were selected as representatives or indicators for the overall condition of important refuge habitats. Most of the biological emphasis of the CCP is focused on maintaining and restoring these priority resources.

Several different conservation focal species may be listed for specific habitats to cover the variety of habitat structures and plant associations. In addition, species with specific "niche" ecological requirements may be listed as a focal species. Other species utilizing the habitat will generally be expected to benefit as a result of management for the focal species.

Definitions for the column headings in Table E-3 are as follows:

- **Focal Species**: Species selected as representatives or indicators for the overall condition of the conservation target. In situations where the conservation target may include a broad variety of habitat structures and plant associations, several different conservation focal species may be listed. In addition, species with specific "niche" ecological requirements may be listed as a focal species. Management will be focused on attaining conditions required by the focal species. Other species utilizing the conservation target will generally be expected to benefit as a result of management for the focal species.
- **Habitat Type:** The general habitat description utilized by the focal species.
- **Habitat Structure:** The specific and measurable habitat attributes considered necessary to support the focal species.
- **Life History Requirement:** The general season of use for the focal species.
- **Other Benefiting Species:** Other species that are expected to benefit from management for the selected focal species. The list is not comprehensive; see the *Table of Potential Resources of Concern for the Refuges* for a more complete list.

Table E-3. Priority Resources of Concern for Tualatin River National Wildlife Refuge

Focal Species	Habitat Type	Habitat Structure	Life History Requirement	Other Benefitting Species
Pacific slope flycatcher	Bottomland riparian forest	Early to mid-successional forest with shrub understory (Sakai and Noon 1991) associated with deciduous trees (Pearson and Manuwal 2001). Canopy trees >12 ft. tall with <20% tree canopy cover, where canopy is Oregon ash-dominated, with willow, red-osier dogwood, bigleaf maple, and hazel (Altman 2000). Shrub cover 30-80%.	Breeding	Yellow warbler, song sparrow, willow flycatcher, and rufous hummingbird
Swainson's thrush		Mid- to late-successional forest with shrub understory. Oregon ash, Douglas-fir, bigleaf maple, cascara as overstory species with >50% canopy closure. Swamp rose, snowberry, elderberry, and salmonberry; >50% shrub cover with >60% native species (Altman 2000).	Breeding, year-round for benefitting species	Beaver, northern red-legged frog, anadromous fish (coho and steelhead), yellow-breasted chat, and black-capped chickadee
Brown creeper		Old-growth and mature forest types (Anthony et al. 1996). Oregon ash, bigleaf maple, Douglas-fir with canopy height >33 ft. and canopy closure >50%. Subcanopy cover >10% by snowberry, Pacific yew, cascara, some grand fir. Habitat patches >50 meter wide (PIF 2000).	Breeding and year-round	Chestnut-backed chickadee, anadromous fish, western wood pewee, downy woodpecker, and pileated woodpecker
Orange-crowned warbler	Mixed coniferous/ deciduous forest	Douglas-fir-dominated canopy with mixtures of grand fir, western red-cedar, western hemlock, bigleaf maple, Garry oak, Pacific dogwood, Pacific yew, and red alder. Understory consists of snowberry, hazel, sword fern, and other shrubs. Understory trees <15 ft. and >30% cover (Altman 1999).	Breeding and year-round for benefitting species	Bewick's wren, spotted towhee, downy woodpecker, olive-sided flycatcher, and pileated woodpecker
Wilson's snipe	Wet prairie	Dominated by sedges and native grasses with very few shrubs or trees (NatureServe 2010). Grasses may be >3 ft. tall (e.g., *Deschampsia* sp.). A wide variety	Breeding, wintering for waterfowl species	American bittern, savanna sparrow, western meadowlark, northern harrier,

Table E-3. Priority Resources of Concern for Tualatin River National Wildlife Refuge

Focal Species	Habitat Type	Habitat Structure	Life History Requirement	Other Benefitting Species
		of sedges and rushes should be represented. May retain water at the soil surface more than 6 months during the year.		dusky Canada goose, migrating and wintering waterfowl, and Nelson's checker-mallow
Western bluebird	Oak Habitats	Early successional stages (restoration areas) dominated by native grasses and forbs with scattered sapling Garry oak trees. Trees may range from <3 ft. tall to >15 ft.	Breeding, year-round	Chipping sparrow, coyote, grasshopper sparrow, mourning dove, and rufous hummingbird
White-breasted nuthatch		Trees dominated by widely spaced (Vesely and Tucker 2004) mature Garry oak >25 inches diameter at breast height (DBH) with cavities. Some areas with scattered ponderosa pine large enough (>25 inches) to provide nest cavities, and <1 snags/acre >1 ft. DBH. Native grass and forb understory <30 inches with few to no shrubs. Tree and shrub cover <10% with variable grass heights. Patch size >200 acres (PIF 2000).	Breeding, year-round	Western gray squirrel, acorn woodpecker, western bluebird, black-tailed deer, and lesser goldfinch
Northern pintail	Herbaceous wetland	Shallow water depths averaging 4-18 inches over 75% of wetland basins. Dominated by seed-producing annual plants (e.g., smartweeds, plantain), and native emergent plant species (e.g., sedges, rushes), with few encroaching trees.	Wintering, migrating	Tundra swan, cackling Canada goose, wintering waterfowl, river otter, mink, northwestern pond turtle; bald eagle and peregrine falcon (foraging)
Greater yellowlegs		Declining water depths producing saturated mud flats to mostly drained during summer.	Migrating and year-round or breeding for benefitting species	Least sandpiper, dunlin, killdeer, lesser yellowlegs, long-billed dowitcher, spotted sandpiper, tree swallow, and great blue heron
Virginia rail		Water depths averaging 12-30 inches over 25-75%. Dominated	Breeding and year-round for	Wintering waterfowl,

Table E-3. Priority Resources of Concern for Tualatin River National Wildlife Refuge

Focal Species	Habitat Type	Habitat Structure	Life History Requirement	Other Benefitting Species
		by emergent plant species such as spike rush, wapato, softstem bulrush, and common cattail.	benefitting species	American bittern, sora, common yellowthroat, common garter snake, and chorus frog
Pied-billed grebe		Water depths averaging 24-48 inches over 50-75%. Open water >50%. Plant species dominated by submergent plants such as *Potamogeton* sp., *Callitriche* sp., and emergent plants such as *Scirpus* sp., softstem bulrush, and common cattail.	Breeding and year-round for benefitting species	Diving ducks, red-winged blackbird, wood duck, Vaux's swift, mink, purple martin, northwestern pond turtle, and northwestern salamander
Willow flycatcher	Scrub-shrub wetland	Water depths typically 3-10 ft. with some water remaining during most of the year. Vegetation dominated by willow, rose, and Douglas spirea with some Oregon ash, redosier dogwood, and black cottonwood.	Breeding and year-round	American bittern, sora, Virginia rail, red-winged blackbird, common yellowthroat, northern red-legged frog, and northwestern salamander
Coastal cutthroat trout, winter steelhead	Rivers, streams, and backwater sloughs	Barrier-free river, stream channels, and sloughs. Shaded along the banks, and with coarse woody debris for in-stream structure.	Migration corridor for migrating fish, off-channel winter refuge for juvenile fish	Northwestern pond turtle, mink, beaver, belted kingfisher, spring Chinook, coho, and Pacific lamprey
Cackling Canada goose	Cropland	Cultivated cereal grains including corn, barley, wheat, oats, etc. Green browse pastures with annual/perennial ryegrass, fescue, legumes, etc. Mowed to <4 inches before October 1.	Migrating and wintering waterfowl, year-round for benefitting species	Tundra swan, dusky Canada goose, northern pintail, American wigeon, northern harrier, and western meadowlark

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Appendix F. Statement of Compliance

Statement of Compliance for Implementation of the Tualatin River National Wildlife Refuge Comprehensive Conservation Plan, Washington and Yamhill Counties, Oregon

The following executive orders and legislative acts have been reviewed as they apply to implementation of the Tualatin River National Wildlife Refuge comprehensive conservation plan (CCP).

National Environmental Policy Act (1969), as Amended (42 U.S.C. § 4321 et seq.)

The planning process has been conducted in accordance with National Environmental Policy Act (NEPA) implementing procedures, with U.S. Department of the Interior and U.S. Fish and Wildlife Service (Service) procedures, and in coordination with the affected public. The requirements of NEPA (42 U.S. Code [U.S.C.] § 4321 et seq.) and its implementing regulations in 40 Code of Federal Regulations (CFR) 1500-1508 have been satisfied in the procedures used to reach decisions. These procedures included the development of a range of alternatives for the CCP; analysis of the likely effects of each alternative; and public involvement throughout the planning process. The start of the scoping period was announced through a Federal Register notice, news releases to local newspapers, the Service's refuge planning website, and a planning update. The draft CCP/environmental assessment (EA) was released for a 30-day public comment period. The affected public was notified of the availability of the document through a Federal Register notice, news releases to local newspapers, the Service's refuge planning website, and a planning update. Copies of the draft CCP/EA and/or planning updates were distributed to an extensive mailing list. In addition, the Service participated in a variety of public outreach efforts throughout the planning process (see Appendix K).

The CCP is programmatic in many respects and specific details of certain projects and actions cannot be determined until a later date depending on funding and implementation schedules. Certain projects or actions may require additional NEPA compliance.

National Historic Preservation Act (1966), as Amended (16 U.S.C. § 470 et seq.)

The management of the archaeological and cultural resources of the refuge will comply with the regulations of Section 106 of the National Historic Preservation Act. Under the CCP, historic properties will be maintained and repaired as funding becomes available. Maintenance and improvement of historic resources will result in positive impacts to cultural resources; however, determining whether a particular action has the potential to affect cultural resources is an ongoing process that occurs as step-down and site-specific project plans are developed. Should additional historic properties be identified or acquired in the future, the Service will comply with the National Historic Preservation Act if any management actions have the potential to affect these properties.

Executive Order 12372. Intergovernmental Review

Coordination and consultation with affected Tribal, local, and state governments, other Federal agencies, and the landowners has been completed through personal contact by refuge staff or supervisors, and/or by inclusion of the appropriate entities on the CCP mailing list.

Executive Order 13175. Consultation and Coordination with Indian Tribal Governments

As required under the Secretary of the Interior Order 3206—American Indian Tribal Rights, Federal Tribal Trust Responsibilities, and the Endangered Species Act—the project leader notified and consulted interested Tribes.

Executive Order 12898. Federal Actions to Address Environmental Justice in Minority and Low-income Populations

All Federal actions must address and identify, as appropriate, disproportionally high and adverse human health or environmental effects of their programs, policies, and activities on minority populations, low-income populations, and Indian Tribes in the United States. Actions in the management direction were evaluated and no adverse human health or environmental effects were identified for minority or low-income populations, Indian Tribes, or anyone else.

Wilderness Preservation Act of 1964 (16 U.S.C. § 1131 et seq.)

The Service has evaluated the suitability of the refuge for wilderness designation through the "inventory" phase according to the guidelines of the Wilderness Review process as described in 610 FW 4. In this inventory, no areas on the refuge were found to meet the minimum wilderness criteria for size, naturalness, or outstanding opportunities for solitude and primitive/unconfined recreation (see Appendix D for additional details).

Architectural Barriers Act of 1968, as Amended (42 U.S.C. § 4151 et seq.)

The Architectural Barriers Act requires access to Federal facilities for people with disabilities. Access for persons with disabilities has been considered during the planning process, and actions related to access are found in Chapter 2 of the CCP.

National Wildlife Refuge SystemAdministration Act of 1966, as Amended (16 U.S.C. § 668dd-668ee)

This Act requires the Service to develop and implement a CCP for each refuge. The CCP identifies and describes refuge purposes; the vision and goals for the refuge; fish, wildlife, and plant populations and related habitats on the refuge; archaeological and cultural values of the refuge; issues that may affect populations and habitats of fish, wildlife, and plants; actions necessary to restore and improve biological diversity on the refuge; and opportunities for wildlife-dependent recreation, as required by the Act.

During the CCP development process, the refuge manager evaluated all existing and proposed uses at the Tualatin River National Wildlife Refuge. Priority wildlife-dependent uses (hunting, fishing, wildlife observation and photography, environmental education, and interpretation) are considered automatically appropriate under Service policy and are thus exempt from appropriate uses review.

Compatibility determinations have been prepared for all uses found appropriate (see Appendices A and B of the CCP).

Executive Order 13186. Responsibilities of Federal Agencies to Protect Migratory Birds

This Order directs agencies to take certain actions to further implement the Migratory Bird Treaty Act. A provision of the Order directs Federal agencies to consider the impacts of their activities, especially in reference to birds on the Service's list of Birds of Conservation Concern. It also directs agencies to incorporate conservation recommendations and objectives in the North American Waterbird Conservation Plan and bird conservation plans developed by Partners in Flight into agency planning as described in Chapter 1. The effects to refuge habitats used by migratory birds from habitat, public use, and cultural resources actions were assessed within the CCP.

Endangered Species Act (1973), as Amended (16 U.S.C. § 1531 et seq.)

This Act provides for the conservation of threatened and endangered species of fish, wildlife, and plants by Federal action and by encouraging the establishment of state programs. Documentation is required under Section 7 of the Act. Refuge policy requires the refuge manager to document issues that affect or may affect endangered species before initiating projects. Consultation on specific projects will be conducted prior to implementation to avoid any adverse impacts to these species and their habitats. See section 4-5 for discussion of federally listed species.

Executive Order 11990. Protection of Wetlands

The CCP is consistent with Executive Order 11990 because CCP implementation will protect any existing wetlands.

Executive Order 11988. Floodplain Management

Under this Order, Federal agencies "shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains." The CCP is consistent with Executive Order 11988 because CCP implementation will maintain and enhance riverine, riparian, wetland, and wet prairie habitats located within floodplains on the refuge, which will minimize flood impacts and continue to contribute to the natural and beneficial fish and wildlife resource values unique to the area.

Integrated Pest Management, 517 DM 1 and 7 RM 14

In accordance with 517 DM 1 and 7 RM 14, an integrated pest management (IPM) approach has been adopted to eradicate, control, or contain pest and invasive species on the refuge. In accordance with 517 DM 1, only pesticides registered with the U.S. Environmental Protection Agency (EPA) in full compliance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and as provided in regulations, orders, or permits issued by the EPA may be applied on lands and waters under refuge jurisdiction.

Scott McEnaty — Chief, Conservation Planning

4/24/13 — Date

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Appendix G. Integrated Pest Management Program

G.1 Background

Integrated pest management (IPM) is an interdisciplinary approach using methods to prevent, eliminate, contain, and/or control pest and invasive species (herein collectively referred to as pests) in concert with other management activities on refuge lands and waters to achieve wildlife and habitat management goals and objectives. IPM is a scientific adaptive management process where available scientific information and best professional judgment of the refuge staff and other resource experts will be used to identify and implement appropriate management strategies that can be modified and/or changed over time to ensure effective, site-specific management of pest species to achieve desired outcomes. In accordance with 43 Code of Federal Regulations (CFR) 46.145, adaptive management would be particularly relevant where long-term impacts may be uncertain, and future monitoring would be needed to make adjustments in subsequent implementation decisions. After a tolerable pest population (threshold) is determined considering achievement of refuge resource objectives and the ecology of pest species, one or more methods, or combinations thereof, will be selected that are feasible, efficacious, and most protective of nontarget resources, including native species (fish, wildlife, and plants) and U.S. Fish and Wildlife Service (Service) personnel, Service-authorized agents, volunteers, and the public. Staff time and available funding will be considered when determining feasibility/practicality of various treatments.

IPM techniques to address pests are presented as comprehensive conservation plan (CCP) strategies (see Chapter 2 of this CCP) in an adaptive management context to achieve resource objectives of the Tualatin River National Wildlife Refuge (the refuge). To satisfy requirements for IPM planning as identified in the Service director's memo (dated September 9, 2004) titled *Integrated Pest Management Plans and Pesticide Use Proposals: Updates, Guidance, and an Online Database*, the following elements of an IPM program have been incorporated into this CCP:

- Habitat and/or wildlife objectives that identify pest species and appropriate thresholds to indicate the need for and successful implementation of IPM techniques; and
- Monitoring before and/or after treatment to assess progress toward achieving objectives including pest thresholds.

Where pesticides would be necessary to address pests, this appendix provides a structured procedure to evaluate potential effects of proposed uses involving ground-based applications to refuge biological resources and environmental quality in accordance with effects analyses presented in Chapter 6 (Environmental Consequences) of the draft CCP/EA. Only pesticide uses that likely would cause minor, temporary, or localized effects to refuge biological resources and environmental quality with appropriate best management practices (BMPs), where necessary, will be allowed for use on the refuge.

This appendix does not describe the more detailed process of evaluating potential effects associated with aerial applications of pesticides. However, the basic framework to assess potential effects to refuge biological resources and environmental quality from aerial application of pesticides would be similar to the process described in this appendix for ground-based treatments of other pesticides.

G.2 Pest Management Laws and Policies

In accordance with Service policy 569 FW 1 (Integrated Pest Management), plant, invertebrate, and vertebrate pests on units of the National Wildlife Refuge System (Refuge System) can be controlled to ensure balanced wildlife and fish populations in support of refuge-specific wildlife and habitat management objectives. Pest control on Federal (refuge) lands and waters also is authorized under the following legal mandates:

- National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S. Code [U.S.C.] 668dd-668ee);
- Plant Protection Act of 2000 (7 U.S.C. 7701 et seq.);
- Noxious Weed Control and Eradication Act of 2004 (7 U.S.C. 7781-7786, Subtitle E);
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1996 (7 U.S.C. 136-136y);
- National Invasive Species Act of 1996 (16 U.S.C. 4701);
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701);
- Food Quality Protection Act of 1996 (7 U.S.C. 136);
- Executive Order 13148, Section 601(a);
- Executive Order 13112; and
- Animal Damage Control Act of 1931 (7 U.S.C. 426-426c, 46 Stat. 1468).

Pests are defined as "… living organisms that may interfere with the site-specific purposes, operations, or management objectives or that jeopardize human health or safety" according to Department Policy 517 DM 1 (Integrated Pest Management Policy), published by the U.S. Department of the Interior. Similarly, 569 FW 1 defines pests as "… invasive plants and introduced or native organisms, that may interfere with achieving our management goals and objectives on or off our lands, or that jeopardize human health or safety." 517 DM 1 also defines an invasive species as "a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health." Throughout the remainder of this CCP, the terms pest and invasive species are used interchangeably because both can prevent/impede achievement of refuge wildlife and habitat objectives and/or degrade environmental quality.

In general, control of pests on the refuge would conserve and protect the nation's fish, wildlife, and plant resources as well as maintain environmental quality. From 569 FW 1, animal or plant species that are considered pests may be managed if the following criteria are met:

- There is threat to human health and well being or private property, the acceptable level of damage by the pest has been exceeded, or state or local government has designated the pest as noxious;
- It is detrimental to resource objectives as specified in a refuge resource management plan (e.g., CCP, habitat management plan), if available; and
- Control would not conflict with attainment of resource objectives or the purposes for which the refuge was established.

The specific justifications for pest management activities on the refuge are the following:

- Protect human health and well being;
- Prevent substantial damage to important refuge resources;

- Protect newly introduced or reestablished native species;
- Control nonnative (exotic) species to support existence of populations of native species;
- Prevent damage to private property; and
- Provide the public with quality, compatible wildlife-dependent recreational opportunities.

In accordance with Service policy 620 FW 1 (Habitat Management Plans), there are additional management directives regarding invasive species found on the refuge:

- ~~–~~We are prohibited by Executive Order, law, and policy from authorizing, funding, or carrying out actions that are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere."
- ~~–~~Manage invasive species to improve or stabilize biotic communities to minimize unacceptable change to ecosystem structure and function and prevent new and expanded infestations of invasive species. Conduct refuge habitat management activities to prevent, control, or eradicate invasive species …."

Animal species damaging/destroying Federal property and/or detrimental to the management program of a refuge may be controlled as described in 50 CFR 31.14 (Official Animal Control Operations). For example, the incidental removal of beaver damaging refuge infrastructure (e.g., clogging with subsequent damaging of water control structures) and/or negatively affecting habitats (e.g., removing woody species from existing or restored riparian areas) managed on refuge lands may be conducted without a pest control proposal. We recognize beavers are a native species and most of their activities on refuge lands represent a natural process beneficial for maintaining wetland habitats. Exotic nutria, whose denning and burrowing activities in wetland dikes causes cave-ins and breaches, can also be controlled using the most effective techniques considering site-specific factors without a pest control proposal. Along with the loss of quality wetland habitats associated with breaching of impoundments, the safety of refuge staff, volunteers, contractors, and public driving on structurally compromised levees and dikes can be threatened by sudden and unexpected cave-ins. Disposed wildlife specimens may be donated or loaned to public institutions. Donation or loans of resident wildlife species would only be made after securing state approval (50 CFR 31.11 [Donation and Loan of Wildlife Specimens]). Surplus wildlife specimens may be sold alive or butchered, dressed, and processed subject to Federal and state laws and regulations (50 CFR 31.12 [Sale of Wildlife Specimens]).

Trespass and feral animals also may be controlled on refuge lands. Based upon 50 CFR 28.43 (Destruction of Dogs and Cats), dogs and cats running at large on a national wildlife refuge and observed in the act of killing, injuring, harassing, or molesting humans or wildlife may be disposed of in the interest of public safety and protection of wildlife. Feral animals should be disposed of by the most humane method available and in accordance with relevant Service directives.

G.3 Strategies

To fully embrace IPM as identified in 569 FW 1, the following strategies, where applicable, would be carefully considered on the refuge for each pest species:

- **Prevention.** This would be the most effective and least expensive long-term management option for pests. It encompasses methods to prevent new introductions or the spread of the established pests to uninfested areas. It requires identifying potential routes of invasion to

reduce the likelihood of infestation. Hazard Analysis and Critical Control Points (HACCP) planning can be used to determine if current management activities on a refuge may introduce and/or spread invasive species in order to identify appropriate BMPs for prevention. See http://www.haccp-nrm.org/ for more information about HACCP planning.

Prevention may include source reduction, using pathogen-free or weed-free seeds or fill, exclusion methods (e.g., barriers), and/or sanitation methods (e.g., wash stations) to prevent reintroductions by various mechanisms including vehicles and personnel. Because invasive species are frequently the first to establish newly disturbed sites, prevention would require a reporting mechanism for early detection of new pest occurrences with quick response to eliminate any new pest populations. Prevention would require consideration of the scale and scope of land management activities that may promote pest establishment within uninfested areas or promote reproduction and spread of existing populations. Along with preventing initial introduction, prevention would involve halting the spread of existing infestations to new sites (Mullin et al. 2000). The primary reason for prevention would be to keep pest-free lands or waters from becoming infested. Executive Order 11312 emphasizes the priority for prevention with respect to managing pests.

The following would be methods to prevent the introduction and/or spread of pests on refuge lands:

- Before beginning ground-disturbing activities (e.g., discing, scraping), inventory and prioritize pest infestations in project operating areas and along access routes. Refuge staff would identify pest species on-site or within reasonably expected potential invasion vicinity. Where possible, the refuge staff would begin project activities in uninfested areas before working in pest-infested areas.
- Refuge staff would locate and use pest-free project staging areas. They would avoid or minimize travel through pest-infested areas, or restrict travel to those periods when the spread of seed or propagules of invasive plants would be least likely.
- Refuge staff would determine the need for, and when appropriate identify, sanitation sites where equipment can be cleaned of pests. Where possible, refuge staff would clean equipment before entering lands at on-refuge approved cleaning site(s). This practice does not pertain to vehicles traveling frequently in and out of the project area that would remain on roadways. Refuge staff would remove mud, dirt, and plant parts from project equipment before moving it into a project area.
- Refuge staff would clean all equipment before leaving the project site, if operating in areas infested with pests. Refuge staff would determine the need for, and when appropriate identify, sanitation sites where equipment can be cleaned.
- Refuge staff, their authorized agents, and refuge volunteers would, where possible, inspect, remove, and properly dispose of seed and parts of invasive plants found on their clothing and equipment. Proper disposal means bagging the seeds and plant parts and then properly disposing of them.
- Refuge staff would evaluate options, including closure, to restrict traffic on sites with ongoing restoration of desired vegetation. Refuge staff would revegetate disturbed soil (except travelways on surfaced projects) to optimize native plant establishment for each specific site. Revegetation may include topsoil replacement, planting, seeding, fertilization, and weed-free mulching as necessary. The refuge staff would use native material where appropriate and feasible. They would also use certified

weed-free or weed-seed-free hay or straw where certified materials are reasonably available.
- Refuge staff would provide information, training, and appropriate pest identification materials to permit holders and recreational visitors. They would educate them about pest identification, biology, impacts, and effective prevention measures.
- Refuge staff would require grazing permittees to use preventative measures for their livestock while on refuge lands.
- Refuge staff would inspect borrow material for invasive plants prior to use and transport onto and/or within refuge lands.
- Refuge staff would consider invasive plants in planning for road maintenance activities.

The following methods would be used to prevent the introduction and/or spread of pests into refuge waters:

- Refuge staff would inspect boats, trailers, other boating equipment, and waders or boots. Where possible, refuge staff would remove any visible plants, animals, or mud before leaving any waters or boat launching facilities. Where possible, refuge staff would drain water from motor, live well, bilge, and transom wells while on land before leaving the site. If possible, the refuge staff would wash and dry boats, anchors, nets, floors of boats, propellers, axles, trailers, and other boating equipment to kill pests not visible at the boat launch. Waders and boots would be cleaned and disinfected as necessary.
- Where feasible, refuge staff would maintain a l00-foot buffer of aquatic pest-free clearance around boat launches and docks or quarantine areas when cleaning around culverts, canals, or irrigation sites. Where possible, refuge staff would inspect and clean equipment before moving to new sites or from one project area to another.

- **Mechanical/Physical Methods.** These methods would remove and destroy, disrupt the growth of, or interfere with the reproduction of pest species. For plants species, these treatments can be accomplished by hand, hand tools (manual), or power tools (mechanical) and include pulling, grubbing, digging, tilling/discing, cutting, swathing, grinding, shearing, girdling, mowing, and mulching of the pest plants.

  For animal species, Service employees or their authorized agents could use mechanical/physical methods (including trapping) to control pests as a refuge management activity. Based upon 50 CFR 31.2, trapping can be used on a refuge to reduce surplus wildlife populations for a ~~"b~~balanced conservation program" in accordance with Federal or state laws and regulations. In some cases, non-lethally trapped animals would be relocated to off-refuge sites with prior approval from the state.

  Each of these tools would be efficacious to some degree and applicable to specific situations. In general, mechanical controls can effectively control annual and biennial pest plants. However, to control perennial plants, the root system has to be destroyed or it would resprout and continue to grow and develop. Mechanical controls are typically not capable of destroying a perennial plant's root system. Although some mechanical tools (e.g., discing, plowing) may damage root systems, they may also stimulate regrowth producing a denser plant population that may aid in the spread depending upon the target species (e.g., Canada

thistle). In addition, steep terrain and soil conditions would be major factors that can limit the use of many mechanical control methods.

Some mechanical control methods (e.g., mowing), which would be used in combination with herbicides, can be very effective at controlling perennial species. For example, mowing perennial plants followed sequentially by treating the plant regrowth with a systemic herbicide often would improve the efficacy of the herbicide compared to herbicide treatment alone.

- **Cultural Methods.** These methods would involve manipulating habitat to increase pest mortality by reducing its suitability to the pest. Cultural methods would include water-level manipulation, mulching, planting winter cover crops, changing planting dates to minimize pest impact, prescribed burning (which facilitates revegetation, increases herbicide efficacy, and removes litter to assist in emergence of desirable species), flaming with propane torches, trap crops, crop rotations that include nonsusceptible crops, moisture management, addition of beneficial insect habitat, reducing clutter, proper trash disposal, planting or seeding desirable species to shade or outcompete invasive plants, applying fertilizer to enhance desirable vegetation, prescriptive grazing, and other habitat alterations.

- **Biological Control Agents.** Classical biological control would involve the deliberate introduction and management of natural enemies (parasites, predators, or pathogens) to reduce pest populations. Many of the most ecologically or economically damaging pest species in the United States originated in foreign countries. These newly introduced pests, which are free from natural enemies found in their country or region of origin, may have a competitive advantage over cultivated and native species. This competitive advantage often allows introduced species to flourish, and they may cause widespread economic damage to crops or outcompete and displace native vegetation. Once the introduced pest species population reaches a certain level, traditional methods of pest management may be cost-prohibitive or impractical. Biological controls typically are used when these pest populations have become so widespread that eradication or effective control would be difficult or no longer practical.

  Biological control has advantages as well as disadvantages. Benefits include reducing pesticide use, host specificity for target pests, long-term self-perpetuating control, low cost per acre, capacity for searching and locating hosts, synchronizing biological control agents to hosts' life cycles, and the unlikelihood that hosts would develop resistance to agents. Disadvantages include limited availability of agents from their native lands, the dependence of control on target species' density, the slow rate at which control occurs, biotype matching, the difficulty and expense of conflicts over control of the target pest, and host specificity when host populations are low.

  A reduction in target species populations from biological controls is typically a slow process, and efficacy can be highly variable. It may not work well in a particular area although it does work well in other areas. Biological control agents would require specific environmental conditions to survive over time. Some of these conditions are understood, whereas others are only partially understood or not understood at all.

  Biological control agents would not eradicate a target pest. When using biological control agents, residual levels of the target pest typically are expected; the agent's population level or

survival would be dependent upon the density of its host. After the pest population decreases, the population of the biological control agent would decrease correspondingly. This is a natural cycle. Some pest populations (e.g., invasive plants) tend to persist for several years after a biological control agent becomes established due to seed reserves in the soil, inefficiencies in the agent's search behavior, and the natural lag in population buildup of the agent.

The full range of pest groups potentially found on refuge lands and waters includes diseases, invertebrates (insects, mollusks), vertebrates, and invasive plants (the most common group). Often it is assumed that biological control would address many if not most of these pest problems. There are several well-documented success stories of biological control of invasive weed species in the Pacific Northwest including Mediterranean sage, St. John's wort (Klamath weed), and tansy ragwort. Emerging success stories include Dalmatian toadflax, diffuse knapweed, leafy spurge, purple loosestrife, and yellow star thistle. However, historically, each new introduction of a biological control agent in the United States has only about a 30 percent success rate (Coombs et al. 2004).

Introduced species without desirable close relatives in the United States would generally be selected as biological controls. Natural enemies that are restricted to one or a few closely related plants in their country of origin are targeted as biological controls (Center et al. 1997; Hasan and Ayres 1990).

Refuge staff would ensure introduced agents are approved by applicable authorities. Except for a small number of formulated biological control products registered by the U.S. Environmental Protection Agency (EPA) under FIFRA, most biological control agents are regulated by the U.S. Department of Agriculture (USDA)-Animal Plant Health Inspection Service, Plant Protection and Quarantine (APHIS-PPQ). State departments of agriculture and, in some cases, county agricultural commissioners or weed districts have additional approval authority.

Federal permits (USDA-APHIS-PPQ Form 526) are required to import biocontrol agents from another state. Form 526 may be obtained through the Internet at: http://www.aphis.usda.gov/ppq/permits/bioligical/weedbio.html.

The Service strongly supports the development and legal and responsible use of appropriate, safe, and effective biological control agents for nuisance and nonindigenous or pest species.

State and county agriculture departments may also be sources for biological control agents or they may have information about where biological control agents may be obtained. Commercial sources should have an Application and Permit to Move Live Plant Pests and Noxious Weeds to release specific biological control agents in a state and/or county. Furthermore, certification regarding the biological control agent's identity (genus, specific epithet, subspecies, and variety) and purity (e.g., parasite-free, pathogen-free, and biotic and abiotic contaminants) should be specified in purchase orders.

Biological control agents are subject to 7 Refuge Manual (RM) 8 (Exotic Species Introduction and Management). In addition, refuge staff would follow the International Code of Best Practice for Classical Biological Control of Weeds (http://invasives.wsu.edu/Code.htm) as ratified by delegates to the Tenth International

Symposium on Biological Control of Weeds in Bozeman, Montana, on July 9, 1999. This code states the following:

- Release only approved biological control agents,
- Use the most effective agents,
- Document releases, and
- Monitor for impact to the target pest, non-target species, and the environment.

Biological control agents formulated as pesticide products and registered by the EPA (e.g., *Bacillus thuringiensis* var. *israelensis [B.t.i.]*) are also subject to pesticide use proposal (PUP) review and approval (see below).

A record of all releases would be maintained with date(s), location(s), and environmental conditions of the release site(s); the identity, quantity, and condition of the biological control agents released; and other relevant data and comments such as weather conditions. Systematic monitoring to determine the establishment and effectiveness of the release is also recommended.

National Environmental Policy Act (NEPA) documents regarding biological and other environmental effects of biological control agents prepared by another Federal agency, where the scope is relevant to evaluation of releases on refuge lands, would be reviewed. Possible source agencies for such NEPA documents include the Bureau of Land Management, U.S. Forest Service (USFS), the National Park Service, the USDA-APHIS, and the military services. It might be appropriate to incorporate by reference parts or all of existing document(s) from the review. Incorporating by reference (43 CFR 46.135) is a technique used to avoid redundancies in analysis. It also can reduce the bulk of a Service NEPA document, which only must identify the documents that are incorporated by reference. In addition, relevant portions must be summarized in the Service NEPA document to the extent necessary to provide the decision maker and public with an understanding of the relevance of the referenced material to the current analysis.

- **Pesticides.** The selective use of pesticides would be based upon pest ecology (including mode of reproduction), the size and distribution of pest populations, site-specific conditions (e.g., soils, topography), known efficacy under similar site conditions, and the capability to use BMPs to reduce/eliminate potential effects to nontarget species and sensitive habitats, and prevent contamination of surface and groundwater. All pesticide use (pesticide, target species, application rate, and method of application) would comply with the applicable Federal (FIFRA) and state regulations pertaining to pesticide use, safety, storage, disposal, and reporting. Before pesticides can be used to eradicate, control, or contain pests on refuge lands and waters, PUPs would be prepared and approved in accordance with 569 FW 1. PUP records would provide a detailed, time-, site-, and target-specific description of the proposed use of pesticides on the refuge. All PUPs would be created, approved or disapproved, and stored in the Pesticide Use Proposal System (PUPS), which is a centralized database only accessible on the Service's intranet (https://systems.fws.gov/pups). Only Service employees would be authorized to access PUP records for a refuge in this database.

  Application equipment would be selected to provide site-specific delivery to target pests while minimizing/eliminating direct or indirect (e.g., drift) exposure to non-target areas and degradation of surface and groundwater quality. Where possible, target-specific equipment

(e.g., backpack sprayer, roller, wiper) would be used to treat target pests. Other target-specific equipment used to apply pesticides include soaked wicks or paint brushes for wiping vegetation and lances, hatchets, or syringes for direct injection into stems. Granular pesticides may be applied using seeders or other specialized dispensers. In contrast, aerial spraying (e.g., fixed-wing or helicopter) would only be used where access is difficult (due to remoteness) and/or the size and distribution of infestations precludes practical use of ground-based methods.

Because repeated use of one pesticide may allow resistant organisms to survive and reproduce, multiple pesticides with variable modes of action would be considered for treatments on refuge lands and waters. This is especially important if multiple applications within years and/or over a growing season likely would be necessary for habitat maintenance and restoration activities to achieve resource objectives. Integrated chemical and non-chemical controls also are highly effective, where practical, because pesticide-resistant organisms can be removed from the site.

Cost may not be the primary factor in selecting a pesticide for use on a refuge. If the least expensive pesticide would potentially harm natural resources or people, then a different product would be selected, if available. The most efficacious pesticide available with the least potential to degrade environmental quality (soils, surface water, and groundwater) as well as the least potential effect to native species and communities of fish, wildlife, plants, and their habitats would be acceptable for use on refuge lands in the context of an IPM approach.

- **Habitat Restoration/Maintenance.** Restoration and/or proper maintenance of refuge habitats associated with achieving wildlife and habitat objectives would be essential for long-term prevention, eradication, or control (at or below threshold levels) of pests. Promoting desirable plant communities through the manipulation of species composition, plant density, and growth rate is an essential component of invasive plant management (Brooks et al. 2004; Masters et al. 1996; Masters and Sheley 2001). The following three components of succession could be manipulated through habitat maintenance and restoration: site availability, species availability, and species performance (Cox and Anderson 2004). Although a single method (e.g., herbicide treatment) may eliminate or suppress pest species in the short term, the resulting gaps and bare soil create niches that are conducive to further invasion by the species and/or other invasive plants. On degraded sites where desirable species are absent or in low abundance, revegetation with native/desirable grasses, forbs, and legumes may be necessary to direct and accelerate plant community recovery, and achieve site-specific objectives in a reasonable time frame. The selection of appropriate species for revegetation would be dependent on a number of factors including resource objectives and site-specific, abiotic factors (e.g., soil texture, precipitation/temperature regimes, and shade conditions). Seed availability and cost, ease of establishment, seed production, and competitive ability also would be important considerations.

G.4 Priorities for Treatments

For many refuges, the magnitude (number, distribution, and sizes of infestations) of pest problems is too extensive and beyond the available capital resources to effectively address during any single field season. To manage pests on a refuge, it is essential to prioritize treatment of infestations. Highest

priority treatments are focused on early detection and rapid response to eliminate infestations of new pests, if possible. This is especially important for aggressive pests potentially impacting species, species groups, communities, and/or habitats associated with the refuge purpose(s), Refuge System resources of concern (federally listed species, migratory birds, and interjurisdictional fish), and native species important for maintaining/restoring biological integrity, diversity, and environmental health.

The next priority would be treating established pests that appear in one or more previously uninfested areas. Moody and Mack (1988) demonstrated through modeling that small, new outbreaks of invasive plants eventually would infest an area larger than the established source population. They also found that control efforts focusing on the large, main infestation rather than the new, small satellites reduced the chances of overall success.

The lowest priority would be treating large infestations (sometimes monotypic stands) of well-established pests. In this case, initial efforts would focus upon containment of the perimeter followed by work to control/eradicate the established infested area. If containment and/or control of a large infestation is not effective, then efforts would focus upon halting pest reproduction or managing source populations. Maxwell et al. (2009) found that treating fewer populations that are sources represents an effective long-term strategy to reduce total number of invasive populations and decreasing population growth rates.

Although state-listed noxious weeds would always be of high priority for management, other pest species known to cause substantial ecological impact would also be considered. For example, reed canarygrass may not be listed by a state as noxious, but it can greatly alter wetland plant composition by forming monotypic stands. Pest control would likely require a multiyear commitment from refuge staff. Essential to the long-term success of pest management would be pretreatment and posttreatment monitoring, assessment of the successes and failures of treatments, and development of new approaches when proposed methods do not achieve desired outcomes.

G.5 Best Management Practices

BMPs can minimize or eliminate possible effects associated with pesticide usage to non-target species and/or sensitive habitats as well as degradation of water quality from drift, surface runoff, or leaching. Based upon the Department of Interior Pesticide Use Policy (517 DM 1) and the Service Pest Management Policy and Responsibilities (30 AM 12), the use of applicable BMPs also would likely ensure that pesticide uses do not adversely affect federally listed species and/or their critical habitats through determinations made using the process described in 50 CFR 402.

The following are BMPs pertaining to mixing/handling and applying pesticides for all ground-based treatments of pesticides, which would be considered and used, where feasible, based upon target- and site-specific factors and time-specific environmental conditions.

G.5.1 Pesticide Handling and Mixing

- As a precaution against spilling, spray tanks would not be left unattended during filling.
- All pesticide containers would be triple-rinsed and the rinsate would be used as water in the sprayer tank and applied to treatment areas.
- All pesticide spray equipment would be properly cleaned. Where possible, rinsate would be used as part of the make-up water in the sprayer tank and applied to treatment areas.

- The refuge staff would triple-rinse and recycle (where feasible) pesticide containers.
- All unused pesticides would be properly discarded at a local "safe send" collection.
- Pesticides and pesticide containers would be lawfully stored, handled, and disposed of in accordance with the label and in a manner safeguarding human health and fish and wildlife, and preventing soil and water contamination.
- Refuge staff would consider the water quality parameters (e.g., pH, hardness) that are important to ensure greatest efficacy where specified on the pesticide label.
- All pesticide spills would be addressed immediately using procedures identified in the refuge spill response plan.

G.5.2 Applying Pesticides

- Pesticide treatments would only be conducted by or under the supervision of Service personnel and non-Service applicators with the appropriate state certification to safely and effectively conduct these activities on refuge lands and waters.
- Refuge staff would comply with all Federal, state, and local pesticide use laws and regulations as well as Departmental, Service, and Refuge System pesticide-related policies.
- Before each treatment season and prior to mixing or applying any product for the first time each season, all applicators would review the labels, material safety data sheets (MSDS), and PUPs for each pesticide, determining the target pest, appropriate mix rate(s), required personal protective equipment (PPE), and other requirements listed on the pesticide label.
- Low-impact herbicide application techniques (e.g., spot treatment, cut stump, oil basal, Thinvert system applications) would be used rather than broadcast foliar applications (e.g., boom sprayer, other larger tank, wand applications), where practical.
- Low-volume rather than high-volume foliar applications would be used where low-impact methods described above are not feasible or practical, to maximize herbicide effectiveness and ensure correct and uniform application rates.
- Applicators would use and adjust spray equipment to apply the coarsest droplet size spectrum with optimal coverage of the target species while reducing drift.
- Applicators would use the largest droplet size that results in uniform coverage.
- Applicators would use drift reduction technologies such as low-drift nozzles, where possible.
- Where possible, spraying would occur during low (average <7 miles per hour [mph] and preferably 3 to 5 mph) and consistent direction wind conditions with moderate temperatures (typically <80°F).
- Where possible, applicators would avoid spraying during inversion conditions (often associated with calm and very low wind conditions), which can cause large-scale herbicide drift to nontarget areas.
- Equipment would be calibrated regularly to ensure that the proper rate of pesticide is applied to the target area or species.
- Spray applications would be made at the lowest height for uniform coverage of target pests to minimize/eliminate potential drift.
- If windy conditions frequently occur during afternoons, spraying (especially boom treatments) would typically be conducted during early morning hours.
- Spray applications would not be conducted on days with >30 percent forecast for rain within 6 hours, except for pesticides that are rapidly rain fast (e.g., glyphosate in 1 hour) to minimize/eliminate potential runoff.

- Where possible, applicators would use drift retardant adjuvants during spray applications, especially adjacent to sensitive areas.
- Where possible, applicators would use a non-toxic dye to aid in identifying target area treated as well as potential overspray or drift. A dye can also aid in detecting equipment leaks. If a leak is discovered, the application would be stopped until repairs can be made to the sprayer.
- For pesticide uses associated with cropland and facilities management, buffers, as appropriate, would be used to protect sensitive habitats, especially wetlands and other aquatic habitats.
- When drift cannot be sufficiently reduced through altering equipment setup and application techniques, buffer zones may be identified to protect sensitive areas downwind of applications. Refuge staff would only apply pesticide adjacent to sensitive areas when the wind is blowing in the opposite direction.
- Refuge staff would consider timing of application so native plants are protected (e.g., senescence) while effectively treating invasive plants.
- Rinsate from cleaning spray equipment after application would be recaptured and reused or applied to an appropriate pest plant infestation.
- Application equipment (e.g., sprayer, all-terrain vehicle [ATV], tractor) would be thoroughly cleaned and PPE would be removed/disposed of on-site by applicators after treatments to eliminate the potential spread of pests to uninfested areas.

G.6. Safety

G.6.1 Personal Protective Equipment

All applicators would wear the specific PPE identified on the pesticide label. The appropriate PPE would be worn at all times during handling, mixing, and application. PPE can include the following: disposable (e.g., Tyvek) or laundered coveralls; gloves (latex, rubber, or nitrile); rubber boots; and/or a National Institute for Occupational Safety and Health (NIOSH)-approved respirator. Because exposure to concentrated product is usually greatest during mixing, extra care should be taken while preparing pesticide solutions. Persons mixing these solutions can be best protected if they wear long gloves, an apron, footwear, and a face shield.

Coveralls and other protective clothing used during an application would be laundered separately from other laundry items. Transporting, storing, handling, mixing, and disposing of pesticide containers would be consistent with label requirements, EPA and Occupational Safety and Health Administration (OSHA) requirements, and Service policy.

If a respirator is necessary for a pesticide use, then the following requirements would be met in accordance with Service safety policy: a written Respirator Program, fit testing, physical examination (including pulmonary function and blood work for contaminants), and proper storage of the respirator.

G.6.2 Notification

The restricted entry interval (REI) is the time period required after application after which someone may safely enter a treated area without PPE. Refuge staff, authorized management agents of the Service, volunteers, and members of the public who could be in or near a pesticide-treated area within the stated re-entry time period on the label would be notified about treatment areas. Posting

would occur at any site where individuals might inadvertently become exposed to a pesticide during other activities on the refuge. Where required by the label and/or state-specific regulations, signs would also be posted on the perimeter of treatment areas and at other likely locations of entry. Refuge staff would also notify appropriate private property owners of an intended application, including any private individuals who have requested notification. Special efforts would be made to contact nearby individuals who are beekeepers or who have expressed chemical sensitivities.

G.6.3 Medical Surveillance

Medical surveillance may be required for Service personnel and approved volunteers who mix, apply, and/or monitor use of pesticides (see 242 FW 7 [Pesticide Users] and 242 FW 4 [Medical Surveillance]). In accordance with 242 FW 7.12A, Service personnel would be medically monitored if one or more of the following criteria is met: exposed or may be exposed to concentrations at or above the published permissible exposure limits or threshold limit values (see 242 FW 4); pesticide use is considered ~~f~~frequent pesticide use"; or pesticide use requires a respirator (see 242 FW 14 for respirator use requirements). According to 242 FW 7.7A, ~~f~~frequent pesticide use means when a person applying pesticide handles, mixes, or applies pesticides, with a Health Hazard rating of 3 or higher, for 8 or more hours in any week or 16 or more hours in any 30-day period." Under some circumstances, individuals who use pesticides infrequently, experience an acute exposure (sudden, short term), or use pesticides with a health hazard ranking of 1 or 2 may also be medically monitored. This decision would consider the individual's health and fitness level, the pesticide's specific health risks, and the potential risks from other pesticide-related activities. Refuge cooperators (e.g., cooperative farmers) and other authorized agents (e.g., state and county employees) would be responsible for their own medical monitoring needs and costs.

Standard examinations (at refuge expense) of appropriate refuge staff would be provided by the nearest certified occupational health and safety physician as determined by Federal Occupational Health.

G.6.4 Certification and Supervision of Pesticide Applicators

Appropriate refuge staff or approved volunteers handling, mixing, and/or applying, or directly supervising others engaged in pesticide use activities, would be trained and state or federally licensed to apply pesticides to refuge lands or waters. In accordance with 242 FW 7.18A and 569 FW 1.10B, certification is required to apply restricted use pesticides based upon EPA regulations. For safety reasons, all individuals participating in pest management activities with general use pesticides also are encouraged to attend appropriate training or acquire pesticide applicator certification. New staff unfamiliar with proper procedures for storing, mixing, handling, applying, and disposing of pesticides and containers would receive orientation and training before handling or using any products. Documentation of training would be kept in the files at the refuge office.

G.6.5 Record Keeping

G.6.5.1 Labels and Material Safety Data Sheets

Pesticide labels and MSDSs would be maintained at the refuge shop. A written reference (e.g., note pad, chalk board, dry erase board) for each tank to be mixed would be kept in the mixing area for quick reference while mixing is in progress. In addition, approved PUPs stored in the PUPS database typically contain website links to pesticide labels and MSDSs.

G.6.5.2 Pesticide Use Proposals

A PUP would be prepared for each proposed pesticide use associated with annual pest management on refuge lands and waters. A PUP would include specific information about the proposed pesticide use including the common and chemical names of the pesticide(s), target pest species, size and location of treatment site(s), application rate(s) and method(s), and federally listed species determinations, where applicable.

In accordance with Service guidelines (Service Director's memo [December 12, 2007]), refuge staff may receive up to 5-year approvals for Service Washington Office and field-reviewed proposed pesticide uses based upon meeting identified criteria including an approved IPM plan, where necessary (see http://www.fws.gov/contaminants/Issues/IPM.cfm). For a refuge, an IPM plan (requirements described herein) can be completed independently or in association with a CCP or a habitat management plant (HMP) if IPM strategies and potential environmental effects are adequately addressed within appropriate NEPA documentation.

G.6.5.3 Pesticide Use

In accordance with 569 FW 1, the refuge project leader would be required to maintain records of all pesticides annually applied on lands or waters under refuge jurisdiction. This would encompass pesticides applied by other Federal agencies, state and county governments, and nongovernment applicators including cooperators and their pest management service providers with Service permission. For clarification, pesticide means all insecticides, insect and plant growth regulators, desiccants, herbicides, fungicides, rodenticides, acaricides, nematicides, fumigants, avicides, and piscicides.

The following usage information can be reported for approved PUPs in the PUPS database:

- Pesticide trade name(s)
- Active ingredient(s)
- Total acres treated
- Total amount of pesticides used (lbs or gallons)
- Total amount of active ingredient(s) used (lbs)
- Target pest(s)
- Efficacy (% control)

To determine whether treatments are efficacious (eradicating, controlling, or containing the target pest) and achieving resource objectives, habitat and/or wildlife response would be monitored both pretreatment and posttreatment, where possible. Considering available annual funding and staffing, appropriate monitoring data regarding characteristics (attributes) of pest infestations (e.g., area, perimeter, degree of infestation density, percent cover, density) as well as habitat and/or wildlife response to treatments may be collected and stored in a relational database (e.g., Refuge Habitat Management Database), preferably a georeferenced data management system (e.g., Refuge Lands Geographic Information System [GIS]) to facilitate data analyses and subsequent reporting. In accordance with adaptive management, data analysis and interpretation would allow treatments to be modified or changed over time, as necessary, to achieve resource objectives considering site-specific conditions in conjunction with habitat and/or wildlife responses. Monitoring could also identify short- and long-term impacts to natural resources and environmental quality associated with IPM treatments in accordance with adaptive management principles identified in 43 CFR 46.145.

G.7 Evaluating Pesticide Use Proposals

Pesticides would only be used on refuge lands for habitat management and croplands/facilities maintenance after approval of a PUP. In general, proposed pesticide uses on refuge lands would only be approved where there would likely be minor, temporary, or localized effects to fish and wildlife species as well as minimal potential to degrade environmental quality. Potential effects to listed and nonlisted species would be evaluated with quantitative ecological risk assessments and other screening measures. Potential effects to environmental quality would be based upon pesticide characteristics of environmental fate (water solubility, soil mobility, soil persistence, and volatilization) and other quantitative screening tools. Ecological risk assessments and characteristics of environmental fate and potential of pesticides to degrade environmental quality would be documented in chemical profiles (see Section G.7.6). These profiles would include threshold values for quantitative measures of ecological risk assessments and screening tools for environmental fate that represent minimal potential effects to species and environmental quality. In general, only pesticide uses with appropriate BMPs (see Section G.5) for habitat management and cropland/facilities maintenance on refuge lands that would potentially have minor, temporary, or localized effects on refuge biological and environmental quality (threshold values not exceeded) would be approved.

G.7.1 Overview of Ecological Risk Assessment

An ecological risk assessment process would be used to evaluate potential adverse effects to biological resources as a result of a pesticide proposed for use on refuge lands. It is an established quantitative and qualitative methodology for comparing and prioritizing risks of pesticides and conveying an estimate of the potential risk for an adverse effect. This quantitative methodology provides an efficient mechanism to integrate best available scientific information regarding hazards, patterns of use (exposure), and dose-response relationships in a manner that is useful for ecological risk decision making. It would provide an effective way to evaluate potential effects where there is missing or unavailable scientific information (data gaps) to address reasonable, foreseeable adverse effects in the field as required under 40 CFR 1502.22. Protocols for ecological risk assessment of pesticide uses on the refuge were developed through research and established by the EPA (2004).

The toxicological data used in ecological risk assessments are typically results of standardized laboratory studies provided by pesticide registrants to the EPA to meet regulatory requirements under FIFRA. These studies assess the acute (lethality) and chronic (reproductive) effects associated with short- and long-term exposure to pesticides on representative species of birds, mammals, freshwater fish, aquatic invertebrates, and terrestrial and aquatic plants. Other effects data publicly available would also be used for risk assessment protocols described herein. Toxicity endpoint and environmental fate data are available from a variety of resources. Some of the more useful resources can be found in Section G.7.6.

G.7.2 Determining Ecological Risk to Fish and Wildlife

The potential for pesticides used on the refuge to cause direct adverse effects to fish and wildlife would be evaluated using the EPA's ecological risk assessment process (EPA 2004). This deterministic approach, which is based upon a two-phase process involving estimation of environmental concentrations and then characterization of risk, would be used for ecological risk assessments. This method integrates exposure estimates (estimated environmental concentration

[EEC] and toxicological endpoints [e.g., LC_{50} and oral LD_{50}]) to evaluate the potential for adverse effects to species groups (birds, mammals, and fish) representative of legal mandates relevant for managing units of the Refuge System. This integration is achieved through risk quotients (RQs) calculated by dividing the EEC by acute and chronic toxicity values selected from standardized toxicological endpoints or published effects (Table G-1).

$$RQ = EEC/Toxicological\ Endpoint$$

Table G-1. Ecotoxicity Tests Used to Evaluate Potential Effects to Birds, Fish, and Mammals to Establish Toxicity Endpoints for Risk Quotient Calculations

Species Group	Exposure	Measurement Endpoint
Bird	Acute	Median Lethal Concentration (LC_{50})
	Chronic	No Observed Effect Concentration (NOEC) or No Observed Adverse Effect Concentration (NOAEC)[1]
Fish	Acute	LC_{50}
	Chronic	NOEC or NOAEC[2]
Mammal	Acute	Oral Lethal Dose (LD_{50})
	Chronic	NOEC or NOAEC[3]

[1]Measurement endpoints typically include a variety of reproductive parameters (e.g., number of eggs, number of offspring, eggshell thickness, and number of cracked eggs).

[2]Measurement endpoints for early life stage/life cycle typically include embryo hatch rates, time to hatch, growth, and time to swim-up.

[3]Measurement endpoints include maternal toxicity, teratogenic effects or developmental anomalies, evidence of mutagenicity or genotoxicity, and interference with cellular mechanisms such as DNA synthesis and DNA repair.

The level of risk associated with direct effects of pesticide use would be characterized by comparing calculated RQs to the appropriate Level of Concern (LOC) established by the EPA (1998b) (Table G-2). The LOC represents a quantitative threshold value for screening potential adverse effects to fish and wildlife resources associated with pesticide use. The following are four exposure-species group scenarios that would be used to characterize ecological risk to fish and wildlife on the refuge: acute-listed species, acute-nonlisted species, chronic-listed species, and chronic-nonlisted species.

Table G-2. Presumption of Unacceptable Risk for Birds, Fish, and Mammals (EPA 1998b)

Risk Presumption		Level of Concern	
		Listed Species	Nonlisted Species
Acute	Birds	0.1	0.5
	Fish	0.5	0.5
	Mammals	0.1	0.5
Chronic	Birds	1.0	1.0

Table G-2. Presumption of Unacceptable Risk for Birds, Fish, and Mammals (EPA 1998b)

Risk Presumption		Level of Concern	
		Listed Species	Nonlisted Species
	Fish	1.0	1.0
	Mammals	1.0	1.0

Acute risk would indicate the potential for mortality associated with short-term dietary exposure to pesticides immediately after an application. For characterization of acute risks, median values from LC_{50} and LD_{50} tests would be used as toxicological endpoints for RQ calculations. In contrast, chronic risks would indicate the potential for adverse effects associated with long-term dietary exposure to pesticides from a single application or multiple applications over time (within a season and over years). For characterization of chronic risks, the no observed adverse effect concentration (NOAEC) or no observed effect concentration (NOEC) for reproduction would be used as toxicological endpoints for RQ calculations. Where available, the NOAEC would be preferred over a NOEC value.

Listed species are those federally designated as threatened, endangered, or proposed in accordance with the Endangered Species Act of 1973. For listed species, potential adverse effects would be assessed at the individual level because loss of individuals from a population could detrimentally impact a species. In contrast, risks to nonlisted species would consider effects at the population level. A RQ<LOC would indicate the proposed pesticide use "may affect, not likely to adversely affect" individuals (listed species) and it would not pose an unacceptable risk for adverse effects to populations (nonlisted species) for each taxonomic group (Table G-2). In contrast, an RQ>LOC would indicate a "may affect, likely to adversely affect" for listed species, and it would also pose unacceptable ecological risk for adverse effects to nonlisted species.

G.7.2.1 Environmental Exposure

Following release into the environment through application, pesticides would experience several different routes of environmental fate. Pesticides that would be sprayed can move through the air (e.g., particle or vapor drift) and may eventually end up in other parts of the environment such as nontarget vegetation, soil, or water. Pesticides applied directly to the soil may be washed off the soil into nearby bodies of surface water (e.g., surface runoff) or may percolate through the soil to lower soil layers and groundwater (Baker and Miller 1999; Butler et al. 1998; Extension Toxicology Network [EXTOXNET] 1993; Pope et al. 1999; Ramsay et al. 1995). Pesticides that would be injected into the soil may also be subject to the latter two fates. The aforementioned possibilities are by no means complete, but do indicate that movement of pesticides in the environment is very complex, with transfers occurring continually among different environmental compartments. In some cases, these exchanges occur not only between areas that are close together, but may also involve transportation of pesticides over long distances (Barry 2004; Woods 2004).

G.7.2.1.1 Terrestrial Exposure

The ECC for exposure to terrestrial wildlife would be quantified using an EPA screening-level approach (EPA 2004). This screening-level approach is not affected by product formulation because

it evaluates pesticide active ingredient (a.i.). This approach would vary depending upon the proposed pesticide application method: spray or granular.

G.7.2.1.1.1 Terrestrial—spray application

For spray applications, exposure would be determined using the Kanaga nomogram method (EPA 2004, 2005a; Pfleeger et al. 1996) through the EPA's Terrestrial Residue Exposure model (T-REX) version 1.2.3 (EPA 2005b). To estimate the maximum (initial) pesticide residue on short grass (<20 centimeter [cm] tall) as a general food item category for terrestrial vertebrate species, T-REX input variables would include the following from the pesticide label: maximum pesticide application rate (pounds a.i. [acid equivalent]/acre) and pesticide half-life (days) in soil. Although there are other food item categories (tall grasses; broadleaf plants and small insects; and fruits, pods, seeds and large insects), short grass was selected because it would yield maximum EECs (240 parts per million [ppm] per lb a.i./acre) for worst-case risk assessments. Short grass is not representative of forage for carnivorous species (e.g., raptors), but it would characterize the maximum potential exposure through the diet of avian and mammalian prey items. Consequently, this approach would provide a conservative screening tool for pesticides that do not biomagnify.

For RQ calculations in T-REX, the model would require the weight of surrogate species and Mineau scaling factors (Mineau et al. 1996). Body weights of bobwhite quail and mallard are included in T-REX by default, but body weights of other organisms (Table G-3) would be entered manually. The Mineau scaling factor accounts for small-bodied bird species that may be more sensitive to pesticide exposure than would be predicted only by body weight. Mineau scaling factors would be entered manually with values ranging from 1 to 1.55 that are unique to a particular pesticide or group of pesticides. If specific information to select a scaling factor is not available, then a value of 1.15 would be used as a default. Alternatively, zero would be entered if it is known that body weight does not influence toxicity of pesticide(s) being assessed. The upper bound estimate output from the T-REX Kanaga nomogram would be used as an EEC for calculation of RQs. This approach would yield a conservative estimate of ecological risk.

Table G-3. Average Body Weight of Selected Terrestrial Wildlife Species Frequently used in Research to Establish Toxicological Endpoints (Dunning 1984)

Species	Body Weight (kilogram [kg])
Mammal (15 g)	0.015
House sparrow	0.0277
Mammal (35 g)	0.035
Starling	0.0823
Red-winged blackbird	0.0526
Rock dove (aka pigeon)	0.542
Mammal (1,000 g)	1.000
Mallard	1.082
Ring-necked pheasant	1.135

G.7.2.1.1.2 Terrestrial—granular application

Granular pesticide formulations and pesticide-treated seed would pose a unique route of exposure for avian and mammalian species. The pesticide is applied in discrete units, which birds or mammals might ingest accidentally with food items or intentionally as in the case of some bird species that actively seek and pick up gravel or grit to aid digestion or seed as a food source. Granules may also be consumed by wildlife foraging on earthworms, slugs, or other soft-bodied soil organisms to which the granules may adhere.

Terrestrial wildlife RQs for granular formulations or seed treatments would be calculated by dividing the maximum milligrams of a.i. exposed (e.g., EEC) on the surface of an area equal to 1 square foot by the appropriate LD_{50} value multiplied by the surrogate's body weight (Table G-3). An adjustment to surface area calculations would be made for broadcast, banded, and in-furrow applications. An adjustment also would be made for applications with and without incorporation of the granules. Without incorporation, it would be assumed that 100 percent of the granules remain on the soil surface available to foraging birds and mammals. Press wheels push granules flat with the soil surface, but the granules are not incorporated into the soil. If granules are incorporated in the soil during band or T-band applications or after broadcast applications, it would be assumed only 15 percent of the applied granules remain available to wildlife. It would be assumed that only 1 percent of the granules are available on the soil surface following in-furrow applications.

EECs for pesticides applied in granular form and as seed treatments would be determined considering potential ingestion rates of avian or mammalian species (e.g., 10-30% body weight/day). This would provide an estimate of maximum exposure that may occur as a result of granule or seed treatment spills such as those that commonly occur at end rows during application and planting. The availability of granules and seed treatments to terrestrial vertebrates would also be considered by calculating the loading per unit area (LD_{50}/feet^2) for comparison to the EPA LOC (EPA 1998b). The T-REX version 1.2.3 (EPA 2005b) contains a submodel that automates Kanaga exposure calculations for granular pesticides and treated seed.

The following formulas would be used to calculate EECs depending upon the type of granular pesticide application:

- In-furrow applications assume a typical value of 1 percent granules, bait, or seed remain unincorporated.

$$mg\ a.i./feet^2 = [(lbs.\ product/acre)(\%\ a.i.)(453{,}580\ mg/lbs)(1\%\ exposed))] / \{[(43{,}560\ feet^2/acre)/(row\ spacing\ (feet))] / (row\ spacing\ (feet)\}$$

or

$$mg\ a.i./feet^2 = [(lbs\ product/1{,}000\ foot\ row)(\%\ a.i.)(1{,}000\ foot\ row)(453{,}580\ mg/lb.)(1\%\ exposed)$$

$$EEC = [(mg\ a.i./feet^2)(\%\ of\ pesticide\ biologically\ available)]$$

- Incorporated banded treatments assume that 15 percent of granules, bait, and seeds are unincorporated.

$$mg\ a.i./feet^2 = [(lbs.\ product/1{,}000\ row\ feet)(\%\ a.i.)(453{,}580\ mg/lb.)(1 - \%\ incorporated)]/(1{,}000\ feet)(band\ width\ (feet))$$

$$EEC = [(mg\ a.i./feet^2)(\%\ of\ pesticide\ biologically\ available)]$$

- Broadcast treatment without incorporation assumes 100 percent of granules, bait, and seeds are unincorporated.

$$mg\ a.i./feet^2 = [(lbs.\ product/acre)(\%\ a.i.)(453{,}590\ mg/lb.)]/(43{,}560\ feet^2/acre)$$

$$EEC = [(mg\ a.i./feet^2)(\%\ of\ pesticide\ biologically\ available)]$$

Where:

- % of pesticide biologically available = 100 percent without species-specific ingestion rates
- Conversion for calculating mg a.i./feet^2 using ounces: 453,580 mg/lb./16 = 28,349 mg/oz.

The following equation would be used to calculate an RQ based on the EEC calculated by one of the above equations. The EEC would be divided by the surrogate LD_{50} toxicological endpoint multiplied by the body weight (Table G-3) of the surrogate.

$$RQ = EEC / [LD50\ (mg/kg) * body\ weight\ (kg)]$$

As with other risk assessments, an RQ>LOC would be a presumption of unacceptable ecological risk. An RQ<LOC would be a presumption of acceptable risk with only minor, temporary, or localized effects to species.

G.7.2.1.2 Aquatic Exposure

Exposures to aquatic habitats (e.g., wetlands, meadows, ephemeral pools, water delivery ditches) would be evaluated separately for ground-based pesticide treatments of habitats managed for fish and wildlife compared with cropland/facilities maintenance. The primary exposure pathway for aquatic organisms from any ground-based treatments likely would be particle drift during the pesticide application. However, different exposure scenarios would be necessary as a result of contrasting application equipment and techniques as well as pesticides used to control pests on agricultural lands (especially those cultivated by cooperative farmers for economic return from crop yields) and facilities maintenance (e.g., roadsides, parking lots, trails) compared with other managed habitats on the refuge. In addition, pesticide applications may be done <25 feet of the high water mark of aquatic habitats for habitat management treatments, whereas no-spray buffers (≥25 feet) would be used for croplands/facilities maintenance treatments.

G.7.2.1.2.1 Habitat treatments

For the worst-case exposure scenario to non-target aquatic habitats, EECs (Table G-4) would be derived from Urban and Cook (1986), which assumes an intentional overspray to an entire, non-target water body (1 foot depth) from a treatment <25 feet from the high water mark using the maximum application rate (acid basis). However, use of BMPs for applying pesticides (see Section

G.5.2) would likely minimize/eliminate potential drift to non-target aquatic habitats during actual treatments. If there would be unacceptable (acute or chronic) risk to fish and wildlife with the simulated 100 percent overspray (RQ>LOC), then the proposed pesticide use may be disapproved or the PUP may be approved at a lower application rate to minimize/eliminate unacceptable risk to aquatic organisms (RQ = LOC).

Table G-4. Estimated Environmental Concentrations of Pesticides in Aquatic Habitats (1 foot depth) Immediately after Direct Application (Urban and Cook 1986)

Lbs/acre	EEC (parts per billion (ppb)
0.10	36.7
0.20	73.5
0.25	91.9
0.30	110.2
0.40	147.0
0.50	183.7
0.75	275.6
1.00	367.5
1.25	459.7
1.50	551.6
1.75	643.5
2.00	735.7
2.25	827.6
2.50	919.4
3.00	1,103.5
4.00	1,471.4
5.00	1,839
6.00	2,207
7.00	2,575
8.00	2,943
9.00	3,311
10.00	3,678

G.7.2.1.2.2 Cropland/facilities maintenance treatments

Field drift studies conducted by the Spray Drift Task Force (SDTF), which is a joint project of several agricultural chemical businesses, were used to develop a generic spray drift database. From this database, the AgDRIFT computer model was created to satisfy EPA pesticide registration spray drift data requirements and as a scientific basis to evaluate off-target movement of pesticides from particle drift and assess potential effects of exposure to wildlife. The SDTF AgDRIFT model version 2.01 (AgDRIFT 2001; SDTF 2003) would be used to derive EECs resulting from drift of pesticides to refuge aquatic resources from ground-based pesticide applications >25 feet from the high water mark. The SDTF AgDRIFT model is publicly available at http://www.agdrift.com. At this website, click "AgDRIFT 2.0," followed by "Download Now," and follow the instructions to obtain the computer model.

The AgDRIFT model is composed of submodels called tiers. Tier I Ground submodel would be used to assess ground-based applications of pesticides. Tier outputs (EECs) would be calculated with AgDRIFT using the following input variables: maximum application rate (acid basis), low boom (20 inches), fine to medium droplet size, EPA-defined wetland, and a ≥25-foot distance (buffer) from treated area to water.

G.7.2.2 Use of Information on Effects of Biological Control Agents, Pesticides, Degradates, and Adjuvants

NEPA documents regarding biological and other environmental effects of biological control agents, pesticides, degradates, and adjuvants prepared by another Federal agency, where the scope would be relevant to evaluation of effects from pesticide uses on refuge lands, would be reviewed. Possible source agencies for such NEPA documents include the Bureau of Land Management, USFS, National Park Service, USDA-APHIS, and the military services. It might be appropriate to incorporate by reference parts or all of existing document(s). Incorporating by reference (40 CFR 1502.21) is a technique used to avoid redundancies in analysis. It also would reduce the bulk of a Service NEPA document, which only would identify the documents that are incorporated by reference. In addition, relevant portions would be summarized in the Service NEPA document to the extent necessary to provide the decision maker and public with an understanding of relevance of the referenced material to the current analysis.

In accordance with the requirements set forth in 43 CFR 46.135, the Service would specifically incorporate through reference ecological risk assessments prepared by the USFS (http://www.fs.fed.us/r6/invasiveplant-eis/Risk-Assessments/Herbicides-Analyzed-InvPlant-EIS.htm) and Bureau of Land Management (http://www.blm.gov/wo/st/en/prog/more/veg_eis.html). These risk assessments and associated documentation also are available in total with the administrative record for the final environmental impact statement titled *Pacific Northwest Region Invasive Plant Program – Preventing and Managing Invasive Plants* (USFS 2005) and *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic EIS (PEIS)* (Bureau of Land Management 2007). In accordance with 43 CFR 46.120(d), use of existing NEPA documents by supplementing, tiering to, incorporating by reference, or adopting previous NEPA environmental analyses would avoid redundancy and unnecessary paperwork.

As a basis for completing chemical profiles for approving or disapproving refuge PUPs, ecological risk assessments for the following herbicide and adjuvant uses prepared by the USFS would be incorporated by reference:

- 2,4-D
- Chlorosulfuron
- Clopyralid
- Dicamba
- Glyphosate
- Imazapic
- Imazapyr
- Metsulfuron methyl
- Picloram
- Sethoxydim
- Sulfometuron methyl
- Triclopyr
- Nonylphenol polyethoxylate (NPE)-based surfactants

As a basis for completing chemical profiles for approving or disapproving refuge PUPs, ecological risk assessments for the following herbicide uses as well as evaluation of risks associated with pesticide degradates and adjuvants prepared by the Bureau of Land Management would be incorporated by reference:

- Bromacil
- Chlorosulfuron
- Diflufenzopyr
- Diquat
- Diuron
- Fluridone
- Imazapic
- Overdrive (diflufenzopyr and dicamba)
- Sulfometuron methyl
- Tebuthiuron
- Pesticide degradates and adjuvants

G.7.2.3 Assumptions for Ecological Risk Assessments

There are a number of assumptions involved with the ecological risk assessment process for terrestrial and aquatic organisms associated with use of the EPA's (2004) process. These assumptions may be risk neutral or may lead to an over- or under-estimation of risk from pesticide exposure depending upon site-specific conditions. The following describes these assumptions, their application to the conditions typically encountered, and whether they may lead to recommendations that are risk neutral, or that underestimate or overestimate ecological risk from potential pesticide exposure.

- Indirect effects would not be evaluated by ecological risk assessments. These effects include the mechanisms of indirect exposure to pesticides: consuming prey items (fish, birds, or

small mammals), reductions in the availability of prey items, and disturbance associated with pesticide application activities.

- Exposure to a pesticide product can be assessed based upon the active ingredient. However, exposure to a chemical mixture (pesticide formulation) may result in effects that are similar or substantially different compared to only the active ingredient. Nontarget organisms may be exposed directly to the pesticide formulation or only various constituents of the formulation as they dissipate and partition in the environment. If toxicological information for both the active ingredient and formulated product are available, then data representing the greatest potential toxicity would be selected for use in the risk assessment process (EPA 2004). As a result, this conservative approach may lead to an overestimation of risk characterization from pesticide exposure.
- Because toxicity tests with listed or candidate species or closely related species are not available, data for surrogate species would be most often used for risk assessments. Specifically, bobwhite quail and mallard duck are the most frequently used surrogates for evaluating potential toxicity to federally listed avian species. Bluegill sunfish, rainbow trout, and fathead minnow are the most common surrogates for evaluating toxicity for freshwater fishes. Sheep's head minnow can be an appropriate surrogate marine species for coastal environments. Rats and mice are the most common surrogates for evaluating toxicity to mammals. Interspecies sensitivity is a major source of uncertainty in pesticide assessments. As a result of this uncertainty, data are selected for the most sensitive species tested within a taxonomic group (birds, fish, and mammals) given the quality of the data is acceptable. If additional toxicity data for more species of organisms in a particular group are available, the selected data would not be limited to the species previously listed as common surrogates.
- The Kanaga nomogram outputs maximum EEC values that may be used to calculate an average daily concentration over a specified interval of time, which is referred to as a time-weighted-average (TWA). The maximum EEC would be selected as the exposure input for both acute and chronic risk assessments in the screening-level evaluations. The initial or maximum EEC derived from the Kanaga nomogram represents the maximum expected instantaneous or acute exposure to a pesticide. Acute toxicity endpoints are determined using a single exposure to a known pesticide concentration typically for 48 to 96 hours. This value is assumed to represent ecological risk from acute exposure to a pesticide. On the other hand, chronic risk to pesticide exposure is a function of pesticide concentration and duration of exposure to the pesticide. An organism's response to chronic pesticide exposure may result from either the concentration of the pesticide or the length of exposure, or some combination of both factors. Standardized tests for chronic toxicity typically involve exposing an organism to several different pesticide concentrations for a specified length of time (days, weeks, months, years, or generations). For example, avian reproduction tests include a 10-week exposure phase. Because a single length of time is used in the test, time response data are usually not available for inclusion in risk assessments. Without time response data it is difficult to determine the concentration that elicits a toxicological response.
- Using maximum EECs for chronic risk estimates may result in an overestimation of risk, particularly for compounds that dissipate rapidly. Conversely, using TWAs for chronic risk estimates may underestimate risk if it is the concentration rather than the duration of exposure that is primarily responsible for the observed adverse effect. The maximum EEC would be used for chronic risk assessments although it may result in an overestimation of risk. TWAs may be used for chronic risk assessments, but they would be applied judiciously considering the potential for underestimation or overestimation of risk. For example, the number of days exposure exceeds an LOC may influence the suitability of a pesticide use.

The greater the number of days the EEC exceeds the LOC, the greater the ecological risk. This is a qualitative assessment, and is subject to reviewers' expertise in ecological risk assessment and tolerance for risk.

- The length of time used to calculate the TWA can have a substantial effect on the exposure estimates, and there is no standard method for determining the appropriate duration for this estimate. The T-REX model assumes a 21-week exposure period, which is equivalent to avian reproductive studies designed to establish a steady-state concentration for bioaccumulative compounds. However, this does not necessarily define the true exposure duration needed to elicit a toxicological response. Pesticides that do not bioaccumulate may achieve a steady-state concentration earlier than 21 weeks. The duration of time for calculating TWAs would require justification and would not exceed the duration of exposure in the chronic toxicity test (approximately 70 days for the standard avian reproduction study). An alternative to using the duration of the chronic toxicity study is to base the TWA on the application interval. In this case, increasing the application interval would suppress both the estimated peak pesticide concentration and the TWA. Another alternative to using TWAs would be to consider the number of days that a chemical is predicted to exceed the LOC.
- Pesticide dissipation is assumed to be first-order in the absence of data suggesting alternative dissipation patterns such as biphasic. Field dissipation data would generally be the most pertinent for assessing exposure in terrestrial species that forage on vegetation. However, these data are often not available and can be misleading, particularly if the compound is prone to ~~"w~~wash-off." Soil half-life is the most common degradation data available. Dissipation or degradation data that would reflect the environmental conditions typical of refuge lands would be used, if available.
- For species found in the water column, it would be assumed that the greatest bioavailable fraction of the pesticide active ingredient in surface waters is freely dissolved in the water column.
- Actual habitat requirements of any particular terrestrial species are not considered, and it is assumed that species exclusively and permanently occupy the treated area, or adjacent areas receiving pesticide at rates commensurate with the treatment rate. This assumption would produce a maximum estimate of exposure for risk characterization. This assumption would likely lead to an overestimation of exposure for species that do not permanently and exclusively occupy the treated area (EPA 2004).
- Exposure through incidental ingestion of pesticide-contaminated soil is not considered in the EPA risk assessment protocols. Research suggests <15 percent of the diet can consist of incidentally ingested soil depending upon species and feeding strategy (Beyer et al. 1994). An assessment of pesticide concentrations in soil compared to food item categories in the Kanaga nomogram indicates incidental soil ingestion would not likely increase dietary exposure to pesticides. Inclusion of soil into the diet would effectively reduce the overall dietary concentration compared to the present assumption that the entire diet consists of a contaminated food source (Fletcher et al. 1994). An exception to this may be soil-applied pesticides in which exposure from incidental ingestion of soil may increase. Potential for pesticide exposure under this assumption may be underestimated for soil-applied pesticides and overestimated for foliar-applied pesticides. The concentration of a pesticide in soil would likely be less than predicted on food items.
- Exposure through inhalation of pesticides is not considered in the EPA risk assessment protocols. Such exposure may occur through three potential sources: spray material in droplet form at time of application, vapor phase with the pesticide volatilizing from treated surfaces, and airborne particulates (soil, vegetative matter, and pesticide dusts). The EPA (1990)

reported exposure from inhaling spray droplets at the time of application is not an appreciable route of exposure for birds. According to research on mallards and bobwhite quail, respirable particle size (particles reaching the lung) in birds is limited to maximum diameter of 2 to 5 microns. The spray droplet spectra covering the majority of pesticide application scenarios indicate that less than 1 percent of the applied material is within the respirable particle size. This route of exposure is further limited because the permissible spray drop size distribution for ground pesticide applications is restricted to American Society of Agricultural Engineers (ASAE) medium or coarser drop size distribution.

- Inhalation of a pesticide in the vapor phase may be another source of exposure for some pesticides under certain conditions. This mechanism of exposure to pesticides occurs post-application, and it would pertain to those pesticides with a high vapor pressure. The EPA is currently evaluating protocols for modeling inhalation exposure from pesticides including near-field and near-ground air concentrations based upon equilibrium and kinetics-based models. Risk characterization for exposure with this mechanism is unavailable.
- The effect from exposure to dust contaminated with the pesticide cannot be assessed generically as partitioning issues related to application site soils and chemical properties of the applied pesticides render the exposure potential from this route highly situation-specific.
- Dermal exposure may occur through three potential sources: direct application of spray to terrestrial wildlife in the treated area or within the drift footprint, incidental contact with contaminated vegetation, or contact with contaminated water or soil. Interception of spray and incidental contact with treated substrates may pose risk to avian wildlife (Driver et al. 1991). However, available research related to wildlife dermal contact with pesticides is extremely limited, with the exception of dermal toxicity values for some mammals used as human surrogates (rats and mice), which are common. The EPA is currently evaluating protocols for modeling dermal exposure. Risk characterization may be underestimated for this route of exposure, particularly with high-risk pesticides such as some organophosphates or carbamate insecticides. If protocols are established by the EPA for assessing dermal exposure to pesticides, they would be considered for incorporation into pesticide assessment protocols.
- Exposure to a pesticide may occur from consuming surface water, dew, or other water on treated surfaces. Water-soluble pesticides have the potential to dissolve in surface runoff, and puddles in a treated area may contain pesticide residues. Similarly, pesticides with lower organic carbon partitioning characteristics and higher solubility in water have a greater potential to dissolve in dew and other water associated with plant surfaces. Estimating the extent to which such pesticide loadings to drinking water occurs is complex and would depend upon the partitioning characteristics of the active ingredient, soil types in the treatment area, and the meteorology of the treatment area. In addition, the use of various water sources by wildlife is highly species-specific. Currently, risk characterization for this exposure mechanism is not available. The EPA is actively developing protocols to quantify drinking water exposure from puddles and dew. If and when protocols are formally established by the EPA for assessing exposure to pesticides through drinking water, these protocols would be incorporated into pesticide risk assessment protocols.
- Risk assessments are based upon the assumption that the entire treatment area would be subject to pesticide application at the rates specified on the label. In most cases, there is potential for uneven application of pesticides through such plausible incidents such as changes in calibration of application equipment, spillage, and localized releases at specific areas in or near the treated field that are associated with mixing and handling and application equipment as well as applicator skill. Inappropriate use of pesticides and the occurrence of

spills represent a potential underestimation of risk. It is likely not an important factor for risk characterization. All pesticide applicators are required to be certified by the state in which they apply pesticides. Certification training includes the safe storage, transport, handling, and mixing of pesticides; equipment calibration; and proper application with annual continuing education.

- The EPA relies on Fletcher et al. (1994) for setting the assumed pesticide residues in wildlife dietary items. The EPA (2004) ~~"b~~believes that these residue assumptions reflect a realistic upper-bound residue estimate, although the degree to which this assumption reflects a specific percentile estimate is difficult to quantify." Fletcher et al.'s (1994) research suggests that the pesticide active ingredient residue assumptions used by the EPA represent a ninety-fifth percentile estimate. However, research conducted by Pfleeger et al. (1996) indicates EPA residue assumptions for short grass were not exceeded. Baehr and Habig (2000) compared the EPA residue assumptions with distributions of measured pesticide residues for the EPA's Uptake, Translocation, Accumulation, and Biotransformation (UTAB) database. Overall residue selection levels would tend to overestimate risk characterization. This is particularly evident when wildlife individuals are likely to have selected a variety of food items acquired from multiple locations. Some food items may be contaminated with pesticide residues whereas others are not contaminated. However, it is important to recognize differences in species feeding behavior. Some species may consume whole aboveground plant material, but others preferentially select different plant structures. Also, species may preferentially select a food item although multiple food items may be present. Without species-specific knowledge regarding foraging behavior, characterizing ecological risk other than in general terms is not possible.
- Acute and chronic risk assessments rely on comparisons of wildlife dietary residues with LC_{50} or NOEC values expressed as concentrations of pesticides in laboratory feed. These comparisons assume that ingestion of food items in the field occurs at rates commensurate with those in the laboratory. Although the screening assessment process adjusts dry-weight estimates of food intake to reflect the increased mass in fresh-weight wildlife food intake estimates, it does not allow for gross energy and assimilative efficiency differences between wildlife food items and laboratory feed. Differences in assimilative efficiency between laboratory and wild diets suggest that current screening assessment methods are not accounting for a potentially important aspect of food requirements.
- There are several other assumptions that can affect non-target species not considered in the risk assessment process. These include possible additive or synergistic effects from applying two or more pesticides or additives in a single application, co-location of pesticides in the environment, cumulative effects from pesticides with the same mode of action, effects of multiple stressors (e.g., combination of pesticide exposure and adverse abiotic and biotic factors), and behavioral changes induced by exposure to a pesticide. These factors may exist at some level contributing to adverse effects to non-target species, but they are usually characterized in the published literature in only a general manner, limiting their value in the risk assessment process.
- It is assumed that aquatic species exclusively and permanently occupy the water body being assessed. Actual habitat requirements of aquatic species are not considered. With the possible exception of scenarios where pesticides are directly applied to water, it is assumed that no habitat use considerations specific for any species would place the organisms in closer proximity to pesticide use sites. This assumption produces a maximum estimate of exposure or risk characterization. It would likely be realistic for many aquatic species that may be found in aquatic habitats within or in close proximity to treated terrestrial habitats. However,

the spatial distribution of wildlife is usually not random because wildlife distributions are often related to habitat requirements of species. Clumped distributions of wildlife may result in an underestimation or overestimation of risk depending upon where the initial pesticide concentration occurs relative to the species or species habitat.

- For species found in the water column, it would be assumed that the greatest bioavailable fraction of the pesticide active ingredient in surface waters is freely dissolved in the water column. Additional chemical exposure from materials associated with suspended solids or food items is not considered because partitioning onto sediments likely is minimal. Adsorption and bioconcentration occur at lower levels for many newer pesticides compared with older, more persistent bioaccumulative compounds. For pesticides with RQs close to the listed species LOC, the potential for additional exposure from these routes may be a limitation of risk assessments, where potential pesticide exposure or risk may be underestimated.
- Mass transport losses of pesticide from a water body (except for losses by volatilization, degradation, and sediment partitioning) would not be considered for ecological risk assessment. The water body would be assumed to capture all pesticide active ingredients entering as runoff, drift, and adsorbed to eroded soil particles. It would also be assumed that pesticide active ingredient is not lost from the water body by overtopping or flow-through, nor is concentration reduced by dilution. In total, these assumptions would lead to a near maximum possible water-borne concentration. However, this assumption would not account for the potential to concentrate pesticide through evaporative loss. This limitation may have the greatest impact on water bodies with high surface-to-volume ratios such as ephemeral wetlands, where evaporative losses are accentuated and applied pesticides have low rates of degradation and volatilization.
- For acute risk assessments, there would be no averaging time for exposure. An instantaneous peak concentration would be assumed, where instantaneous exposure is sufficient in duration to elicit acute effects comparable to those observed over more protracted exposure periods (typically 48 to 96 hours) tested in the laboratory. In the absence of data regarding time-to-toxic event and analyses and latent responses to instantaneous exposure, risk would likely be overestimated.
- For chronic exposure risk assessments, the averaging times considered for exposure are commensurate with the duration of the invertebrate life cycle or fish early life stage tests (e.g., 21-28 days and 56-60 days, respectively). Response profiles (time to effect and latency of effect) to pesticides likely vary widely with mode of action and species and should be evaluated on a case-by-case basis as available data allow. Nevertheless, because the EPA relies on chronic exposure, and toxicity endpoints based on a finding of no observed effect, the potential for any latent toxicity effects or averaging time assumptions to alter the results of an acceptable chronic risk assessment prediction is limited. The extent to which duration of exposure from water-borne concentrations overestimate or underestimate actual exposure depends on several factors. These include the following: localized meteorological conditions, runoff characteristics of the watershed (e.g., soils, topography), the hydrological characteristics of receiving waters, environmental fate of the pesticide active ingredient, and the method of pesticide application. It should also be understood that chronic effects studies are performed using a method that holds water concentration in a steady state. This method is not likely to reflect conditions associated with pesticide runoff. Pesticide concentrations in the field increase and decrease in surface water on a cycle influenced by rainfall, pesticide use patterns, and degradation rates. As a result of the dependency of this assumption on

several undefined variables, risk associated with chronic exposure may in some situations be overestimated or underestimated.

- The EPA is required by the Food Quality Protection Act to assess the cumulative risks of pesticides that share common mechanisms of toxicity, or act the same way within an organism. Currently, the EPA has identified four groups of pesticides that have a common mechanism of toxicity requiring cumulative risk assessments. These four groups are: the organophosphate insecticides, N-methyl carbamate insecticides, triazine herbicides, and chloroacetanilide herbicides.

G.7.3 Pesticide Mixtures and Degradates

Pesticide products are usually a formulation of several components generally categorized as active ingredients and inert or other ingredients. The term active ingredient is defined by the FIFRA as preventing, destroying, repelling, or mitigating the effects of a pest, or a plant regulator, defoliant, desiccant, or nitrogen stabilizer. In accordance with FIFRA, the active ingredient(s) must be identified by name(s) on the pesticide label along with its relative composition expressed in percentage(s) by weight. In contrast, inert ingredient(s) are not intended to affect a target pest. Their role in the pesticide formulation is to act as a solvent (keep the active ingredient is a liquid phase), an emulsifying or suspending agent (keep the active ingredient from separating out of solution), or a carrier (such as clay in which the active ingredient is impregnated on the clay particle in dry formulations). For example, if isopropyl alcohol is used as a solvent in a pesticide formulation, then it would be considered an inert ingredient. FIFRA only requires that inert ingredients identified as hazardous and associated percent composition, and the total percentage of all inert ingredients, must be declared on a product label. Inert ingredients that are not classified as hazardous are not required to be identified.

The EPA (September 1997) issued Pesticide Regulation Notice 97-6, which encouraged manufacturers, formulators, producers, and registrants of pesticide products to voluntarily substitute the term ~~"o~~other ingredients" for ~~"in~~ert ingredients" in the ingredient statement. This change recognized that all components in a pesticide formulation potentially could elicit or contribute to an adverse effect on non-target organisms and, therefore, are not necessarily inert. Whether referred to as ~~"in~~erts" or ~~"o~~ther ingredients," these constituents within a pesticide product have the potential to affect species or environmental quality. The USEPA categorizes regulated inert ingredients into the following four lists (EPA 2012):

- List 1 – Inert Ingredients of Toxicological Concern
- List 2 – Potentially Toxic Inert Ingredients
- List 3 – Inerts of Unknown Toxicity
- List 4 – Inerts of Minimal Toxicity

Several of the List 4 compounds are naturally occurring earthen materials (e.g., clay materials, simple salts) that would not elicit toxicological response at applied concentrations. However, some of the inerts (particularly the List 3 compounds and unlisted compounds) may have moderate to high potential toxicity to aquatic species based on MSDS or published data.

Comprehensively assessing potential effects to non-target fish, wildlife, plants, and/or their habitats from pesticide use is a complex task. It would be preferable to assess the cumulative effects from exposure to the active ingredient, its degradates, and inert ingredients as well as other active ingredients in the spray mixture. However, it would only be feasible to conduct deterministic risk

assessments for each component in the spray mixture singly. Limited scientific information is available regarding ecological effects (additive or synergistic) from chemical mixtures that typically rely upon broadly encompassing assumptions. For example, the USFS (2005) found that mixtures of pesticides used in forest management likely would not cause additive or synergistic effects to nontarget species based upon a review of scientific literature regarding toxicological effects and interactions of agricultural chemicals (Agency for Toxic Substances and Disease Registry [ATSDR] 2004). Moreover, information on inert ingredients, adjuvants, and degradates is often limited by the availability of and access to reliable toxicological data for these constituents.

Toxicological information regarding ~~"o~~ther ingredients" may be available from sources such as the following:

- Toxicology, Occupational Medicine, and Environmental Series (TOMES) (a proprietary toxicological database including EPA's Integrated Risk Information System (IRIS), the Hazardous Substance Data Bank, the Registry of Toxic Effects of Chemical Substances [RTECS])
- EPA's Ecotoxicology (ECOTOX) database, which includes Aquatic Information Retrieval (AQUIRE) (a database containing scientific papers published on the toxic effects of chemicals to aquatic organisms)
- TOXLINE (a literature searching tool)
- MSDSs from pesticide suppliers
- Other sources such as the *Farm Chemicals Handbook*

Because there is a lack of specific inert toxicological data, inert(s) in a pesticide may cause adverse ecological effects. However, inert ingredients typically represent only a small percentage of the pesticide spray mixture, and it would be assumed that negligible effects would be expected to result from inert ingredients.

Although the potential effects of degradates should be considered when selecting a pesticide, it is beyond the scope of this assessment process to consider all possible breakdown chemicals of the various product formulations containing an active ingredient. Degradates may be more or less mobile and more or less hazardous in the environment than their parent pesticides (Battaglin et al. 2003). Differences in environmental behavior (e.g., mobility) and toxicity between parent pesticides and degradates would make assessing potential degradate effects extremely difficult. For example, a less toxic and more mobile, bioaccumulative, or persistent degradate may have potentially greater effects on species and/or degrade environmental quality. The lack of data on the toxicity of degradates for many pesticides represents a source of uncertainty for assessing risk.

An EPA-approved label specifies whether a product can be mixed with one or more pesticides. Without product-specific toxicological data, it would not possible to quantify the potential effects of these mixtures. In addition, a quantitative analysis could only be conducted if reliable scientific information allowed a determination of whether the joint action of a mixture would be additive, synergistic, or antagonistic. Such information would not likely exist unless the mode of action is common among the chemicals and receptors. Moreover, the composition of and exposure to mixtures would be highly site- and/or time-specific and, therefore, it would be nearly impossible to assess potential effects to species and environmental quality.

To minimize or eliminate potential negative effects associated with applying two or more pesticides as a mixture, the use would be conducted in accordance with the labeling requirements. Labels for

two or more pesticides applied as a mixture should be completely reviewed, and products with the least potential for negative effects would be selected for use on the refuge. This is especially relevant when a mixture would be applied in a manner that may already have the potential for an effect(s) associated with an individual pesticide. Use of a tank mix under these conditions would increase the level of uncertainty in terms of risk to species or potential to degrade environmental quality.

Adjuvants generally function to enhance or prolong the activity of pesticide. For terrestrial herbicides, adjuvants aid in the absorption into plant tissue. Adjuvant is a broad term that generally applies to surfactants, selected oils, anti-foaming agents, buffering compounds, drift control agents, compatibility agents, stickers, and spreaders. Adjuvants are not under the same registration requirements as pesticides, and the EPA does not register or approve the labeling of spray adjuvants. Individual pesticide labels identify types of adjuvants approved for use with it. In general, adjuvants compose a relatively small portion of the volume of pesticides applied. Selection of adjuvants with limited toxicity and low volumes would be recommended to reduce the potential for the adjuvant to influence the toxicity of the pesticide.

G.7.4 Determining Effects to Soil and Water Quality

The approval process for pesticide uses would consider potential to degrade water quality on and off refuge lands. A pesticide can only affect water quality through movement away from the treatment site. After application, pesticide mobilization can be characterized by one or more of the following (Kerle et al. 1996):

- Attach (sorb) to soil, vegetation, or other surfaces and remain at or near the treated area;
- Attach to soil and move off-site through erosion from runoff or wind;
- Dissolve in water that can be subjected to runoff or leaching.

As an initial screening tool, selected chemical characteristics and rating criteria for a pesticide can be evaluated to assess potential to enter ground and/or surface waters. These would include the following: persistence, sorption coefficient (K_{oc}), groundwater ubiquity score (GUS), and solubility.

Persistence, which is expressed as half-life ($t_{½}$), represents the length of time required for 50 percent of the deposited pesticide to degrade (completely or partially). Persistence in the soil can be categorized as the following: nonpersistent <30 days, moderately persistent = 30 to 100 days, and persistent >100 days (Kerle et al. 1996). Half-life data are usually available for aquatic and terrestrial environments.

Another measure of pesticide persistence is dissipation time (DT_{50}). It represents the time required for 50 percent of the deposited pesticide to degrade and move from a treated site, whereas half-life describes the rate for degradation only. As with half-life, units of dissipation time are usually expressed in days. Field or foliar dissipation times are the preferred data for use to estimate pesticide concentrations in the environment. However, soil half-lives are the most common persistence data cited in published literature. If field or foliar dissipation data are not available, soil half-life data may be used. The average or representative half-life value of most important degradation mechanism would be selected for quantitative analysis for both terrestrial and aquatic environments.

Mobility of a pesticide is a function of how strongly it is adsorbed to soil particles and organic matter, its solubility in water, and its persistence in the environment. Pesticides strongly adsorbed to soil particles, relatively insoluble in water, and not environmentally persistent would be less likely to

move across the soil surface into surface waters or to leach through the soil profile and contaminate groundwater. Conversely, pesticides that are not strongly adsorbed to soil particles, are highly water soluble, and are persistent in the environment would have greater potential to move from the application site (off-site movement).

The degree of pesticide adsorption to soil particles and organic matter (Kerle et al. 1996) is expressed as the soil adsorption coefficient. The K_{oc} is measured as micrograms of pesticide per gram of soil (µg/g), which can range from near zero to the thousands. Pesticides with higher K_{oc} values are strongly sorbed to soil and, therefore, would be less subject to movement.

Water solubility describes the amount of pesticide that will dissolve in a known quantity of water. The water solubility of a pesticide is expressed as milligrams of pesticide dissolved in a liter of water (mg/L) or ppm. As pesticide solubility increases, there would be greater potential for off-site movement.

The GUS is a quantitative screening tool to estimate a pesticide's potential to move in the environment. It uses soil persistence and adsorption coefficients in the following formula.

$$GUS = \log_{10}(t½) \times [4 - \log10\ (K_{oc})]$$

The potential pesticide movement rating would be based upon its GUS value. Pesticides with a GUS <0.1 would be considered to have an extremely low potential to move toward groundwater. Values of 1.0 to 2.0 would have low potential, 2.0 to 3.0 would have moderate potential, 3.0 to 4.0 would have high potential, and >4.0 would have a very high potential to move toward groundwater.

GUS, water solubility, half-life, and K_{oc} values are available for selected pesticides from the Oregon State University (OSU) Extension Pesticide Properties Database at http://npic.orst.edu/ppdmove.htm. Many of the values in this database were derived from the Soil Conservation Service/Agricultural Research Service/Cooperative Extension Service (SCS/ARS/CES) Pesticide Properties Database for Environmental Decision Making (Wauchope et al. 1992).

Soil properties influence the fate of pesticides in the environment. The following six properties are mostly likely to affect pesticide degradation and the potential for pesticides to move off-site by leaching (vertical movement through the soil) or runoff (lateral movement across the soil surface).

- Permeability is the rate of water movement vertically through the soil. It is affected by soil texture and structure. Coarse-textured soils (e.g., high sand content) have a larger pore size and are generally more permeable than fine-textured soils (i.e., high clay content). The more permeable soils would have a greater potential for pesticides to move vertically down through the soil profile. Soil permeability rates (inches/hour) are usually available in county soil survey reports.
- Soil texture describes the relative percentage of sand, silt, and clay. In general, greater clay content with smaller pore size would lower the likelihood and rate that water would move through the soil profile. Clay also serves to adsorb (bind) pesticides to soil particles. Soils with high clay content would adsorb more pesticide than soils with relatively low clay content. In contrast, sandy soils with coarser texture and lower water-holding capacity would have a greater potential for water to leach through them.
- Soil structure describes soil aggregation. Soils with a well-developed soil structure have looser, more aggregated structures that would be less likely to be compacted. Both

characteristics would allow for less restricted flow of water through the soil profile, resulting in greater infiltration.

- Organic matter would be the single most important factor affecting pesticide adsorption in soils. Many pesticides are adsorbed to organic matter, which would reduce their rate of downward movement through the soil profile. Also, soils high in organic matter would tend to hold more water, which may make less water available for leaching.
- Soil moisture affects how fast water would move through the soil. If soils are already wet or saturated before rainfall or irrigation, excess moisture would result in runoff rather than infiltrate into the soil profile. Soil moisture also would influence microbial and chemical activity in soil, which effects pesticide degradation.
- Soil pH influences chemical reactions that occur in the soil, which in turn determines whether a pesticide would degrade, the rate of degradation, and, in some instances, which degradation products are produced.

Based upon the aforementioned properties, soils most vulnerable to groundwater contamination would be sandy soils with low organic matter. In contrast, the least vulnerable soils would be well-drained clayey soils with high organic matter. Consequently, pesticides with the lowest potential for movement in conjunction with appropriate BMPs (see below) would be used in an IPM framework to treat pests while minimizing effects to non-target biota and protecting environmental quality.

Along with soil properties, the potential for a pesticide to affect water quality through runoff and leaching would consider site-specific environmental and abiotic conditions including rainfall, water table conditions, and topography (Huddleston 1996).

- Water is necessary to separate pesticides from soil. This can occur in two basic ways. Pesticides that are soluble move easily with runoff water. Pesticide-laden soil particles can be dislodged and transported from the application site in runoff. The concentration of pesticides in the surface runoff would be greatest for the first runoff event following treatment. The rainfall intensity and route of water infiltration into soil, to a large extent, determine pesticide concentrations and losses in surface runoff. The timing of the rainfall after application also would have an effect. Rainfall interacts with pesticides at a shallow soil depth (¼ to ½ inch), which is called the mixing zone (Baker and Miller 1999). The pesticide/water mixture in the mixing zone would tend to leach down into the soil or runoff depending upon how quickly the soil surface becomes saturated and how rapidly water can infiltrate into the soil. Leaching would decrease the amount of pesticide available near the soil surface (mixing zone) to runoff during the initial rainfall event following application and subsequent rainfall events.
- Terrain slope would affect the potential for surface runoff and the intensity of runoff. Steeper slopes would have greater potential for runoff following a rainfall event. In contrast, soils that are relatively flat would have little potential for runoff, except during intense rainfall events. In addition, soils in lower areas would be more susceptible to leaching as a result of receiving excessive water from surrounding higher elevations.
- Depth to groundwater would be an important factor affecting the potential for pesticides to leach into groundwater. If the distance from the soil surface to the top of the water table is shallow, pesticides would have less distance to travel to reach groundwater. Shallower water tables that persist for longer periods would be more likely to experience groundwater contamination. Soil survey reports are available for individual counties. These reports provide data in tabular format regarding the water table depths and the months during which

they persist. In some situations, a hard pan exists above the water table that would prevent pesticide contamination from leaching.

G.7.5 Determining Effects to Air Quality

Pesticides may volatilize from soil and plant surfaces and move from the treated area into the atmosphere. The potential for a pesticide to volatilize is determined by the pesticide's vapor pressure, which would be affected by temperature, sorption, soil moisture, and the pesticide's water solubility. Vapor pressure is often expressed in mm Hg. To make these numbers easier to compare, vapor pressure may be expressed in exponent form ($I \times 10^{-7}$), where I represents a vapor pressure index. In general, pesticides with I<10 would have a low potential to volatilize, whereas pesticides with I>1,000 would have a high potential to volatilize (OSU 1996). Vapor pressure values for pesticides are usually available in the pesticide product MSDS or the USDA Agricultural Research Service (ARS) pesticide database.

G.7.6 Preparing a Chemical Profile

The following instructions would be used by Service personnel to complete chemical profiles for pesticides. Specifically, profiles would be prepared for pesticide active ingredients (e.g., glyphosate, imazapic) that would be contained in one or more trade name products that are registered and labeled with the EPA. All information fields under each category (e.g., toxicological endpoints, environmental fate) would be completed for a chemical profile. If no information is available for a specific field, then "No data is available in references" would be recorded in the profile. Available scientific information would be used to complete chemical profiles. Each entry of scientific information would be shown with applicable references.

Completed chemical profiles would provide a structured decision-making process using quantitative assessment/screening tools with threshold values (where appropriate) that would be used to evaluate potential biological and other environmental effects to refuge resources. For ecological risk assessments presented in these profiles, the "worst-case scenario" would be evaluated to determine whether a pesticide could be approved for use considering the maximum single application rate specified on pesticide labels for habitat management and croplands/facilities maintenance treatments pertaining to refuges. Where the worst-case scenario likely would only result in minor, temporary, and localized effects to listed and non-listed species with appropriate BMPs (see Section G.5), the proposed pesticide's use in a PUP would have a scientific basis for approval under any application rate specified on the label that is at or below rates evaluated in a chemical profile. In some cases, the chemical profile would include a lower application rate than the maximum labeled rate in order to protect refuge resources. As necessary, chemical profiles would be periodically updated with new scientific information or as pesticides with the same active ingredient are proposed for use on the refuge in PUPs.

Throughout this section, threshold values (to prevent or minimize potential biological and environmental effects) would be clearly identified for specific information presented in a completed chemical profile. Comparison with these threshold values provides an explicit scientific basis to approve or disapprove PUPs for habitat management and cropland/facilities maintenance on refuge lands. In general, PUPs would be approved for pesticides with chemical profiles where there would be no exceedances of threshold values. However, BMPs are identified for some screening tools that would minimize/eliminate potential effects (exceedance of the threshold value) as a basis for approving PUPs.

Date: Service personnel would record the date when the chemical profile is completed or updated. Chemical profiles (e.g., currently approved pesticide use patterns) would be periodically reviewed and updated as necessary. The most recent review date would be recorded on a profile to document when it was last updated.

Trade Name(s): Service personnel would accurately and completely record the trade name(s) from the pesticide label, which includes a suffix that describes the formulation (e.g., WP, DG, EC, L, SP, I, II or 64). The suffix often distinguishes a specific product from among several pesticides with the same active ingredient. Service personnel would record a trade name for each pesticide product with the same active ingredient.

Common chemical name(s): Service personnel would record the common name(s) listed on the pesticide label or MSDS for an active ingredient. The common name of a pesticide is listed as the active ingredient on the title page of the product label immediately following the trade name, and the MSDS Section 2: Composition/Information on Ingredients. A chemical profile is completed for each active ingredient.

Pesticide Type: Service personnel would record the type of pesticide for an active ingredient as one of the following: herbicide, desiccant, fungicide, fumigant, growth regulator, insecticide, piscicide, or rodenticide.

EPA Registration Number(s): The EPA Reg. No. appears on the title page of the label and MSDS Section 1: Chemical Product and Company Description. It is not the EPA Establishment Number, which is usually located near it. Service personnel would record the EPA Reg. No. for each trade name product with an active ingredient based upon PUPs.

Pesticide Class: Service personnel would list the general chemical class for the pesticide (active ingredient). For example, malathion is an organophosphate and carbaryl is a carbamate.

CAS (Chemical Abstract Service) Number: This number is often located in the second section (Composition/Information on Ingredients) of the MSDS. The MSDS table listing components usually contains this number immediately prior to or following the percent composition.

Other Ingredients: From the most recent MSDS for the proposed pesticide product(s), Service personnel would include any chemicals in the pesticide formulation that are not listed as active ingredients but are described as toxic or hazardous, or are regulated under the Superfund Amendments and Reauthorization Act (SARA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Toxic Substances Control Act (TSCA), OSHA, State Right-to-Know, or other listed authorities. These are usually found in MSDS sections titled ~~"H~~Hazardous Identifications," ~~"E~~Exposure Control/Personal Protection," and ~~"R~~Regulatory Information." If concentrations of other ingredients are available for any compounds identified as toxic or hazardous, then Service personnel would record this information in the chemical profile by trade name. MSDSs may be obtained from the manufacturer, manufacturer's website or from an online database maintained by Crop Data Management Systems, Inc. (see list below).

G.7.6.1 Toxicological Endpoints

Toxicological endpoint data would be collected for acute and chronic tests with mammals, birds, and fish. Data would be recorded for species available in the scientific literature. If no data are found for

a particular taxonomic group, then –No data available is references" would be recorded as the data entry. Throughout the chemical profile, references (including toxicological endpoint data) would be cited using parentheses (#) following the recorded data.

Mammalian LD_{50}: For test species in the scientific literature, Service personnel would record available data for oral lethal dose (LD_{50}) in mg/kg-bw (body weight) or ppm-bw. The most common test species in scientific literature are the rat and mouse. The lowest LD_{50} value found for a rat would be used as a toxicological endpoint for dose-based RQ calculations to assess acute risk to mammals (see Table G-1 in Section G.7.2).

Mammalian LC_{50}: For test species in the scientific literature, Service personnel would record available data for dietary lethal concentration (LC_{50}) as reported (e.g., mg/kg-diet or ppm-diet). The most common test species in scientific literature are the rat and mouse. The lowest LC_{50} value found for a rat would be used as a toxicological endpoint for diet-based RQ calculations to assess acute risk (see Table G-1 in Section G.7.2).

Mammalian Reproduction: For test species listed in the scientific literature, Service personnel would record the test results (e.g., Lowest Observed Effect Concentration [LOEC], Lowest Observed Effect Level [LOEL], No Observed Adverse Effect Level [NOAEL], NOAEC) in mg/kg-bw or mg/kg-diet for reproductive test procedure(s) (e.g., generational studies [preferred], fertility, newborn weight). The most common test species available in scientific literature are rats and mice. The lowest NOEC, NOAEC, LOEL, or NOAEL test results found for a rat would be used as a toxicological endpoint for RQ calculations to assess chronic risk (see Table G-1 in Section G.7.2).

Avian LD_{50}: For test species available in the scientific literature, Service personnel would record values for oral lethal dose (LD_{50}) in mg/kg-bw or ppm-bw. The most common test species available in scientific literature are the bobwhite quail and mallard. The lowest LD_{50} value found for an avian species would be used as a toxicological endpoint for dose-based RQ calculations to assess acute risk (see Table G-1 in Section G.7.2).

Avian LC_{50}: For test species available in the scientific literature, Service personnel would record values for dietary lethal concentration (LC_{50}) as reported (e.g., mg/kg-diet or ppm-diet). The most common test species available in scientific literature are the bobwhite quail and mallard. The lowest LC_{50} value found for an avian species would be used as a toxicological endpoint for dietary-based RQ calculations to assess acute risk (see Table G-1 in Section G.7.2).

Avian Reproduction: For test species available in the scientific literature, Service personnel would record test results (e.g., LOEC, LOEL, NOAEC, NOAEL) in mg/kg-bw or mg/kg-diet consumed for reproductive test procedure(s) (e.g., early life cycle, reproductive). The most common test species available in scientific literature are the bobwhite quail and mallard. The lowest NOEC, NOAEC, LOEL, or NOAEL test results found for an avian species would be used as a toxicological endpoint for RQ calculations to assess chronic risk (see Table G-1 in Section G.7.2).

Fish LC_{50}: For test freshwater or marine species listed in the scientific literature, Service personnel would record a LC_{50} in ppm or mg/L. The most common test species available in the scientific literature are the bluegill, rainbow trout, and fathead minnow (marine). Test results for many game species may also be available. The lowest LC_{50} value found for a freshwater fish species would be used as a toxicological endpoint for RQ calculations to assess acute risk (see Table G-1 in Section G.7.2).

Fish Early Life Stage/Life Cycle: For test freshwater or marine species available in the scientific literature, Service personnel would record test results (e.g., LOEC, NOAEL, NOAEC, lowest observed adverse effect concentration [LOAEC]) in ppm for test procedure(s) (e.g., early life cycle, life cycle). The most common test species available in the scientific literature are bluegill, rainbow trout, and fathead minnow. Test results for other game species may also be available. The lowest test value found for a fish species (preferably freshwater) would be used as a toxicological endpoint for RQ calculations to assess chronic risk (see Table G-1 in Section G.7.2).

Other: For test invertebrate and nonvascular and vascular plant species available in the scientific literature, Service personnel would record $LC_{50,}$ $LD_{50,}$ LOEC, LOEL, NOAEC, NOAEL, or EC_{50} (environmental concentration) values in ppm or mg/L. The most common test invertebrate species available in scientific literature is the honey bee. Green algae and pondweed are frequently available test species for aquatic non-vascular and vascular plants, respectively.

Ecological Incident Reports: After a site has been treated with pesticide(s), wildlife may be exposed to these chemical(s). When exposure is high relative to the toxicity of the pesticides, wildlife may be killed or visibly harmed (incapacitated). Such events are called ecological incidents. The EPA maintains a database (Ecological Incident Information System) of ecological incidents. This database stores information extracted from incident reports submitted by various Federal and state agencies and non-government organizations. Information included in an incident report is date and location of the incident, type and magnitude of effects observed in various species, use(s) of pesticides known or suspected of contributing to the incident, and results of any chemical residue and cholinesterase activity analyses conducted during the investigation.

Incident reports can play an important role in evaluating the effects of pesticides by supplementing quantitative risk assessments. All incident reports for pesticide(s) with the active ingredient and associated information would be recorded.

G.7.6.2 Environmental Fate

Water Solubility: Service personnel would record values for water solubility (S_w), which describes the amount of pesticide that dissolves in a known quantity of water. S_w is expressed as mg/L (ppm). Pesticide S_w values would be categorized as one of the following: insoluble <0.1 ppm, moderately soluble = 100 to 1,000 ppm, highly soluble >10,000 ppm (U.S. Geological Survey 2000). As pesticide S_w increases, there would be greater potential to degrade water quality through runoff and leaching.

Sw would be used to evaluate potential for bioaccumulation in aquatic species (see Octanol-Water Partition Coefficient (K_{ow}) below).

Soil Mobility: Service personnel would record available values for soil adsorption coefficient (K_{oc} [µg/g]). It provides a measure of a chemical's mobility and leaching potential in soil. K_{oc} values are directly proportional to organic content, clay content, and surface area of the soil. K_{oc} data for a pesticide may be available for a variety of soil types (e.g., clay, loam, sand).

K_{oc} values would be used in evaluating the potential to degrade groundwater by leaching (see Potential to Move to Groundwater below).

Soil Persistence: Service personnel would record values for soil half-life, which represents the length of time (days) required for 50 percent of the deposited pesticide to degrade (completely or partially) in the soil. Based upon the half-life value, soil persistence would be categorized as one of the following: non-persistent <30 days, moderately persistent = 30 to 100 days, and persistent >100 days (Kerle et al. 1996).

Threshold for approving PUPs:

If soil half-life ≤100 days, then a PUP would be approved without additional BMPs to protect water quality.

If soil half-life >100 days, then a PUP would only be approved with additional BMPs specifically to protect water quality. One or more BMPs such as the following would be included in the ~~–S~~pecific Best Management Practices (BMPs)" section to minimize potential surface runoff and leaching that can degrade water quality:

- *Do not exceed one application per site per year.*
- *Do not use on coarse-textured soils where the groundwater table is <10 feet and average annual precipitation >12 inches.*
- *Do not use on steep slopes if substantial rainfall is expected within 24 hours or ground is saturated.*

Along with K_{oc}, soil half-life values would be used in evaluating the potential to degrade groundwater by leaching (see Potential to Move to Groundwater below).

Soil Dissipation: Field dissipation time would be the preferred data for use to estimate pesticide concentrations in the environment because it is based upon field studies, unlike soil half-life, which is derived in a laboratory. However, soil half-life is the most common persistence data available in the published literature. If field dissipation data are not available, soil half-life data would be used in a chemical profile. The average or representative half-life value of most important degradation mechanism would be selected for quantitative analysis for both terrestrial and aquatic environments.

Based upon the DT_{50} value, environmental persistence in the soil also would be categorized as one of the following: non-persistent <30 days, moderately persistent = 30 to 100 days, and persistent >100 days.

Threshold for approving PUPs:

If soil DT_{50} ≤100 days, then a PUP would be approved without additional BMPs to protect water quality.

If soil DT_{50} >100 days, then a PUP would only be approved with additional BMPs specifically to protect water quality. One or more BMPs such as the following would be included in the ~~–S~~pecific Best Management Practices (BMPs)" section to minimize potential surface runoff and leaching that can degrade water quality:

- *Do not exceed one application per site per year.*
- *Do not use on coarse-textured soils where the groundwater table is <10 feet and average annual precipitation >12 inches.*

- *Do not use on steep slopes if substantial rainfall is expected within 24 hours or ground is saturated.*

Along with K_{oc}, soil DT_{50} values (preferred over soil half-life) would be used in evaluating the potential to degrade groundwater by leaching (see Potential to Move to Groundwater below), if available.

Aquatic Persistence: Service personnel would record values for aquatic half-life, which represents the length of time required for 50 percent of the deposited pesticide to degrade (completely or partially) in water. Based upon the aquatic half-life value, aquatic persistence would be categorized as one of the following: nonpersistent <30 days, moderately persistent = 30 to 100 days, and persistent >100 days (Kerle et al. 1996).

Threshold for approving PUPs:

If aquatic half-life ≤100 days, then a PUP would be approved without additional BMPs to protect water quality.

If aquatic half-life >100 days, then a PUP would only be approved with additional BMPs specifically to protect water quality. One or more BMPs such as the following would be included in the ~~–S~~pecific Best Management Practices (BMPs)" section to minimize potential surface runoff and leaching that can degrade water quality:

- *Do not exceed one application per site per year.*
- *Do not use on coarse-textured soils where the groundwater table is <10 feet and average annual precipitation >12 inches.*
- *Do not use on steep slopes if substantial rainfall is expected within 24 hours or ground is saturated.*

Aquatic Dissipation: Dissipation time (DT_{50}) represents the time required for 50 percent of the deposited pesticide to degrade or move (dissipate), whereas, aquatic half-life describes the rate for degradation only. As with aquatic half-life, units of dissipation time are usually expressed in days. Based upon the DT_{50} value, environmental persistence in aquatic habitats also would be categorized as one of the following: non-persistent <30 days, moderately persistent = 30 to 100 days, and persistent >100 days.

Threshold for approving PUPs:

If aquatic DT_{50} ≤100 days, then a PUP would be approved without additional BMPs to protect water quality.

If aquatic DT_{50} >100 days, then a PUP would only be approved with additional BMPs specifically to protect water quality. One or more BMPs such as the following would be included in the ~~–S~~pecific Best Management Practices (BMPs)" section to minimize potential surface runoff and leaching that can degrade water quality:

- *Do not exceed one application per site per year.*
- *Do not use on coarse-textured soils where the groundwater table is <10 feet and average annual precipitation >12 inches.*

- *Do not use on steep slopes if substantial rainfall is expected within 24 hours or ground is saturated.*

Potential to Move to Groundwater: GUS = $\log_{10}$(soil $t_{½}$) × [4 − $\log_{10}$(K_{oc})]. If a DT_{50} value is available, it would be used rather than a $t_{½}$ value to calculate a GUS score. Based upon the GUS value, the potential to move toward groundwater would be recorded as one of the following categories: extremely low potential <1.0, low potential 1.0 to 2.0, moderate potential 2.0 to 3.0, high potential 3.0 to 4.0, and very high potential >4.0.

Threshold for approving PUPs:

If GUS ≤4.0, then a PUP would be approved without additional BMPs to protect water quality.

If GUS >4.0, then a PUP would only be approved with additional BMPs specifically to protect water quality. One or more BMPs such as the following would be included in the ~~–S~~pecific Best Management Practices (BMPs)" section to minimize potential surface runoff and leaching that can degrade water quality:

- *Do not exceed one application per site per year.*
- *Do not use on coarse-textured soils where the groundwater table is <10 feet and average annual precipitation >12 inches.*
- *Do not use on steep slopes if substantial rainfall is expected within 24 hours or ground is saturated.*

Threshold for approving PUPs:

If I ≤1,000, then a PUP would be approved without additional BMPs to minimize drift and protect air quality.

If I >1,000, then a PUP would only be approved with additional BMPs specifically to minimize drift and protect air quality. One or more BMPs such as the following would be included in the ~~–S~~pecific Best Management Practices (BMPs)" section to reduce volatilization and potential to drift and degrade air quality:

- *Do not treat when wind velocities are <2 or >10 mph with existing or potential inversion conditions.*
- *Apply large-diameter droplets possible for spray treatments.*
- *Avoid spraying when air temperatures >85°F.*
- *Use the lowest spray height possible above target canopy.*
- *Where identified on the pesticide label, soil should incorporate pesticide as soon as possible during or after application.*

Octanol-Water Partition Coefficient (K_{ow}): The octanol-water partition coefficient (K_{ow}) is the concentration of a pesticide in octanol and water at equilibrium at a specific temperature. Because octanol is an organic solvent, it is considered a surrogate for natural organic matter. Therefore, K_{ow} would be used to assess potential for a pesticide to bioaccumulate in tissues of aquatic species (e.g., fish). If K_{ow} >1,000 or S_w<1 mg/L and soil $t_{½}$>30 days, then there would be high potential for a pesticide to bioaccumulate in aquatic species such as fish (U.S. Geological Survey 2000).

Threshold for approving PUPs:

If the potential for a pesticide to bioaccumulate is not high in aquatic species, then the PUP would be approved.

If there is a high potential to bioaccumulate in aquatic species (K_{ow}>1,000 or S_w<1 mg/L and soil $t_{½}$>30 days), then the PUP would not be approved, except under unusual circumstances where approval would only be granted by the Washington Office.

Bioaccumulation/Bioconcentration: Bioaccumulation is the physiological process where pesticide concentrations in tissue increase in biota because they are taken and stored at a faster rate than they are metabolized or excreted. The potential for bioaccumulation would be evaluated through bioaccumulation factors (BAFs) or bioconcentration factors (BCFs). Based upon BAF or BCF values, the potential to bioaccumulate would be recorded as one of the following: low = 0 to 300, moderate = 300 to 1,000, or high >1,000 (Calabrese and Baldwin 1993).

Threshold for approving PUPs:

If BAF or BCF ≤1,000, then a PUP would be approved without additional BMPs.

If BAF or BCF >1,000, then a PUP would not be approved, except under unusual circumstances where approval would only be granted by the Washington Office.

Worst-Case Ecological Risk Assessment

Maximum Application Rates (acid equivalent [ae]): Service personnel would record the highest application rate of an active ingredient (ae basis) for habitat management and cropland/facilities maintenance treatments in this data field of a chemical profile. These rates can be found in Table CP.1 under the column heading ~~"~~Max Product Rate – Single Application (lbs/acre – AI on acid equiv basis)." This table would be prepared for a chemical profile from information specified in labels for trade name products identified in PUPs. If these data are not available in pesticide labels, then write ~~"~~NS" for ~~"n~~ot specified on label" in this table.

EECs: An estimated EEC represents potential exposure to fish and wildlife (birds and mammals) from using a pesticide. EECs would be derived by Service personnel using an EPA screening-level approach (EPA 2004). For each maximum application rate (see previous paragraph), Service personnel would record two EEC values in a chemical profile; these would represent the worst-case terrestrial and aquatic exposures for habitat management and croplands/facilities maintenance treatments. For terrestrial and aquatic EEC calculations, see the description for data entry under Presumption of Unacceptable Risk/Risk Quotients, the next field in a chemical profile.

Presumption of Unacceptable Risk/Risk Quotients: Service personnel would calculate and record acute and chronic RQs for birds, mammals, and fish using the provided tabular formats for habitat management and/or cropland/facilities maintenance treatments. RQs recorded in a chemical profile would represent the worst-case assessment for ecological risk. See Section G.7.2 for a discussion regarding the calculations of RQs.

For aquatic assessments associated with habitat management treatments, RQ calculations would be based upon selected acute and chronic toxicological endpoints for fish, and the EEC would be

derived from Urban and Cook (1986) assuming 100 percent overspray to an entire 1-foot-deep water body using the maximum application rate (ae basis [see above]).

For aquatic assessments associated with cropland/facilities maintenance treatments, RQ calculations would be done by Service personnel based upon selected acute and chronic toxicological endpoints for fish, and an EEC would be derived from the aquatic assessment in AgDRIFT model version 2.01 under Tier I ground-based application with the following input variables: max application rate (ae basis [see above]), low boom (20 inches), fine to medium/coarse droplet size, 20 swaths, EPA-defined wetland, and 25-foot distance (buffer) from treated area to water.

See Section G.7.2.1.2 for more details regarding the calculation of EECs for aquatic habitats for habitat management and cropland/facilities maintenance treatments.

For terrestrial avian and mammalian assessments, RQ calculations would be done by Service personnel based upon dietary exposure, where the "short grass" food item category would represent the worst-case scenario. For terrestrial spray applications associated with habitat management and cropland/facilities maintenance treatments, exposure (EECs and RQs) would be determined using the Kanaga nomogram method through the EPA's T-REX version 1.2.3. T-REX input variables would include the following: max application rate (ae basis [see above]) and pesticide half-life (days) in soil to estimate the initial, maximum pesticide residue concentration on general food items for terrestrial vertebrate species in short (<20 cm tall) grass.

For granular pesticide formulations and pesticide-treated seed with a unique route of exposure for terrestrial avian and mammalian wildlife, see Section G.7.2.1.1.2 for the procedure that would be used to calculate RQs.

All calculated RQs in both tables would be compared with LOCs established by the EPA (see Table G-2 in Section G.7.2). If a calculated RQ exceeds an established LOC value (in brackets inside the table), then there would be a potential for an acute or chronic effect (unacceptable risk) to federally listed (threatened or endangered) species and non-listed species. See Section G.7.2 for detailed descriptions of acute and chronic RQ calculations and comparison to LOCs to assess risk.

Threshold for approving PUPs:

If RQs≤LOCs, then a PUP would be approved without additional BMPs.

If RQs>LOCs, then a PUP would only be approved with additional BMPs specifically to minimize exposure (ecological risk) to bird, mammal, and/or fish species. One or more BMPs such as the following would be included in the "Specific Best Management Practices (BMPs)" section to reduce potential risk to nonlisted or listed species:

- *Lower application rate and/or fewer number of applications so RQs≤LOCs.*
- *For aquatic assessments (fish) associated with cropland/facilities maintenance, increase the buffer distance beyond 25 feet so RQs≤LOCs.*

Justification for Use: Service personnel would describe the reason for using the pesticide based on control of specific pests or groups of pests. In most cases, the pesticide label would provide the appropriate information regarding control of pests to describe in the section.

Specific Best Management Practices (BMPs): Service personnel would record specific BMPs necessary to minimize or eliminate potential effects to non-target species and/or degradation of environmental quality from drift, surface runoff, or leaching. These BMPs would be based upon scientific information documented in previous data fields of a chemical profile. Where necessary and feasible, these specific practices would be included in PUPs as a basis for approval.

If there are no specific BMPs that are appropriate, then Service personnel would describe why the potential effects to refuge resources and/or degradation of environmental quality are outweighed by the overall resource benefit(s) from the proposed pesticide use in the BMP section of the PUP. See Section G.5 of this document for a complete list of BMPs associated with mixing and applying pesticides appropriate for all PUPs with ground-based treatments that would be additive to any necessary, chemical-specific BMPs.

References: Service personnel would record scientific resources used to provide data/information for a chemical profile. They would use the number sequence to uniquely reference data in a chemical profile.

The following online data resources are readily available for toxicological endpoint and environmental fate data for pesticides:

1. California Product/Label Database. Department of Pesticide Regulation, California Environmental Protection Agency. (http://www.cdpr.ca.gov/docs/label/labelque.htm#regprods)

2. ECOTOX database. Office of Pesticide Programs, EPA, Washington, D.C. (http://cfpub.epa.gov/ecotox/)

3. EXTOXNET Pesticide Information Profiles. Cooperative effort of University of California-Davis, Oregon State University, Michigan State University, Cornell University, and University of Idaho through Oregon State University, Corvallis, Oregon. (http://extoxnet.orst.edu/pips/ghindex.html)

4. Food and Agriculture Organization (FAO) specifications and evaluations for plant protection products. Pesticide Management Unit, Plant Protection Services, FAO, United Nations. (http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPP/Pesticid/)

5. Human health and ecological risk assessments. Pesticide Management and Coordination, Forest Health Protection, USFS, USDA. (http://www.fs.fed.us/foresthealth/pesticide/risk.htm)

6. Pesticide Chemical Fact Sheets. Clemson University Pesticide Information Center. (http://entweb.clemson.edu/pesticid/Document/Labels/factshee.htm)

7. Pesticide Fact Sheets. Published by Information Ventures, Inc. for Bureau of Land Management, Bonneville Power Administration, U.S. Department of Energy, and USFS, USDA. (http://infoventures.com/e-hlth/pesticide/pest-fac.html)

8. Pesticide fact sheets. National Pesticide Information Center. (http://npic.orst.edu/npicfact.htm)

9. Pesticide fate database. EPA, Washington, D.C. (http://cfpub.epa.gov/pfate/home.cfm).

10. Pesticide product labels and MSDSs. Crop Data Management Systems, Inc. (http://www.cdms.net/pfa/LUpdateMsg.asp) or multiple websites maintained by agrichemical companies.

11. Registered Pesticide Products (Oregon database). Oregon Department of Agriculture. (http://www.oda.state.or.us/dbs/pest_products/search.lasso)

12. Regulatory notes. Pest Management Regulatory Agency, Health Canada, Ontario, Canada. (http://www.hc-sc.gc.ca/pmra-arla/)

13. Reptile and amphibian toxicology literature. Canadian Wildlife Service, Environment Canada, Ontario, Canada. (http://www.cws-scf.ec.gc.ca/nwrc-cnrf/ratl/index_e.cfm)

14. Specific Chemical Fact Sheet—New Active Ingredients, Biopesticide Fact Sheet and Registration Fact Sheet. EPA, Washington, D.C. (http://www.epa.gov/pestidides/factsheets/chemical_fs.htm)

15. Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas. The Invasive Species Initiative. The Nature Conservancy. (http://tnsweeds.ucdavis.edu/handbook.html)

16. Wildlife contaminants online. U.S. Geological Survey, Department of Interior, Washington, D.C. (http://www.pwrc.usgs.gov/contaminants-online/)

17. One-liner database. 2000. EPA Office of Pesticide Programs, Washington, D.C.

Chemical Profile

Date:			
Trade Name(s):		**Common Chemical Name(s):**	
Pesticide Type:		**EPA Registration Number:**	
Pesticide Class:		**CAS Number:**	
Other Ingredients:			

Toxicological Endpoints

Mammalian LD_{50}:	
Mammalian LC_{50}:	
Mammalian Reproduction:	
Avian LD_{50}:	
Avian LC_{50}:	
Avian Reproduction:	
Fish LC_{50}:	
Fish ELS/Life Cycle:	
Other:	

Ecological Incident Reports

Environmental Fate

Water solubility (S_w):	
Soil Mobility (K_{oc}):	
Soil Persistence ($t_{½}$):	
Soil Dissipation (DT_{50}):	
Aquatic Persistence ($t_{½}$):	
Aquatic Dissipation (DT_{50}):	
Potential to Move to Groundwater (GUS score):	
Volatilization (mm Hg):	
Octanol-Water Partition Coefficient (K_{ow}):	
Bioaccumulation/Biocentration:	**BAF:`** **BCF:**

Worst Case Ecological Risk Assessment

Max Application Rate (ai lbs/acre – ae basis)	**Habitat Management:** **Croplands/Facilities Maintenance:**
EECs	**Terrestrial (Habitat Management):** **Terrestrial (Croplands/Facilities Maintenance):** **Aquatic (Habitat Management):** **Aquatic (Croplands/Facilities Maintenance):**

Habitat Management Treatments:

Presumption of Unacceptable Risk		**Risk Quotient (RQ)**	
		Listed (T&E) Species	**Non-listed Species**
Acute	Birds	[0.1]	[0.5]
	Mammals	[0.1]	[0.5]
	Fish	[0.05]	[0.5]
Chronic	Birds	[1]	[1]

	Mammals	[1]	[1]
	Fish	[1]	[1]

Cropland/Facilities Maintenance Treatments:

Presumption of Unacceptable Risk		**Risk Quotient (RQ)**	
		Listed (T&E) Species	**Non-listed Species**
Acute	Birds	[0.1]	[0.5]
	Mammals	[0.1]	[0.5]
	Fish	[0.05]	[0.5]
Chronic	Birds	[1]	[1]
	Mammals	[1]	[1]
	Fish	[1]	[1]

Justification for Use:	
Specific Best Management Practices (BMPs):	
References:	

Table CP.1 Pesticide Name

Trade Name[a]	Treatment Type[b]	Max Product Rate – Single Application (lbs/acre or gal/acre)	Max Product Rate - Single Application (lbs/acre - AI on acid equiv basis)	Max Number of Applications Per Season	Max Product Rate Per Season (lbs/acre/season or gal/acre/season)	Minimum Time Between Applications (Days)

[a] From each label for a pesticide identified in PUPs, Service personnel would record application information associated with possible/known uses on Service lands.

[b] Treatment type: H – habitat management or CF – cropland/facilities maintenance. If a pesticide is labeled for both types of treatments (uses), then record separate data for H and CF applications.

G.8. References

AgDrift 2001. A user's guide for AgDrift 2.04: a tiered approach for the assessment of spray drift of pesticides. Spray Drift Task Force. Macon, MO.

ATSDR (Agency for Toxic Substances and Disease Registry). 2004. Guidance manual for the assessment of joint toxic action of chemical mixtures. U.S. Department of Health and Human Services, Public Health Service, ATSDR, Division of Toxicology. 62 pp + appendices.

Baehr, C.H. and C. Habig. 2000. Statistical evaluation of the UTAB database for use in terrestrial nontarget organism risk assessment. Tenth Symposium on Environmental Toxicology and Risk Assessment, American Society of Testing and Materials. West Conshohocken, PA. 358 pp.

Baker, J. and G. Miller. 1999. Understanding and reducing pesticide losses. Extension Publication PM 1495, Iowa State University Extension. Ames, IA. 6 pp.

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Appendix H. Glossary of Terms, Phrases, Abbreviations, and Acronyms

H.1 Acronyms and Abbreviations

AAR	After Action Review
ABC	American Bird Conservancy
ADA	Americans with Disabilities Act
Administration Act	National Wildlife Refuge System Administration Act
AHM	Adaptive harvest management
a.i.	Active ingredient
AMR	Appropriate management response
ARPA	Archaeological Resources Protection Act
ARRA	American Recovery and Reinvestment Act
ARS	Agricultural Research Service
ATSDR	Agency for Toxic Substances and Disease Registry
ATV	All-terrain vehicle
BAF	Bioaccumulation factors
BCC	Birds of Conservation Concern
BCF	Bioconcentration factors
BCR	Bird Conservation Region
BI	Burning Index
BIDEH	Biological Integrity, Diversity, and Environmental Health
BMC	Birds of Management Concern
BMPs	Best management practice(s)
BPA	Bonneville Power Administration
B.t.i.	*Bacillus thuringiensis* var. *israelensis*
CCP	Comprehensive conservation plan
CD	Compatibility determination
CDL	Commercial Driver‟s License
CEQ	White House Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CIG	Climate Impacts Group (University of Washington)
CO	Carbon dioxide
COA	Conservation Opportunity Areas
CWS	Clean Water Services
DBH	Diameter at breast height
DCP	Disease contingency plan
DEM	Digital elevation model
DEQ	Department of Environmental Quality (Oregon)
DSL	Department of State Lands
DSM	Division of Smoke Management
EA	Environmental assessment
EDRR	Early detection and rapid response
EEC	Estimated environmental concentration

EMDS	Ecosystem Management Decision Support
E.O.	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESR	Emergency Stabilization and Rehabilitation
ESU	Evolutionarily Significant Unit
FAO	Food and Agriculture Organization
FCR	Fire-cracked rock
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FmHA	Farmers Home Administration
FMP	Fire Management Plan
FMU	Fire Management Unit
GBADC	Game Birds Above Desired Condition
GBBDC	Gamebirds Below Desired Condition
GHGs	Greenhouse gases
GIS	Geographic information system
GLO	General Land Office
GPS	Global positioning system
GUS	Groundwater ubiquity score
HACCP	Hazard Analysis and Critical Control Points
HAP	Hazardous air pollutants
HAR	Height above river
HHS	Health and Human Services
IBA	Important Bird Area
IC	Incident commander
IFQS	Interagency Fire Qualification System
Improvement Act	National Wildlife Refuge System Improvement Act of 1997
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated pest management
IQCS	Incident Qualification and Certification System
IRPG	Incident Response Pocket Guide
KFF	Ken Foster Farm
LCC	Landscape Conservation Cooperative
LCP	Land Conservation Plan
LEED	Leadership in Energy and Environmental Design
LiDAR	Light Detection and Ranging
LOC	Level of Concern
LOEC	Lowest Observed Effect Concentration
LOEL	Lowest Observed Effect Level
MIST	Minimum impact suppression tactics
MOA	Memorandum of agreement
MOU	Memorandum of understanding
mph	Miles per hour
MSDS	Material Safety Data Sheet
MSL	Mean sea level
MYA	Million years ago
NAAEE	North American Association for Environmental Education
NAGPRA	Native American Graves Repatriation Act
NAS	National Audubon Society

NAWMP	North American Waterfowl Management Plan
NBC	National Business Center
NEPA	National Environmental Policy Act
NFDRS	National Fire Danger Rating System
NGO	Nongovernmental organization
NH_3	Ammonia
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NOAA	National Oceanic and Atmospheric Administration
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
NOx	Nitrogen oxides
NRHP	National Register of Historic Places
NWCG	National Wildfire Coordinating Group
OCCRI	Oregon Climate Change Research Institute
OCS	Oregon Conservation Strategy
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OPRD	Oregon Parks and Recreation Department
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCJV	Pacific Coast Joint Venture
PFC	Pacific Flyway Council
PIF	Partners in Flight
PM2.5	Particulate matter less than or equal to 2.5 micrometers
PM10	Particulate matter less than or equal to 10 micrometers
ppb	parts per billion
PPE	Personal protective equipment
ppm	parts per million
PUP	Pesticide Use Proposal
PUPS	Pesticide Use Proposal System
REI	Restricted entry interval
RMIS	Refuge Management Information System
ROCs	Resource(s) of Concern
RONS	Refuge Operating Needs System
RQ	Risk quotient
RV	Recreational vehicle
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SARA	Superfund Amendments and Reauthorization Act
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SDTF	Spray Drift Task Force
Service	U.S. Fish and Wildlife Service (also USFWS)
SHPO	State Historic Preservation Office
SO_2	Sulfur dioxide
SUP	Special Use Permit
SWCA	SWCA Environmental Consultants
T/E	Threatened and endangered species

TMDL	Total maximum daily load
TRWC	Tualatin River Watershed Council
TSCA	Toxic Substances Control Act
TVFR	Tualatin Valley Fire and Rescue
TVID	Tualatin Valley Irrigation District
TWA	Time-weighted-average
U.S.C.	United States Code
USDA APHIS-PPQ	U.S. Department of Agriculture—Animal Plant Health Inspection Service, Plant Protection and Quarantine
USDOI	U.S. Department Of Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGCRP	United States Global Change Research Program
USGS	U.S. Geological Survey
USHCN	United States Historical Climatology Network
VOC	Volatile organic compounds
WID	Wapato Improvement District
YCPA	Yamhill County Public Health
YMCA	Young Men‟s Christian Association

H.2 Glossary

Accessible. Without fences or vegetative barriers (tall, dense vegetation) at its margins.

Adaptive management. "The rigorous application of management, research, and monitoring to gain information and experience necessary to assess and modify management activities. A process that uses feedback from refuge research and monitoring and evaluation of management actions to support or modify objectives and strategies at all planning levels" (620 FW 1).

A " … decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a „trial and error" process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals; increases scientific knowledge; and reduces tensions among stakeholders" (522 DM 1).

Alternative. Different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the National Wildlife Refuge System (Refuge System) mission, and resolving issues (602 FW 1.6). The "no action" alternative is current refuge management, while the "action" alternatives are all other alternatives.

Anadromous fish. Fish that are born in fresh water, migrate to the ocean to grow into adults, and return to fresh water to spawn.

Appropriate use. "A proposed or existing use on a refuge that meets at least one of the following four conditions.

(1) The use is a wildlife-dependent recreational use as identified in the Improvement Act.

(2) The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Improvement Act was signed into law.

(3) The use involves the take of fish and wildlife under State regulations.

(4) The use has been found to be appropriate as specified in section 1.11" (603 FW 1).

Approved Acquisition Boundary. National wildlife refuge boundary approved by the U.S. Fish and Wildlife Service director for potential acquisition of lands by the Service.

Approved Refuge Boundary. A national wildlife refuge boundary approved by the national or regional U.S. Fish and Wildlife Service (USFWS) director. Within this boundary, the Service may negotiate with landowners to acquire lands not already owned by the Service.

Archaeology. The scientific study of material evidence remaining from past human life and culture.

Benefiting resources. Those species, species groups, or resources expected to benefit from actions taken for a Resource of Concern.

Big Six. Wildlife-dependent recreational uses under Refuge System Improvement Act. The big sixes uses are hunting, fishing, wildlife observation, photography, and environmental education and interpretation.

Birds of Conservation Concern. A category assembled by the USFWS Division of Migratory Birds identifying the migratory and nonmigratory species (beyond those already designated as federally threatened or endangered) that represent the division"s highest conservation priorities.

Biological Diversity (also Biodiversity). The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and communities and ecosystems in which they occur (601 FW 3). The Refuge System"s focus is on indigenous species, biotic communities, and ecological processes.

Biological integrity. Biotic composition, structure, and functioning at genetic, organism, and community levels comparable with historical conditions, including the natural biological processes that shape genomes, organisms, and communities (601 FW 3).

Candidate species. Plant or animal species for which USFWS or NOAA Fisheries has on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened (USFWS Endangered Species Glossary).

Categorical exclusion. A category of actions that do not individually or cumulatively have a significant effect on the human environment and have been found to have no such effect in procedures adopted by a Federal agency pursuant to the National Environmental Policy Act (NEPA) (40 CFR 1508.4).

Climate change. A "… change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use" (IPCC 2008).

Compatible use. A " … wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge" (602 FW 3).

Compatibility Determination. A written determination signed and dated by the refuge manager and regional chief signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use. The director makes this delegation through the Regional Direction (603 FW 2).

Comprehensive Conservation Plan (CCP). A document that describes the desired future conditions of a refuge or planning unit and provides long-range guidance and management direction to achieve the purpose(s) of the refuge; helps fulfill the mission of the Refuge System; maintains and, where appropriate, restores the biological integrity, diversity, and environmental health of each refuge and the Refuge System; helps achieve the goals of the National Wilderness Preservation System, if appropriate; and meets other mandates (USFWS Habitat Management Planning Policy, 602 FW 1.4).

Concern. See Issue.

Connectivity. The arrangement of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of appropriate vegetation. The opposite of **fragmentation.**

Conservation Targets (also see **Resources of Concern; Priority Species, Species Groups,** and **Communities).** Term used by land management agencies and conservation organizations to describe the resources (ecological systems, ecological communities, species, species groups, or other natural resources) selected as the focus of conservation actions.

Consumptive use. Recreational activities, such as hunting and fishing, that involve harvest or removal of wildlife or fish, generally to be used as food by humans.

Contaminants or **environmental contaminants.** Chemicals present at levels greater than those naturally occurring in the environment resulting from anthropogenic or natural processes that potentially result in changes to biota at any ecological level (USGS 1999). They are pollutants that degrade other resources upon contact or mixing.

Cooperative agreement. An official agreement between two parties.

Cover. The estimated percent of an area, projected onto a horizontal surface, that is occupied by a particular plant species.

Cultural resources. The physical remains, objects, historic records, and traditional lifeways that connect us to our nation"s past (USFWS no date).

Cultural resource inventory. A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. Inventories may involve various levels, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, or sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register of Historic Places follows the criteria found in 36 CFR 60.4 (614 FW 1.7).

DM. U.S. Department of the Interior Manual.

Decadence. Marked by decay or decline, used for plants showing little or no new growth.

Deciduous. Trees and shrubs that shed all of their leaves each year.

Depredation. Causing serious damage to agricultural, horticultural, and fish cultural interests (Adapted from 50 CFR 21.42).

Direct Loss. Loss of food or loss of habitat as nonnative species outcompete natives.

Disturbance. Significant alteration of habitat structure or composition, or of the behavior of wildlife. May be a natural (e.g., fire) or human-caused event (e.g., aircraft overflight).

Ecosystem. A dynamic and interrelating complex of plant and animal communities and their associated nonliving environment.

Ecosystem management. Management of natural resources using systemwide concepts to ensure that all plants and animals in ecosystems are maintained at viable levels in native habitats and basic ecosystem processes are perpetuated indefinitely.

Effect (impact). A direct result of an action that occurs at the same time and place; or an indirect result of an action that occurs later in time or in a different place and is reasonably foreseeable; or the cumulative results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 CFR 1508.8).

El Niño/La Niña - Southern Oscillation. A quasiperiodic climate pattern that occurs across the tropical Pacific Ocean. The *Southern Oscillation* refers to variations in the temperature of the surface of the tropical eastern Pacific Ocean (warming and cooling known as *El Niño* and *La Niña* respectively) and in air surface pressure in the tropical western Pacific. The two variations are coupled: the warm oceanic phase, El Niño, accompanies high air surface pressure in the western Pacific, while the cold phase, La Niña, accompanies low air surface pressure in the eastern Pacific.

Endemic. In the conservation context, exclusively native to a place. For example, kangaroos are endemic to Australia.

Environmental assessment. A concise public document, prepared in compliance with NEPA, that briefly discusses the purpose and need for an action and alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).

Environmental harm. Environmental harm by pest species refers to a biologically substantial decrease in environmental quality as indicated by a variety of potential factors, including declines in native species populations or communities, degraded habitat quality or long-term habitat loss, and/or altered ecological processes.

Endangered Species (Federal). An animal or plant species in danger of extinction throughout all or a significant portion of its range.

Endangered Species (State). A plant or animal species in danger of becoming extinct or extirpated in a state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.

Environmental education study sites. Outdoor locations where groups of students engage in hands-on activities within an environmental education curriculum.

Environmental health. Composition, structure, and functioning of soil, water, air, and other abiotic features comparable with historical conditions, including the natural abiotic processes that shape the environment (601 FW 3).

Enhance. To improve the condition of an area or habitat, usually for the benefit of certain native species.

Ethnographical. The study and systematic recording of human cultures; also: a descriptive work produced from such research.

Executive Order. A president‟s or governor‟s declaration, which has the force of law, usually based on existing statutory powers, and requiring no action by the Congress or state legislature.

Exotic. See **Nonnative species.**

Experimental population. A population (including its offspring) of a listed species designated by rule published in the Federal Register that is wholly separate geographically from other populations of the same species. An experimental population may be subject to less stringent prohibitions than are applied to the remainder of the species to which it belongs.

Focal Species (also Priority Resources of Concern or Focal Conservation Target). A suite of conservation targets that for purposes of planning are sorted and condensed to represent threats to biological integrity, diversity, and environmental health at the refuge level.

Friends of the Refuge. Friends of the Tualatin River National Wildlife Refuge, the official, nonprofit, volunteer organization supporting the refuge.

Geocaching. Known as letter boxing, an outdoor activity in which participants use a global positioning system (GPS) to recover techniques to hide and seek containers.

Goal. Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (620 FW 1.6).

Habitat. Suite of existing environmental conditions required by an organism for survival and reproduction. It is the place where an organism typically lives.

Habitat Management Plan. A plan that provides refuge managers a decision-making process; guidance for the management of refuge habitat; and long-term vision, continuity, and consistency for habitat management on refuge lands (USFWS Habitat Management Planning Policy 620 FW 1.4).

Habitat restoration. Management emphasis designed to move ecosystems to desired conditions and processes, and/or to healthy ecosystems.

Historical conditions. Composition, structure, and functioning of ecosystems resulting from natural processes that we believe, based on sound professional judgment, were present prior to substantial human related changes to the landscape (601 FW 3).

Hydrology. A graph of waterflows in a river or stream. A hydrograph provides a way of seeing seasonal and yearly changes in the flow or discharge of a waterway.

Important Bird Areas. A site designated by the National Audubon Society that provides essential habitat for one or more species of bird and that is recognized as being important on a global, continental, or state level.

Indicator. A measurable characteristic of a key ecological attribute that strongly correlates with the status of the key ecological attribute; something that serves as a sign or symptom.

Indigenous knowledge. The " … knowledge that an indigenous (local) community accumulates over generations of living in a particular environment. This definition encompasses all forms of knowledge—technologies, know-how skills, practices and beliefs—that enable the community to achieve stable livelihoods in their environment" (United Nations Environment Programme 2012).

Inholding. Refers to lands within an approved refuge boundary that are not owned by the Service. These can be private lands or lands owned by a city, county, state, or other Federal agencies.

Integrated Pest Management. A " … sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks" (FIFRA, 7 U.S.C. 136 et seq.).

"Examples of tools listed in the IPM definition include, but are not limited to, the following:

(1) Biological tools - predators, parasites, and pathogens;
(2) Cultural tools - crop rotation, alterations in planting dates, and sanitation;
(3) Physical tools - barriers, traps, hand-pulling, hoeing, mowing, and tilling;
(4) Chemical tools - pesticides, such as herbicides, insecticides, or fungicides" (517 DM 1).

Interpretation. A teaching technique that combines factual information with stimulating explanation. Frequently used to help people understand natural and cultural resources.

Invasive species. An " … alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health" (EO 13112).

Inventory. A survey of the plants or animals inhabiting an area.

Inviolate Sanctuary. The original intent of the term "inviolate sanctuary" is found in the Migratory Bird Conservation Act (first passed in 1918 as the Migratory Bird Treaty Act and amended in 1934 and 1938). This Act originally required that all refuges be inviolate sanctuaries and deemed that refuges‟ primary purposes were as breeding grounds and habitat for migratory birds. Migratory bird hunting was prohibited on migratory waterfowl areas by the Act, but most other human uses were not addressed. The 1938 amendment to the Act gave refuge managers authority to decide if, when, and how bird hunting would be allowed. The 1949 Duck Stamp Act allowed waterfowl hunting on refuges, but restricted the percentage of each refuge open to hunting. Current policy states that portions of a refuge are considered "inviolate sanctuaries" if they were (a) acquired with the approval of the Migratory Bird Conservation Commission for the purpose of an inviolate sanctuary; (b) acquired with MBCC approval or Land and Water Conservation Fund funds to protect a threatened or endangered species; or (c) established by an instrument or document that states the intent to manage the area as an "inviolate sanctuary for migratory birds" or to fulfill the purpose of the Migratory Bird Conservation Act. Policy further allows migratory game bird hunting on no more than 40 percent of the area considered inviolate sanctuary if compatible with a refuge‟s purposes and mission. Inviolate sanctuary classification imposes no limits on hunting nonmigratory birds, fur bearers, or other game species.

Issue. Any unsettled matter that requires a management decision, for example, an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict in uses, public concern, or the presence of an undesirable resource condition (620 FW 1.6).

Key ecological attributes. Those aspects of the environment, such as ecological processes or patterns of biological structure and composition that are critical to sustain the long-term viability of the target. These key ecological attributes are further divided into measurable indicators.

Keystone species. Species that enrich ecosystem function in a unique and significant manner through their activities, and have an effect that is disproportionate to their numerical abundance. Their removal initiates changes in ecosystem structure and often loss of diversity. These keystone species may be habitat modifiers (e.g., Cottonwoods, beavers), predators (e.g., bobcat, coyote), or herbivores (e.g., elk).

Kalapuya. *It-galapu ywi-yu-ks,* A Chinookan term for the Willamette Valley people, consisting of eight Tribes speaking three different languages, formerly inhabiting the valley of the Willamette River in Oregon.

Land Protection. The acquisition of fee title, easement, or lease of a given land parcel to protect important natural resource values on the land from incompatible land uses.

Listed Species (Federal). Species that have been formally listed under the Endangered Species Act as threatened or endangered. Also includes candidate and proposed species. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Proposed species include taxa for which the Service or National Marine Fisheries Service has published a proposal to list as endangered or threatened in the Federal Register. Candidate species include those taxa for which the Service has sufficient biological information to support a proposal to list as endangered or threatened.

Maintenance. The upkeep of constructed facilities, structures, and capitalized equipment necessary to realize the originally anticipated useful life of a fixed asset. Maintenance includes preventative

maintenance; cyclic maintenance; repairs; replacement of parts, components, or items of equipment; periodic condition assessment; periodic inspections, adjustment, lubrication and cleaning (nonjanitorial) of equipment; painting, resurfacing, rehabilitation; special safety inspections; and other actions to ensure continuing service and to prevent breakdown.

Metro. Regional government for the Portland metropolitan area, including Clackamas, Multnomah, and Washington Counties and associated municipalities. Metro coordinates regionwide land-use planning; provides garbage, recycling, and transportation services; acquires, restores, and manages natural areas; and operates cemeteries, event facilities, and the zoo.

Migration. Seasonal movement of wildlife from one area to another and back.

Migratory birds. Those species of birds listed under 50 CFR 10.13 (as defined by various treaties) (720 FW 1, Policies and Responsibilities of the Migratory Bird Program).

Mixed deciduous/coniferous forest. Forest that usually has a mixture of Douglas-fir, oak, and maple, with a shrub understory.

Moist soil plants. Plants that are adapted to periodic flooding and drying conditions.

Monitoring. The process of collecting information to track changes of selected parameters over time.

National Environmental Policy Act of 1969 as amended (42 U.S.C. 4321-4375). A Federal law that requires all Federal agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision making (40 CFR 1500).

National Register of Historic Places. The nation‟s master inventory of known historic properties administered by the National Park Service. Includes buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archeological, or cultural significance at the national, state, and local levels (USFWS no date).

National Wildlife Refuge System. Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife, including species threatened with extinction; all lands, waters, and interests therein administered by the Secretary as wildlife refuges; areas for the protection and conservation of fish and wildlife that are threatened with extinction; wildlife ranges; game ranges; wildlife management areas; or waterfowl production areas.

National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. 668dd-668ee). A Federal law that provides guidance on the administration and management of the national wildlife refuge system.

National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). A Federal law that amended and updated the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668).

Native. “With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem” (601 FW 3).

Nonconsumptive recreation. Recreational activities that do not involve harvest, removal, or consumption of fish, wildlife, or other natural resources.

Nonnative species. A species that is present in the planning area but was not known to exist prior to Euro-American settlement of the Americas.

Noxious weed. A plant species designated by Federal or state law as generally possessing one or more of the following characteristics: aggressive or difficult to manage; a carrier or host of serious insect or disease; or nonnative, new, or not common to the region. According to the Federal Noxious Weed Act (PL 93-639), a noxious weed is one that causes disease or has adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.

Objective. A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Objectives should be attainable, time-specific, and measurable (620 FW 1.6).

Operations. Activities related to the normal performance of the functions for which a facility or item of equipment is intended to be used. Costs such as utilities (electricity, water, sewage) fuel, janitorial services, window cleaning, rodent and pest control, upkeep of grounds, vehicle rentals, waste management, and personnel costs for operating staff are generally included within the scope of operations.

Outreach. The process of providing information to the public on a specific issue through the use of the media, printed materials, and presentations.

Pacific Flyway. One of four major north-south travel corridors for migratory birds. The Pacific Flyway is west of the Rocky Mountains.

Permanent wetland. Wetlands or portions of refuge that retain water throughout the year. Permanently flooded waters are generally occupied by submergent wetland plants such as pondweeds.

Pest. "(1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organisms on or in living man or other living animals) which the [U.S. Environmental Protection Agency] Administrator declares to be a pest under section 25(c)(1)" (FIFRA, 7 U.S.C. 136 et seq.).

"…living organisms, including invasive plants and introduced or native organisms, that may interfere with achieving our management goals and objectives on or off our lands, or that jeopardize human health or safety" (569 FW 1).

Planning team. The primary Service staff and others who played a key role in developing and writing the CCP/EA for a refuge. Planning teams are interdisciplinary in membership and function. Teams generally consist of a planning team leader, the refuge manager and staff biologists, a state natural resource agency representative, and other appropriate program specialists (e.g., social

scientists, ecologists, recreation specialists). We also ask other Federal and Tribal natural resource agencies to provide team members, as appropriate. The planning team prepares the CCP and appropriate NEPA documentation (620 FW 1.6).

Plant community. An assemblage of plant species that is unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site such as soils, temperature, elevation, solar radiation, slope, aspect, and rainfall; and denotes a general kind of climax plant community (e.g., Oregon white oak woodland).

Preferred Alternative. This is the alternative determined [by the decision maker] to best achieve the refuge purpose, vision, and goals; to best contribute to the Refuge System mission; to best address the significant issues; and to be consistent with principles of sound fish and wildlife management.

Preplanning. The first phase of the CCP planning process. It includes identifying the planning area and data needs; establishing the planning team and planning schedule; reviewing available information; preparing a public involvement plans and conducting internal scoping.

Priority Public Uses. Defined in Improvement Act as hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Priority Resources of Concern. See **Resources of Concern** and **Focal Species** definitions.

Public. Individuals, organizations, and groups; officials of Federal, state, and local government agencies; Indian Tribes; and foreign nations. It may include anyone outside the planning team. It includes those who may or may not have indicated an interest in Service issues and those who may be affected by Service decisions.

Public Land Order. Public lands consist of that class of land remaining from the original public domain that was acquired by the United States by treaty, purchase, or cession from a foreign power.

Quality. A national wildlife refuge public use program is considered high quality if it:

A. "Promotes safety of participants, other visitors, and facilities;
B. Promotes compliance with applicable laws and regulations and responsible behavior;
C. Minimizes or eliminates conflict with fish and wildlife population or habitat goals or objectives in an approved plan;
D. Minimizes or eliminates conflicts with other compatible wildlife-dependent recreation;
E. Minimizes conflicts with neighboring landowners;
F. Promotes accessibility and availability to a broad spectrum of the American people;
G. Promotes resource stewardship and conservation;
H. Promotes public understanding and increases public appreciation of America"s natural resources and our role in managing and conserving these resources;
I. Provides reliable/reasonable opportunities to experience wildlife;
J. Uses facilities that are accessible to people and blend into the natural setting; and
K. Uses visitor satisfaction to help define and evaluate programs." (General Guidelines for Wildlife-Dependent Recreation, 605 FW 1).

Refuge. Tualatin River National Wildlife Refuge.

Refuge Operating Needs System (RONS). A national database of unfunded refuge operating needs required to meet and/or implement station goals, objectives, management plans, and legal mandates. It is used as a planning, budgeting, and communication tool describing funding and staffing needs of the Refuge System.

Refuge purpose(s). The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit. For refuges that encompass congressionally designated wilderness, the purposes of the Wilderness Act are additional purposes of the refuge (620 FW 1.6).

Refuge System. National Wildlife Refuge System.

Resource of Concern (ROC). All plant and/or animal species, species groups, or communities specifically identified in refuge purpose(s), Refuge System mission, or international, national, regional, State, or ecosystem conservation plans or acts. For example, waterfowl and shorebirds are ROCs on a refuge whose purpose is to protect "migrating waterfowl and shorebirds." Federal or state threatened and endangered species on that same refuge are also a resource of concern under terms of the respective endangered species acts (Habitat Management Planning Policy, 620 FW1.4).

Restore. To bring back to a former or original condition.

Riparian habitat. Refers to an area of habitat that is transitional from terrestrial to aquatic ecosystems; including streams, lakes, wet areas, and adjacent plant communities and their associated soils that have free water at or near the surface; an area whose components are directly or indirectly attributed to the influence of water; of or relating to a river; specifically applied to ecology, "riparian" describes the land immediately adjoining and directly influenced by streams. For example riparian vegetation includes any and all plant life growing on the land adjoining a stream and directly influenced by the stream.

Riverine. Flowing perennial to intermittent waters bounded by a channel. This habitat encompasses a river or stream, its channel, and the associated aquatic vegetation.

Ruderal. Growing where the natural vegetational cover has been disturbed by humans. Generally referring to a weedy area.

Sanctuary. At the Tualatin River NWR, the term sanctuary is used colloquially to mean areas that are closed to all public uses during a portion or all of the year. Also see **Inviolate Sanctuary.**

Semipermanent Villages. Lasting or intended to last for a long time but not permanent

Seasonal Wetlands. Areas that are periodically inundated or have soils saturated to the surface at some time during the growing season (but not year-round).

Service. U.S. Fish and Wildlife Service.

Scoping. The phase of notifying the public of the opportunity to participate in the planning process to help identify issues, concerns, and opportunities related to the project early in the planning process.

Significant Effect. Use of the term in NEPA requires consideration of both context and intensity (40 CFR 1508.27). Context means the significance of an action must be analyzed in its current and proposed short- and long-term effects on the whole of a given resource (e.g., affected region). Intensity refers to the severity of the effect.

Species of Concern (Federal). Taxa whose conservation status is of concern to the Service (many were previously known as Category 2 candidates), but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

Step-down Management Plan. A plan that provides specific guidance on management subjects (e.g., habitat, public use, fire, safety) or groups of related subjects. It describes strategies and implementation schedules for meeting CCP goals and objectives (620 FW 1.6).

Strategy. A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives (620 FW 1.6).

Thatch. The dense covering of cut grass that remains after mowing or accumulating after several growing seasons. Thatch inhibits growth of new grass.

Threatened Species (Federal). An animal or plant species, listed by the Service, as likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Threatened Species (State). A plant or animal species identified by a state wildlife agency as likely to become endangered in a state within the near future if factors contributing to population decline or habitat degradation or loss continue.

TriMet. Local agency that provides public transportation in the Portland area via bus, commuter rail, light rail, and street car.

Upland prairie/oak savanna. Characterized by widely spaced Garry oak trees with grassland habitats (upland prairie) occurring between them.

Vegetation type (**habitat type**, **forest cover type).** A land classification system based upon the concept of distinct plant associations.

Vision Statement. A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the Refuge System mission and specific refuge purposes, and other mandates. The vision statement for the refuge is tied to the mission of the Refuge System; the purpose(s) of the refuge; the maintenance or restoration of the ecological integrity of each refuge and the Refuge System; and other mandates (620 FW 1.6).

Volatile Organic Compounds (VOCs). Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions. (http://www.epa.gov/ttn/naaqs/ozone/ozonetech/def_voc.htm)

Waterfowl. Resident and migratory ducks, geese, and swans.

Water Quality. A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

Watershed. The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Large watersheds, like the Mississippi River Basin contain thousands of smaller watersheds.

Wetlands. Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water at some time during the growing season of each year (660 FW 2).

Wildlife-dependent recreational use. A use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. These are the six priority public uses of the Refuge System as established in the Administration Act, as amended. Wildlife-dependent recreational uses, other than the six priority public uses, are those that depend on the presence of wildlife. The Service will consider these other uses in the preparation of refuge CCPs; however, the six priority public uses always will take precedence (620 FW 1.6).

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Appendix I. Contributors to the Comprehensive Conservation Plan

I.1 Core Planning Team

Name	Title	Organization
Erin Holmes	Project Leader, Tualatin River National Wildlife Refuge (TRNWR)	U.S. Fish and Wildlife Service (USFWS)
John Gahr	Deputy Refuge Manager, TRNWR	USFWS
Pete Schmidt	Wildlife Biologist, TRNWR	USFWS
Kim Strassburg	Visitor Services Manager, TRNWR	USFWS
Valerie Morgan	Biological Technician, TRNWR	USFWS
Tom Miewald	Geographer, Division of Refuge Information, Region 1	USFWS
Scott McCarthy	Planner, Division of Planning and Visitor Services, Region 1	USFWS
Chris Lapp	Former Deputy Refuge Manager, TRNWR (transferred)	USFWS

I.2 Extended Planning Team, Reviewers, and Subject Matter Experts

Name	Area of Assistance	Organization
Anderson, Eric	Visitor services	USFWS
Austin, Heather	City planning	City of Sherwood, Oregon
Bales, Brad	Migratory game birds	Oregon Department of Fish and Wildlife (ODFW)
Ball, Gary	Hydrology	USFWS
Barnes, Susan	Nongame wildlife	ODFW
Beall, Jock	Wildlife biology, habitat restoration	USFWS
Buerger, Ted	Wildlife biology, contaminants	USFWS
Carver, Erin	Economic analysis	USFWS
Carver, Kenny	Mosquito control	Washington County, Oregon
Christy, John	Wetlands ecology	Oregon Biodiversity Information Center
Engler, Joe	Biological goals and objectives	USFWS

Name	Area of Assistance	Organization
Flores, Bob	General review	USFWS
Gonzales-Rogers, Patrick	Tribal coordination	USFWS
Grafe, Dawn	Visitor services	USFWS
Green, Mike	Migratory birds	USFWS
Hagedorn, Greg	Fire management plan	USFWS
Harrison, Ben	General review	USFWS
Hasti, Matt	Visitor services	USFWS
Heimowitz, Paul	Climate change	USFWS
Houghten, Chuck	CCP quality and consistency	USFWS
Humphreys, Brandy	Tribal interests	Confederated Tribes of Grand Ronde
Irvine, Kolleen	Law enforcement	USFWS
Kier-Haggenjos, Kay	Writing, editing	USFWS
Kilbride, Kevin	Biological goals and objectives, integrated pest management	USFWS
Lohr, Sam	Fisheries biology	USFWS
MacCorkle, Staci	Consultant	SWCA Environmental Consultants
Mares, Carmella	Realty	USFWS
Marxen, Mike	Visitor services	USFWS
Mayer, Tim	Climate change	USFWS
McCarthy, Nicole	Writing, editing	USFWS
Moore, Steve	Consultant	Bigfoot Consulting
Moss, Berk	Environmental education	Friends of Tualatin River National Wildlife Refuge
Murphy, Maren	Visitor services	USFWS
Murtagh, Tom	Fisheries biology	ODFW
Nebeker, Mark	Wildlife biology	ODFW
Newell, Avis	Water quality	Oregon Department of Environmental Quality
O'Hara, Kevin	National Environmental Policy Act	USFWS
Parks, Virginia	Cultural resources	USFWS

Name	Area of Assistance	Organization
Patte, David	Climate change—Senior Advisor	USFWS
Pearl, Chris	Wildlife biology	U.S. Geological Survey
Pendergrass, Kathy	Botany	Natural Resources Conservation Service
Porter, Laura	Water quality	Clean Water Services
Raymond, Anan	Cultural resources	USFWS
Rounds, Stuart	Hydrology	U.S. Geological Survey
Rutledge, Joe	Water management (agricultural)	Tualatin Valley Irrigation District
Saul, Susan	Consultant	Cusy Coyllur Communications
Schweizter, John	Maintenance, facilities	USFWS, TRNWR
Seal, Chris	Wildlife biology, habitat restoration	USFWS
Smith, Steve	Wildlife biology, habitat restoration	USFWS
Turner, Jim	Fisheries biology	National Marine Fisheries Service
Valentine, Nick	Cultural resources	USFWS
Vandebergh, Don	Wildlife biology	ODFW
Wall, Lacey	CCP quality and consistency	USFWS
West, Robin	General review	USFWS
Zonick, Curt	Natural resources	Metro

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December 20, 1991	U.S. Fish and Wildlife Service (USFWS; Service) Urban Refuge Policy	**Policy:** Acquire lands and waters in or adjacent to metropolitan statistical areas to protect fish and wildlife resources and habitats that will provide the public wildlife-oriented recreation, education, and interpretive opportunities. **Purpose:** Primary purpose for establishment of new urban refuges will be to foster environmental awareness and outreach programs to develop an informed and involved citizenry that will support fish and wildlife conservation. General policy and purpose applies to all tracts within the 3,060-acre approved acquisition boundary of the refuge.
February 13, 1992	Tualatin River National Wildlife Refuge (Refuge) Land Protection Plan	**Authority:** Migratory Bird Conservation Act of 1929 (16 U.S. Code [U.S.C.] 715 et. seq.). Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund. **Purpose:** "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" **Authority:** Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a-742j). The Secretary of the Interior is authorized to take such steps as may be required. **Purpose:** "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" **Authority:** Emergency Wetlands Resources Act of 1986 (Public Law 99-645; 100 Stat 3582). Authorized the purchase of wetlands from Land and Water Conservation Fund monies. **Purpose:** "for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions …" **Authority:** Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460L 4-11). Provides funding through receipts from the sale of surplus Federal land, appropriations from oil and gas receipts from the outer shelf, and other sources for land acquisition under several authorities, including the Fish and Wildlife Act of 1956 and the Emergency Wetlands Resources Act of 1986. General authorities and purposes apply to all tracts within the 3,060-acre approved acquisition boundary of the refuge.
February 13, 1992	Refuge Land Protection Plan and Environmental Assessment (EA)	**Purpose:** Established the Tualatin River National Wildlife Refuge to protect, enhance, and manage upland, wetland, and riparian habitats for a variety of migratory birds and resident fish and wildlife, as well as for the enjoyment of people. Oregon's Natural Heritage Program has referenced Oregon ash and Oregon white oak habitats as well as scrub-shrub wetland as among the rarest that remain in the Tualatin River Valley, and suggests they be considered highest in priority for protection because of their historical status and range of importance for promoting biological diversity.

Date	Legal Document	Direction
		General purpose applies to all tracts within the 3,060-acre approved acquisition boundary of the refuge.
December 31, 1992	Warranty Deed	Tract 31a (12.0 acres) donated by Brenner et al. under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
March 21, 1994	Warranty Deed	Tract 59 (9.7 acres) purchased from Cerenghino et al. under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
March 21, 1994	Warranty Deed	Tract 70 (45.8 acres) purchased from Gerda Cerenghino Estate under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
July 22, 1994	Warranty Deed	Tract 84 (99.03 acres) purchased from Naujock Family Trust under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
July 29, 1994	Warranty Deed	Tract 53 (3.8 acres) purchased from Charles Desmond under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
October 26, 1994	Warranty Deed	Tracts 78, 78a, and 78b (totaling 48.77 acres) purchased from the Claus family (Robert J., Susan., Douglas C., Christine E., and R. James) under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.

Date	Legal Document	Direction
July 6, 1995	Warranty Deed	Tract 40 (47.22 acres) purchased from Edna and David Parr under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. Life use of the property was retained under easement. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
May 6, 1999	Easement	Tract 40 (47.22 acres) purchased from Edna and David Parr under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. Life use of the property was purchased under easement. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
August 7, 1996	Warranty Deed	Tract 16 (140.98 acres) purchased from Daniel Dennis under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for management are found within the Refuge Mitigation Plan and Compatibility Determination for Granting of Easement to Washington County Department of Land Use and Transportation. Addressed are compensatory mitigation and compatibility requirements for a right-of-way roadway improvement project granted to Washington County, Department of Land Use and Transportation. Mitigation was performed to offset direct impacts to wetland and upland habitats causing a reduction in floodplain capacity and decline in water quality from stormwater runoff, and indirect impacts causing wildlife disturbance and displacement. Specifically, development conditions were satisfied by the County upon 1) restoring and creating 33 acres of emergent and forested wetland in a managed basin, 2) creating and restoring 12 acres of riparian woodland and emergent wetland swale, 3) restoring 1.5 acres of riparian forest swale to enhance backwater habitat for anadromous fish, and 4) expanding the floodplain adjacent to the managed wetland resulting in no net loss of water-storage capacity. At least 5.1 acres are to be managed in perpetuity as the following habitats: 2.99 acres forested wetland, 0.8 acre emergent wetland, 1.5 acres riparian forest, 1.75 acres floodplain habitat.
September 5, 1996	Warranty Deed	Tract 41 (369.0 acres) purchased from Erhardt Steinborn et ux. under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
September	Easement	Tract 41c (30.5 acres) purchased from Erhardt Steinborn et ux. under

Date	Legal Document	Direction
5, 1996		authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
June 30, 1997	Warranty Deed	Tract 41a (30.5 acres) donated by Erhardt Steinborn et ux. under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …." General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
December 10, 1998	Warranty Deed	Tract 49 (7.99 acres) purchased from Charles Foster under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
February 24, 1999	Warranty Deed	Tracts 56 and 56a (totaling 36.51 acres) purchased from Gary White under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
February 24, 1999	Easement	Tract 56R (0.2 acre) purchased from Gary White under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
August 1, 2000	Warranty Deed	Tract 89 (131.5 acres) purchased from Larry Oleson, Trustee of the Trusts of Alden O. Oleson and Oleta W. Oleson, under authority of the Fish and Wildlife Coordination Act, Section 1 (48 Stat/401 as amended; 16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956, Section 7 (16 U.S.C. 742f [a][4]), which permit acceptance of funds for the acquisition and enhancement of real property. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for acquisition and management are found within the memorandum of agreement between USFWS and Bonneville Power Administration (BPA) for Refuge Real Property Acquisition and Enhancement, and the Oleson Tracts I and II Five-Year Restoration and Management Plan.
October 20, 1999	Agreement	The agreement provided a mechanism for BPA to fund and USFWS to implement projects for the mitigation, enhancement, and permanent protection of wildlife habitat to help fulfill BPA's responsibilities under the Northwest Power Act. BPA will receive full credit for Habitat Units, including those from both the acquisition of real property

Date	Legal Document	Direction
		interests and from habitat enhancement activities that are a direct result of BPA funding. A five-year restoration and management plan and a habitat evaluation procedure analysis were both completed as required by BPA. Restoration and enhancement of historically rare seasonal and scrub-shrub wetlands, wet meadow prairie, Oregon ash riparian forest, mixed coniferous/deciduous forests, and oak savanna communities provided an opportunity to compensate for wildlife habitat losses resulting from construction and inundation activities at Dexter and Detroit Dams. The habitat evaluation procedure analysis for the Oleson parcels determined how many habitat units for specific species could be credited to BPA. Species targeted for analysis included mink, yellow warbler, black-capped chickadee, wood duck, beaver, western meadowlark, Wilson's snipe, mallard, red-tailed hawk, American kestrel, ring-necked pheasant, and the black-tailed deer. In general, the success of providing beneficial attributes for these species is dependent upon achieving goals to restore 30 acres of seasonal emergent wetland, 15 acres of riparian forest, 10 acres of scrub-shrub wetland, and 120 acres of oak savanna.
October 20, 1999	Easement	Tract 89R (0.5 acre) purchased from Larry Oleson, Trustee of the Trusts of Alden O. Oleson and Oleta W. Oleson, under authority of the Fish and Wildlife Coordination Act, Section 1 (48 Stat/401 as amended; 16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956, Section 7 (16 U.S.C. 742f [a][4]), which permit acceptance of funds for the acquisition and enhancement of real property. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for acquisition and management are found within the memorandum of agreement between USFWS and BPA for Refuge Real Property Acquisition and Enhancement, and the Oleson Tracts I and II Five-Year Restoration and Management Plan.
February 8, 2001	Warranty Deed	Tract 97 (98.25 acres) purchased from Oleson Trusts under authority of the Fish and Wildlife Coordination Act, Section 1 (48 Stat/401 as amended; 16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956, Section 7 (16 U.S.C. 742f [a][4]), which permit acceptance of funds for the acquisition and enhancement of real property. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for acquisition and management are found within the memorandum of agreement between USFWS and BPA for Refuge Real Property Acquisition and Enhancement, and the Oleson Tracts I and II Five-Year Restoration and Management Plan.
December 23, 1999	Warranty Deed	Tract 88 (32.01 acres) purchased from Jack Harmon et ux. under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
February 4,	Warranty	Tracts 57b and 57c (totaling 30.92 acres) purchased from Dennis Reese

Date	Legal Document	Direction
2000	Deed	under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
February 4, 2000	Easement	Tracts 57R-1 and 57R-2 (totaling 1.5 acres) purchased from Dennis Reese under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
February 16, 2000	Warranty Deed	Tract 80 (31.82 acres) purchased from Betty Bissell under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
March 13, 2000	Warranty Deed	Tract 27 (20.4 acres) purchased from Ron and Joann Bump under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
August 8, 2001	Agreement	Tract 5M (50.0 acres) (Morand property) owned by Metro and managed by USFWS under authority of the Fish and Wildlife Act of 1956 (16 U.S.C. 742) and the Fish and Wildlife Coordination Act (16 U.S.C. 661-667). General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for management are found within the intergovernmental agreement between USFWS and Metro on behalf of the refuge, and in the Restoration Plan for Metro—Morand Property. The intergovernmental agreement establishes a framework for managing a portion of the Morand property located within the refuge boundary to be administered by the Service as part of the National Wildlife Refuge System (Refuge System). As designated land manager, the Service desired to restore and manage habitats for migratory birds and other fish and wildlife. The property is to be managed as open space in accordance with the National Wildlife Refuge Improvement Act of 1997, the Comprehensive Conservation Plan (CCP) developed by the refuge, and the restoration and management plan for the Morand property. The Service is responsible for the designated property on a perpetual basis through agreement renewal, as referenced in the Service's North American Wetlands Conservation Act grant application submitted in July 1997. The plan articulates a partnership with Metro for the purpose of restoring and managing 50 acres of floodplain bottomland on the Morand property. The plan states that Morand project objectives are to

Date	Legal Document	Direction
		restore 13 acres of grassland/savanna, 6 acres of seasonal emergent wetland, and 3.5 acres of mixed deciduous/coniferous forest.
July 9, 2003	Warranty Deed	Tract 25 (15.1 acres) purchased from John and Dawn Westphal under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
July 9, 2003	Easement	Tract 25R (10.0 acres) donated by John and Dawn Westphal under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.
October 21, 2005	Warranty Deed	Tract 23 (88.3 acres) purchased from Lynn S. and Jane Henriksen under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. The tract is managed under authority of the Fish and Wildlife Coordination Act, Section 1 (48 Stat/401 as amended; 16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956, Section 7 (16 U.S.C. 742f [a][4]), which permit acceptance of funds for the enhancement of real property. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for acquisition and management are found within the memorandum of agreement between USFWS and BPA for Refuge Real Property Acquisition and Enhancement, and the Oleson Tracts I and II Five-Year Restoration and Management Plan.
October 21, 2005	Easement	Tracts 23M and 23R (totaling 1.3 acres) purchased from Henriksen under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. The tracts are managed under authority of the Fish and Wildlife Coordination Act, Section 1 (48 Stat/401 as amended; 16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956, Section 7 (16 U.S.C. 742f [a][4]), which permit acceptance of funds for the enhancement of real property. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA. More specific purposes for acquisition and management are found within the memorandum of agreement between USFWS and BPA for Refuge Real Property Acquisition and Enhancement, and the Oleson Tracts I and II Five-Year Restoration and Management Plan.
December 1, 2006	Warranty Deed	Tract 98 (2.28 acres) purchased from Robert M. Burchfield et ux. under authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Urban Refuge Policy and the Refuge

Date	Legal Document	Direction
		Land Protection Plan and EA. More specific purposes for acquisition and management are found within the Project Summary and Decision for the Burchfield Addition. The project land acquisition supported and complemented conservation actions of other partners, specifically those of the BPA, which funded an adjacent restoration project enhancing biological diversity and native landscape habitats for wintering waterfowl, breeding songbirds, migrating shorebirds, marshbirds and other waterbirds, and habitats supporting federally listed and sensitive classified species of fish and wildlife. The addition is a critical link to successfully meeting habitat goals in the most effective manner for restoring 30 acres of seasonal emergent wetland.

Purpose and Acquisition History of Establishment Tualatin River NWR – Wapato Lake Unit

Date	Legal Document	Direction
June 11, 1992	Easement Deed	Tract 610c (32.77 acres) transferred from U.S. Department of Agriculture (USDA) Farmers Home Administration to the Service under authority of the Consolidated Farm and Rural Development Act (7 U.S.C. 1981, 1985, and 2002, Section 331, 335, and 354); Executive Order 11990; and Executive Order 11988, **"**providing for the protection of wetlands" and "providing for the management of floodplains."
August 28, 1992	Warranty Deed	Tracts 610a and 610b (totaling 97.16 acres) transferred from USDA FmHA to the Service under authority of the Food Security Act of 1985 (Public Law 99-198) conveying lands suitable as surplus, of marginal value for agricultural production, and environmentally sensitive or having special management importance for administration as part of the Refuge System.
October 6, 1992	Warranty Deed	Tract 610 (10.98 acres) transferred from USDA FmHA to the Service under authority of the Food Security Act of 1985 (Public Law 99-198) conveying lands suitable as surplus, of marginal value for agricultural production, and environmentally sensitive or having special management importance for administration as part of the Refuge System.
February, 2007	Wapato Lake Addition Land Conservation Plan (LCP) and EA	**Authority:** Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.). Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund. **Purpose:** "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General authority and purpose applies to all tracts within the 4,310-acre approved acquisition boundary of the refuge unit.
February, 2007	Wapato Lake Addition LCP	**Purpose:** The purpose of the Wapato Lake Unit is to protect, manage, and restore habitats for migratory birds, fish, and other native fish and

Date	Legal Document	Direction
	and EA	wildlife of the Willamette Valley; maintain and enhance the biological diversity of native plant communities and animals key to watershed health and function; and provide opportunities for people of all ages to enjoy wildlife-dependent recreation and further awareness about the natural world. The Wapato Lake wetland complex supports a variety of regionally and nationally important resources benefitting 1) patches of remnant rare native habitat such as emergent and scrub-shrub wetlands, upland and wet meadow prairies, and Oregon ash riparian hardwood forests; 2) important migratory bird habitat, especially for wintering waterfowl and breeding neotropical songbirds; 3) habitat for anadromous fish such as upper Willamette River winter-run steelhead and spring-run Chinook salmon, coho salmon, Pacific lamprey, and coastal cutthroat trout; and 4) cultural resources of historical importance. The Pacific Coast Joint Venture and Regional Shorebird Management Plans identified and targeted Wapato Lake for acquisition and restoration due to its historical importance to waterfowl of the Willamette Valley and as habitat for shorebirds. Oregon's Natural Heritage Program has referenced Oregon ash and Oregon white oak habitats as well as scrub-shrub wetland as among the rarest that remain in the Tualatin River Valley, and suggests they be considered highest in priority for protection because of their historical status and range of importance for promoting biological diversity. General purpose applies to all tracts within the 4,310-acre approved acquisition boundary of the refuge unit.
June 11, 2008	Wapato Lake Migratory Bird Conservation Commission Memo #1	**Purpose:** Purpose of acquisition is to manage lands as a migration and wintering area for waterbirds with special emphasis on tundra swans and on developing a breeding area for neotropical migratory birds. Important goals of the unit are to restore and protect rare native habitats such as wetlands, meadow prairies, and bottomland forests; manage and protect migratory bird habitat, especially for wintering waterfowl and breeding neotropical migratory birds; and provide opportunities for high-quality priority public uses of the Refuge System, including hunting and fishing. The unit supports wetlands, prairies, and a riverine complex of bottomland forest, all considered imperiled wildlife habitats. Unique organic peat soils support a relic shrub wetland community fringed by Oregon ash and dense stands of wapato, an important food source for tundra swan. Imperiled habitats support regionally and nationally important wildlife species including waterfowl, shorebirds, marshbirds, federally listed anadromous fish, raptors, and breeding neotropical migratory birds. Specifically, the Wapato Lake area supports populations of tundra swan, mallard, northern pintail, canvasback, ring-necked duck, lesser scaup, and Canada geese including dusky, cackling, and Aleutian subspecies. Pacific white-fronted geese use the area as well. General purpose applies to all tracts within the 4,310-acre approved acquisition boundary of the refuge unit.

Date	Legal Document	Direction
November 12, 2008	Warranty Deed	Tract 662 (40.0 acres) purchased from McCready Family Trust under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
November 12, 2008	Easement	Tract 662R (0.8 acre) purchased from McCready Family Trust under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
December 1, 2008	Warranty Deed	Tract 664 (15.32 acres) purchased from J.A. Watenpaugh et ux. under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
March 2, 2009	Warranty Deed	Tracts 644, 644a, and 644b (totaling 115.14 acres) purchased from Dennis Reese et ux. under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
May 4, 2009	Warranty Deed	Tracts 656a and 656b (totaling 25.91 acres) purchased from William Crop et al. under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
July 10, 2009	Warranty Deed	Tracts 634b and 634c (totaling 24.04 acres) purchased from Bates Farm Family Limited Partnership under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas

Date	Legal Document	Direction
		recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
July 10, 2009	Warranty Deed	Tracts 660 and 660a (totaling 33.73 acres) purchased from Ronald H. Bates under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
July 10, 2009	Warranty Deed	Tract 716 (47.01 acres) purchased from Ronald Bates et al. under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
September 14, 2009	Warranty Deed	Tracts 653a and 653c (totaling 48.72 acres) purchased from Furukawa Family Trust under authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
September 14, 2009	Warranty Deed	Tract 662 (40 acres) purchased from the McCready Family Trust under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
January 25, 2010	Warranty Deed	Tract 646 (3.66 acres) purchased from Gary and Joy Losey under the authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird

Date	Legal Document	Direction
		Conservation Commission Memo #1.
February 16, 2010	Warranty Deed	Tract 677 (71.44 acres) purchased from James and Marilyn Beecher under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
April 20, 2010	Personal Representatives' Deed	Tracts 658 a-c (142.63 acres) purchased from the Spry Estate under the authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using BPA mitigation funds. General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
May 19, 2010	Warranty Deed	Tract 683 (21 acres) purchased from Sandra Childress under the authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using BPA mitigation funds. General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
May 19, 2010	Warranty Deed	Tracts 659 a-b (28.76 acres) purchased from Richard and Georgann Adamson under the authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using BPA mitigation funds. General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
May 19, 2010	Warranty Deed	Tract 650a (25.66 acres) purchased from Alvin Van Dyke under the authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using BPA mitigation funds. General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
July 11, 2011	Warranty Deed	Tract 717 (32 acres) purchased from William Crop under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.

Date	Legal Document	Direction
January 3, 2012	Warranty Deed	Tract 688 (27.5 acres) purchased from Henry and Roma Ruth Leuthold under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715 et. seq.) to approve areas recommended by the Secretary of the Interior for acquisition with the Migratory Bird Conservation Fund "for use as an inviolate sanctuary, or for any other management purpose, for migratory birds …" General purpose derived from the Wapato Lake Addition LCP and EA. Specific purpose derived from the Wapato Lake Migratory Bird Conservation Commission Memo #1.
May 18, 2012	Warranty Deed	Tract 55R (12.98 acres) purchased from Bruce Bergey, Trustee of the Citadel Properties Inc, under the authority of the Fish and Wildlife Act of 1956 "for the development, advancement, management, conservation, and protection of fish and wildlife resources …" using the Land and Water Conservation Fund. The tract is managed under authority of the Fish and Wildlife Coordination Act, Section 1 (48 Stat/401 as amended; 16 U.S.C. 661 et seq.) and the Fish and Wildlife Act of 1956, Section 7 (16 U.S.C. 742f [a][4]), which permit acceptance of funds for the enhancement of real property. General purpose derived from the Urban Refuge Policy and the Refuge Land Protection Plan and EA.

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Appendix K. Public Involvement

Public involvement was sought throughout the development of the Tualatin River National Wildlife Refuge (NWR) comprehensive conservation plan (CCP), starting in November 2010. Public involvement strategies included communication with federally elected officials (or their aides), Tribal governments, key agencies, local refuge users, and the general public.

Three planning updates were mailed to a mailing list that included over 800 recipients representing Federal, local, and state agencies; congressional representatives; state and local elected officials; Tribal representatives; nongovernment organizations; businesses; learning institutions; media; private landowners; and individual citizens. The refuge also maintained a website where CCP information could be found and where the public could provide comments during the scoping phase.

Two public meetings and one agency meeting were held inviting discussion and soliciting feedback. Below is a brief summary of the events, meetings, and outreach tools that were used in our public involvement efforts.

K.1 Summary of Public Involvement Process

Federal Register Notice

- November 3, 2010. Federal Register published the Notice of Intent to Prepare a Comprehensive Conservation Plan and Environmental Assessment; and the Request for Comments.

Coordination with Congressional Representatives and/or Their Aides

- November 1, 2010. Letter sent to Oregon's two U.S. Senators and five U.S. Representatives. Letter described the start of the CCP process; invited coordination during initial public scoping; and provided public meeting dates and times.

- November 30, 2010. John Valley, aide to U.S. Senator Jeff Merkley, attended public open house.

Coordination with Tribes

- November 1, 2010. Letter to Tribal Chairwoman, Confederated Tribes of Grand Ronde. Letter described the start of the CCP process, invited coordination during initial public scoping through attendance at public meetings, and/or supplemental meetings directly with the Tribe.

- March 16, 2011. Letter to Tribal Chairwoman, Confederated Tribes of Grand Ronde. Letter invited Tribe to a face-to-face meeting with refuge staff to discuss tribal input to the CCP.

- April 13, 2011. Letter to Tribal Chairwoman, Confederated Tribes of Grand Ronde. Letter invited Tribe to a face-to-face meeting with refuge staff to discuss tribal input to the CCP.

Coordination with State, Regional, and Local Agencies

- November 1, 2010. Letter to state, regional, and local agency stakeholders, including Oregon Department of Fish and Wildlife (ODFW) representatives. Letter described the start of the CCP process; invited coordination during initial public scoping; invited participation in an agency scoping meeting; and provided public meeting dates and times.

- November 16, 2010. Meeting with agency representatives. Refuge hosted a round-table discussion to solicit input and feedback on identified issues, opportunities, and concerns.

Planning Updates

- November 2010. *Planning Update Number 1* described planning process, preliminary issues to be considered, and announcement of public meetings.

- April 2011. *Planning Update Number 2* summarized public scoping results, presented draft refuge vision statement, and presented draft refuge goals.

- October 2011. *Planning Update Number 3* summarized preliminary alternatives.

Public Open Houses/Scoping Sessions

- November 30, 2010 (evening). Public open house for CCP scoping. Sherwood, Oregon.

- December 2, 2010 (evening). Public open house for CCP scoping. Forest Grove, Oregon.

Meetings with Local Community Organizations on CCP Issues

- March 21, 2011. Presentation about the CCP process to the Friends of Tualatin River NWR.

Outreach and Media

- October 8, 2010. Press release sent to media. Announcement of upcoming public meetings published in several regional and community newspapers and newsletters, including *The Oregonian*.

- October 2010 to present. Website (http://www.fws.gov/tualatinriver/refugeplanning.htm) featuring CCP information, public involvement opportunities, reports, and progress.

K.2 Summary of Comments Received on Draft CCP/EA

The draft Comprehensive Conservation Plan/Environmental Assessment (CCP/EA) for the Tualatin River NWR was issued October 22, 2012, and was made available for review during a 30-day public comment period that extended from October 22 to November 22. Copies of the planning document were available at local libraries, refuge headquarters, and online. A planning update announcing the availability of the CCP/EA was distributed to everyone on the CCP mailing list, which totaled approximately 838 individuals and organizations.

A total of 102 comments were received from individuals and organizations, either in the mail or on the Public Comment Form that was contained within the mailing update. Some letters contained just one comment, while others contained multiple comments on various topics. The majority of the comments received were from the general public, while some were received from non-profit organizations, and Federal and state agencies. Some commenters indicated the alternative that they preferred, while others expressed their comments across the variety of alternatives.

All of the comments received were considered and are organized below by subject matter with the U.S. Fish and Wildlife Service's (USFWS's; Service's) response. Similar comments on a topic were grouped together and the Service response applies to the comments as a group.

Land Acquisition

Comment: The Service should not purchase any more lands for conservation.

Response: The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. The Service purchases lands for conservation that have been designated inside an approved acquisition boundary. Lands are only purchased from willing sellers and at fair market value. Currently, consistent with the America's Great Outdoors Initiative, the Service is exploring the feasibility of revising the refuge's acquisition boundary.

Acquisition funds come from several sources: the Migratory Bird Conservation Commission, which receives revenue from the sale of duck stamps, Land and Water Conservation Funds, which are funds from offshore oil and gas leases, and import taxes on weapons. When lands are acquired by the Service, they are removed from the tax rolls. However, the Refuge Revenue Sharing Act (1995 [16 U.S.C. 715s]) allows the Service to offset the tax losses by annually paying the county or other local government unit an amount that often equals or exceeds that which would have been collected from taxes if in private ownership. Funds to pay for this comes from the net income the Service receives from products or privileges like timber sales, grazing fees, and such that are deposited in the fund for revenue sharing payment. If there is a shortage, then Congress has the authority to appropriate money to make up the difference.

Various Management Plans

Comment - State Plans: The ODFW requested various state management plans be included in the draft CCP under Chapter 1, Section 1.7.2, State Plans.

Response: While the Service recognizes the various state plans that are available to land managers for guidance on habitat management and restoration, and on various species, the list was not meant to be comprehensive and instead focused on those plans that were most relevant to the process of developing the draft CCP. Language was added in Chapter 1 to reflect this process.

Comment: Comments were received on the importance of developing a habitat management plan and a land protection plan to assist and guide management direction in the next 15 years. Comments were also received asking for clarification on the priority system for acquisition.

Response: Appendix C: Implementation Plan, Table C-1, outlines some of the step-down plans that will be developed over the life of the CCP. The Service has added habitat management and restoration step-down plans, and a land protection plan to this table.

The refuge currently has a land acquisition priority plan that was developed and outlines the five priority areas for land acquisition at the Sherwood Units. There is a focus on the top three areas for acquisition, and the plan includes maps and descriptions of each area. This plan is used extensively by refuge management to develop annual funding requests and work plans in cooperation with the realty program in our Regional Office. Most importantly, this plan provides a long-term guide for future planning. The Service has added language on this plan in Chapter 2, Description of Management Direction, Land Acquisition and Habitat Protection.

Comment: Support for the refuge developing an elk management plan.

Response: Appendix C, Implementation Plan, Table C-1 lists the elk management plan as a step-down management plan that will be prepared in coordination with the Willamette Valley NWR Complex.

Key Issues

Comment: Comments were received asking why issues such as climate change and inventory and monitoring were not addressed under the Key Issues section.

Response: We do feel these issues are important and addressed them in other sections of the CCP. Climate change is addressed in the Description of Management Direction section in Chapter 2 (Section 2.3), and again in Chapter 3, Physical Environment, in Section 3.1.2. We do have a goal for inventory and monitoring and our objectives and strategies are covered in Chapter 2 under Goal 8.

Refuge Integrated Pest Management (IPM)

Comment: The refuge received several comments relating to the refuge IPM program, ranging from concerns over herbicide use, the refuge's role in mosquito control, and invasive and nuisance species control.

Response**:** The refuge follows IPM policy guidelines when planning and implementing the use of herbicides, which recommend using the minimum amount of approved chemicals to achieve desirable goals. The refuge will continue to work closely with local county partners to establish guidelines in our IPM and mosquito control contingency plan regarding mosquito control action on the refuge. Nuisance species removal will be carried out under the guidelines of IPM policy.

Maps

Comment: Clarification of what the maps were conveying among the alternatives and what habitat was changing among the alternatives was requested.

Response: The Final CCP will include only two maps showing habitat types. The first one will be *current management,* depicting the habitats that currently exist or the restoration direction originally planned. The second map will be for the *preferred alternative – future management direction,* and

will depict the habitats that the refuge will work to restore and manage over the next 15 years. Table 2.1 of Chapter 2 also shows the changes through acreages.

Fire

Comment: Support was expressed for prescribed fire as a habitat management strategy as were concerns about the potential off-refuge effects to visibility and overall air quality. "Would machines be used to reduce the smoke?"

Response: Prescribed fire is listed as a strategy to reduce hazardous fuels and enhance and maintain wildlife habitat, particularly prairie, wetland, and savanna habitats. All prescribed fire activity will comply with applicable Federal, state, and local air quality laws and regulations. Visibility is a major consideration in smoke management. The planning for a prescribed fire must include the potential for hazardous situations, including impaired visibility created by smoke both on and off our lands. All prescribed burns must meet the provisions of the Clean Air Act and the State Implementation Plan. Burning machines will not be used due to their high cost and terrain constraints.

Species Management

Comment: We received comments regarding management actions specifically directed at certain species.

Response: Service policy supports biological integrity, diversity, and environmental health (BIDEH) of the landscape. To this end we maintain diverse habitat types to support a myriad of species across many guilds. In addition we focus on state and federally listed threatened and endangered species, and species of concern. We often include management activities for certain species or guilds providing it does not detract from the overall BIDEH mandate. For example, wetlands are primarily managed for waterfowl and other waterbirds, but early spring drawdowns are conducted to provide habitat for shorebirds. Additionally, managing for increased wet prairie acreage should provide benefits to species such as streaked horned larks and western meadowlarks.

Comment: We received comments from ODFW recommending management of specific fish and wildlife species and guilds, as well as habitat management suggestions.

Response: The Service mission and BIDEH policy both support the conservation of a diversity of habitats in support of fish, wildlife, and plants. We agree with ODFW that we should continue to look for opportunities to enhance habitats in support of an appropriate diversity of habitats and will continue to work in close partnership with ODFW on habitat, fish, and wildlife issues.

Grazing

Comment: We received comments regarding grazing as a habitat management tool.

Response: The refuge currently does not use grazing as a management tool. However, grazing may be a useful management tool in the future. Grazing could be used to remove non-native invasive species such as Himalayan blackberry (with goats) or reed canarygrass (cattle) for management purposes to improve habitat. Any grazing program implemented in the future will be for management purposes only and not as a commercial economic program.

Habitat

Comment: Some comments suggested restoring all areas to historic habitat conditions (e.g., convert managed wetlands to other habitat types).

Response**:** As noted above, the refuge maintains a variety of habitat types to support BIDEH. These habitat types sometimes include intensively managed tracts to support a diversity of species. Historic conditions such as frequent fire and flooding no longer exist as they did in pre-European settlement times. Therefore the refuge must manage habitats to mimic historic conditions to the best of our ability. Historic conditions did play a large role in determining current and future restoration opportunities, and using this information, the refuge is planning on significant historic vegetation restoration projects on the refuge. Not all areas will be converted to historic conditions though, either because it is no longer feasible due to the extent of the alternations or because focus will be on converting habitat to an imperiled valley habitat, such as oak.

Comment: We received comments concerning habitat corridors and connectivity.

Response: During the planning process much of our focus was to provide larger contiguous blocks of habitat while still supporting appropriate diverse habitats that support wildlife corridors and connectivity to habitats off of the refuge. Many of the habitat changes proposed will provide better corridors and connectivity for fish and wildlife as a result of these changes. The refuge will continue to pursue acquisition and restoration projects that increase connectivity.

Comment: Comments were received about the proposed change of habitat restoration from wet prairie to riparian forest on the northern portion of the Atfálat'i Unit, managed by the Service and owned by Metro. Comments were also received suggesting an increase of wet prairie habitats at other units on the refuge.

Response: The preferred alternative in the draft CCP identified the northern portion of the Atfálat'i Unit to be restored to riparian forest. After discussions with natural resource managers and biologists, the Service determined that this area would be better restored to wet prairie habitat based on hydrology, soils, and historic conditions. This change has been reflected throughout the final document as appropriate. Additionally, the Service recognizes the importance of wet prairie and as indicated in Chapter 2, Table 2.1, wet prairie habitat will increase from the current 27 acres to 138 acres on the refuge.

Comment: Concern was expressed over the loss of prairie and encroachment of other habitat types on small endemic plant populations located on the refuge. Some of these plants are rare and significant, and the encroachment of other species will cause the loss of those rare species on the refuge.

Response: The Service recognizes the importance of these rare plants and will maintain and restore wet prairie as identified in the management direction. The plants of concern will be protected from encroachment to the best of the refuge's ability. If the plants are growing in a location suited for restoration other than wet prairie, then, if appropriate and necessary, they will be moved to a more suitable location.

Comment: Commenters were concerned about converting oak to other habitat types and loss of wet prairie habitat.

Response: After further consideration, the final CCP will include maintaining oak habitat (savanna and woodland) and conversion of some areas that were planned for oak habitat to other habitat types in order to meet several habitat goals. In addition, existing wet prairie habitats will remain, and additional areas will be restored to wet prairie. Chapter 2 outlines in detail the changes to be made in regard to habitat, both in Table 2.1 and in the various habitat goals and objectives.

Comment: Comments were received suggesting alternative dates for mowing due to impacts to grassland birds.

Response: We agree that the timing of mowing is very important so as to not disturb grassland nesting birds. We have changed our strategies to reflect that mowing will be conducted after August 1 to protect ground-nesting birds. This date is a guideline, and we recognize that weather patterns may alter the timing. This will be evaluated on a seasonal basis.

Water (Quality and Management)

Comment: Comments were received related to refuge management and the potential impact on water quality, and on the importance of working with partners to facilitate high water quality, ensure total daily maximum load (TDML) amounts are not exceeded, and prevent future algal blooms at the Wapato Lake Unit. There were also comments received regarding the drinking water provided at the public facilities.

Response: The Service recognizes the need to develop and maintain good working partnerships for water quality with the local watershed council, Joint Water Commission, Department of Environmental Quality (DEQ), and others. The Service is committed to working with these partners to maintain high standards of water quality as consistent with the Service's mission. The refuge will work with partners to write a TDML plan for discharging water from Wapato Lake and will follow recommended pump deadlines in DEQ's water management plan. The refuge will work closely in coordination with the Joint Water Commission on Wapato Lake discharging timelines and any issues that may arise that could impact their operations downstream on the Tualatin River. Additionally, coordination will take place for future restoration plans on the Sherwood Unit that may affect water quality through creek restoration or other actions.

The Service also recognizes the need for and is required to follow health regulations in providing safe drinking water to the public. This is achieved through regular water testing and maintenance of the water systems in place.

Comment: The Service received comments supporting a more natural hydrology approach to habitat management using limited water manipulations with water control structures. Comments favored using historic hydrology instead of the managed wetlands currently found on the refuge.

Response: While exploring the various options for habitat restoration opportunities for the refuge, the Service researched historic conditions and examined habitats that are imperiled in the Willamette Valley. Using this information and other physical environment characteristics such as soils and elevations, the refuge identified the best possible habitat to promote while ensuring compliance with the BIDEH policy. This policy promotes a mixture of healthy habitats to maintain diversity and biological health. Currently, the refuge manages 294 acres of herbaceous wetlands using various water control structures and levees. These wetlands are managed to mimic seasonal flooding and to maximize foraging and stopover habitat for migratory waterfowl and other waterbirds. However, the

Service, through the process of developing the draft CCP/EA, recognized a need to have a more natural hydrologic system in some floodplain areas, and the management direction will show a decrease of managed wetlands by 100 acres. These 100 acres are now designated to be more historic habitats such as wet prairie and riparian forest.

Comment: The water control structures that would be removed during implementation of the CCP should be identified.

Response: The Service plans on developing restoration plans for the changes to be implemented on the refuge over the next 15 years. Appendix C: Implementation, Table C-1, identifies the various step-downs plans to be developed. Prior to any restoration project, a plan will be developed that details the objectives and strategies outlined in Chapter 2. While the maps found in Appendix P show the habitat change from herbaceous wetland to another type, the identification of specific water control structures to be removed are unknown until a restoration plan is completed.

Comment: There were comments on water management on the Wapato Lake Unit. Comments received emphasized the importance of making water quality and research a high priority; wanted to see the Service maintain the current irrigation system in place; stated the need to balance irrigation capabilities, in partnership with Tualatin Valley Irrigation District (TVID), with habitat and wildlife goals; and requested a detailed water management plan.

Response: The Service has a contract with the United States Geological Survey to gather data on water hydrology characteristics of the lakebed and surrounding area. The Service is waiting to develop a water management plan and restoration plan for Wapato Lake until these data are reviewed and a better understanding of the infrastructure is achieved. The Service recognizes the need for collaboration and partnerships for water quality and future restoration planning as they fit with the Service's mission. Currently, infrastructure owned by the Service is used by TVID for water distribution to their customers within the Bureau of Reclamation's project area, which includes the Wapato Lakebed and surrounding landowners. Interim management of Wapato Lake will include working with the TVID to provide access to the infrastructure for their delivery needs as long as the infrastructure remains intact. Restoration of the lakebed will most likely require removal of some irrigation infrastructure. However, at both the Wapato Lake Unit and the Sherwood Units, there needs to be more information gathered and engineering design acquired prior to any construction.

Artificial Structures

Comment: The refuge received comments concerning use of artificial structures, such as water control structures, as habitat management tools that may favor some species over others.

Response: The refuge's CCP management direction moves toward addressing these concerns by managing toward more native historic habitats and natural water flow regimes that could benefit a wider variety of species.

Cooperative Farming

Comment: The refuge received comments requesting clarification on the continued use of farming as a management tool.

Response: Cooperative farming has long been a traditional tool used by refuges to meet wildlife management goals. Cooperative farming provides a mechanism for the refuge to maintain a "clean" landscape free of weeds, until restoration can be implemented. Meanwhile, cooperative farmers are able to grow their crop in exchange for 30 percent of the harvest set aside for the refuge as wildlife food. The refuge will continue to evaluate the potential to continue cooperative farming as a management tool as we move forward in our restoration planning efforts. Cooperative farming is a valuable tool and will continue to be used as long as it is feasible and consistent with the goals of the refuge.

Impacts to Agriculture and Farmers

Comment: The refuge received comments with concern to our future commitments to farming and how it might impact area farmers. Commenters stated the importance of working with the agricultural community, both farmers and organizations/agencies, and assessing whether the Wapato Lake Unit is considered part of the Conservation Reserve Program (CRP) as identified under the 1985 Farm Bill.

Response: The refuge continues to work closely with our farming community as it relates to our farming program and will keep them involved during the process of implementing our management plan. Agreements are entered into annually with farmers from the local agricultural community. Communications will ensure the best opportunities are available for farmers as well as for the refuge. The refuge recognizes the need to continue communications and to partner with the Natural Resources Conservation Service (NRCS) and other agricultural organizations.

The CRP is a program that encourages farmers to convert cropland or other sensitive acreage to resource-conserving vegetative cover. This program enhances landscape-level conservation of habitat on farmland while offering incentives and a source of income for famers. The CRP program is implemented on private lands by willing farmers. Lands already owned in fee title by the Service utilize a cooperative farming program as described above. Lands not owned by the Service have the potential to be part of the CRP, and farmers are encouraged to contact their local farm agency for further information.

Inventorying and Monitoring

Comment: We received comments supporting the inventory and monitoring of wildlife species.

Response: We agree that inventorying and monitoring wildlife species and habitats is essential to understanding their needs and providing appropriate management. We currently survey for a wide variety of species and will continue to expand these efforts as we are able. Inventory and monitoring are conducted using approved protocols and support refuge management and/or regional and national monitoring programs.

Fees

Comment: User fees were supported for a variety of public uses including hunting, wildlife photography blinds, and special events. Others suggested that reduced fees be available for low-income visitors.

Response: In 2009, the refuge received approval to establish an entrance fee program (USFWS 2009) but has not implemented one to date. As identified in Description of Management Direction section in Chapter 2, the refuge will continue to evaluate the desirability of establishing entrance fees to supplement Federal appropriations, grants and other less reliable funding, and volunteer support. When planning for new uses such as hunting, fishing, and new photography blinds, the refuge will assess the need for user fees based on the circumstances at that time. If a user and/or entrance fee is implemented, the refuge will consider strategies to accommodate low-income users.

Public Access and Facilities

Comment: Commenters provided feedback on a wide range of access and facility issues, including: providing for disabled access; expanding new facilities slowly and conservatively; improving the safety of the Highway 99W entrance to the refuge; providing new pedestrian and wildlife observation access points; the use and placement of new wildlife photography and hunting blinds; the use of refuge meeting facilities for community activities; and developing connections with regional multimodal trail systems. Several commenters were concerned about the negative impact to wildlife and habitat should additional public access be provided.

Response: All public uses of the refuge must be found appropriate and compatible; there must be documentation that the uses will not materially interfere with or detract from the purposes of the refuge and the mission of the Refuge System. For a full discussion, see Appendix B.

As an urban refuge, we are committed to providing high-quality opportunities for visitors to connect with nature and understand the natural resource conservation work of the National Wildlife Refuge System. In support of those opportunities, we are committed to providing thoughtful, well-planned, accessible, and sustainably built facilities that meet the needs of our visitors while still meeting the needs of the refuge and its operations. However, facilities such as refuge meeting rooms are reserved for Service staff hosting and/or directly participating in a mission-based activity and are not available for private use

The refuge is aware of the safety concerns regarding the Highway 99W access and is actively seeking opportunities with Oregon Department of Transportation and Federal transportation agencies to address the issue.

The refuge supports connections to regional trails at existing entrance points to the refuge. At this time, no new access points or open areas are being proposed. Objective 10.4 has been clarified to reflect this.

The placement of new wildlife photography blinds will take into account minimizing disturbance to wildlife and habitat and providing high-quality opportunities. The shared use of potential hunt blinds with wildlife photographers and observers will be assessed as hunting and other public uses are considered at the Wapato Lake Unit. This will occur as habitat restoration planning and implementation progresses.

Environmental Education

Comment: Support was expressed for continuing to provide environmental education and some new ideas were proposed. Additional access into current sanctuary areas was suggested in order to facilitate education activities. A suggestion was made to include more landscape conservation

concepts into the existing curriculum. One commenter expressed concern that there may be too many students on the refuge in the future.

Response: Additional access for education will be provided by way of a defined "free roam" study area along the forest trail and a nature play area near the beginning of the year-round trail. Otherwise, all seasonal closures and sanctuary areas will remain in effect to reduce wildlife disturbance and minimize conflict with other wildlife-dependent public uses. Additional strategies will be added to the environmental education objectives to place more emphasis on holistic teaching related to landscape conservation issues. The refuge will continue to ensure that the level of refuge visitors is compatible with managing wildlife and habitat resources and/or does not affect the quality of the education program. In some cases, education programs will be provided off-site and thus will not have a direct impact on refuge habitats. Refer to Compatibility Determination (CD) B7 for a full discussion.

Fishing

Comment: Comments reflected support for establishing a fishing program. However, some commenters were concerned about a low-quality fishing experience due to the height of the river overlook above the surface of the water and due to the distance disabled visitors would have to travel to reach the fishing location.

Response: Fishing is one the Refuge System's priority wildlife-dependent public uses and, if implemented, the refuge will strive to provide a high-quality fishing experience. The intention of the program is to expose first-time anglers and youth to fishing, rather than providing a high-use fishery for experienced anglers. The fishing program will emphasize the experience of fishing and will accompany quality educational programs that enhance the experience, such as programs led by the refuge.

The river overlook, where fishing may occur, is located 0.5 mile from the parking lot via a trail designed to be fully accessible to disabled users. If an individual were unable to access the overlook via the trail, the refuge would endeavor to make appropriate accommodations.

Hunting—Youth Hunt

Comment: Comments were received both in support of and opposed to the proposed youth waterfowl hunt on the Riverboat Unit of the refuge.

Comments opposed to the youth hunt expressed concern at the quality of the hunt, disturbance to wildlife on and adjacent to the refuge, and disturbance to other people using the Tualatin River and other trails for wildlife observation. There were also concerns about details found in the CD for the youth waterfowl hunt.

Response: Congress included hunting as one of the six priority wildlife-dependent uses of refuges. When managed appropriately through careful planning and coordination with the ODFW, youth waterfowl hunting will allow youth the opportunity to learn to hunt in an ethical and safe manner. To minimize disturbance to people and wildlife near and adjacent to the refuge, the Service will carefully consider timing and placement of the hunt blinds to be used during the hunt.

The draft CD for the youth waterfowl hunt specified details such as the number of blinds and hunting dates. After further consideration, these details were eliminated from the CD. The refuge must go through a formal process to develop a hunt plan and prepare an opening package for publishing in the Code of Federal Regulations. At such time, details on timing, number of blinds, and other factors will be considered and agreed upon.

Comment: Comments were received supporting a youth waterfowl hunt as it would provide a public place for waterfowl hunting and also be a way to teach youths about hunting and hunting ethics.

Response: The Service believes that with careful planning and coordination with the ODFW, a high-quality youth hunt can be offered at the Riverboat Unit of the refuge. The refuge will evaluate the hunt on an annual basis and make adjustment to the program based on participant feedback. The Service recognizes that conditions of the habitat and fluctuations in weather patterns and wildlife populations may also alter the quality of the hunt program. These will also be evaluated and responded to appropriately on a yearly basis.

Hunting—Waterfowl

Comment: Comments were received both supporting and opposed to hunting on the refuge. Concern was expressed about noise related to hunting, accounting for unretrieved or wounded birds, and too much acreage being included in the hunt area at the Wapato Lake Unit.

Response: The National Wildlife Refuge Improvement Act recognizes hunting as a priority public use on refuges. Noise from hunting on the refuge should not be greater than noise that is currently occurring from hunting on neighboring lands. All hunts will be conducted in accordance with state and Federal regulations with respect to bag limits for birds. These bag limits take into consideration overall waterfowl population goals and are carefully monitored throughout the continent. The refuge intends to continue with plans to have a youth waterfowl hunt on the Riverboat Unit, and eventually have general waterfowl hunting at the Wapato Lake Unit. However, the details related to Wapato Lake hunting opportunities have been removed from the CD (see Appendix B) until pending restoration plans and implementation are sufficient enough to provide a compatible hunt. At that time, working with the ODFW, specific details on the waterfowl hunt will be examined and implemented to ensure a high-quality hunt.

Boating

Comment: The refuge received comments expressing interest in boat access to the Tualatin River and kayaking opportunities on the refuge.

Response: Boating and kayaking are not priority public uses on refuges and currently boating and kayaking are not allowed in refuge ponds, which serve as sanctuary for migratory birds. There are currently no refuge-owned lands that could accommodate safe boat access. The refuge will continue to follow policy guidelines when evaluating these uses as we move forward in the management planning and land acquisition process. This does not eliminate the potential to explore further options to boat access if new opportunities become available.

Outreach and Diversity

Comment: Comments were received emphasizing the need to provide opportunities for our diverse community to connect with nature.

Response: As an urban refuge, Tualatin River NWR is committed to continuing our current programming and outreach for our diverse community and we intend to expand our offerings in the future. We will continue to work with diverse partners and community members. We support inclusiveness and outreach within and outside boundaries of the refuge with programs covering a wide range of conservation-related topics relevant to the public. Refer to Goal 13 Objectives 2 and 3 for a range of strategies.

Document continues on the following page.

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Hydrological Modeling

USFWS

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Appendix L. Hydrological Modeling

L.1 Introduction/Overview

To identify habitat alternatives, the Tualatin River National Wildlife Refuge developed a habitat modeling exercise to determine what habitats would likely develop if the refuge relied solely on natural flows (flows as they currently exist) from the Tualatin River. The essential question that we attempt to answer in this analysis can be framed as: *Given our current ecological understanding and best available data, how much support do we have that current habitat patch* ***x*** *will develop into future habitat type* ***y*** *if the Tualatin River National Wildlife Refuge managed the refuge using the current natural flows of the Tualatin River*?"

The refuge was interested in modeling four floodplain habitat types for the refuge: emergent wetland, wet prairie, bottomland riparian forest, and scrub-shrub wetland.

L.2 Methods

L.2.1 Overview of Methods

The methods for this modeling exercise incorporate Light Detection and Ranging (LiDAR) topographic data, hydrological data from the Farmington Gaging Station, a hydrological model to understand the potential future conditions on the refuge under the management direction, and a decision support modeling framework to use the best existing knowledge on soils and current and historical vegetation to predict future habitat types (Figure L-1).

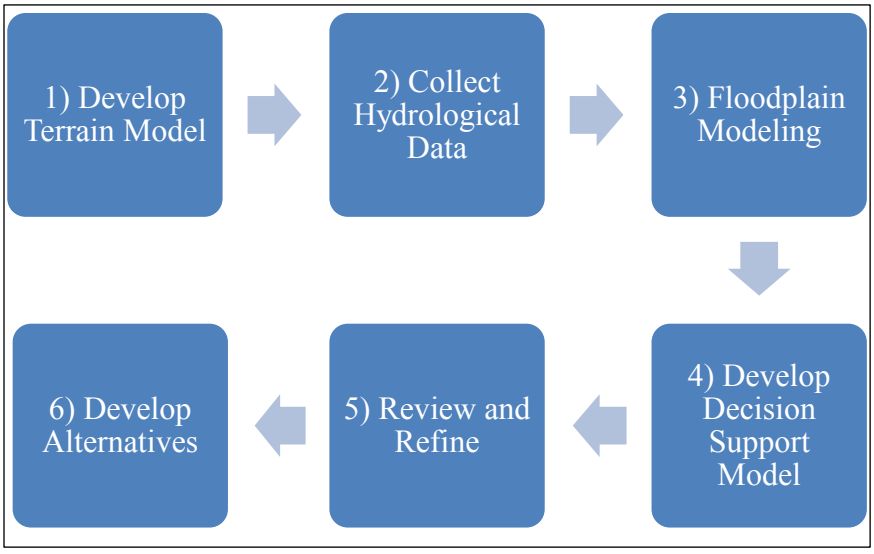

Figure L-1. Steps taken in the modeling process.

L.2.1.1 Develop a Terrain Model

LiDAR topographic data were acquired over the entire refuge as part of the Portland Metro LiDAR acquisition of 2005-2007. A digital elevation model (DEM) was produced that provides a terrain model of these data.

The LiDAR data were acquired during the fall of 2005. Thus, several of the wetland ponds were full of water during the acquisition. This made terrain modeling across the wetland ponds impossible. A mixture of ground-based surveys and engineering as-built data provided a data source to "fill-in" the flat areas caused by water. These data were collected and "burnt-in" to the LiDAR-based DEM.

L.2.1.2 Collect Hydrological Data

Daily data were gathered over a 10-year period from the Farmington Gaging Station located about 8 miles upstream of the nearest refuge unit. From this, we developed hydrographs (Figure L-2) that depict the frequency that river levels on the Tualatin reached for particular heights.

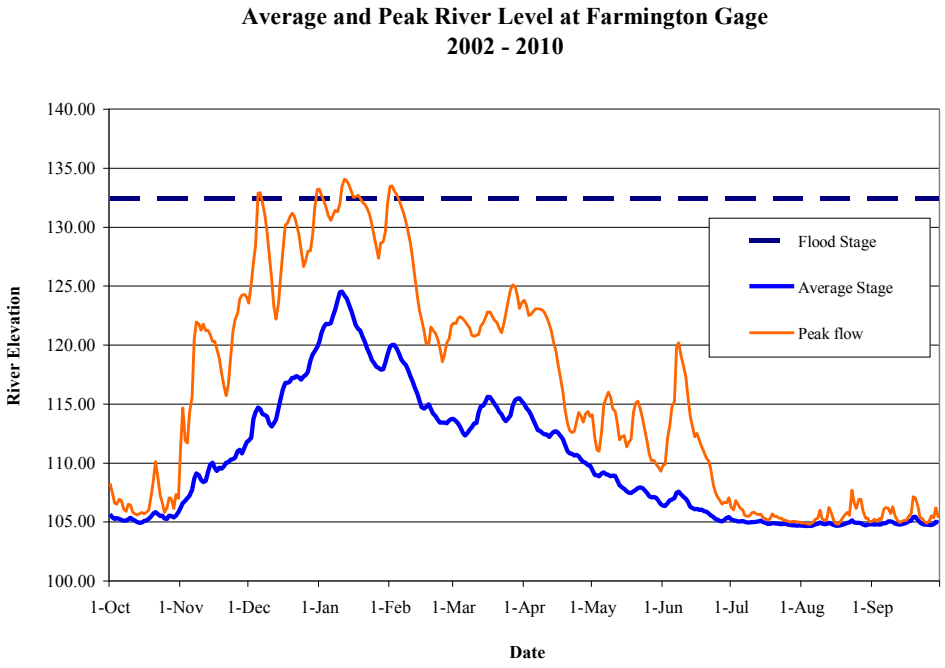

Figure L-2. Average and peak river level at Farmington Gage.

L.2.1.3 Floodplain Modeling

Hydrological modeling was conducted using a set of ArcGIS tools for floodplain and riparian areas, the Riparian Topography Toolbox (Dilts et al. 2009). This method works primarily by developing height above river (HAR) layers. The HAR outputs can be used to calculate ecologically important variables such as inundation area with some knowledge of the terrain, high-resolution LiDAR data, and information on the stream gage.

The first step was to develop a HAR layer. For this, we needed the LiDAR DEM and a binary stream/not-stream data layer. A kernel size of 3,500 meters was used to determine the height of the surrounding landscape above the river. Larger kernel sizes mean that larger stretches of river are being averaged. HAR is estimated by subtracting the elevation from the weighted average of the river elevation. The elevation was simply subtracted from the river elevations to come up with HAR. Then, flood scenarios were developed for different river elevations at an increment of 0.5 foot, starting at 118 feet (see Figures L-3 to L-5), which is normal river winter flow.

The Riparian Topography Toolbox has an algorithm that takes the flows of the river at a given height and develops a flow model based upon least cost path estimates. For the water to flow realistically across the landscape, we had to refine the LiDAR DEM. This included doing typical "hydro-enforcement," or removing structures that impede the flow of water on the LiDAR data such as levees and culverts.

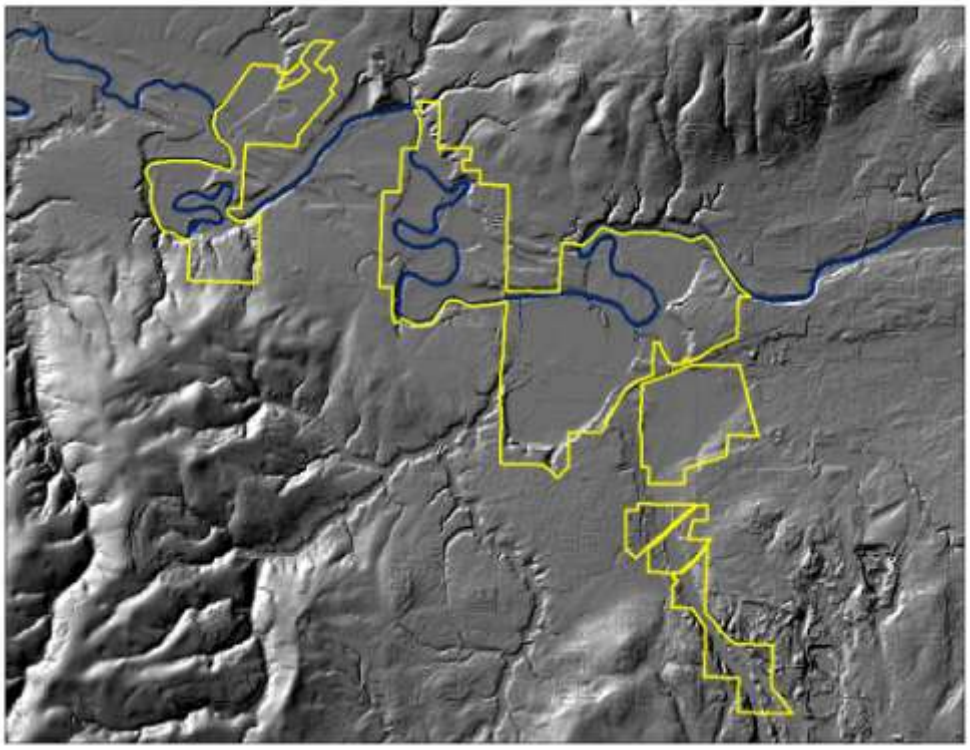

Figure L-3. Floodplain model at 120.5 feet.

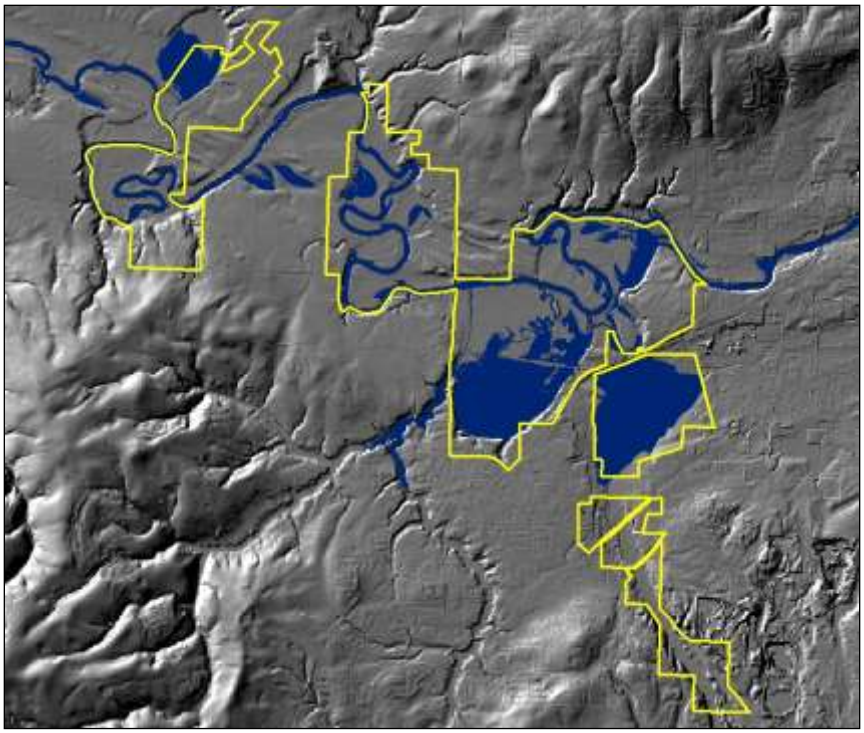

Figure L-4. Floodplain model at 128 feet.

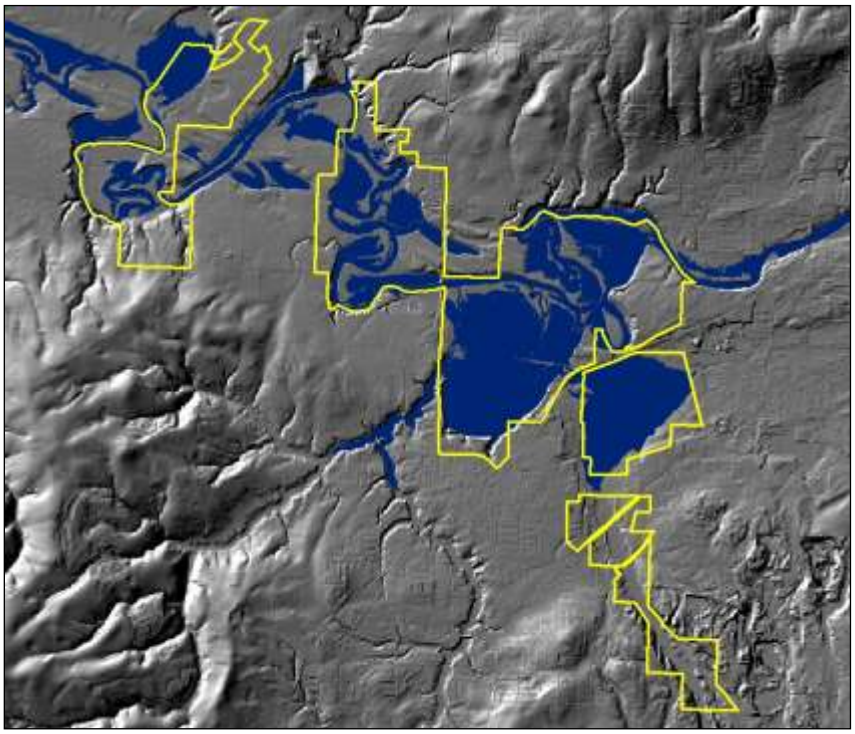

Figure L-5. Floodplain model at 132 feet.

L.2.1.4 Decision Support Modeling

The process outlined above provides modeling for planners to know how frequently a patch of vegetation is flooded by the flows of the Tualatin River. The next step involved incorporating these data with other information including soils and vegetation.

Ecosystem Management Decision Support (EMDS) provides a flexible tool for managers to assess various scenarios with a quantifiable amount of certainty that an outcome will occur. From a geographic information system (GIS) perspective, it provides many advantages to traditional overlay analyses. In concept, EMDS provides functionality that is similar to combining different layers into an index. However, it uses formal logic operators, combined with methods and concepts from fuzzy logic and knowledge-based decision support (Reynolds et al. 2000). Using EMDS, a "knowledge base" is developed that articulates formal logic specifications of how attributes relate to a proposition. For example, one of our propositions is that "scrub-shrub wetlands will develop over time." The attributes in our knowledge base to support this proposition are flooding frequency, soils, and current and historical vegetation. EMDS allows the user to specify the "good" and "poor" qualities of these attributes to support the proposition. For example, we know that areas that are not flooded are "poor" for supporting scrub-shrub wetland. Instead of merely a binary "good" and "poor," EMDS allows fuzzy gradations between good and poor, which is more realistic in the real world.

The decision support model was developed with the refuge biologist and Regional Office staff. The initial exercise involved the refuge biologist providing suitability scores for soils, historical vegetation, current vegetation, and flooding frequency. These scores were translated to the EMDS system. A score of +1 indicates "Full Support" for the proposition, and a score of −1 indicates "No Support" for the proposition, with varying levels of support in between.

For example, if the refuge biologist determined that a high frequency of flooding was highly suitable in terms of supporting scrub-shrub wetlands, then that characteristic would get a +1. If the biologist determined that a certain soil type would never support scrub-shrub wetlands, then that characteristic would receive a score of −1. Or, if the current vegetation type is an indicator that scrub-shrub wetlands are not likely, but would be possible if other characteristics were favorable, then an intermediate score of .25 or .50 would have been given to that attribute.

As noted, four attributes were used in the decision support model. Below is a list of the attributes, their rationale, and source data.

- **Flood Frequency**
  - *Rationale*: Predicted flood frequency is a primary influence on potential wetland types.
  - *Data source:* Described in the water modeling section.
- **Soils**
  - *Rationale*: Soil types are a good indicator of potential vegetation types. For example, Labish Mucky Clays are very likely to support scrub-shrub wetlands.
  - *Data source:* U.S. Department of Agriculture (USDA) Soils Survey data (SSURGO), Washington County.

- **Current Vegetation**
  - *Rationale*: Current vegetation type provides some support for what could develop. It also provides support for where habitat will not develop. For example, developed areas will remain developed in the future.
  - *Data source:* Vegetation map developed by the refuge in 2007.

- **Historical Vegetation**
  - *Rationale*: Historical vegetation provides another piece of evidence to support the habitat propositions. For example, if an area was historically oak savanna, it would provide low support for an emergent wetland proposition.
  - *Data source:* Oregon Natural Heritage Program

Each patch of vegetation was given a score that is a summary of the four different attributes.

L.2.1.5 Review and Refine the Model

The results are spatial depictions of the amount of support for the different habitat types of interest. This could be interpreted as a suitability model. It is similar in concept, but what is being quantified is the amount of support for a given proposition. Higher scores from −1 to 1 indicate higher support. Figures L-6 to L-9 provide spatial depictions of all the different habitat types that were assessed.

L.2.1.6 Development of Alternatives

Refuge staff spent a day going over the modeling results. This provided the science-based data that facilitated the decision-making process. In the figures below, darker blue represents higher support.

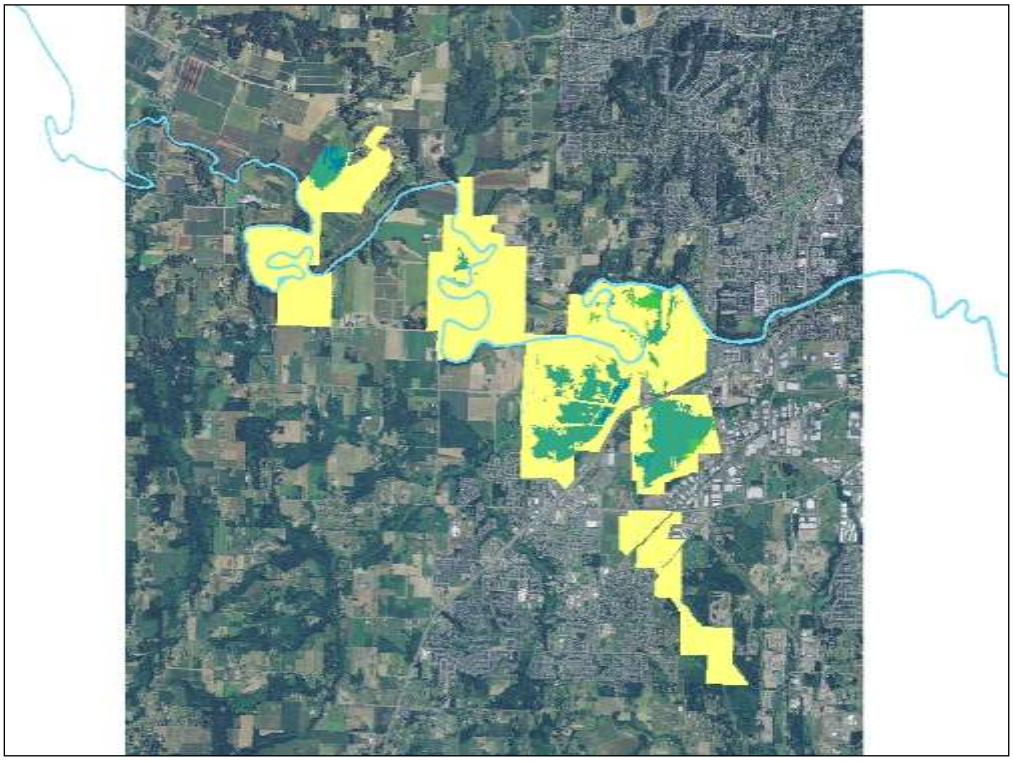

Figure L-6. Decision support for emergent wetland.

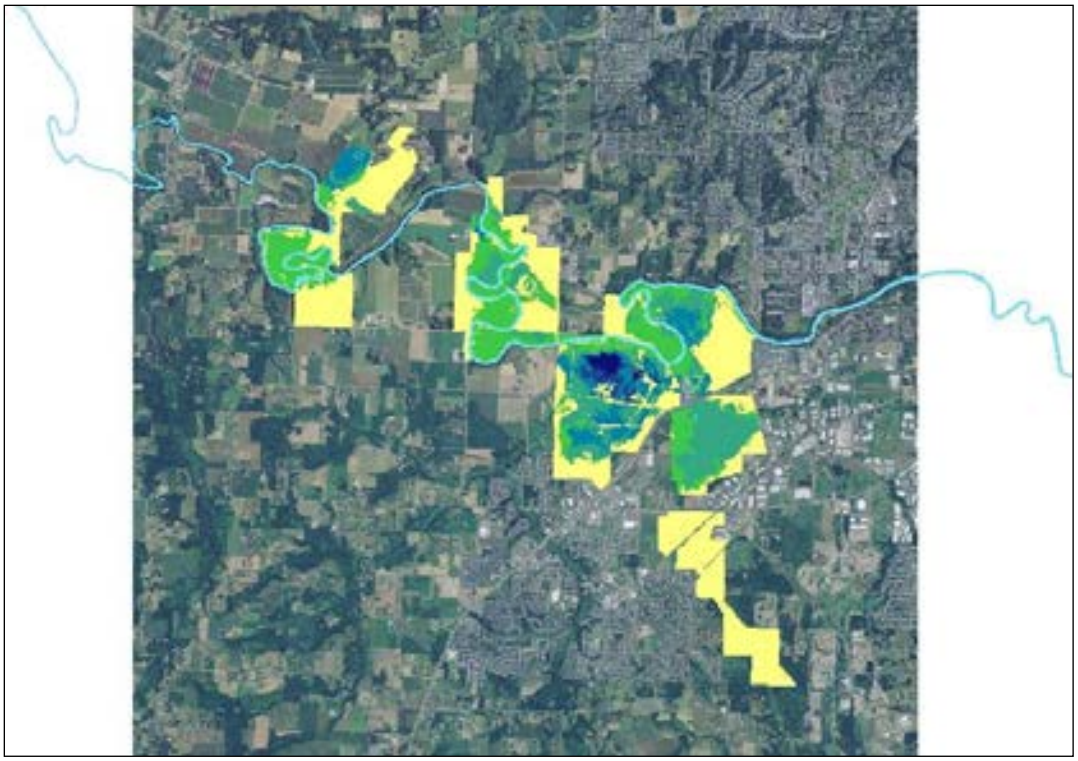

Figure L-7. Decision support for wet prairie

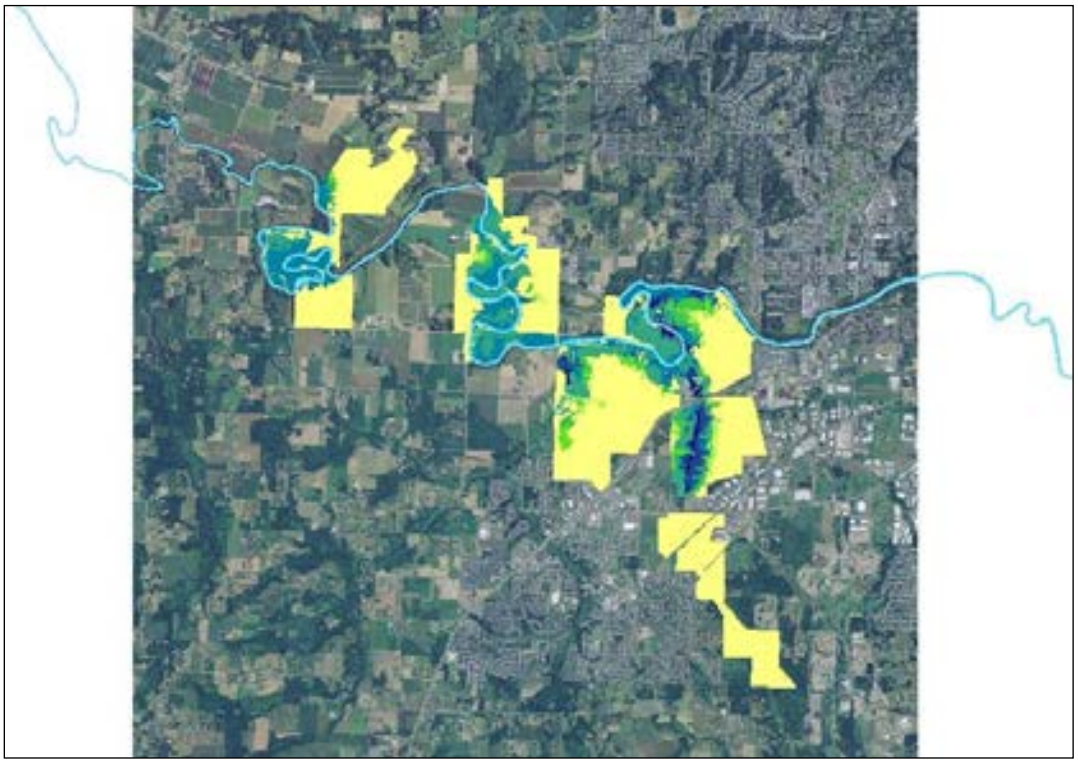

Figure L-8. Decision support for bottomland riparian forest.

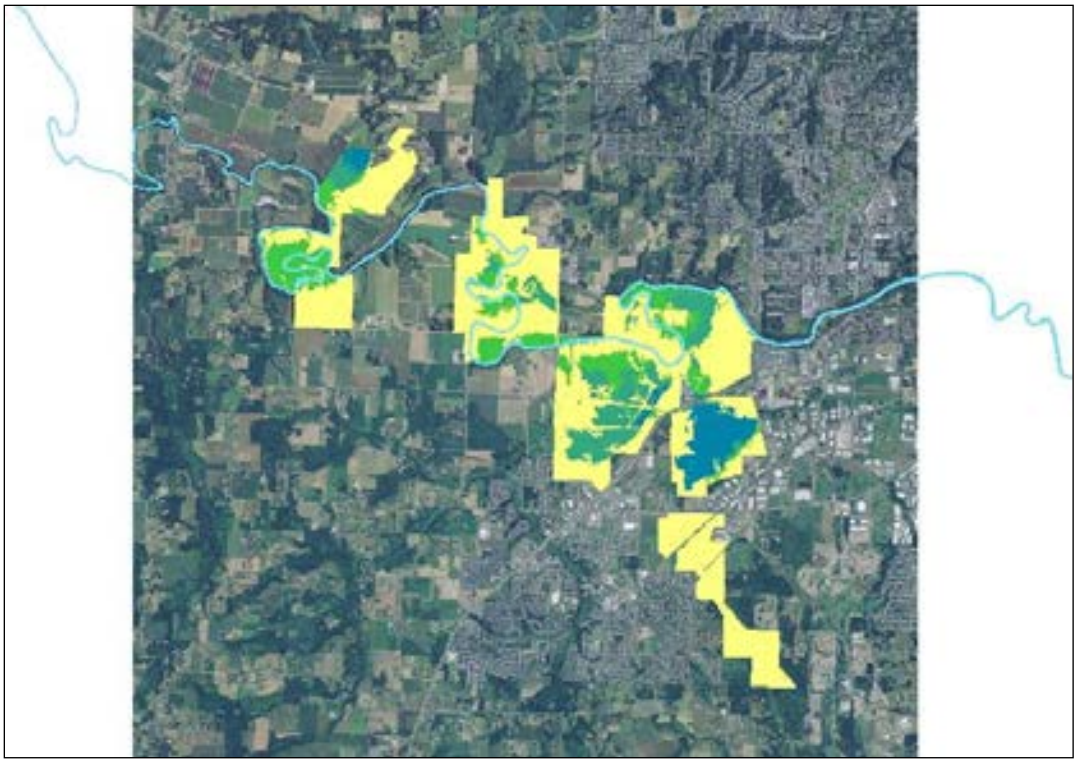

Figure L-9. Decision support for scrub-shrub wetland.

L.3 Conclusion

It is important to note that the modeling exercise did not make the decision, but rather provided support for the final decisions. Models and data played an important role in the alternative development dialogue.

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List of Refuge Species

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Appendix N. List of Refuge Species

This is a list of species that have been documented currently on the refuge. More species are expected to be added to this list upon conducting additional surveys.

N.1 Birds

Common Name	Scientific Name
Grebes (family Podicipedidae)	
Eared Grebe	*Podiceps nigricollis*
Horned Grebe	*Podiceps auritus*
Pied-billed Grebe	*Podilymbus podiceps*
Red-necked Grebe	*Podiceps grisegena*
Western Grebe	*Aechmophorus occidentalis*
Clark's Grebe	*Aechmophorus clarkii*
Pelicans (family Pelecanidae)	
American White Pelican	*Pelecanus erythrohynchos*
Cormorants (family Phalacrocoracidae)	
Double-crested Cormorant	*Phalacrocorax auritus*
Bitterns, Herons, and Egrets (family Ardeidae)	
American Bittern	*Botaurus lentiginosus*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Green Heron	*Butorides virescens*
Snowy Egret	*Egretta thula*
Little Blue Heron	*Egretta caerulea*
Ibises and Spoonbills (family Threskiornithidae)	
White-faced Ibis	*Plegadis chihi*
New World Vultures (family Cathartidae)	
Turkey Vulture	*Cathartes aura*
Swans, Geese, and Ducks (family Anatidae)	
Aleutian Canada Goose	*Branta canadensis leucopareia*
American Wigeon	*Anas americana*
Black Brant	*Branta bernicla nigricans*
Blue-winged Teal	*Anas discors*

Common Name	Scientific Name
Bufflehead	*Bucephala albeola*
Cackling Canada Goose	*Branta canadensis minima*
Canvasback	*Aythya valisineria*
Cinnamon Teal	*Anas cyanoptera*
Common Goldeneye	*Bucephala clangula*
Common Merganser	*Mergus merganser*
Dusky Canada Goose	*Branta canadensis occidentalis*
Emperor Goose	*Chen canagica*
Eurasian Wigeon	*Anas penelope*
Gadwall	*Anas strepera*
Greater Scaup	*Aythya marila*
Greater White-fronted Goose	*Anser albifrons*
Green-winged Teal	*Anas crecca*
Hooded Merganser	*Lophodytes cucullatus*
Lesser Canada Goose	*Branta canadensis parvipes*
Lesser Scaup	*Aythya affinis*
Mallard	*Anas platyrhynchos*
Northern Pintail	*Anas acuta*
Northern Shoveler	*Anas clypeata*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
Ross' Goose	*Chen rossii*
Ruddy Duck	*Oxyura jamaicensis*
Snow Goose	*Chen caerulescens*
Tavener's Canada Goose	*Branta canadensis taverneri*
Tule White-fronted Goose	*Anser albifrons gambeli*
Tundra Swan	*Cygnus columbianus*
Western Canada Goose	*Branta canadensis moffitti*
White-winged Scoter	*Melanitta fusca*
Wood Duck	*Aix sponsa*
Osprey (family Pandionidae)	
Osprey	*Pandion haliaetus*

Common Name	Scientific Name
Kites, Hawks, and Eagles (family Accipitridae)	
Bald Eagle†	*Haliaeetus leucocephalus*
Northern Harrier	*Circus cyaneus*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperii*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Rough-legged Hawk	*Buteo lagopus*
Swainson's Hawk	*Buteo swainsoni*
White-tailed Kite	*Elanus leucurus*
Falcons and Caracaras (family Falconidae)	
American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*
Gallinaceous Birds (order Galliformes- families Odontophoridae, Phasianidae)	
California Quail	*Callipepla californica*
Northern Bobwhite	*Colinus virginianus*
Ring-necked Pheasant	*Phasianus colchicus*
Rails (family Rallidae)	
American Coot	*Fulica americana*
Sora	*Porzana carolina*
Virginia Rail	*Rallus limicola*
Cranes (family Gruidae)	
Sandhill Crane	*Grus canadensis*
Plovers (family Gruidae)	
Black-bellied Plover	*Pluvialis squatarola*
Killdeer	*Charadrius vociferus*
Semipalmated Plover	*Charadrius semipalmatus*
Stilts and Avocets (family Recurvirostridae)	
Black-necked Stilt	*Himantopus mexicanus*
Sandpipers and Phalaropes (family Scolopacidae)	
Buff-breasted Sandpiper	*Tryngites subruficollis*

Common Name	Scientific Name
Dunlin	*Calidris alpina*
Greater Yellowlegs	*Tringa melanoleuca*
Least Sandpiper	*Calidris minutilla*
Lesser Yellowlegs	*Tringa flavipes*
Long-billed Curlew	*Numenius americanus*
Long-billed Dowitcher	*Limnodromus scolopaceus*
Marbled Godwit	*Limosa fedoa*
Pectoral Sandpiper	*Calidris melanotos*
Red Phalarope	*Phalaropus fulicarius*
Red-necked Phalarope	*Phalaropus lobatus*
Ruff	*Philomachus pugnax*
Sharp-tailed Sandpiper	*Calidris acuminata*
Short-billed Dowitcher	*Limnodromus griseus*
Solitary Sandpiper	*Tringa solitaria*
Spotted Sandpiper	*Actitis macularius*
Stilt Sandpiper	*Calidris himantopus*
Western Sandpiper	*Calidris mauri*
Wilson's Phalarope	*Phalaropus tricolor*
Wilson's Snipe	*Gallinago delicata*
Skuas, Jaegers, Gulls, and Terns (family Laridae)	
Black Tern	*Chlidonias niger*
Bonaparte's Gull	*Chroicocephalus philadelphia*
California Gull	*Larus californicus*
Caspian Tern	*Hydroprogne caspia*
Forster's Tern	*Sterna forsteri*
Glaucous-winged Gull	*Larus glaucescens*
Mew Gull	*Larus canus*
Stilts and Avocets (family Columbidae)	
Band-tailed Pigeon†	*Patagioenas fasciata*
Eurasian Collared-dove*	*Streptopelia decaocto*
Mourning Dove	*Zenaida macroura*
Rock Pigeon*	*Columba livia*

Common Name	Scientific Name
Barn Owls (family Tytonidae)	
Barn Owl	*Tyto alba*
Typical Owls (family Strigidae)	
Barred Owl	*Strix varia*
Great Horned Owl	*Bubo virginianus*
Northern Pygmy-owl	*Glaucidium gnoma*
Short-eared Owl	*Asio flammeus*
Western Screech Owl	*Megascops kennicottii*
Snowy Owl	*Nyctea scandiaca*
Swifts (family Apodidae)	
Vaux's Swift	*Chaetura vauxi*
Hummingbirds (family Trochilidae)	
Anna's Hummingbird	*Calypte anna*
Rufous Hummingbird	*Selasphorus rufus*
Kingfishers (family Alcedinidae)	
Belted Kingfisher	*Megaceryle alcyon*
Woodpeckers (family Picidae)	
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Northern Flicker	*Colaptes auratus*
Pileated Woodpecker	*Dryocopus pileatus*
Red-breasted Sapsucker	*Sphyrapicus ruber*
Tyrant Flycatchers (family Tyrannidae)	
Black Phoebe	*Sayornis nigricans*
Eastern Kingbird	*Tyrannus tyrannus*
Hammond's Flycatcher	*Empidonax hammondii*
Olive-sided Flycatcher†	*Contopus cooperi*
Pacific-slope Flycatcher	*Empidonax difficilis*
Say's Phoebe	*Sayornis saya*
Western Kingbird	*Tyrannus verticalis*
Western Wood-pewee	*Contopus sordidulus*
Willow Flycatcher†	*Empidonax traillii*

Common Name	Scientific Name
Shrikes (family Laniidae)	
Northern Shrike	*Lanius excubitor*
Vireos (family Vireonidae)	
Cassin's Vireo	*Vireo cassinii*
Hutton's Vireo	*Vireo huttoni*
Warbling Vireo	*Vireo gilvus*
Crows, Jays, and Magpies (family Corvidae)	
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*
Steller's Jay	*Cyanocitta stelleri*
Western Scrub-jay	*Aphelocoma californica*
Swallows (family Hirundinidae)	
Bank Swallow	*Riparia riparia*
Barn Swallow	*Hirundo rustica*
Cliff Swallow	*Petrochelidon pyrrhonota*
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*
Purple Martin†	*Progne subis*
Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Tachycineta thalassina*
Titmice and Chickadees (family Paridae)	
Black-capped Chickadee	*Poecile atricapillus*
Chestnut-backed Chickadee	*Poecile rufescens*
Bushtits (family Aegithalidae)	
Bushtit	*Psaltriparus minimus*
Nuthatches (family Sittidae)	
Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*
Creepers (family Certhiidae)	
Brown Creeper	*Certhia americana*
Wrens (family Troglodytidae)	
Bewick's Wren	*Thryomanes bewickii*
House Wren	*Troglodytes aedon*

Common Name	Scientific Name
Marsh Wren	*Cistothorus palustris*
Pacific Wren	*Troglodytes pacificus*
Kinglets (family Regulidae)	
Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Regulus calendula*
Thrushes (family Turdidae)	
American Robin	*Turdus migratorius*
Swainson's Thrush	*Catharus ustulatus*
Varied Thrush	*Ixoreus naevius*
Western Bluebird	*Sialia mexicana*
Starlings (family Sturnidae)	
European Starling*	*Sturnus vulgaris*
Wagtails and Pipits (family Motacillidae)	
American Pipit	*Anthus rubescens*
Waxwings (family Bombycillidae)	
Cedar Waxwing	*Bombycilla cedrorum*
Wood Warblers (family Parulidae)	
Black-throated Gray Warbler	*Setophaga nigrescens*
Common Yellowthroat	*Geothlypis trichas*
MacGillivray's Warbler	*Geothlypis tolmiei*
Orange-crowned Warbler	*Oreothlypis celata*
Townsend's Warbler	*Setophaga townsendi*
Wilson's Warbler	*Cardellina pusilla*
Yellow Warbler	*Setophaga petechia*
Yellow-breasted Chat†	*Icteria virens*
Yellow-rumped Warbler	*Setophaga coronata*
Tanagers (family Cardinalidae)	
Western Tanager	*Piranga ludoviciana*
Sparrows and Towhees (family Emberizidae)	
Chipping Sparrow	*Spizella passerina*
Dark-eyed Junco	*Junco hyemalis*
Fox Sparrow	*Passerella iliaca*

Common Name	Scientific Name
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Lincoln's Sparrow	*Melospiza lincolnii*
Savannah Sparrow	*Passerculus sandwichensis*
Song Sparrow	*Melospiza melodia*
Spotted Towhee	*Pipilo maculatus*
White-crowned Sparrow	*Zonotrichia leucophrys*
White-throated Sparrow	*Zonotrichia albicollis*
Cardinals, Grosbeaks, and Allies (family Cardinalidae)	
Black-headed Grosbeak	*Pheucticus melanocephalus*
Lazuli Bunting	*Passerina amoena*
Blackbirds and Orioles (family Icteridae)	
Brewer's Blackbird	*Euphagus cyanocephalus*
Brown-headed Cowbird	*Molothrus ater*
Bullock's Oriole	*Icterus bullockii*
Red-winged Blackbird	*Agelaius phoeniceus*
Western Meadowlark	*Sturnella neglecta*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Finches (family Fringillidae)	
American Goldfinch	*Spinus tristis*
Evening Grosbeak	*Coccothraustes vespertinus*
House Finch	*Carpodacus mexicanus*
Lesser Goldfinch	*Spinus psaltria*
Pine Siskin	*Spinus pinus*
Purple Finch	*Carpodacus purpureus*
Red Crossbill	*Loxia curvirostra*
Old World Sparrows (family Passeridae)	
House Sparrow*	*Passer domesticus*

*=Introduced Species

†= Species of Concern

N.2 Mammals

Common Name	Scientific Name
Beaver	*Castor canadensis*
Black-tailed Deer	*Odocoileus hemionus*
Bobcat	*Lynx rufus*
Brush Rabbit	*Sylvilagus bachmani*
California Ground Squirrel	*Spermophilus beecheyi*
Coyote	*Canis latrans*
Creeping Vole	*Microtus oregoni*
Deer Mouse	*Peromyscus maniculatus*
Douglas Squirrel	*Tamiasciurus douglasii*
Eastern Fox Squirrel*	*Sciurus niger*
Feral Cat*	*Felis catus*
Mink	*Mustela vison*
Muskrat	*Ondatra zibethicus*
Northern Flying Squirrel	*Glaucomys sabrinus*
Nutria*	*Myocastor coypus*
Pacific Jumping Mouse	*Zapus trinotatus*
Raccoon	*Procyon lotor*
River Otter	*Lontra canadensis*
Roosevelt Elk	*Cervus elaphus*
Short-tailed Weasel	*Mustela erminea*
Shrew-mole	*Neurotrichus gibbsii*
Striped Skunk	*Mephitis mephitis*
Townsend's Chipmunk	*Tamias townsendii*
Trowbridge’s Shrew	*Sorex trowbridgii*
Vagrant Shrew	*Sorex vagrans*
Virginia Opossum*	*Didelphis virginiana*
Western Gray Squirrel	*Sciurus griseus*
Western Pocket Gopher	*Thomomys mazama*

*=Introduced Species

N.3 Reptiles and Amphibians

Common Name	Scientific Name
Alligator lizard	*Elgaria sp.*
Bullfrog*	*Rana catesbeiana*
Chorus Frog	*Pseudacris regilla*
Ensatina	*Ensatina eschscholtzii*
Long-toed Salamander	*Ambystoma macrodactylum macrodactylum*
Northern Red-legged Frog†	*Rana aurora aurora*
Northwestern Salamander	*Ambystoma gracile*
Red-eared Slider*	*Trachemys scripta elegans*
Red-spotted Garter Snake	*Thamnophis sirtalis concinnus*
Rough-skinned Newt	*Taricha granulosa*
Rubber Boa	*Charina bottae*
Western Painted Turtle	*Chrysemys picta belli*
Western Pond Turtle	*Clemmys marmorata marmorata*
Western Terrestrial Garter Snake	*Thamnophis elegans*

*=Introduced Species

†= Species of Concern

N.4 Fish

Common Name	Scientific Name
Bluegill*	*Lepomis macrochirus*
Catfish*	*Ameiurus sp.*
Coastal Cutthroat Trout†	*Oncorhynchus clarki ssp*
Common Carp*	*Cyprinus carpio*
Mosquito fish*	*Gambusia affinis*
Pacific Lamprey†	*Entosphenus tridentatus*
Redside Shiner	*Richardsonius balteatus*
Sculpin	*Cottus sp.*
Smallmouth Bass*	*Micropterus dolomieu*
Steelhead/Rainbow Trout	*Oncorhynchus mykiss*
Threespine Stickleback	*Gasterosteus aculeatus*
Warmouth*	*Chaenobryttus gulosus*

Western Brook Lamprey	*Lampetra richardsoni*
White Crappie*	*Pomoxis annularis*

*=Introduced Species
†= Species of Concern

N.5 Invertebrates

Bees (order Hymenoptera) (identified to Genus)

Common Name	Genus
Bald-faced Hornet	*Dolichovespula*
Bumble Bee	*Bombus*
Honey Bee	*Apis*
Wasp (yellow jacket)	*Vespula*

Dragonflies and Damselflies (order Odonata)

Common Name	Species Name
Blue Dasher	*Pachydiplax longipennis*
California Darner	*Aeshna californica*
Cardinal Meadowhawk	*Sympetrum illotum*
Common Green Darner	*Anax junius*
Common Whitetail	*Plathemis lydia*
Eight-spotted Skimmer	*Libellula forensis*
Pacific Forktail	*Ischnura cervula*
Spot-winged Glider	*Pantala hymenaea*
Striped Meadowhawk	*Sympetrum pallipes*
Tule Bluet	*Enallagma carunculatum*
Twelve-spotted Skimmer	*Libellula pulchella*
Variegated Meadowhawk	*Sympetrum corruptum*
Western Forktail	*Ischnura perparva*
Western Pondhawk	*Erythemis collocata*

Butterflies and Moths (order Lepidoptera)

Common Name	Species Name
Western Tiger Swallowtail	*Papilio rutulus*

Beetles (Order Coleoptera)

Common Name	Family
Carrion Beetle	Silphidae

Freshwater Mussels (family Margaritiferidae)

Common Name	Species Name
Western Pearlshell Mussel	*Margaritifera falcata*

Aquatic Invertebrates (identified to order)

Common Name	Order
Backswimmer	Hemiptera
Caddisfly	Trichoptera
Copepods	Copepoda
Cranefly	Diptera
Crawling Water Beetle	Coleoptera
Crayfish	Decapoda
Dobsonfly	Neuroptera
Fairy Shrimp	Anostraca
Fingernail Clam	Veneroida
Giant Waterbug	Hemiptera
Mayfly	Ephemeroptera
Mosquito	Diptera
Orb Snail	Basommatophora
Phantom Midge	Diptera
Predaceous Diving Beetle	Coleoptera
Scud	Amphipoda
Sowbug	Isopoda
Water Boatman	Hemiptera
Water Scavenger Beetle	Coleoptera
Water Scorpion	Hemiptera
Water Strider	Hemiptera
Whirligig Beetle	Coleoptera

N.6 Plants

Herbaceous (forbs)

Common Name	Scientific Name
Velvetleaf*	*Abutilon theophrasti*
Yarrow	*Achillea millefolium*
Vanilla Leaf	*Achlys triphylla*
Pathfinder	*Adenocaulon bicolor*
Maidenhair Fern	*Adiantum pedatum*
Lanceleaf Water Plantain*	*Alisma lanceolatum*
Water Plantain	*Alisma plantago-aquatica*
Field Garlic*	*Allium vineale*
Powell's Amaranth*	*Amaranthus powellii*
Ragweed*	*Ambrosia artemisiifolia*
Scarlet Pimpernel*	*Anagallis arvensis*
Pearly Everlasting	*Anaphalis margaritacea*
Three-leaved Anemone	*Anemone deltoidea*
Corn Chamomile*	*Anthemis arvensis*
Stinking Chamomile	*Anthemis cotula*
Bur Chervil*	*Anthriscus caucalis*
Spreading Dogbane	*Apocynum androsaemifolium*
Red Columbine	*Aquilegia formosa*
Mouseear Cress*	*Arabadopsis thaliana*
Hairy Rockcress	*Arabis hirsuta*
Greater Burdock*	*Arctium lappa*
Wild Ginger	*Asarum caudatum*
Lady Fern	*Athyrium filix-femina*
Fat Hen	*Atriplex patula*
Mexican Mosquitofern	*Azolla mexicana*
American Winter Cress	*Barbarea orthoceras*
English Daisy*	*Bellis perennis*
Nodding Beggarticks	*Bidens cernua*
Three-lobed Beggarticks	*Bidens tripartita*

Herbaceous (forbs)

Common Name	Scientific Name
Deer Fern	*Blechnum spicant*
Black Mustard*	*Brassica nigra*
Crown Brodiaea	*Brodiaea coronaria*
Clustered Moss	*Bryum pseudotriquetrum*
Pond Water-starwort	*Callitriche stagnalis*
Morning-glory*	*Calystegia microcarpus*
Small Camas	*Camassia quamash*
Shepherd's Purse*	*Capsella bursa-pastoris*
Nuttall's Bitter-cress	*Cardamine nuttallii*
Western Bitter-cress	*Cardamine occidentalis*
Few-seeded Bitter-cress	*Cardamine oligosperma*
Italian Thistle*	*Carduus pycnocephalus*
Slender-beaked Sedge	*Carex athrostachya*
Dense Sedge	*Carex densa*
Greensheath Sedge	*Carex feta*
Henderson's Sedge	*Carex hendersonii*
Tapefruit Shortscale Sedge	*Carex leptopoda*
Slough Sedge	*Carex obnupta*
Chamisso Sedge	*Carex pachystachya*
Sawbeak Sedge	*Carex stipata*
One-sided Sedge	*Carex unilateralis*
Awlfruit Sedge	*Carex stipata*
Spotted Knapweed*	*Centaurea stoebe*
Doubtful Chickweed*	*Cerastium dubium*
Big Chickweed*	*Cerastium fontanum*
Sticky Chickweed*	*Cerastium viscosum*
Coon's Tail	*Ceratophyllum demersum*
Spotted Sandmat*	*Chamaesyce maculata*
Fireweed	*Chamerion angustifolium*
Lambsquarters*	*Chenopodium album*
Chicory*	*Cichorium intybus*

Herbaceous (forbs)

Common Name	Scientific Name
Enchanter's Nightshade	*Circaea alpina*
Canada Thistle*	*Cirsium arvense*
Edible Thistle	*Cirsium edule*
Bull Thistle*	*Cirsium vulgare*
Farewell-to-spring	*Clarkia amoena*
Winecup Clarkia	*Clarkia purpurea*
Miner's-lettuce	*Claytonia perfoliata*
Candy Flower	*Claytonia sibirica*
Western Clematis	*Clematis ligusticifolia*
Yerba Buena	*Clinopodium douglasii*
Poison-hemlock*	*Conium maculatum*
Field Bindweed*	*Convolvulus arvensis*
Candian Horseweed*	*Conyza canadensis*
Nursery Cotoneaster*	*Cotoneaster buxifolius*
Five-angled Dodder	*Cuscuta pentagona*
Strawcolored Flatsedge	*Cyperus erythrohizos*
Queen Anne's Lace*	*Daucus carota*
Tansy Mustard	*Descurainia pinnata*
Deptford Pink*	*Dianthus armeria*
Northern Saitas	*Dichelostemma congestum*
Pacific Bleeding Heart	*Dicentra formosa*
Fuller's Teasel*	*Dipsacus fullonum*
Showy Downingia	*Downingia elegans*
Willamette Downingia	*Downingia yina*
Whitlow Grass	*Draba verna*
False Dog Fennel	*Dyssodia papposa*
Needle Spikerush	*Eleocharis acicularis*
Ovate Spikerush	*Eleocharis ovata*
Common Spikerush	*Eleocharis palustris*
Small Spikerush	*Eleocharis parvula*
Fewflower Spikerush	*Eleocharis quinqueflora*

Herbaceous (forbs)

Common Name	Scientific Name
Autumn Willowherb	*Epilobium brachycarpum*
Chaparral Willowherb	*Epilobium minutum*
Tall Willowherb	*Epilobium palustre*
Swamp Willowherb	*Epilobium densiflorum*
Marsh Horsetail	*Equisetum palustre*
Giant Horsetail	*Equisetum telmateia*
Philadelphia Daisy*	*Erigeron philadelphicus*
Fleabane Daisy	*Erigeron strigosus*
Oregon Sunshine	*Eriophyllum lanatum*
Redstem Stork's Bill*	*Erodium cicutarium*
Oregon Coyote Thistle	*Eryngium petiolatum*
Wormseed Wallflower*	*Erysimum cheiranthoides*
Giant White Fawnlily	*Erythronium oregonum ssp oregonum*
California Poppy	*Eschschoizia californica*
Petty Spurge*	*Euphorbia peplus*
Roughleaf Aster	*Eurybia radulina*
Japanese Knotweed*	*Polygonum cuspidatum*
Woodland Strawberry	*Fragaria vesca*
Coastal Strawberry	*Fragaria chiloensis*
Virginia Strawberry	*Fragaria virginiana*
Checker Lily	*Fritillaria affinis*
Cleavers Bedstraw	*Galium aparine*
Northern Bedstraw	*Galium boreale*
Oregon Bedstraw	*Galium oreganum*
Threepetal Bedstraw	*Galium trifidum ssp.columbianum*
Cut-leaved Geranium*	*Geranium dissectum*
Shiny Leaf Geranium*	*Geranium lucidum*
Dovefoot Geranium*	*Geranium molle*
Herb-Robert*	*Geranium robertianum*
Largeleaf Avens	*Geum macrophyllum*
Bluehead Gilia	*Gilia capitata*

Herbaceous (forbs)

Common Name	Scientific Name
Western Marsh Cudweed*	*Gnaphalium palustre*
Marsh Cudweed*	*Gnaphalium uliginosum*
Bractless Hedgehyssop	*Gratiola ebracteata*
English Ivy*	*Hedera helix*
Tawny Daylily*	*Hemerocallis fulva*
Cowparsnip	*Heracleum maximum*
Coral Bells	*Heuchera glabra*
Pacific Waterleaf	*Hydrophyllum tenuipes*
St. Johnswort*	*Hypericum perforatum*
Hairy Cat's Ear*	*Hypochaeris radicata*
Orange Balsam*	*Impatiens capensis*
Douglas Iris	*Iris douglasiana*
Oregon Iris	*Iris tenax*
Tapertip Rush	*Juncus acuminatus*
Toad Rush	*Juncus bufonius*
Common Rush	*Juncus effusus*
Spreading Rush	*Juncus patens*
Poverty Rush	*Juncus tenuis*
Pointed Rush	*Juncus oxymeris*
Prickly Lettuce*	*Lactuca serriola*
Yellow Archangel*	*Lamiastrum galeobdolon*
Nipplewort	*Lapsana communis*
Purple Peavine	*Lathyrus nevadensis*
Sweetpea*	*Lathyrus odoratus*
Leafy Pea	*Lathyrus polyphyllus*
Pacific Pea	*Lathyrus vestitus*
Duckweed*	*Lemna minor*
Fall Dandelion*	*Leontodon autumnalis*
Hairy Hawkbit*	*Leontodon taraxacoides*
Field Pepperweed*	*Lepidium campestre*
Oxeye Daisy*	*Leucanthemum vulgare*

Herbaceous (forbs)

Common Name	Scientific Name
Celeryleaf Licorice-root	*Ligusticum apiifolium*
Columbia Lily	*Lilium columbianum*
False-pimpernel	*Lindernia dubia*
Barestem Biscuitroot	*Lomatium nudicaule*
Orange Honeysuckle	*Lonicera ciliosa*
Hairy Honeysuckle	*Lonicera hispidula*
Twinberry Honeysuckle	*Lonicera involucrata*
Bird's-foot Lotus*	*Lotus corniculatus*
Small-flowered Lotus	*Lotus micranthus*
Spanish-Clover	*Lotus purshianus*
Sicklekeel Lupine	*Lupinus albicaulis*
Miniature Lupine	*Lupinus bicolor*
Bigleaf Lupine	*Lupinus polyphyllus*
Skunk Cabbage	*Lysichiton americanus*
Spatulaleaf Loosestrife*	*Lythrum portula*
Purple Loosestrife*	*Lythrum salicaria*
Elegant Tarweed	*Madia elegans*
Small Tarweed	*Madia exigua*
Slender Tarweed	*Madia gracilis*
Coast Tarweed	*Madia sativa*
Feathery False Lily of the valley	*Maianthemum racemosum*
Starry False Lily of the Valley	*Maianthemum stellatum*
Common Mallow*	*Malva neglecta*
Disc Mayweed*	*Matricaria discoidea*
Black Medick*	*Medicago lupulina*
Common Balm*	*Melissa officinalis*
Sweetclover*	*Melilotus alba*
Wild Mint*	*Mentha arvensis*
Pennyroyal*	*Mentha pulegium*
Stinky Mint	*Mentha villosa*
Seep Monkeyflower	*Mimulus guttatus*

Herbaceous (forbs)

Common Name	Scientific Name
Linearleaf Snapdragon	*Misopates orontium*
Largeleaf Sandwort	*Moehringia macrophylla*
Indianpipe	*Monotropa uniflora*
Blinking Chickweed	*Montia fontana*
Narrowleaf Minerslettuce	*Montia linearis*
Changing Forget-me-not*	*Myosotis discolor*
Bay Forget-me-not	*Myosotis laxa*
Spring Forget-me-not	*Myosotis verna*
Tiny Mousetail	*Myosurus minimus*
Western Watermilfoil	*Myriophyllum hippuroides*
Daffodil	*Narcissus pseudonarcissus*
Skunkbush	*Navarretia squarrosa*
Smallflower Nemophila	*Nemophila parviflora*
Water Parsley	*Oenanthe sarmentosa*
Sweetcicely	*Osmorhiza berteroi*
Redwood-Sorrel	*Oxalis oregana*
Suksdorf Woodsorrel	*Oxalis suksdorfii*
Yellow Glandweed*	*Parentucellia viscosa*
Rydberg's Penstemon	*Penstemon rydbergii*
Gardner's Yampah	*Perideridia gairdneri*
Fragrant Popcornflower	*Plagiobothyrus figuratus*
Scouler's Popcornflower	*Plagiobothyrus scouleri*
Narrowleaf Plantain*	*Plantago lanceolata*
Common Plantain*	*Plantago major*
Shortspur Seabrush	*Plectritis congesta*
Water Knotweed	*Polygonum amphibium*
Prostrate Knotweed*	*Polygonum arviculare*
Japanese Knotweed*	*Polygonum cuspidatum*
Curlytop Knotweed*	*Polygonum lapathifolium*
Spotted Ladysthumb*	*Polygonum persicaria*
Licorice Fern	*Polypodium glycyrrhiza*

Herbaceous (forbs)

Common Name	Scientific Name
Sword Fern	*Polystichum munitum*
Little Hogweed*	*Portulaca oleracea*
Leafy Pondweed	*Potamogeton foliosus*
English Cinquefoil*	*Potentilla anglica*
Slender Cinquefoil	*Potentilla gracilis*
Drops-of-gold	*Prosartes hookeri*
Common Selfheal*	*Prunella vulgaris*
Bracken Fern	*Pteridium aquilinum*
Tall Buttercup	*Ranunculus acris*
Lesser celandine*	*Ranunculus ficaria*
Lesser Buttercup	*Ranunculus flammula*
Western Buttercup	*Ranunculus occidentalis*
Redbacked Buttercup	*Ranunculus orthorhynchus*
Smallflower Buttercup*	*Ranunculus parviflorus*
Creeping Buttercup	*Ranunculus repens*
Celery-leaved Buttercup	*Ranunculus sceleratus*
Little Buttercup	*Ranunculus uncinatus*
Cultivated Radish*	*Raphanus sativus*
Bluntleaf Yellowcress	*Rorippa curvipes*
Curvepod Yellowcress	*Rorippa curvisiliqua*
Bog Yellowcress	*Rorippa palustris*
Sheep Sorrel*	*Rumex acetosella*
Curled Dock*	*Rumex crispus*
Toothed Dock*	*Rumex dentatus*
Mountain Sorrel	*Rumex pauciflorus*
Willow-leaved Dock	*Rumex salicifolius*
Redveined Dock*	*Rumex sanguineus*
Wigeon Grass	*Ruppia maritime*
Wapato	*Sagittaria latifolia*
Pacific Blacksnakeroot	*Sanicula crassicaulis*
Flaxleaf Plainsmustard*	*Schoenocrambe linifolia*

Herbaceous (forbs)

Common Name	Scientific Name
Softstem Bulrush	*Schoenoplectus tabernaemontani*
Small-flowered bulrush	*Scirpus microcarpus*
Blue Skullcap	*Scutellaria lateriflora*
Oregon Stonecrop	*Sedum oreganum*
Tansy Ragwort*	*Senecio jacobaea*
Old-man-in-the-Spring*	*Senecio vulgaris*
Meadow Checker-mallow	*Sidalcea campestris*
Nelson's Checker-mallow†	*Sidalcea nelsoniana*
Dwarf Checkerbloom	*Sidalcea malviflora*
Sleepy Silene*	*Silene antirrhina*
Wild Mustard*	*Sinapis arvensis*
Hedgemustard*	*Sisymbrium officinale*
American Black Nightshade	*Solanum americanum*
Climbing Nightshade*	*Solanum dulcamara*
Buffalobur*	*Solanum rostratum*
Field Sowthistle*	*Sonchus arvensis*
Spiny Sowthistle*	*Sonchus asper*
Common Sowthistle*	*Sonchus oleraceus*
Simple-stemmed Bur-reed	*Sparganium emersum*
Hooded Lady's Tresses	*Spiranthes romanzoffiana*
Common Duckmeat	*Spirodela polyrrhiza*
Coastal Hedgenettle*	*Stachys chamissonis*
Mexican Hedgenettle	*Stachys mexicana*
Curled Starwort	*Stellaria crispa*
Chickweed*	*Stellaria stellaria*
Hall's Aster	*Symphyotrichum hallii*
Douglas Aster	*Symphyotrichum subspicatum*
Common Tansy*	*Tanacetum vulgare*
Common Dandelion*	*Taraxacum officinale*
Bigflower Tellima	*Tellima grandiflora*
Fendler's Meadow-rue	*Thalictrum fendleri*

Herbaceous (forbs)

Common Name	Scientific Name
Claspleaf Pennycress*	*Thlaspi perfoliatum*
Youth-on-age	*Tolmiea menziesii*
Pacific Poison Oak	*Toxicodendron diversilobum*
Goatsbeard*	*Tragopogon sp.*
Starflower	*Trientalis borealis*
Rabbitfoot Clover*	*Trifolium arvense*
Strawberry Clover*	*Trifolium fragiferum*
Alsike Clover*	*Trifolium hybridum*
Crimson Clover*	*Trifolium incarnatum*
White Clover*	*Trifolium repens*
Subterranean Clover*	*Trifolium subterraneum*
Arrowleaf Clover*	*Trifolium vesiculosum*
Pacific Trillium	*Trillium ovatum*
Smallflower Wakerobin	*Trillium parviflorum*
White Brodiaea	*Triteleia hyacinthina*
Broadleaf False Carrot*	*Turgenia latifolia*
Common Cattail	*Typha latifolia*
Stinging nettle	*Urtica dioica ssp. gracillis*
White Insideout Flower	*Vancouveria hexandra*
California False Hellebore	*Veratrum californicum*
Moth Mullein*	*Verbascum blattaria*
Common Mullein*	*Verbascum thapsus*
American Speedwell	*Veronica americana*
Water Speedwell	*Veronica anagallis-aquatica*
Corn Speedwell*	*Veronica arvensis*
Threadstalk Speedwell*	*Veronica filiformis*
Neckweed	*Veronica peregrina*
Skullcap Speedwell	*Veronica scutellata*
Thymeleaf Speedwell	*Veronica serpyllifolia*
American Vetch*	*Vicia americana*
Bird Vetch*	*Vicia cracca*

Herbaceous (forbs)

Common Name	Scientific Name
Tiny Vetch*	*Vicia hirsuta*
Garden Vetch*	*Vicia sativa*
Slender Vetch	*Vicia tetrasperma*
Hookedspur Violet	*Viola adunca*
Stream Violet	*Viola glabella*
Common Whipplea	*Whipplea modesta*
Canada Cocklebur*	*Xanthium strumarium*
False Carrot*	*Yabea microcarpa*

*=Introduced Species

†= Species of Concern

Grasses

Common Name	Scientific Name
Spike Bentgrass	*Agrostis exarata ssp monolepsis*
Spike Bentgrass	*Agrostis exarata ssp exarata*
Silver Hairgrass*	*Aira caryophyllea*
Water Foxtail*	*Alopecurus geniculatus*
Meadow Foxtail*	*Alopecurus pratensis*
Pacific Foxtail	*Alopecurus saccatus*
Sweet Grass	*Anthoxanthum odoratum*
Wild Oat*	*Avena fatua*
Slough Grass*	*Beckmannia syzgichne*
Soft Brome*	*Bromus hordeaceus*
Ripgut Brome*	*Bromus rigidus*
Alaska Brome	*Bromus sitchensis*
California Brome	*Bromus carinatus*
Bermudagrass*	*Cynodon dactylon*
Orchardgrass*	*Dactylis glomerata*
California oatgrass	*Danthonia californica*
Tufted Hairgrass	*Deschampsia caespitosa*
Annual Hairgrass	*Deschampsia danthonoides*

Grasses

Common Name	Scientific Name
Slender Hairgrass	*Deschampsia elongata*
Purple Foxglove*	*Digitalis purpurea*
Hairy Crabgrass*	*Digitaria sanguinalis*
Barnyard Grass*	*Echinochloa crusgallii*
Blue Wildrye	*Elymus glaucus*
Tall Fescue*	*Festuca arundinacea*
Idaho Fescue	*Festuca idahoensis*
Meadow Fescue*	*Festuca pratensis*
Red Fescue	*Festuca rubra*
Common Velvetgrass	*Holcus lanatus*
Oceanspray	*Holodiscus discolor*
Meadow Barley	*Hordeum brachyantherum*
Foxtail Barley*	*Hordeum jubatum*
Prairie Junegrass	*Koeleria macrantha*
Rice Cutgrass*	*Leersia oryzoides*
Italian Ryegrass*	*Lolium multiflorum*
Perennial Ryegrass*	*Lolium perenne*
Witchgrass	*Panicum capillare*
Knotgrass	*Paspalum disitichum*
Reed Canarygrass*	*Phalaris arundinacea*
Timothy	*Phleum pratense*
Idaho Blue-eyed Grass	*Sisyrinchium idahoense*
Golden Blue-eyed Grass	*Sisyrinchium californicum*
Brome Fescue	*Vulpia bromoides*

*=Introduced Species

Shrubs

Common Name	Scientific Name
Vine Maple	*Acer circinatum*
Saskatoon Serviceberry	*Amelanchier alnifolia*
Canadian Serviceberry*	*Amelanchier canadensis*

Shrubs

Common Name	Scientific Name
Kinnikinnick	*Arctostaphylos uva-ursi*
Redstem Ceanothus	*Ceanothus sanguineous*
Snowbrush	*Ceanothus velutinus*
European Centaury	*Centaurium erthraea*
Red-osier Dogwood	*Cornus sericea*
Beaked Hazlenut	*Corylus cornuta var. californica*
Black Hawthorn	*Crataegus douglasii*
Red Hawthorn*	*Crataegus monogyna*
Scotch Broom*	*Cytisus scoparius*
Western Wahoo	*Euonymus occidentalis*
Salal	*Gaultheria shallon*
English Holly	*Ilex aquifolium*
Hollyleaved Barberry	*Mahonia aquifolium*
Cascade Barberry	*Mahonia nervosa*
Indian Plum	*Oemleria cerasiformis*
Mock-Orange	*Philadelphus lewisii*
Pacific Ninebark	*Physocarpus capitatus*
Cascara	*Rhamnus purshiana*
Sticky Gooseberry	*Ribes lacustre*
Red-flowering Currant	*Ribes sanguineum*
Baldhip Rose	*Rosa gymnocarpa*
Nootka Rose	*Rosa nutkana*
Dwarf Rose	*Rosa pisocarpa*
Himalayan Blackberry*	*Rubus armeniacus*
Evergreen Blackberry*	*Rubus lacianatus*
Whitebark Raspberry	*Rubus leucodermis*
Thimbleberry	*Rubus parviflorus*
Salmonberry	*Rubus spectabilis*
Trailing Blackberry	*Rubus ursinus*
Narrowleaf Willow	*Salix fluviatilis*
Geyer Willow	*Salix geyeriana*

Shrubs

Common Name	Scientific Name
Dune Willow	*Salix hookeriana*
Pacific Willow	*Salix lucida*
Scouler's Willow	*Salix scouleriana*
Northwest Sandbar Willow	*Salix sessilifolia*
Sitka Willow	*Salix sitchensis*
Black Elderberry	*Sambucus nigra*
Red Elderberry	*Sambucus racemosa*
Climbing Nightshade	*Solanum dulcamara*
Buffalobur Nightshade	*Solanum rostratum*
Douglas Spiraea	*Spiraea douglasii var. douglasii*
White Snowberry	*Symphoricarpos albus*
Creeping Snowberry	*Symphoricarpos hesperius*
Red Huckleberry	*Vaccinium parvifolium*
Common Viburnum	*Viburnum ellipticum*

*=Introduced Species

Trees

Common Name	Scientific Name
Grand Fir	*Abies grandis*
Bigleaf Maple	*Acer macrophyllum*
Red Alder	*Alnus rubra*
Pacific Madrone	*Arbutus menziesii*
European White Birch*	*Betula pendula*
Incense Cedar*	*Calocedrus decurans*
Pacific Dogwood	*Cornus nuttallii*
Oregon Ash	*Fraxinus latifolia*
Black Walnut*	*Juglans nigra*
Pacific Crab Apple	*Malus fusca*
Engelmann Spruce*	*Picea engelmannii*
White Spruce*	*Picea glauca*
Ponderosa Pine	*Pinus ponderosa*

Trees

Common Name	Scientific Name
Longleaf Pine*	*Pinus australis*
Black Cottonwood	*Populus balsamifera trichocarpa*
Quaking Aspen	*Populus tremuloides*
Bitter Cherry	*Prunus emarginata*
Cultivated Cherry*	*Prunus mahaleb*
Douglas-fir	*Pseudotsuga menziesii*
Common Pear*	*Pyrus communis*
Garry Oak	*Quercus garryana*
Weeping Willow*	*Salix sepulcralis*
Pacific Yew	*Taxus brevifolia*
Western Red Cedar	*Thuja plicata*
Western Hemlock	*Tsuga heterophylla*
California Laurel	*Umbellularia californica*

*=Introduced Species

Other Types

Common Name	Scientific Name
Green Algae	Kingdom: Plantae

Document continues on the following page.

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USFWS

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WILDLAND FIRE MANAGEMENT PLAN

TUALATIN RIVER NATIONAL WILDLIFE REFUGE

2012

Prepared By:

Greg Hagedorn, Zone Fire Management Officer — Date

Submitted By:

Erin Holmes, Project Leader — Date
Tualatin River National Wildlife Refuge

Review

Pam Ensley — Date
Regional Fire Management Coordinator
Pacific Region, U.S. Fish and Wildlife Service

Concurrence

Bob Flores, Refuge Supervisor — Date
Pacific Region, National Wildlife Refuge System

Robin West, Regional Chief, — Date
Pacific Region, National Wildlife Refuge System

Approved:

Robyn Thorson, Regional Director — Date
Pacific Region, U.S. Fish and Wildlife Service

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1. INTRODUCTION

1.1. PURPOSE OF THE FIRE MANAGEMENT PLAN

This Fire Management Plan (FMP) is written to meet the U.S. Department of the Interior (USDOI) and U.S. Fish and Wildlife Service (USFWS; the Service) requirement that every area with burnable vegetation have an approved FMP (620 DM 1.4). It also enables the Tualatin River National Wildlife Refuge (the refuge) to meet the Service requirement that refuges review and/or revise the FMP at a minimum of 5-year intervals or when significant land use changes are proposed (621 FW 2).

The goal of wildland fire management is to plan and implement actions that help accomplish the mission of the National Wildlife Refuge System (Refuge System). That mission is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (095 FW 3.2).

The approval of this FMP enables the refuge to consider a full range of appropriate suppression strategies and to conduct prescribed fires; without this FMP, prescribed fires cannot be conducted and only wildfire suppression strategies may be implemented.

This plan outlines both wildland fire suppression and prescribed fire activities on the refuge within the context of an approved comprehensive conservation plan (CCP). The CCP planning process began in 2010 and is scheduled to be completed by 2013. The FMP defines a program to manage wildland fires and to ensure that wildland fire management goals and components are coordinated and in compliance with all required direction.

Figure 1: Tualatin River National Wildlife Refuge

1.2. General Description of the Area in the Fire Management Plan

Tualatin River National Wildlife Refuge, which includes both the Sherwood Units and the Wapato Lake Unit, is located within the Tualatin River Basin in the northern portion of the Willamette Valley, in Washington and Yamhill Counties, Oregon. The refuge preserves a wetland ecosystem and provides a Wildlife Center in the shadow of Oregon's largest metropolitan area, Portland. The overall management focus cited for the Sherwood Units in the Land Protection Plan (1992) is to "protect, enhance, and manage upland, wetland, and riparian habitats for a variety of migratory birds and resident fish and wildlife, as well as for the enjoyment of people." The Wapato Lake Unit serves a similar purpose as the Sherwood Units and supports many of the same types of habitats. The approved acquisition boundary of the refuge totals approximately 7,370 acres. The refuge may purchase any lands within the boundary from willing sellers (Figures 3 and 4).

Figure 2: Regional Vicinity Map of Tualatin River National Wildlife Refuge

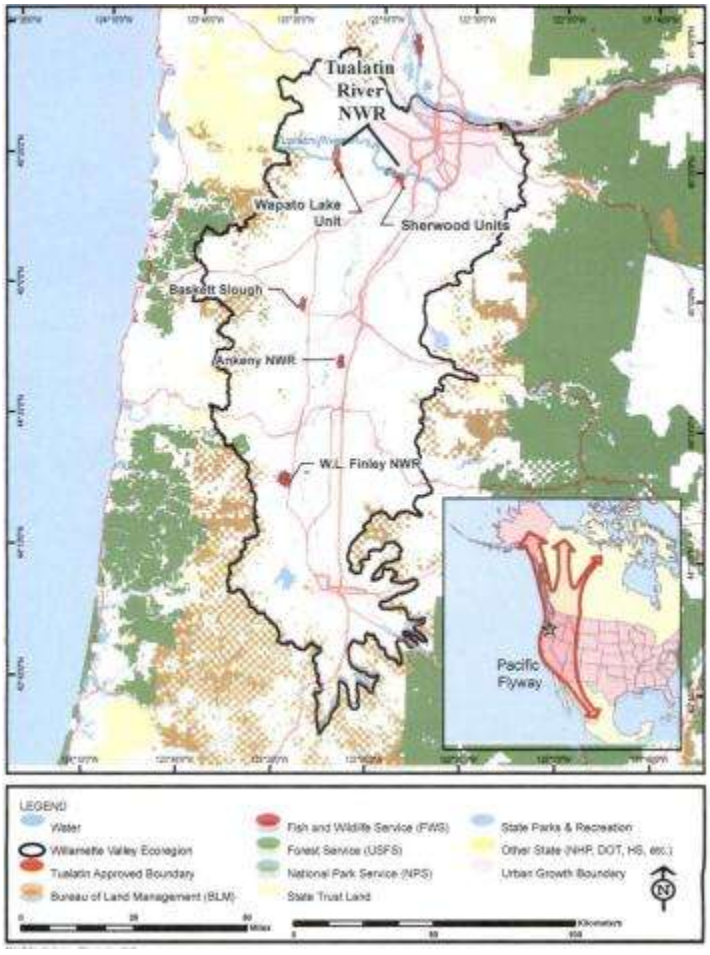
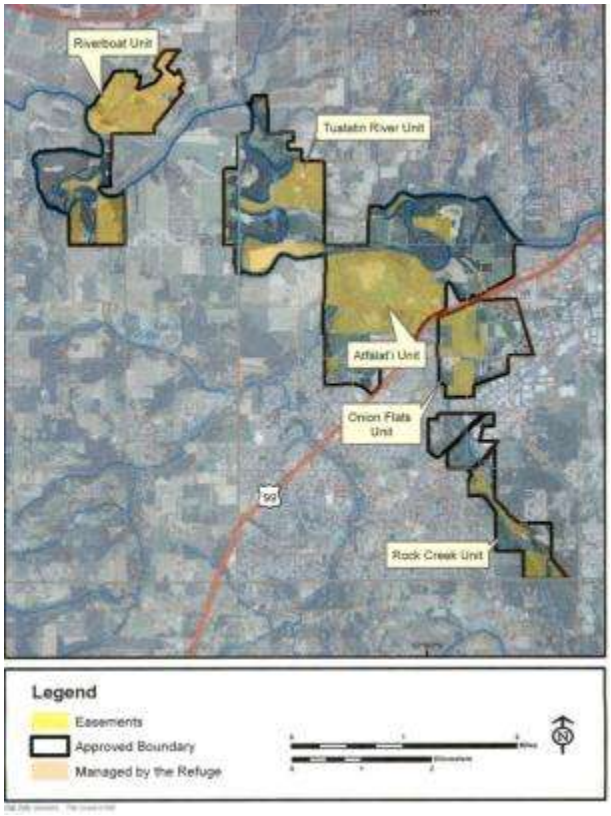


Figure 3: Sherwood Units Land Status on Tualatin River National Wildlife Refuge

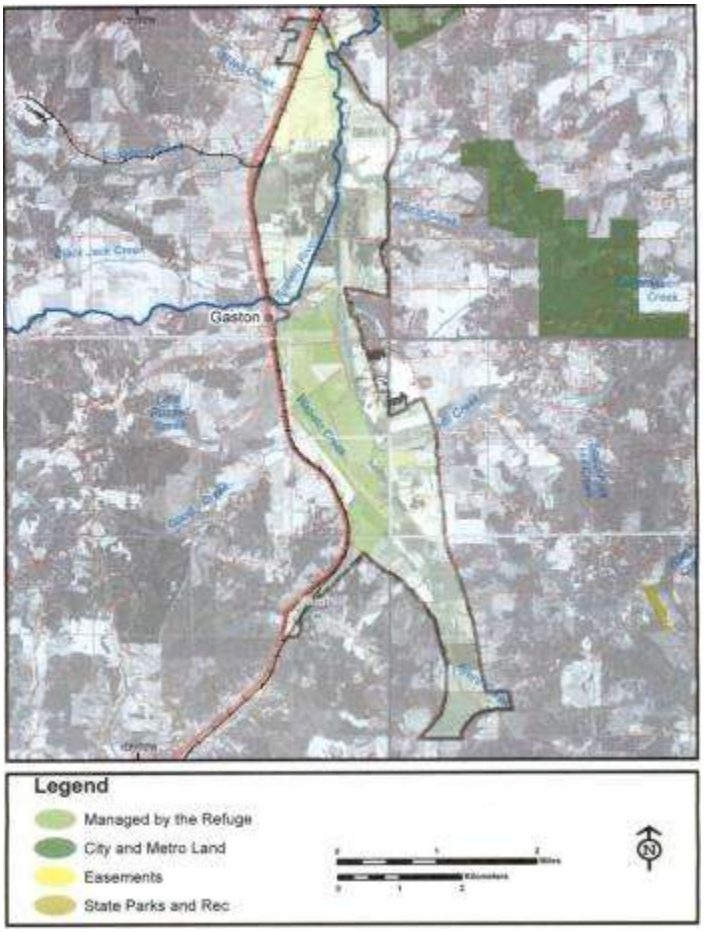


Current acreage owned or managed by the refuge is distributed among six management units (Table 1). The Tualatin River Valley consists of low foothills, terraces, alluvial fans, and floodplains. The refuge's landscape is predominately flat bottomland bordered by uplands with elevations ranging from 105 to 300 feet above sea level. Habitats consist of rivers and streams; herbaceous and scrub-shrub wetlands; riparian forests; wet prairie; oak and mixed coniferous/deciduous forested uplands.

Table 1: Management Units on Tualatin River National Wildlife Refuge

Management Unit	Acres
Riverboat	348
Tualatin River	221
Atfálat'i	555
Onion Flats	139
Rock Creek	75
Wapato Lake	879
Total	2217

Figure 4: Land Status of Wapato Lake Unit on Tualatin River National Wildlife Refuge



1.3. Significant Values to Protect

1.3.1. Cultural Resources

Three pre-European sites have been recorded on the refuge. They are not listed but may be eligible for listing on the National Register of Historic Places (NRHP). Two post-European sites have not been evaluated, but may also qualify for listing on the NRHP. Ground disturbance will be avoided if possible during suppression activities on all archeological sites. The regional archeologist will be notified of any suppression actions taken on refuge lands.

1.3.2. Fish and Wildlife

The diverse habitat types found on the refuge host a variety of fish and wildlife. Over 165 species of birds have been recorded on the refuge. Mammals, reptiles, amphibians, and fish have not been inventoried on the refuge, but a diverse number of species breed, migrate, or forage on refuge properties. Large concentrations of waterfowl including Canada geese, northern pintails, and green-winged teal occur during late fall and winter. In spring and summer, numerous species of neotropical migrant songbirds migrate through or nest on the refuge. There is one known bald

eagle nesting territory on the refuge. In addition, peregrine falcons are present during fall through early spring. Western pond turtles and red-legged frogs use many of the refuge wetlands.

1.3.3. Structures and Facilities

There are numerous refuge facilities that serve both the visitor services and biological programs and range from boundary fencing, barns, outbuildings, and numerous water control structures to residences and public use facilities, such as the Wildlife Center and environmental education shelter. In addition, there are structures that serve as offices for other Service programs, such as Cultural Resources.

There is a mixture of properties adjacent to the refuge. Many of the properties adjacent to the Sherwood Units have a rural agricultural nature as well as highly urbanized components. Many of the rural lots have single-family homes with other structures such as barns. The urban areas include closely spaced single- and multi-family residences and commercial businesses of various types. Adjacent and in the vicinity of refuge boundaries are large subdivisions within the urban growth boundary Properties adjacent to the Wapato Lake Unit are mostly rural in nature with some single-family homes.

2. Policy, Land Management Planning, and Partnerships

2.1. Implementation of Fire Policy

2.1.1. Federal Interagency Wildland Fire Policy

This FMP implements these guiding principles of Federal wildland fire policy:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent has been incorporated into the planning process. Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.
- FMPs, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- FMPs and activities are based upon the best available science.
- FMPs and activities incorporate public health and environmental quality considerations.
- Federal, state, Tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among Federal agencies is an ongoing objective.

2.1.2. National Fire Plan

This FMP emphasizes the following primary goals of the 10-year Comprehensive Strategy and the Cohesive Strategy for Protecting People and Sustaining Natural Resources:

- Improving fire prevention and suppression
- Reducing hazardous fuels
- Restoring fire-adapted ecosystems
- Promoting community assistance

2.1.3. U.S. Department of Interior Fire Policy

This FMP incorporates and adheres to USDOI policy stated in 620 DM 1, by giving full consideration to use of wildland fire as a natural process and tool during the land management planning process and by providing for the following guidelines.

Wildland fires, whether on or adjacent to lands administered by the USDOI, that threaten life, improvements, or are determined to be a threat to natural and cultural resources or improvements under the USDOI's jurisdiction will be considered emergencies and their suppression given priority over other USDOI programs.

Bureaus shall cooperate in the development of interagency preparedness plans to ensure timely recognition of approaching critical wildland fire situations; to establish processes for analyzing situations and establishing priorities; and for implementing appropriate management responses to these situations.

Bureaus will enforce rules and regulations concerning the unauthorized ignition of wildland fires, and aggressively pursue violations.

2.1.4. U.S. Fish and Wildlife Service Fire Policy

This FMP addresses a full range of potential wildland fires and considers a full spectrum of tactical options (from monitoring to intensive management actions) for appropriate management response (AMR) to meet Fire Management Unit (FMU) objectives. It fully applies procedures and guidelines in the Service Fire Management Handbook and the National Interagency Fire Center's Interagency Standards for Fire and Fire Aviation Operations and affirms these key elements of Service fire policy:

- Firefighter and public safety is the first priority of the wildland fire management program and all associated activities.
- Only trained and qualified leaders and agency administrators will be responsible for, and conduct, wildland fire management duties and operations.
- Trained and certified employees will participate in the wildland fire management program as the situation requires, and noncertified employees will provide needed support as necessary.

- Fire management planning, preparedness, wildfire and prescribed fire operations, other hazardous fuel operations, monitoring, and research will be conducted on an interagency basis with involvement by all partners to the extent practicable.
- The responsible agency administrator must have coordinated, reviewed, and approved this FMP to ensure consistency with approved land management plans, values to be protected, and natural and cultural resource management plans, and to ensure that it addresses public health issues related to smoke and air quality.
- Fire, as an ecological process, will be integrated into resource management plans and activities on a landscape scale, across agency boundaries, based upon the best available science.
- Wildland fire will be used to meet identified resource management objectives and benefits when appropriate.
- Prescribed fire and other treatment types will be employed whenever they are the appropriate tool to reduce hazardous fuels and the associated risk of wildfire to human life, property, and cultural and natural resources and to manage our lands for habitats as mandated by statute, treaty, and other authorities.
- Appropriate management response will consider firefighter and public safety, cost effectiveness, values to protect, and natural and cultural resource objectives.
- Staff members will work with local cooperators and the public to prevent unauthorized ignition of wildfires on our lands.

2.2. Land/Resource Management Planning

2.2.1. Land Resource Management Documents

The refuge is in the process of developing a CCP. The CCP will create a roadmap to guide refuge management over the next 15 years and beyond. An environmental assessment (EA) will be developed with the CCP to analyze the effects of the proposed plan and alternatives.

2.2.2. Compliance with Regulatory Acts

Compliance with regulatory acts (i.e., National Environmental Policy Act [NEPA]) associated with fire management activities will be documented in the CCP and associated EA.

2.3. Fire Management Partnerships

2.3.1. Internal Partnerships

The refuge does not have a dedicated fire position on the refuge. Fire management activities are coordinated by the zone fire management officer (FMO) stationed at the W.L. Finley National Wildlife Refuge. The Zone FMO is responsible for updating suppression agreements, providing fire management guidance in the event of a wildfire, and assisting with implementing prescribed fire projects identified by the refuge. The Zone FMO is also responsible for maintaining training records and ensuring that current policy and procedures are followed.

2.3.2. External Partnerships

A memorandum of understanding with Tualatin Valley Fire and Rescue (TVFR) and Gaston

Rural Fire Department is in the process of being developed to cover suppression response in the Sherwood FMU and the Wapato Lake Unit. Once finalized, the MOU's will be included in the appendices of the FMP and will be reviewed annually by the Zone FMO.

3. Fire Management Units Characteristics

The intent of this portion of the FMP is to articulate and describe the general fire management situation within the local area and describe the specific fire management goals and objectives for the refuge. In addition, this portion of the FMP will describe the particular FMUs defined within the refuge. The FMUs attempt to categorize lands on the refuge based on fire suppression response and are not limited to vegetation type or fuel model.

3.1. Area-wide Considerations

3.1.1. Fire Management Organization

The refuge has no dedicated fire personnel. It relies on local fire departments for fire suppression and the Zone FMO to keep agreements for suppression up to date. The Zone FMO also provides program oversight for the development of annual dispatch plans and prescribed fire projects.

3.1.2. The History of Prescribed Fire at the Refuge

The earliest historical records indicate that Native Americans started fires that burned extensive areas of the Willamette Valley annually. What role fire played prehistorically is not known. In general, fire is considered beneficial to the native grassland areas and oak savanna uplands. Fire is considered essential in the prairie areas to maintain the grassland condition and suppress encroaching woody vegetation. Previous versions of the FMP for Tualatin River National Wildlife Refuge only allowed for pile burning, and prescribed fire broadcast burning was not addressed. With the approval of this document, prescribed fire broadcast burning will be considered as a management tool available to managers. Each prescribed fire project will have an approved prescribed fire plan outlining procedures, notifications, and permits required for implantation of prescribed fire.

3.1.3. Management Goals, Objectives, and Constraints in the CCP

3.1.3.1. Goals for Tualatin River National Wildlife Refuge

The following goals were derived from the refuge CCP that is currently being developed with expected completion in 2013.

1. Maintain, enhance, and restore bottomland riparian habitat to a historical range of variability representative of the Willamette Valley ecosystem in order to support breeding and migratory landbirds and other native species.

2. Maintain, enhance, and restore mixed coniferous/deciduous forest habitat to a historical range of variability representative of the Willamette Valley ecosystem in order to support breeding and migratory landbirds and other native species.

3. Maintain, enhance, and restore oak habitats to a historical range of variability representative of the Willamette Valley ecosystem in order to support breeding and migratory landbirds and other native species.

4. Maintain, enhance, and restore native Willamette Valley wet prairie habitat, with an emphasis on management for rare and listed plant species.

5. Maintain, enhance, and restore a diversity of wetlands to support migratory landbirds, waterbirds, and shorebirds with special emphasis on wintering waterfowl.

6. Maintain, enhance, and, where feasible, restore streams and off-channel backwater slough habitats in order to benefit salmonids and other native aquatic species.

7. Cultivate and maintain croplands as an interim measure to control nonnative invasive species.

8. Collect scientific information (surveys, scientific assessments, and research) necessary to support adaptive management decisions that are associated with Goals 1 through 7.

9. Protect and manage the refuge's unique cultural resources for their cultural, scientific, and educational values, while consulting with appropriate Native American groups and preservation organizations and complying with historic preservation legislation.

10. Provide visitors, local residents, volunteers, and partners with opportunities to understand and appreciate fish and wildlife conservation as well as the purpose, ecology, and management of the refuge and the Refuge System.

11. Provide students and teachers from the greater Portland area with compatible and high-quality opportunities to participate in environmental education.

12. Provide refuge visitors with diverse, compatible, and high-quality opportunities to participate in wildlife-dependent recreation and interpretation.

13. Build a broad-based natural resource conservation constituency with a focus on urban audiences to create a conservation ethic within urban communities; increase relevance of habitat conservation, wildlife heritage, and the Refuge System in the eyes of urban citizens; and instill a sense of empowerment for urban communities to work together to actively support conservation, in both local and global settings. Specific Resource Management Goals Related to Fire Management

3.1.3.2. SPECIFIC RESOURCE MANAGEMENT OBJECTIVES RELATED TO FIRE MANAGEMENT

Objective 2.1 Enhance and maintain mixed coniferous/deciduous forest
Strategies Applied to Achieve Objective
• Use common forest health practices including prescribed fire and mechanical removals to create variable age structure.
Objective 2.2 Restore mixed coniferous/deciduous forest
Strategies Applied to Achieve Objective
• Use prescribed fire as appropriate to control invasive species and reduce the build-up of unwanted fuel.
Objective 3.1 Enhance and maintain oak savanna habitat
Strategies Applied to Achieve Objective
• Use prescribed fire during fall with burn interval of 3 to 5 years, to reduce encroachment of woody species and to reduce thatch.
Objective 3.2 Restore oak savanna habitat
Strategies Applied to Achieve Objective
• Use prescribed fire during spring to control non-native species prior to initial planting. • Use prescribed fire during fall with burn intervals of 3 to 5 years to reduce thatch and control invasive species.
Objective 3.3 Enhance and maintain oak/pine woodland
Strategies Applied to Achieve Objective
• Use common forest health practices including prescribed fire and mechanical removal to create variable age structure.
Objective 3.4 Restore oak/pine woodland
Strategies Applied to Achieve Objective
• Use prescribed fire as appropriate to control invasive species and reduce the build-up of unwanted fuel.
Objective 4.1 Enhance and maintain native wet prairie
Strategies Applied to Achieve Objective
• Use prescribed fire at burn intervals of 3 to 5 years.
Objective 4.2 Restore native wet prairie
Strategies Applied to Achieve Objective
• Use prescribed fire during spring to control nonnative species prior to initial planting. • Use prescribed fire at burn intervals of 3 to 5 years.
Objective 5.1 Enhance and maintain herbaceous wetland
Strategies Applied to Achieve Objective
• Use prescribed fire to reduce extent of emergent plants and/or remove encroaching woody species (e.g. willow, ash)
Objective 5.2 Enhance and maintain scrub-shrub wetland

Strategies Applied to Achieve Objective
• Use prescribed fire to increase diversity in older stands
Objective 5.3 Restore scrub-shrub wetland
Strategies Applied to Achieve Objective
• Pretreat (e.g., herbicide, prescribed fire, discing) for 1-2 years to exhaust non-native seed bank prior to restoration actions.
Objective 8.2 Research
Strategies Applied to Achieve Objective
• Conduct study to evaluate timing of prescribed fire to best promote native herbaceous cover and control invasive plants.

3.1.3.3. OBJECTIVES FOR FIRE MANAGEMENT AT TUALATIN RIVER NWR

The overall objectives for fire management at Tualatin River NWR are to: (1) promote a program to provide for firefighter and public safety, (2) reduce the occurrence, threat, and resource impacts of human-caused fires, (3) ensure appropriate suppression response to meet expected wildland fire complexity, and (4) increase the use of prescribed fire.

Specific fire management objectives are:

- Promote a fire management program that includes both prescribed fire as well as a wildland fire suppression component.

- Provide for the protection of life, property, and resources from wildland fires at costs commensurate with resource values at risk.

- Utilize prescribed fire and mechanical treatments to reduce hazardous fuels and enhance and maintain wildlife habitat.

3.1.3.4. CONSTRAINTS FOR IMPLEMENTING FIRE MANAGEMENT AT TUALATIN RIVER NWR

Constraints for implementing fire management on the Refuge include:

- The use of retardants is prohibited unless life or property is in imminent risk or in consultation with the Resource Advisor and approval from the Line Officer prior to their use is necessary. Foams may be used with prior Refuge approval.

- Heavy equipment can be used with prior approval from the Line Officer.

Specific constraints for implanting prescribed fire on the Refuge include:

- Spring burning for areas targeted for restoration.

- Fall burning every 3-5 years for areas targeted for maintenance and enhancement of habitat.

Although not a managed fire management unit, plant and wood debris piles are located on various sites around the Refuge. These piles could be periodically burned to remove the collected debris.

3.2. Fire Management Units

3.2.1. Fire Management Units—Specific Descriptions

Fire Management Units (FMUs) are areas on the refuge that have common wildland fire management objectives and strategies, are manageable as units from a wildland fire standpoint, and are based on natural or human-made fuel breaks. An FMU may coincide with a prescribed fire burn block or treatment area or unit, but this is not always the case. Current acreage owned and managed by the refuge is distributed among six management units within the Sherwood and Wapato Lake Units. Five management units are located within the Sherwood Units and one on the Wapato Lake Unit. Due to the similarity in fire response within the management units, the refuge is categorized into two FMUs. Other factors, including the geographic separation within the urban setting, allow for the simple organization of the refuge into two FMUs.

The two FMUs at Tualatin River National Wildlife Refuge are:

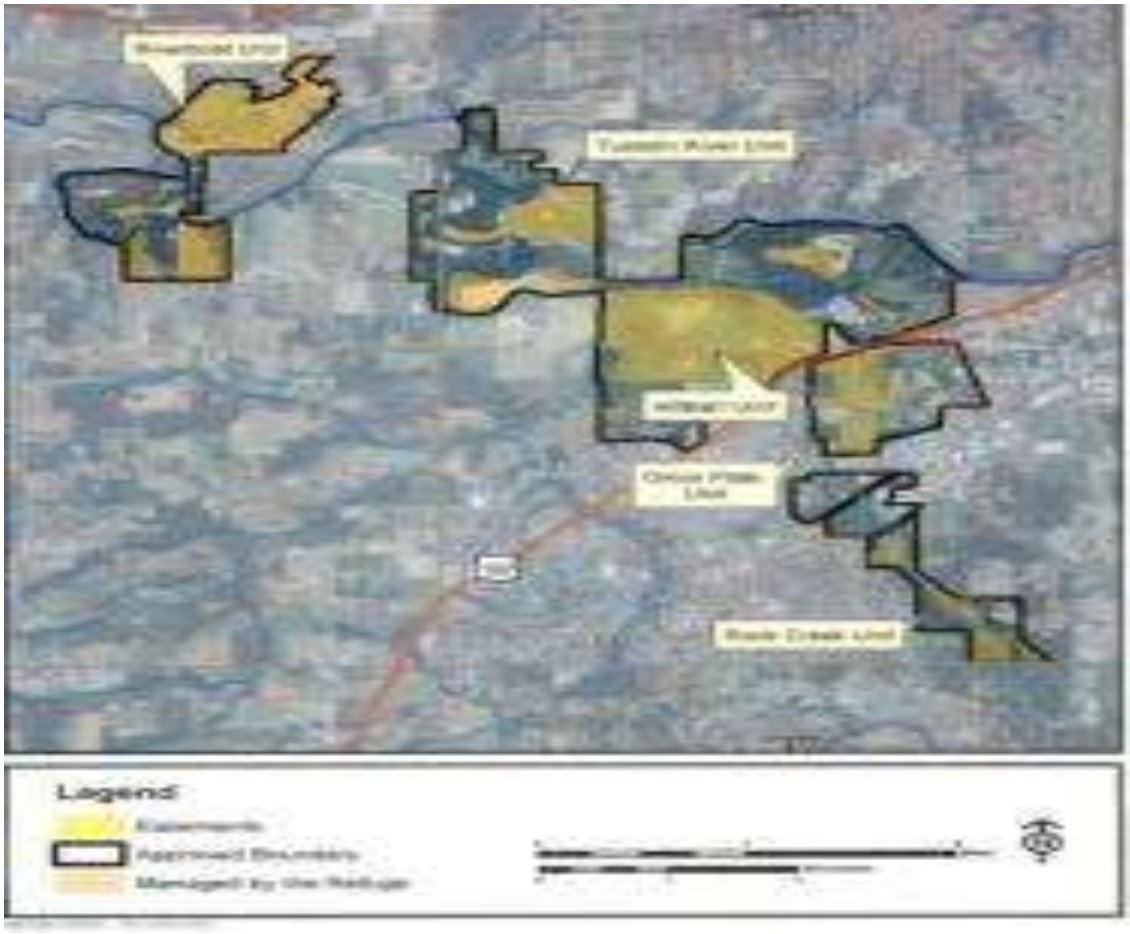
FMU 1: Sherwood;
Riverboat Unit (348acres)
Tualatin River Unit (221 acres)
Atfálat'i Unit (555 acres)
Onion Flats Unit (139acres)
Rock Creek Unit (75 acres)

FMU 2: Wapato Lake (879 acres)

3.2.2. FMU 1—Sherwood

The Sherwood FMU is 1,338 acres and includes the Riverboat, Tualatin River, Atfálat'i, Onion Flats, and Rock Creek Units (Figure 5). These management units are defined in the CCP, and would elicit a similar response in the event of a wildfire. FMU 1 is predominately flat bottomland bordered by uplands. It has oak savanna habitat, mixed coniferous/deciduous forested uplands, riparian forests, scrub-shrub wetlands, and wet prairies. In the event of a fire within this FMU, suppression actions would include using existing natural and human-made fire breaks to catch the fire at the smallest possible size. The lands surrounding the Sherwood FMU are primarily a mix of urban and agricultural lands. The City of Sherwood abuts the southern and western edge of the Sherwood FMU. The City of Tualatin is to the east, and King City is to the northeast.

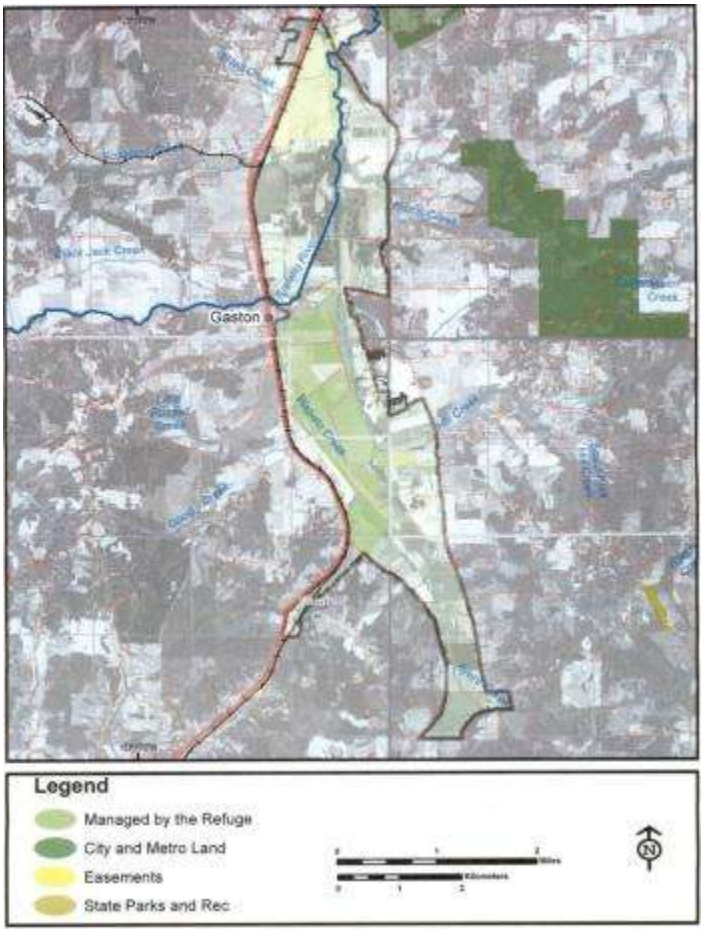
Figure 5: FMU 1 (Sherwood)



3.2.3. FMU 2—WAPATO LAKE

The Wapato Lake FMU is approximately 879 acres (Figure 6). The Wapato Lake Unit was established in 2007. This unit serves a similar purpose as the Sherwood Units and supports many of the same types of habitats. . Current ownership is primarily of a historical lake bed where a series of dikes and levees were built in the 1930s to support irrigation of onion farming practices. The City of Gaston is adjacent to the western boundary of the Wapato Lake FMU and Forest Grove sits to the north.

Figure 6: FMU 2 (Wapato Lake)



4. WILDLAND FIRE OPERATIONAL GUIDANCE

The procedures used to implement the FMP for the refuge are covered in this section. Information pertaining to this management is either directly provided or references are cited. Interagency standards for fire and fire aviation operations have been developed, and are documented and available for reference in the Interagency Standards for Fire and Fire Aviation Operations (National Interagency Fire Center's National Fire Equipment System [NFES] No. 2724). The Interagency Standards for Fire and Fire Aviation Operations is commonly referred to as the ~~–~~Redbook".

Structural fire suppression is the responsibility of local governments. USFWS may assist with exterior structural protection activities under formal Fire Protection Agreements that specify mutual responsibilities, including funding (Redbook 01-3).

All wildfires will be supervised by a qualified incident commander (IC), through a delegation of

authority (0 of FMP) from the project leader. The IC is responsible for the following:

- Assessing the fire situation and making a report to dispatch as soon as possible.
- Using guidance in this FMP and/or a delegation of authority to determine and implement an appropriate management response.
- Determining organization, resource needs, strategy, and tactics.
- Brief incoming and assigned resources on the organization, strategy and tactics, weather and fire behavior, Lookouts, communications, escape routes and safety zones LCES, seasonal and historical Energy Release Component ERCs, and radio frequencies.
- Advising dispatch of resources needed for the appropriate management response.
- Managing the incident until relieved or until the fire is suppressed.

The FMP and a delegation of authority can provide a general strategy to an IC, who has the discretion to select and implement appropriate tactics within the limits described for the FMU, including when and where to use minimum impact suppression tactics (MIST), unless otherwise specified.

All resources, including mutual aid resources, will report to the IC, in person or by radio and receive an assignment prior to tactical deployment.

The refuge is dedicated to providing for the safety of each visitor and all residents and property adjacent to the refuge's boundary. Residents adjacent to the refuge will be notified with as much advance warning possible of any wildfire that poses the threat of burning outside refuge boundaries. A contact list can be found in Appendix A of this FMP.

4.1. PREPAREDNESS

Preparedness is the work accomplished prior to fire occurrence to ensure that the appropriate response, as directed by the FMP, can be carried out. Preparedness activities include budget planning, equipment acquisition, equipment maintenance, dispatch planning, equipment inventory, personnel qualifications, and training. The preparedness objective is to have a well-trained and equipped fire management organization to manage all fire situations within the refuge. Preparedness efforts are to be accomplished outside the normal fire season dates. The general fire season recognized by the Oregon Department of Forestry runs from June 10 through October 15.

Wildland fire training, experience, and position qualifications information will be maintained through the Service's Incident Qualification and Certification System (IQCS) database. The information will be updated annually.

The minimum qualification will be Firefighter Type 2 (FFT2), which requires the annual firefighter refresher. Specific training and certification requirements can be found in the Redbook Chapter 13.

Fire lines consisting of vegetation-cleared area will be constructed around the perimeter of the

refuge annually. Work on these lines will begin after July 16. Fire lines will consist of combination mow and disc lines, and will be cleared to make them accessible to Type 6 engines.

There are two apparatus available at Baskett Slough National Wildlife Refuge (35 miles to the south of Tualatin River National Wildlife Refuge) for suppression and prescribed fire. Equipment is primarily designed and maintained for use in support of prescribed fire activities on-refuge. They are:

- Type 6 engine (E-76 fire-ready)
- Type 4 engine (unmaintained)

E-76 is a Type 6 engine and will be maintained fire-ready during the specified fire season. The Type 4 engine requires an operator with a Commercial Driver's License (CDL) and will be maintained for fire suppression and used if qualified personnel are available to operate it. Personal protective equipment (PPE) will be assigned to qualified personnel. Assigned PPE will be inspected annually as part of the annual fire refresher.

Additional equipment and supplies are available through cooperators and the interagency cache system and would be ordered through the Columbia Cascade Communications Center.

4.2. Detection

Most wildland fires at Tualatin River National Wildlife Refuge are caused by human-related activities. Many times the person who started the fire will call refuge headquarters for help or the local fire department if the refuge office is closed after hours. Fires are typically reported through 911 emergency services, and the refuge is contacted along with the TVFR.

4.3. Communications

Cellular phones are the primary means of communication on the refuge. All immediate emergency notifications and contacts can be found in Appendix A of the FMP. During emergency fire operations, local radio frequencies will be used. Frequencies that will be used are found in Table 2.

Table 2: Radio Frequencies

Channel Name	Assignment	Tx:	Rx:
ODF Red Net	Command	151.3400	151.3400
ODF White Net	Air to Ground	151.3100	151.3100
NIFC Tac 1	Tactical	168.0500	168.0500
NIFC Tac 2	Tactical	168.2000	168.2000
NIFC Tac3	Tactical	168.6000	168.6000

4.4. Dispatch, Initial Response, and Initial Attack

Upon report of wildfire, qualified refuge personnel will respond initially and provide the dispatch center with a fire update. These procedures and criteria for status reports are outlined in the dispatch plan (Appendix D of FMP). Qualified and available refuge staff should respond to assist

with tasks such as securing the point of origin, fire suppression, protecting visitors at risk, and implementing necessary closures. In most cases, initial attack (IA) resources will respond from TVFR. The refuge will use the Incident Command System (ICS) as a guide for suppression organization and actions.

4.5. Extended Attack and Large Fire Management

If the fire exceeds the capabilities of IA resources and transitions into extended attack, additional resources and logistics will be handled through Columbia Cascade Communication Center. The development of the Wildland Decision Support System, delegations of authority, and briefing regarding incoming resources will be initiated by the Zone FMO. Specific incident management procedures for transition into extended attack can be found in the Redbook Chapter 11.

4.6. Aviation Operations

All fire-related aviation operations will follow applicable guidelines of the USDOI National Business Center Aviation Management Directorate. Aviation requests and operations will be coordinated with regional office staff.

Aircraft may be used in all phases of fire management operations. All aircraft must be approved by the National Business Center (NBC) or the U.S. Forest Service (USFS). An Office of Aircraft Services OAS Aviation Policy Department Manual will be provided by OAS.

Helicopters may be used for reconnaissance, bucket drops, and transportation of personnel and equipment. Natural helispots and parking lots are readily available in most cases. Clearing for new helispots should be avoided where possible. Improved helispots will be rehabilitated following a fire.

As in all fire management activities, safety is the primary consideration. Qualified aviation personnel will be assigned to all flight operations.

4.7. Reviews and Investigations

Reviews and investigations are used by wildland fire and aviation managers to assess and improve the effectiveness and safety of organizational operations. Brief descriptions of various reviews and associated procedures and requirements, including those for serious wildland fire accidents, entrapments, and trespass are listed in the Redbook Chapter 18.

4.8. Reports

The Zone FMO will complete and file an individual fire report (DI-1202) for the following types of fires within 10 days of a fire being declared out:

- All wildfires on Service lands.
- Wildfires threatening Service lands on which Service personnel take action.
- All escaped prescribed fires. When a fire exceeds prescription, it must be declared a wildfire and a separate new report filed to report acres burned by the wildfire from the time of declaration to the time of being declared out.

- All false alarms responded to by field office staff.

DI-1202s are required regardless of who takes action, whether it is a Service engine, cooperator, or contractor. When we take IA off our lands, the agency with jurisdiction over where the fire occurs will file a report and we will file a limited report to document our response and to support potential billing to non-Federal entities for trespass fires.

4.9. Hazardous Fuels Management

4.9.1. Prescribed Fire Program for Hazardous Fuels and Habitat Restoration

The annual prescribed fire and fuels treatment schedule should be prepared in February/March and included as an important aspect in the annual work plan. Prescribed fire plans (i.e., burn plans) should be completed and submitted prior to the burn season.

4.9.1.1. Program Overview

All prescribed fires must comply with NEPA requirements. An EA for management actions associated with prescribed fire was completed as part of the CCP development process. The CCP recognizes prescribed fire as a necessary tool for habitat management and restoration. All prescribed fire activities must also adhere to Service requirements, which can be found in the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide in Chapter 17 of the USFWS Fire Management Handbook and the Redbook.

The fire management program consults with the refuge wildlife biologist to formulate a prescribed fire program for the annual work plan that:

- Identifies the annual target acreage scheduled for treatment.
- Designates the burn units to be treated.
- Determines prescribed burn unit complexities.
- Identifies the preferred treatment interval (this can vary by fuel type).
- Recommends the approved method of treatment (fire, fire/mechanical/chemical, etc.).
- Recommends an effective treatment sequence (rotation).
- Identifies the type of monitoring and frequency.

4.9.1.2. Prescribed Burn Program Objectives

Prescribed fire is a useful tool for restoring and maintaining natural conditions and processes. The goals of prescribed fire are to:

- Restore and maintain native wetland prairies and oak habitat using fire to set back and reduce woody vegetation, such as Douglas-fir.
- Enrich soil nutrients that benefit vegetation.
- Provide benefits to specific rare plant species, such as Nelson's checker-mallow (*Sidalcea nelsoniana*).
- Provide opportunities for research of fire-dependent species and plant communities.

- Remove unwanted accumulations of residual vegetation in association with wetland restoration.
- Realize beneficial effects upon native prairie plant species.

Upland grasslands are burned to maintain an open oak savanna habitat by inhibiting the encroachment of shrubs and woody vegetation, and to invigorate native plant species. Wetland habitats on the refuge may be burned to remove dense stands of reed canarygrass, which dominate the shallow moist soil areas. Some areas may be treated with herbicide post-burn, as reed canarygrass sprouts quickly following fire. The increase in sunlight and exposed soil will allow native species to germinate, thereby promoting and supporting a healthy wetland ecosystem.

The Willamette Valley native prairies evolved under a regime of fire. There are no known ecological equivalents to the use of fire, although mowing can be used to mimic some of the effects. Mowing is used as a restoration tool as it provides a disturbance. Timing of mowing allows nonnative species to be targeted prior to the development of seed heads. Mowing is used as an alternative treatment type to burning if burn windows are not available during a given field season.

4.9.1.3. Effect of National and Regional Preparedness Levels

Prescribed fires may be ignited during National Preparedness Levels 4 or 5 as specified in the National Interagency Mobilization Guide.

The program relies on interagency cooperators from the USFS, the Bureau of Land Management (BLM), and the Bureau of Indian Affairs (BIA) to accomplish prescribed fire projects. Elevated preparedness levels are indicative of an active fire season, and resource availability may be limited due to local resources being committed to ongoing incidents.

4.9.1.4. Project Planning

Prescribed fire will be used to reduce hazard fuel accumulations, restore fire-dependent ecological communities, improve conditions for federally listed threatened and endangered species, improve wildlife habitat, and contribute to research. All prescribed fire activity will comply with applicable Federal, state, and local air quality laws and regulations.

Prescribed fire plans for the units to be treated will be prepared and approved prior to treatment. Prescribed fire plans should be prepared well enough in advance to allow for as much time as possible for review prior to the start of a burn season or burn execution phase.

A smoke management section is required and must contain adequate information to meet Oregon State requirements. No permits are required.

All burn plans are prepared by a qualified burn boss, reviewed by a technical reviewer and the Zone FMO, and then approved by the project leader.

Which qualified burn boss will be assigned burn boss duties is determined near the time of the burn by the Zone FMO or designated member of the Zone FMO's staff. The approved burn plan must be reviewed and signed by the designated burn boss before implementation. Procedures for prescribed fire implementation are covered within the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide.

4.9.1.5. PROJECT IMPLEMENTATION

Site-specific treatment objectives are developed to guide project operations. Prescribed fire objectives describe what a treatment must accomplish in order to meet a resource management objective. Each prescribed burn plan contains objectives for the project that are quantifiable and measurable.

The Zone FMO shall assign the burn boss appropriate to the complexity level of the planned burn. The burn boss will follow all the guidelines and procedures that are contained in the prescribed fire plan.

Cooperators, contractors, and administratively determined emergency hires may be used to implement prescribed fires. All individuals working on Federal agency prescribed fires must meet the Fire Management Handbook and Wildland Fire Qualification Guide (published by the National Wildfire Coordinating Group [NWCG], PMS 310-1) standards unless local agreements specify otherwise. The complexity of each prescribed burn determines the organization needed to safely achieve the objectives specified in the burn plan. Further information on qualifications is found in Chapter 17 of the 2008 Interagency Standards for Fire and Fire Aviation Operations. The Zone FMO will be responsible for ensuring that refuge personnel maintain the qualifications necessary to implement prescribed fire programs.

A prescribed fire must be declared a wildfire by those identified in the burn plan when those person(s) determine that the contingency actions have failed or are likely to fail and cannot be mitigated by the end of the next burning period. An escaped prescribed fire must be declared a wildfire when the fire has spread outside the project boundary, or is likely to do so, and cannot be contained by the end of the next burning period. A prescribed fire can be converted to a wildfire for reasons other than an escape. An appropriate management response will be made to such incidents. A formal analysis using a required wildfire decision support tool will be undertaken when needed. The refuge manager and project leader will be notified of an escaped prescribed fire.

The public will be informed of prescribed fires through news releases, interpretive messages, and educational programs. Individual prescribed fires should not be conducted without informing agencies and members of the public likely to be impacted.

4.9.1.6. SMOKE MANAGEMENT

All grass burning in the Willamette Valley is strictly regulated by the Oregon Department of Environmental Quality (DEQ) through the Oregon Department of Agriculture, Division of Smoke Management (DSM), to comply with smoke dispersal requirements in the Willamette Valley. DSM decides, on a daily basis, whether burning will be allowed and how many acres

may be burned. No prescribed burns are conducted without DSM approval. Approval is obtained by contacting DSM on the morning of a proposed burn. In addition to smoke management by DSM, the refuge lands are also constrained by fire danger ratings for the area. If the fire danger rating is extreme, then no prescribed burning will be allowed even when weather conditions are favorable for smoke dispersion.

4.9.1.7. After Action Reviews and Escaped Fire Reviews

The burn boss will ensure an informal After Action Review (AAR) is conducted for each operational period on a prescribed fire, as described in the Incident Response Pocket Guide (IRPG).

All prescribed fires declared a wildfire will have an investigative review initiated by the refuge manager or project leader. The level and scope of the review will be determined by policy and procedures of the Redbook and the USFWS Fire Management Handbook.

4.9.1.8. Reports

Burn plans will specify information to be included in a project file. The burn boss will ensure this information is provided to the refuge manager and/or Zone FMO as specified. This includes documenting conditions and fire behavior during the prescribed fire to assess how well actual fire characteristics fit those predicted, documenting any unanticipated difficulties encountered during implementation, and assessing how well the fire accomplished the intended objectives.

The burn boss will complete an Individual Fire Report (DI-1202) with the Zone FMO, who will file an Individual Fire Report (DI-1202) electronically within 10 days of the fire being declared out.

4.9.2. Non-fire Hazard Fuels Treatment Program

Many activities associated with normal habitat maintenance are similar to pre-suppression fire activities. Mowing is a regular tool used to treat invasive species of grasses and shrubs and to mimic a fire disturbance. These activities may not be funded through the fire program but directly benefit the fire program as well as the habitat. Mowing is used in pretreatment of prescribed fire units to lower flame lengths near the control lines. These areas may not be classified as hazardous fuels but their treatment would aid in suppression if a fire were to occur on the refuge.

4.9.3. Process to Identify Hazard Fuels Treatments

Due to the difficulty of access to areas within the refuge, most hazardous fuels treatments are identified to aid in creating defensible space and engine access. An annual site visit is conducted with the project leader, refuge biologist, and the Zone FMO to identify areas that would benefit ecologically as well as aid in suppression in the event of a wildfire.

4.10. Emergency Stabilization and Burned Area Rehabilitation

Immediate post-wildfire actions are needed to minimize the threat to life and health and prevent unacceptable degradation to natural and cultural resources (see the NWCG Interagency Burned

Area Emergency Response Guidebook). Required repair of damage resulting for wildland fire activities will be completed before crews and resources are released from assignment to the incident.

Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure. Natural recovery is the preferred emergency stabilization or burned area rehabilitation (BAR) treatment.

The goal of the Emergency Stabilization and Rehabilitation (ESR) Plan is to promote public safety, stabilize and prevent further degradation of natural and cultural resources, and rehabilitate the stability, productivity, diversity, and ecological integrity of refuge lands after a wildland fire as described in approved refuge management plans. The ESR Plan is tiered to the refuge CCP, FMP, and operations or step-down plans. Development of ESR Plan objectives is guided by resource management objectives, general management practices, and constraints identified in an approved CCP, habitat management plan, and/or supporting step-down plans.

If burned area ESR is required to reduce the effects of a wildland fire, then the refuge should request appropriate funding through the ESR fund. The Service representative at the National Interagency Fire Center administers the ESR fund. A rehabilitation and restoration survey, plan, and request must be prepared and submitted according to agency guidelines. Smaller incidents may only need simple plans prepared by refuge staff. Larger incidents with extensive rehabilitation efforts should employ an ESR team. An ESR team is composed of personnel who specialize in key disciplines of resource management and are experts in ESR Plan preparation. A formal request for an ESR team should be made in consultation with the Incident Management Team as soon as it appears that damage may be significant. Instructions for ESR team mobilization can be found in the NWCG mobilization guide. Delays in making a request may hinder funding approval and magnify the damage. Once an ESR team is employed, the project leader or their representative should provide guidance to the ESR team leader with expectations. The project leader, biologist, and Zone FMO will review all ESR plans. The final plan will be submitted to the Regional Office for review prior to submission to the Washington Office. Direction on ESR guidelines can be found in the Service Fire Management Handbook.

4.11. Prevention, Mitigation and Education

4.11.1. Prevention/Mitigation

The objective of fire prevention activities is to prevent human-caused wildfires. The inadvertent or intentional ignition of wildland fuels by humans is illegal. All human-caused wildfires will be investigated at the earliest possible time. The investigation may range from a documented determination of cause by the IA crew to criminal investigation by a qualified arson investigator.

Educating the public on the value of fire as a natural process is important to increasing public understanding and support for the fire management program. The refuge will use the most appropriate and effective means to explain the overall future of the fire and smoke management programs. This may include supplemental handouts, signage, personal contacts, auto tour routes,

or media releases. When deemed necessary, interpretive presentations will address the fire management program and explain the role of fire in the environment.

The public information program would include the following options.

1. The concepts of the prescribed burn program will be incorporated, as appropriate, in publications, brochures, and handouts.
2. During periods when prescribed burns are ignited, handouts will be prepared and distributed to all visitors entering areas of fire activity.
3. The fire management program may be incorporated into visitor contacts. Particular attention will be given when fires are conspicuous from roads or visitor use areas.
4. News releases will be distributed to the media as appropriate.
5. The public information outlets of neighboring and cooperating agencies and the Regional Office will be provided with all fire management information.
6. The fire management program will be discussed in informal talks with all employees, volunteers, residents, and neighbors.

5. Monitoring and Evaluation

The intent of this section is to document the processes for determining whether the FMP is being implemented as planned and fire-related goals and objectives are being achieved. Information obtained from monitoring is used to update the FMP and land management plans.

5.1. Fire Management Plan Monitoring

5.1.1. Annual Fire Management Plan Review

This FMP will be reviewed annually and updated as needed, upon local agency administrator approval. Revisions of FMPs with regional review and concurrence are required every 5 years and following completion of a new (or significantly revised) CCP or habitat management plan.

5.2. Hazard Fuels Treatment Monitoring

Any prescribed fire treatment will be monitored according the 2010 Pacific Region Hazardous Fuels Monitoring Framework. At a minimum, a perimeter of the treatment area will be collected and archived in the regional database.

5.3. Fire Critiques

Fire reviews will be documented and filed with the final fire report. The Zone FMO will retain a copy for the refuge files.

5.4. Fire Management Terminology

Terms in the FMP are defined by the NWCG, at http://www.nwcg.gov/pms/pubs/glossary.

Appendix A. *Directory (update annually)*

Name	Position	Office Phone	Extension	Cell Phone	Home
Erin Holmes	Project Leader	(503) 625-5944	221	(503) 816-1227	(971) 400-4405
John Gahr	Deputy Project Leader	(503) 625-5944	223	(503) 816-1666	(971) 239-9122
Greg Hagedorn	Zone Fire Management Officer	(541) 757-7236	205	(541) 740-5613	(503) 913-2883
Kolleen Irvine	Law Enforcement Officer	(503) 625-5944	230	(971) 832-1730	N/A
Sarah Gray	Administrative Assistant	(503) 625-5944	226	N/A	N/A
Kim Strassburg	Visitor Services Manager	(503) 625-5944	228	(503) 539-5194	N/A
Pete Schmidt	Refuge Biologist	(503) 625-5944	231	(503) 816-2007	N/A
John Schweitzer	Equipment Operator	(503) 625-5944	N/A	(503) 329-8384	N/A
Wildlife Center	N/A	(503) 625-5945	N/A	N/A	N/A

Appendix B. *Fire Management—Roles and Responsibilities*

Agency Administrator/Project Leader

- Is responsible for implementation of all fire management activities within the refuge, and will ensure compliance with USDOI, Service, and refuge policies.
- Selects the appropriate management responses to wildland fire.
- Coordinates refuge programs to ensure personnel and equipment are made available and utilized for fire management activities including fire suppression, prescribed burning, and fire effects monitoring.
- Ensures that the fire management program has access to refuge and resources when needed.
- Ensures that staff consider the fire management program during refuge-related planning and implementation.

Refuge Biologist

- Identifies prescribed burn units and biological objectives to the Zone FMO, notifies Zone FMO of prescribed fire project constraints, and ensures that refuge resources are available to accomplish prescribed fire and fire suppression objectives.
- Acts as the primary refuge resource management specialist during fire management planning and operations.
- Drafts wildland fire rehabilitation plans for project leader.
- Coordinates through project leader to provide biological input for the fire program to the Zone FMO.
- Assists in design and implementation of fire effects monitoring for the Zone FMO.
- Participates, as requested, and is appropriately trained in prescribed burning and wildland fire suppression.

Fire Management Officer

- Maintains oversight and review role for fire management activities on refuge lands.
- Responsible for all fire-related planning and implementation.
- Responsible for implementation of this FMP. This responsibility includes coordination and supervision of all prevention, pre-suppression, detection, wildland fire, prescribed fire, suppression, monitoring, and post-fire activities involving refuge lands.
- Prepares burn plans.
- Integrates biological refuge objectives into all fire management planning and implementation.
- Solicits program input from the project leader.
- Supervises prescribed fire planning.
- Responsible for planning, coordinating, and directing preparedness activities including fire training, physical fitness testing, and Interagency Fire Qualification System (IFQS) data entry, fire cache and equipment inventory accountability, maintenance, and operation, and cooperation with cooperative agencies.
- Responsible for setting up rural fire assistance agreements and grants.

- Responsible for setting up and overseeing wildland urban interface (WUI) and hazardous fuels treatment contracts.
- Responsible for preparation of fire reports following the suppression of wildland fires and for operations undertaken while conducting prescribed fires.
- Prepares an annual report detailing fire occurrences and prescribed fire activities undertaken in each calendar year. This report serves as a post-year fire management activities review, as well as provides documentation for development of a comprehensive fire history record for the refuge.
- Nominates personnel to receive fire-related training, as appropriate.
- Responsible for interagency coordination.
- Ensures fire management policies are observed.
- When available, may serve as prescribed fire burn boss and propose prescribed fire projects.
- Prepares refuge fire prevention plan, and coordinates fire prevention with other employees.
- Assists in updates of this FMP, maintains fire records, reviews fire reports (DI-1202) for accuracy, and enters fire reports into Fire Management Information System (FMIS).
- Maintains engines and fire-related equipment in state of readiness.

Fire Management/Suppression Personnel

- Consists of all refuge personnel, whether permanent or seasonal, who meet the minimum standards set by the NWCG for firefighters.
- Are fully equipped with proper PPE, have taken and passed the minimum classroom training, and meet physical fitness standards required.
- Undertake fire management duties as assigned by the qualified IC on each suppression action or by the prescribed fire burn boss on each prescribed fire project.
- Responsible for their PPE and physical conditioning, qualifying annually with the work capacity test.

Incident Commander

ICs (of any level) use strategies and tactics as directed by the project leader and Wildland Fire Decisions Support System (WFDSS) where applicable to implement selected objectives on a particular incident. A specific Delegation of Authority (0 of FMP) will be provided to each IC prior to their assuming responsibility for an incident. Major duties of the IC are given in the NWCG Fireline Handbook.

Initial Attack Teams

IA teams consist of experienced, fully qualified firefighters. Teams will be prepared and equipped with hand and power tools as needed and will be dispatched self-sufficient to function up to 24 hours without additional support.

Employees participating in any wildland fire activities on Service or cooperator lands will meet fitness requirements established in PMS 310-1, except where Service-specific fitness requirements apply.

Resource Advisor
Resource advisors (RAs) are technical specialists appointed by the agency administrator; they report to the IC or designee and provide guidance for natural and cultural resource protection from suppression operations. The RA provides input to the IC in the development of fire suppression strategies and tactics to minimize or mitigate the expected impacts of fire and fire suppression actions upon natural and cultural resources. The RA also provides input required for the development of rehabilitation plans. RA responsibilities include providing analysis, information, and advice to fire managers for areas of concern, including:

- Critical watersheds, riparian areas, fisheries, and water sources
- Threatened or endangered species
- Prehistoric and historic archaeological sites and cultural landscapes
- Fuelbreaks—locations and specifications
- Urban interface impact—structures and improvements
- Hazardous materials

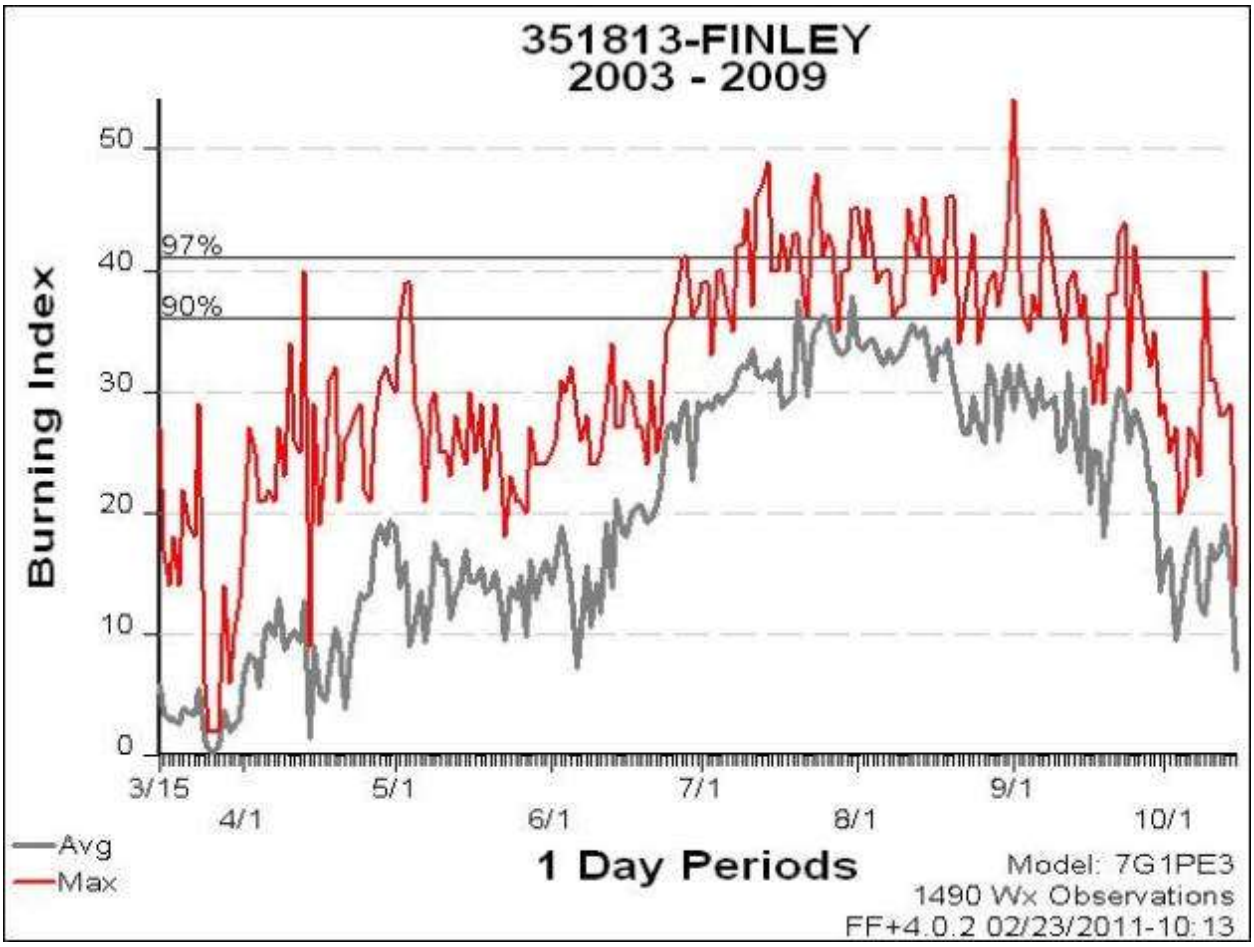
The RA also:

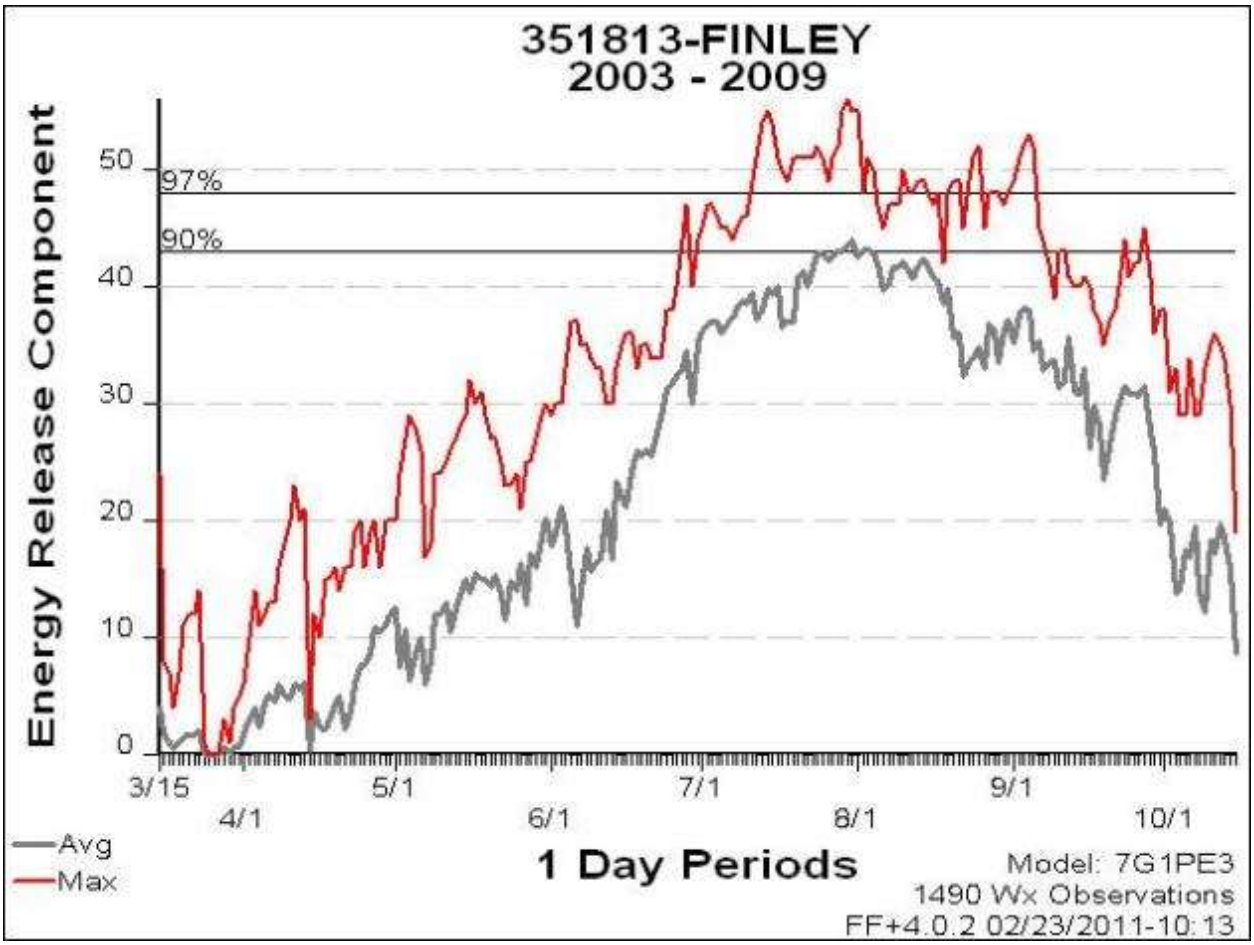
- Assists the planning function in developing fire maps and identifying areas of concern,
- Determines environmental restrictions commensurate with FMP resource protection in the fire area,
- Provides recommendations to fire management personnel and agency administrators for fire suppression rehabilitation needs,
- Documents potential and actual suppression/fire-related resource impacts and the rationale for protection of priority areas, and
- Provides resource information to local IA ICs, dispatchers, or other fire personnel during pre-season training and planning meetings

Appendix C. *Fire Danger Indices*

The fire season at Tualatin River National Wildlife Refuge can begin in July and continue through October during drought years. Fire season can be influenced by both moist Pacific weather systems and drying trends created through a warm easterly flow. The wettest months are November through March, when over 70 percent of the precipitation occurs. There is a pronounced warm, dry period beginning in mid-July and running through late September. This period accounts for less than 10 percent of the average annual precipitation. During this period, temperatures are generally at their highest levels (80 to 90 degrees Fahrenheit) and relative humidity at the lowest (20% to 30%).

Wildland fire danger in the United States is characterized by a system called the National Fire Danger Rating System (NFDRS). This system has indices that are used to display and provide context to fire danger on a subregional scale. The most accurate way of displaying the relationship of weather and fuels to fire danger in the short term at the refuge is through the NFDRS Burning Index, or BI. The BI is an estimate of the potential difficulty of containment of a wildland fire as it relates to the flame length at the head of the fire. The BI value is a function of the spread component (how fast the fire could spread) and the energy release component (how hot the fire could burn). The BI is scaled such that a BI value of 40 would indicate a predicted average flame length of 4 feet. Wildland fires where the flame length exceeds 4 feet are judged to be too hazardous for hand crews and engines to attack along the direct edge of the fire. The BI may also communicate the relative fire danger in a rating area. The ninetieth percentile defines the index that 90 percent of all BIs are at or below for the time period calculated, and the same is true for the ninety-seventh percentile. When overlaid with historical fire occurrence, a relationship with fire weather can assist with more accurate preparedness planning. A representative NFDRS fire weather station is located 70 miles south of the refuge area at W.L. Finley National Wildlife Refuge. The following graphs display seasonal fire danger trends for the period from 2003 to 2009.


351813-FINLEY
2003 - 2009
Burning Index
50
40
30
20
10
0
97%
90%
3/15
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Max
1 Day Periods
Model: 7G1PE3
1490 Wx Observations
FF+4.0.2 02/23/2011-10:13


351813-FINLEY
2003 - 2009
Energy Release Component
50
40
30
20
10
0
97%
90%
3/15
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Max
1 Day Periods
Model: 7G1PE3
1490 Wx Observations
FF+4.0.2 02/23/2011-10:13

Appendix D. *Dispatching Plans*

FIRE DISPATCH PLAN 2013
TUALATIN RIVER NATIONAL WILDLIFE REFUGE

To comply with Service policy these procedures should be followed for wildland fire initial response on our refuges.

1. Call 911 for emergency management services for assistance. Provide dispatcher with fire size up.
2. Inform refuge project leader or refuge manager.
3. Utilize qualified engine bosses that are responding from our interagency partners to supervise suppression activities.
4. Engines require two qualified firefighters to operate. If responding alone, scout fire and complete fire size-up documentation and wait for assistance.
5. Be safe; no fire is worth risking your safety and well being.

You cannot legally participate in any extended attack or prescribed fire activities until you have cleared the work capacity process and fire refresher for 2012.

Elements of Initial Fire Size-up:

- Location of smoke or fire: (plot on map if possible)
- Location, name, and telephone # of reporting party
- Estimated size
- Fuel type: (1) Grass (2) Brush (3) Timber (4) Slash
- Fire behavior: (1) Smoldering (2) Creeping (3) Running (4) Torching (5) Crowning
- Structures threatened: (1) Yes (2) No
- Weather conditions: temperature, sky/cloud cover, wind/speed/direction
- Slope: (1) 0-25% (2) 26-40% (3) 41-55% (4) 56+%
- Potential for spread: (1) Low (2) Moderate (3) High
- Additional resources needed for control

CONTACT INFORMATION

Name	Position	Office Phone	Extension	Cell Phone	Home
Erin Holmes	Project Leader	(503) 625-5944	221	(503) 816-1227	(971) 400-4405
John Gahr	Deputy Project Leader	(503) 625-5944	223	(503) 816-1666	(971) 239-9122
Greg Hagedorn	Zone Fire Management Officer	(541) 757-7236	205	(541) 740-5613	(503) 913-2883
Kolleen Irvine	Law Enforcement Officer	(503) 625-5944	230	(971) 832-1730	N/A
Pam Ensley	Regional Fire Management Coordinator	(503) 231-6174	n/a	(503) 781-7978	N/A
Brian Gales	Regional Fire Operations Specialist	(503) 231-6769	n/a	(541) 778-0372	N/A
Brett Fay	Regional Fuels Specialist	(503) 872-2756	n/a	(503) 347-8194	N/A

Appendix E. *Memorandum of Understanding, Tualatin Valley Fire and Rescue*

MEMORANDUM OF UNDERSTANDING

BETWEEN
THE UNITED STATES FISH AND WILDLIFE SERVICE
AND
TUALATIN VALLEY FIRE AND RESCUE
FOR
TUALATIN RIVER NATIONAL WILDLIFE REFUGE

This Memorandum of Understanding (MOU) is made and entered into and between the U.S. Fish and Wildlife Service, Tualatin River National Wildlife Refuge (Service) and Tualatin Valley Fire and Rescue (TVFR), and is effective upon signing by both parties.

I. AUTHORITIES

The Service has entered into this MOU under the following authorities;

- Reciprocal Fire Protection Act of May 27th, 1955 (69 Stat. 66, 42 U.S.C 1856a-d)
- Economy Act of June 30, 1932, (31 U.S.C. 1535 as amended)
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, (Public Law 93-288, as amended, 42 U.S.C. 5121-5207)

II. PURPOSE

The purpose of this agreement is to coordinate and provide cooperative fire protection between the Service and TVFR, in order to more efficiently and effectively suppress wildfires from damaging structures and lands managed by the Service. This MOU is consistent with the existing Master Cooperative Fire Protection Agreement (FWS agreement #: 10132-9-J102) and further describes the working relationship, financial arrangements, and joint activities between the Service and TVFR not otherwise specified under the terms of the Master Cooperative Fire Protection Agreement.

III. RECITALS

Whereas, both parties have fire protection responsibilities upon lands of their respective jurisdiction, intermingles and adjoining fire protection responsibilities, and limited fire protection resources;
Whereas, the Service is the jurisdictional agency responsible for fire protection on Service lands;
Whereas, the Service has limited specialized equipment and qualified personnel required to fight structural and wild land fires;
Whereas, TVFR can provide initial attack capability to support and supplement the Service's and other fire protection cooperator's resources; and
Whereas, TVFR can provide multiple engines and overhead for fire suppression activities within TVFR's jurisdiction, including suppression of accessible wild land fires on Service lands within TVFR's fire protection boundary.
Whereas, if initial attack suppression actions by TVFR are unsuccessful and the fire will not be contained within the next burning period, dispatching and continued incident support services will likely be transferred to Columbia Cascade Communication Center (CCCC). CCCC will then provide extended attack dispatching support for the incident. This transfer will occur in consultation with the FWS fire representative.
Therefore, for the mutual consideration herein stated, the parties herby enter into this MOU.

IV. DEFINITION OF TERMS

A. Principal Contacts. A list of appropriate contacts for TVFR and the Service.

B. Direct Costs. Costs directly related to the suppression effort. These costs do not include dispatch or other administrative costs.

C. Jurisdictional Agency. Agency which has overall land and resource management and/or protection responsibility as provided by Federal or State law.

D. Overhead Costs. Costs not directly chargeable to suppression efforts, but which are part of the overall cost of operation.

E. Suppression Work. All work of confining and extinguishing a fire beginning with its discovery.

F. Reimbursable Work. Providing monetary compensation at the Oregon State Fire Marshal's Standardized Costs Schedule, Fire Service Mobilization Plan hourly reimbursement rate table, as updated annually for the use of any fire engines, fire support vehicles or equipment and wages for qualified wildland fire personnel and support staff responding to wildfires on Service lands.

G. Appropriate Charges. Comprises all charges related to direct fire suppression, initial attack, fire control and mop up. Appropriate charges include: personnel charges and equipment operating costs (per Oregon State Fire Marshal Rate Schedule).

The following charges are excluded from reimbursement and are not considered Appropriate Charges:

a. Backfill for station personnel engaged in fire suppression on Service lands for period of less than 8 hours.
b. Replacement of equipment damaged during initial or extended attack not pre-approved by the Service.
c. Billing for services that are outside of the Oregon State Fire Marshals Rate Schedule and not pre-approved by FWS officials prior to submission for billing.

H. Multijurisdictional Incident. An incident requiring action from multiple agencies that each have jurisdiction to manage certain aspects of an incident. In ICS, these incidents will be managed under Unified Command.

I. Unified Command. An application of ICS used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command to establish their designated Incident Commanders at a single ICP and to establish a common set of objectives and strategies and a single Incident Action Plan.

V. FIRE PROTECTION

The Service shall:

A. Reimburse TVFR for all Direct Costs, Overhead Costs, Suppression Work, and Reimbursable Work as defined in article IV.

B. Reimburse TVFR under the provisions within this MOU no less frequently than every 30 days. Reimbursement shall be at the rates provided under Section IV-F. Reimbursement for costs not specified in in the Oregon State Fire Marshal's Standardized cost Schedule must be pre-approved by appropriate Service fire management staff prior to submission for reimbursement.

C. Annually provide TVFR with an updated principal contact list.

TVFR shall:

A. Upon request by the Service, conduct initial attack on structural and/or wildland fires occurring on Service lands.

B. Provide resources as current conditions permit. Assistance will only be provided when TVFR determines, in its sole discretion that the resources are available and can be committed without jeopardizing TVFR's ability to protect its own jurisdiction.

C. Follow all fire suppression guidelines addressed in **Error! Reference source not found.** this OU.

D. Report fires promptly to the Principal Contacts (Exhibit A) for the Service upon discovering or receiving reports of structural and/or wildland fire on Service lands.

E. Forward the necessary fire report data to the responsible Service representative identified in the Principal Contact list (Exhibit A) when TVFR suppresses structural and/or wildland fires burning wholly or in part on Service lands.

F. Dispatch only personnel who meet or exceed the minimum training requirements of the TVFR when responding pursuant to this MOU.

Both the Service and TVFR shall:

A. The parties will annually provide Principal Contact information prior to the initiation of fire season. The information will include protection area maps for any new lands acquired by the Service, names and numbers for principle contacts (Exhibit A) and the updated Oregon State Fire Marshal's Standardized Costs Schedule, Fire Service Mobilization Plan hourly reimbursement rate table. These rates can be found in Appendix C of the Oregon Fire Service Mobilization Plan found at the following link.
http://www.oregon.gov/osp/SFM/docs/emergency_mobilization/mobplan2012.pdf

B. Waive all claims between and against each other which may arise from the performance of work under this MOU, including compensation for loss or damage to each party's property and personal injury, including death of employees, agents and contractors of each party. This waiver shall not apply to intentional torts or acts of violence against persons or property. Furthermore, the requesting party agrees to save and hold harmless the responding party from and indemnify the responding party against any and all third party liability for or on account of any death or injury to a person, or damage to property arising out of any action by the personnel of the responding party excluding gross negligence or intentional torts.

C. Agree that the officer-in-charge who arrives first at a wildfire burning on or near lands of both parties will act as Incident Commander (IC). When representatives of both parties have arrived at a fire, the officers-in-charge for each party will mutually agree to designate an IC, provided that nothing shall prevent a party to whom a request is made from refusing to respond when the sole determination of that party's commanding officer is that responding to the incident would create an unreasonable risk of danger to that party's employees, equipment or a third party.

D. Shall be responsible for the training and welfare of personnel they dispatch, including the treatment of any personal injuries which may result during any fire or en route to or from any fire as provided by the laws and regulations under which each party operates.

E. Each party is responsible for operating, servicing, repairing and replacing their own equipment, except as agreed upon in writing by both parties in advance.

F. Regardless of an incident's location employees of TVFR and the Service will be subject only to the laws, regulations and rules governing their respective employers. No employee shall be

entitled to compensation and/or benefits under this MOU except as specifically provided for under the terms of his or her employment with respective employer.

VI. GENERAL PROVISIONS

A. Neither party shall be required to incur expenses under the terms of this MOU, except as necessary to effectively implement this MOU. Additional expenditures and/or rates for equipment OVHD and/or personnel not specified in Appendix C of the Oregon Fire Service Mobilization Plan shall be subject to reimbursement as agreed by the parties hereto and approved by appropriate Service fire management staff prior to submission for payment.

B. Parties shall provide upon request any maps, documents, instructions and law enforcement reports which either party considers necessary to conduct work associated with this MOU.

C. Both parties shall comply with all Federal statutes relating to nondiscrimination and all applicable requirements of other Federal laws, executive orders, regulations and policies, including but not limited to;

   i. Title VI of the Civil Rights Act of 1964 (USC 2000d) which prohibits discrimination on the basis of race, color, handicap or national origin;

   ii. Title IX of the Education amendments of 1972, as amended (USC 1681-1683) which prohibits the discrimination on the basis of sex.

D. Either Party, through their authorized representatives, and after providing reasonable notice to the other party, shall have the right to obtain access to and examine all books papers or documents related to this MOU.

E. Modification of this MOU shall be made by mutual consent of both parties through the issuance of a written modification that is signed and dated by both parties prior to any changes being performed or taking effect.

F. Either party may terminate this MOU by providing 60 days written notice to the other.

G. Unless terminated by written notice, this MOU shall remain in effect for five years from the date of the last signature.

The party's hereto have executed this Memorandum of Understanding by and through their authorized representatives on the day and year last written below.

_____ _____

Michael R. Duyck, Fire Chief — Date
Tualatin Valley Fire and Rescue

_____ _____

Erin Holmes, Project Leader — Date
Tualatin River National Wildlife Refuge

Exhibit A. Principal Contacts

TUALATIN RIVER NWR MOU			
PRINCIPAL CONTACT LIST			
NAME	**TITLE**	**OFFICE**	**CELL**
Erin Holmes	Project Leader Tualatin River NWR	(503) 625-5944	(503) 816-1227
Greg Hagedorn	Zone Fire Management Officer, FWS	(541) 757-7236	(503) 913-2883
Michael Duyck	Fire Chief, Tualatin Valley Fire & Rescue	(503) 259-1500	(503) 302-7629

Exhibit B. General fire suppression guidelines

Due to the urban nature of Tualatin River NWR any unwanted fires within the Refuge boundary will be fully suppressed. The appropriate Service personnel should be contacted immediately to assist with fire suppression strategies. In general, minimum suppression impact tactics (MIST) should be utilized to minimize resource damage due to suppression actions. Suppression actions would include using existing natural and human-made fire breaks to catch the fire at the smallest possible size. Unless there is an imminent threat to life or property, the use of heavy equipment should be avoided without consulting with Service personnel. Air resources can be utilized on Service lands. Water bucket drops are authorized; however, the use of retardant is prohibited without consulting with Service personnel.

Appendix F. *Memorandum of Understanding, Gaston Rural Fire Department*

MEMORANDUM OF UNDERSTANDING

BETWEEN
THE UNITED STATES FISH AND WILDLIFE SERVICE
AND
GASTON RURAL FIRE DISTRICT
FOR
TUALATIN RIVER NATIONAL WILDLIFE REFUGE

This Memorandum of Understanding (MOU) is made and entered into and between the U.S. Fish and Wildlife Service, Tualatin River National Wildlife Refuge (Service) and Gaston Rural Fire District (GRFD), and is effective upon signing by both parties.

VII. AUTHORITIES

The Service has entered into this MOU under the following authorities;

- Reciprocal Fire Protection Act of May 27th, 1955 (69 Stat. 66, 42 U.S.C 1856a-d)
- Economy Act of June 30, 1932, (31 U.S.C. 1535 as amended)
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, (Public Law 93-288, as amended, 42 U.S.C. 5121-5207)

VIII. PURPOSE

The purpose of this agreement is to coordinate and provide cooperative fire protection between the Service and GRFD, in order to more efficiently and effectively suppress wildfires from damaging structures and lands managed by the Service. This MOU is consistent with the existing Master Cooperative Fire Protection Agreement (FWS agreement #: 10132-9-J102) and further describes the working relationship, financial arrangements, and joint activities between the Service and GRFD not otherwise specified under the terms of the Master Cooperative Fire Protection Agreement.

IX. RECITALS

Whereas, both parties have fire protection responsibilities upon lands of their respective jurisdiction, intermingles and adjoining fire protection responsibilities, and limited fire protection resources;
Whereas, the Service is the jurisdictional agency responsible for fire protection on Service lands;
Whereas, the Service has limited specialized equipment and qualified personnel required to fight structural and wild land fires;
Whereas, GRFD can provide initial attack capability to support and supplement the Service's and other fire protection cooperator's resources; and
Whereas, GRFD can provide multiple engines and overhead for fire suppression activities within GRFD's jurisdiction, including suppression of accessible wild land fires on Service lands within GRFD's fire protection boundary.
Whereas, if initial attack suppression actions by GRFD are unsuccessful and the fire will not be contained within the next burning period, dispatching and continued incident support services will likely be transferred to Columbia Cascade Communication Center (CCCC). CCCC will then provide extended attack dispatching support for the incident. This transfer will occur in consultation with the FWS fire representative.
Therefore, for the mutual consideration herein stated, the parties herby enter into this MOU.

X. DEFINITION OF TERMS

J. Principal Contacts. A list of appropriate contacts for GRFD and the Service.

K. Direct Costs. Costs directly related to the suppression effort. These costs do not include dispatch or other administrative costs.

L. Jurisdictional Agency. Agency which has overall land and resource management and/or protection responsibility as provided by Federal or State law.

M. Overhead Costs. Costs not directly chargeable to suppression efforts, but which are part of the overall cost of operation.

N. Suppression Work. All work of confining and extinguishing a fire beginning with its discovery.

O. Reimbursable Work. Providing monetary compensation at the Oregon State Fire Marshal's Standardized Costs Schedule, Fire Service Mobilization Plan hourly reimbursement rate table, as updated annually for the use of any fire engines, fire support vehicles or equipment and wages for qualified wildland fire personnel and support staff responding to wildfires on Service lands.

P. Appropriate Charges. Comprises all charges related to direct fire suppression, initial attack, fire control and mop up. Appropriate charges include: personnel charges and equipment operating costs (per Oregon State Fire Marshal Rate Schedule).

The following charges are excluded from reimbursement and are not considered Appropriate Charges:

a. Backfill for station personnel engaged in fire suppression on Service lands for period of less than 8 hours.
b. Replacement of equipment damaged during initial or extended attack not pre-approved by the Service.
c. Billing for services that are outside of the Oregon State Fire Marshals Rate Schedule and not pre-approved by FWS officials prior to submission for billing.

Q. Multijurisdictional Incident. An incident requiring action from multiple agencies that each have jurisdiction to manage certain aspects of an incident. In ICS, these incidents will be managed under Unified Command.

R. Unified Command. An application of ICS used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command to establish their designated Incident Commanders at a single ICP and to establish a common set of objectives and strategies and a single Incident Action Plan.

XI. FIRE PROTECTION

The Service shall:

D. Reimburse GRFD for all Direct Costs, Overhead Costs, Suppression Work, and Reimbursable Work as defined in article IV.

E. Reimburse GRFD under the provisions within this MOU no less frequently than every 30 days. Reimbursement shall be at the rates provided under Section IV-F. Reimbursement for costs not specified in in the Oregon State Fire Marshal's Standardized cost Schedule must be pre-approved by appropriate Service fire management staff prior to submission for reimbursement.

F. Annually provide GRFD with an updated principal contact list.

GRFD shall:

G. Upon request by the Service, conduct initial attack on structural and/or wildland fires occurring on Service lands.

H. Provide resources as current conditions permit. Assistance will only be provided when GRFD determines, in its sole discretion that the resources are available and can be committed without jeopardizing GRFD's ability to protect its own jurisdiction.

I. Follow all fire suppression guidelines addressed in Exhibit B of this MOU.

J. Report fires promptly to the Principal Contacts (Exhibit A) for the Service upon discovering or receiving reports of structural and/or wildland fire on Service lands.

K. Forward the necessary fire report data to the responsible Service representative identified in the Principal Contact list (Exhibit A) when GRFD suppresses structural and/or wildland fires burning wholly or in part on Service lands.

L. Dispatch only personnel who meet or exceed the minimum training requirements of the GRFD when responding pursuant to this MOU.

Both the Service and GRFD shall:

G. The parties will annually provide Principal Contact information prior to the initiation of fire season. The information will include protection area maps for any new lands acquired by the Service, names and numbers for principle contacts (Exhibit A) and the updated Oregon State Fire Marshal's Standardized Costs Schedule, Fire Service Mobilization Plan hourly reimbursement rate table. These rates can be found in Appendix C of the Oregon Fire Service Mobilization Plan found at the following link.
http://www.oregon.gov/osp/SFM/docs/emergency_mobilization/mobplan2012.pdf

H. Waive all claims between and against each other which may arise from the performance of work under this MOU, including compensation for loss or damage to each party's property and personal injury, including death of employees, agents and contractors of each party. This waiver shall not apply to intentional torts or acts of violence against persons or property. Furthermore, the requesting party agrees to save and hold harmless the responding party from and indemnify the responding party against any and all third party liability for or on account of any death or injury to a person, or damage to property arising out of any action by the personnel of the responding party excluding gross negligence or intentional torts.

I. Agree that the officer-in-charge who arrives first at a wildfire burning on or near lands of both parties will act as Incident Commander (IC). When representatives of both parties have arrived at a fire, the officers-in-charge for each party will mutually agree to designate an IC, provided that nothing shall prevent a party to whom a request is made from refusing to respond when the sole determination of that party's commanding officer is that responding to the incident would create an unreasonable risk of danger to that party's employees, equipment or a third party.

J. Shall be responsible for the training and welfare of personnel they dispatch, including the treatment of any personal injuries which may result during any fire or en route to or from any fire as provided by the laws and regulations under which each party operates.

K. Each party is responsible for operating, servicing, repairing and replacing their own equipment, except as agreed upon in writing by both parties in advance.

L. Regardless of an incident's location employees of GRFD and the Service will be subject only to the laws, regulations and rules governing their respective employers. No employee shall be

entitled to compensation and/or benefits under this MOU except as specifically provided for under the terms of his or her employment with respective employer.

XII. GENERAL PROVISIONS

H. Neither party shall be required to incur expenses under the terms of this MOU, except as necessary to effectively implement this MOU. Additional expenditures and/or rates for equipment OVHD and/or personnel not specified in Appendix C of the Oregon Fire Service Mobilization Plan shall be subject to reimbursement as agreed by the parties hereto and approved by appropriate Service fire management staff prior to submission for payment.

I. Parties shall provide upon request any maps, documents, instructions and law enforcement reports which either party considers necessary to conduct work associated with this MOU.

J. Both parties shall comply with all Federal statutes relating to nondiscrimination and all applicable requirements of other Federal laws, executive orders, regulations and policies, including but not limited to;

- **i.** Title VI of the Civil Rights Act of 1964 (USC 2000d) which prohibits discrimination on the basis of race, color, handicap or national origin;
- **ii.** Title IX of the Education amendments of 1972, as amended (USC 1681-1683) which prohibits the discrimination on the basis of sex.

K. Either Party, through their authorized representatives, and after providing reasonable notice to the other party, shall have the right to obtain access to and examine all books papers or documents related to this MOU.

L. Modification of this MOU shall be made by mutual consent of both parties through the issuance of a written modification that is signed and dated by both parties prior to any changes being performed or taking effect.

M. Either party may terminate this MOU by providing 60 days written notice to the other.

N. Unless terminated by written notice, this MOU shall remain in effect for five years from the date of the last signature.

The party's hereto have executed this Memorandum of Understanding by and through their authorized representatives on the day and year last written below.

_____ _____

Roger Mesenbrink, Fire Chief Date
Gaston Rural Fire District

_____ _____

Erin Holmes, Project Leader Date
Tualatin River National Wildlife Refuge

Exhibit C. Principal Contacts

TUALATIN RIVER NWR MOU			
PRINCIPAL CONTACT LIST			
NAME	**TITLE**	**OFFICE**	**CELL**
Erin Holmes	Project Leader Tualatin River NWR	(503) 625-5944	(503) 816-1227
Greg Hagedorn	Zone Fire Management Officer, FWS	(541) 757-7236	(503) 913-2883
Michael Duyck	Fire Chief, Tualatin Valley Fire & Rescue	(503) 259-1500	(503) 302-7629

Exhibit D. General fire suppression guidelines

Due to the urban nature of Tualatin River NWR any unwanted fires within the Refuge boundary will be fully suppressed. The appropriate Service personnel should be contacted immediately to assist with fire suppression strategies. In general, minimum suppression impact tactics (MIST) should be utilized to minimize resource damage due to suppression actions. Suppression actions would include using existing natural and human-made fire breaks to catch the fire at the smallest possible size. Unless there is an imminent threat to life or property, the use of heavy equipment should be avoided without consulting with Service personnel. Air resources can be utilized on Service lands. Water bucket drops are authorized; however, the use of retardant is prohibited without consulting with Service personnel.

Appendix G. *Example: Delegation of Authority to Incident Commanders*

Subject: Delegation of Authority to Manage Type VI and Type V Incidents

To: ICT5, ICT5(T), ICT4, ICT4 (T) Fill in Name

From: ********, Project Leader, U.S. Fish and Wildlife Service, Tualatin River National Wildlife Refuge

You are delegated authority to manage the suppression of Type V Incidents to which you are assigned and qualified as Incident Commander, in accordance with the following guidelines, priorities, and constraints, until such time as you are relieved of command by my representative or me.

Goals and constraints for managing Type V Incidents are as follows:

- Ensure the safety of firefighters and the public.
- Adhere to the 10 Standard Fire Orders, LCES, and 18 Situations at all times.
- Protect life and property.
- Be cost efficient when ordering resources.
- Follow all guidelines that pertain to the use of retardants and foam.
- Maintain communication with (insert dispatch center here) and Complex Duty Officer at all times.
- Be considerate of cooperating agency policies when assisting in fire suppression on non-Service lands.
- Use appropriate management response suppression tactics as defined in the Fire Management Plan.
- Maintain accurate records for fire reporting and documentation.
- Protect fire origin and order an investigator on fires where cause may be other than lightning.
- Conduct regular tailgate safety sessions to discuss job hazards and what measures are necessary to mitigate accidents to injuries. Document, as needed and submit any safety records to Zone FMO or his/her acting.
- Utilize information/processes in the ~~"I~~ncident Response Pocket Guide" and ~~"W~~allet Card."

Fire Management Officer, Greg Hagadorn, or his designee have been assigned as my representative. He, or his acting, is authorized to make decisions and recommendations regarding the management of Type V and Type VI Incidents within the level of authority delegated to me.

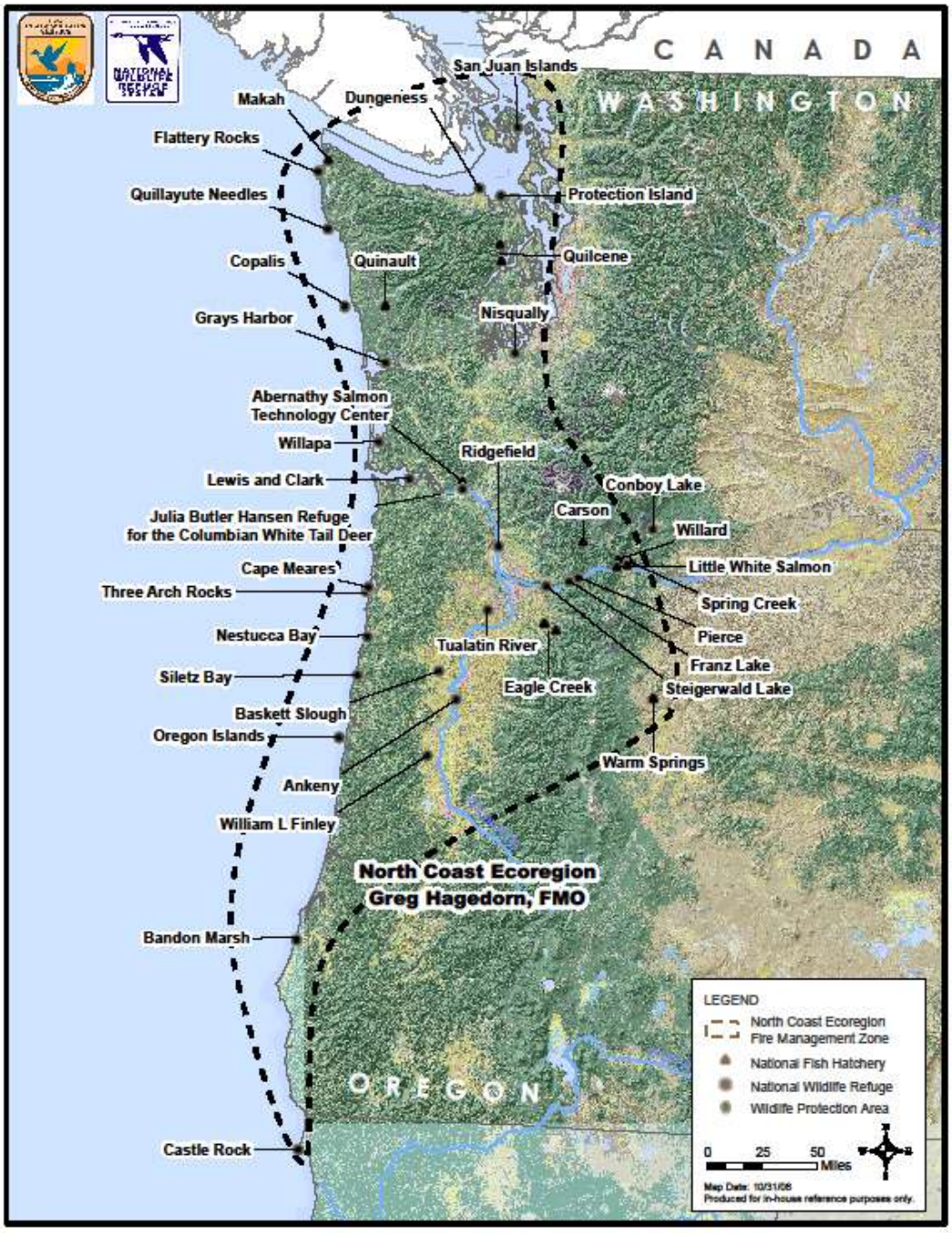
/s/******

Tualatin River National Wildlife Refuge
Project Leader

Appendix H. *Annual Review Check List*

Element	Yes	No	Comment
1. Date FMP was approved _____ • Annual Review yrs 1 – 4 by Refuge Manager • Year 5 of Plan, Contact Complex FMO. FMP requires revision and Regional Director approval.			
2. Will the FMP continue to adequately provide for firefighter and public safety as the first priority in every fire management activity this year?			
3. Does this FMP continue to support land and resource management Plans? • Completion of CCP or new habitat management plan might require more extensive FMP revision.			
4. Were there any significant fire management activities from the previous year that were not adequately addressed within the scope of this FMP?			
5. Does the direction in this Plan remain economically viable given the values needing protection, and the costs to administer?			
6. Does this FMP continue to be based on best available science?			
7. Does the FMP provide for adequate response to wildland fire (wildfire) and prescribed fire (if applicable)? • Directories/Contact List(s) updated • Agreements and Operating Plans current • Staffing/equipment meet Service policy and ready • Annual work and Prescribed Burn Plans completed • Seasonal Assessment made by Complex FMO			
8. Were there additional lands added to the refuge last year? • Total acres to amend _____ • Burnable acres _____			
9. If additional lands were added, will environment compliance requirements (EA for this FMP) adequately allow for fire management program activities to be conducted if appropriate?			
10. Based on FMO advice, are there changes in national fire policy or direction that now conflict with direction within the FMP? • Policy changes warrant an amendment. • Policy changes are significant – need for immediate revision. • Policy changes can be incorporated within the 5-year revision.			
11. Considering the responses above, can this FMP be amended without further review? • If yes, attach amended information, including maps. Refuge Manager approval. Notify the Complex FMO. • If no, most likely the FMP and/or environmental compliance require Plan revision and Regional Director approval. Contact Complex FMO for assistance.			

Appendix I. *Zone FMO Area of Responsibility*



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© Guy Larson

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Map 10: Atfálat'i Unit, Current Management: Public Use Opportunity Areas
Map 11: Sherwood Units, Management Direction: Public Use Opportunity Areas

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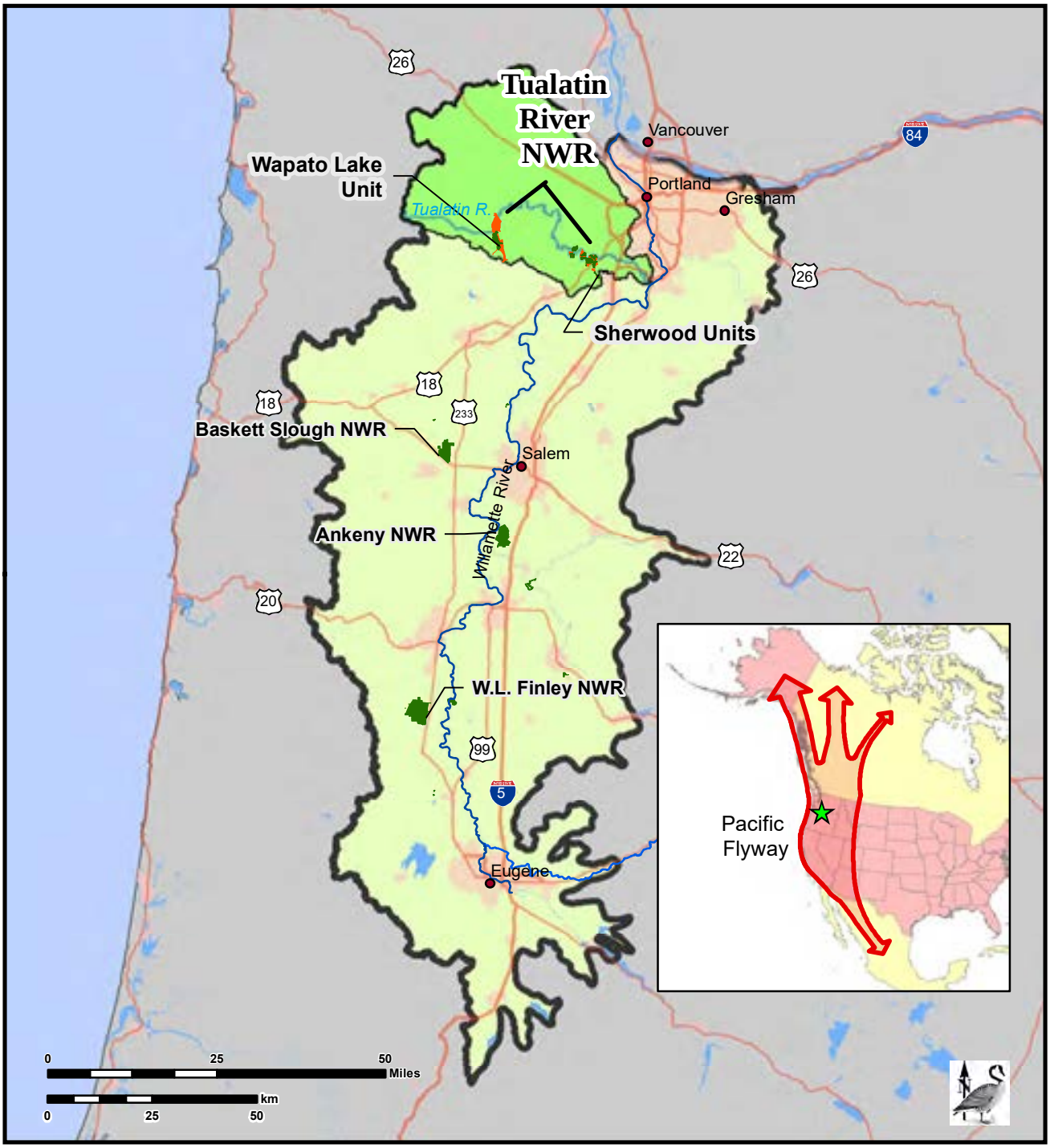
Map 1 ***Willamette Valley Ecoregion, Regional Context***



LEGEND

- Tualatin River NWR Approved Boundary
- USFWS Refuges
- Tualatin River Watershed
- Urban Growth Boundary
- Water
- Willamette Valley Ecoregion

Map Date: 03/15/2013 File:12-160-1.mxd

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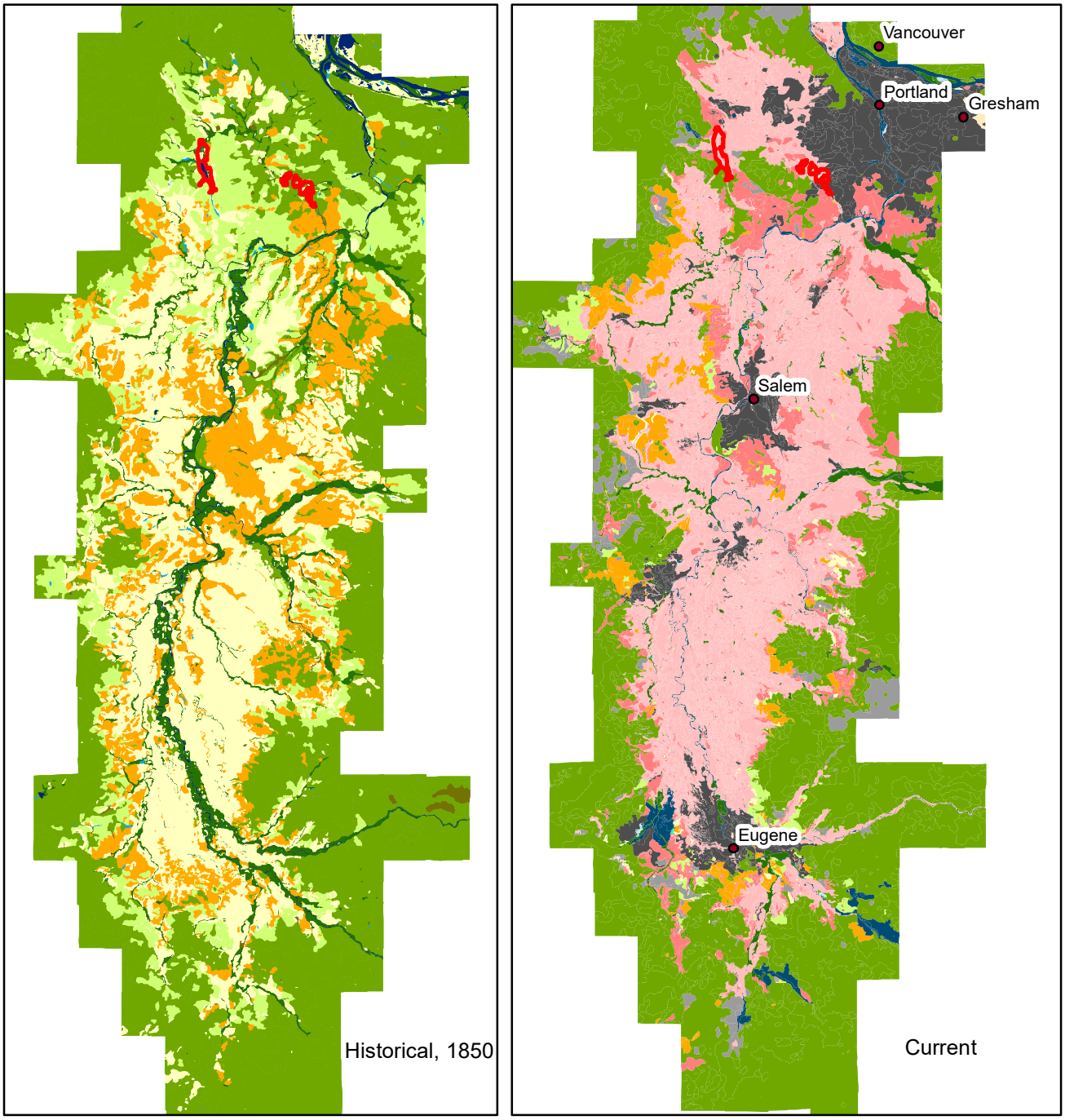
Map 2 ***Willamette Valley, Historical (1850) and Current Land Cover***



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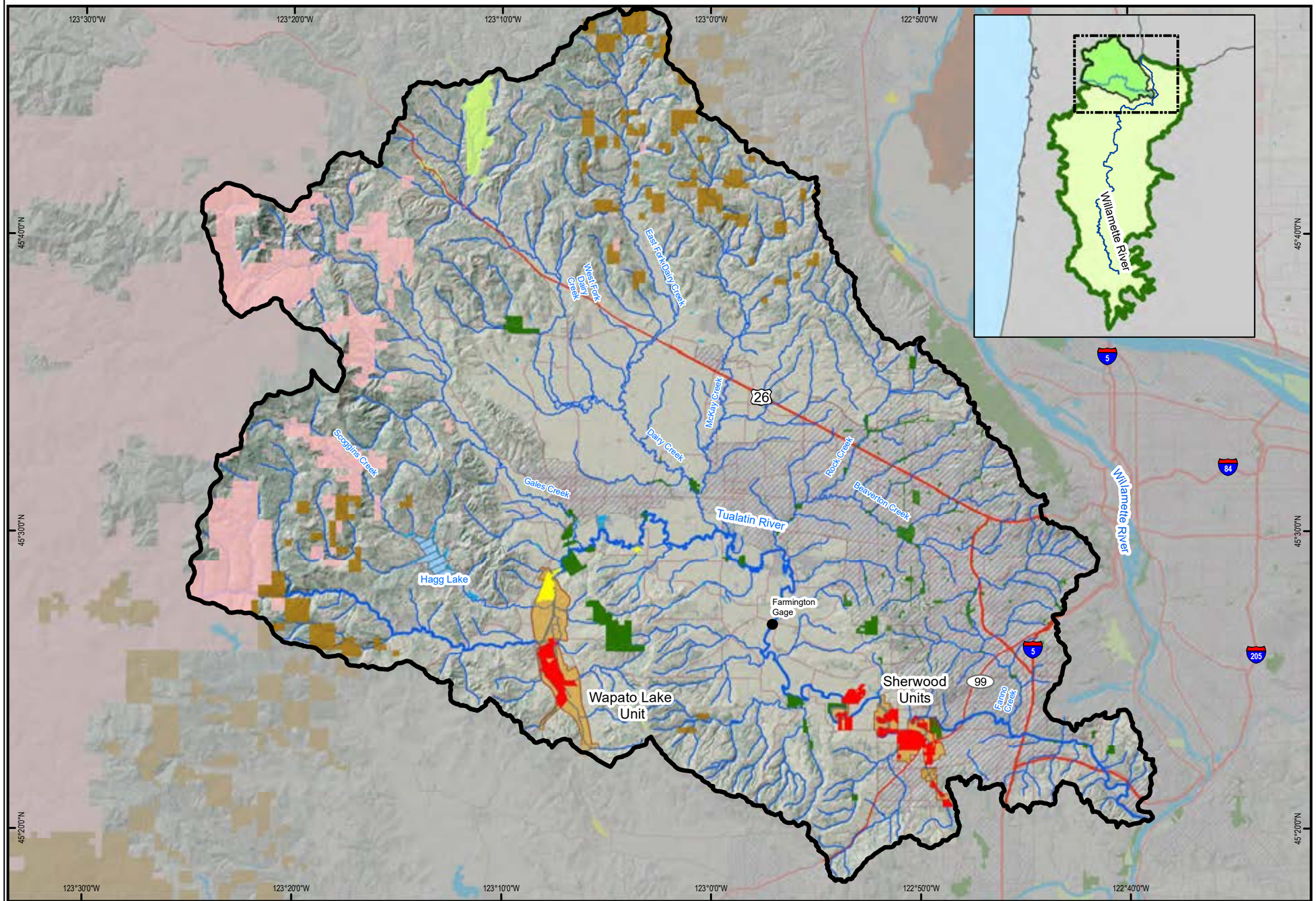
Map 3

Tualatin River Watershed and Conservation Lands



Conservation Lands in the Tualatin River Watershed

Legend

- NWR Approved Boundary
- Acquired NWR Land
- Bureau of Land Management
- Bureau of Reclamation
- City and Regional Parks
- Oregon Dept. of Forestry
- State Fish and Wildlife
- State Parks & Recreation
- Urban Growth Boundary
- Conservation Easements

0 2.5 5 Miles

0 2.5 5 km

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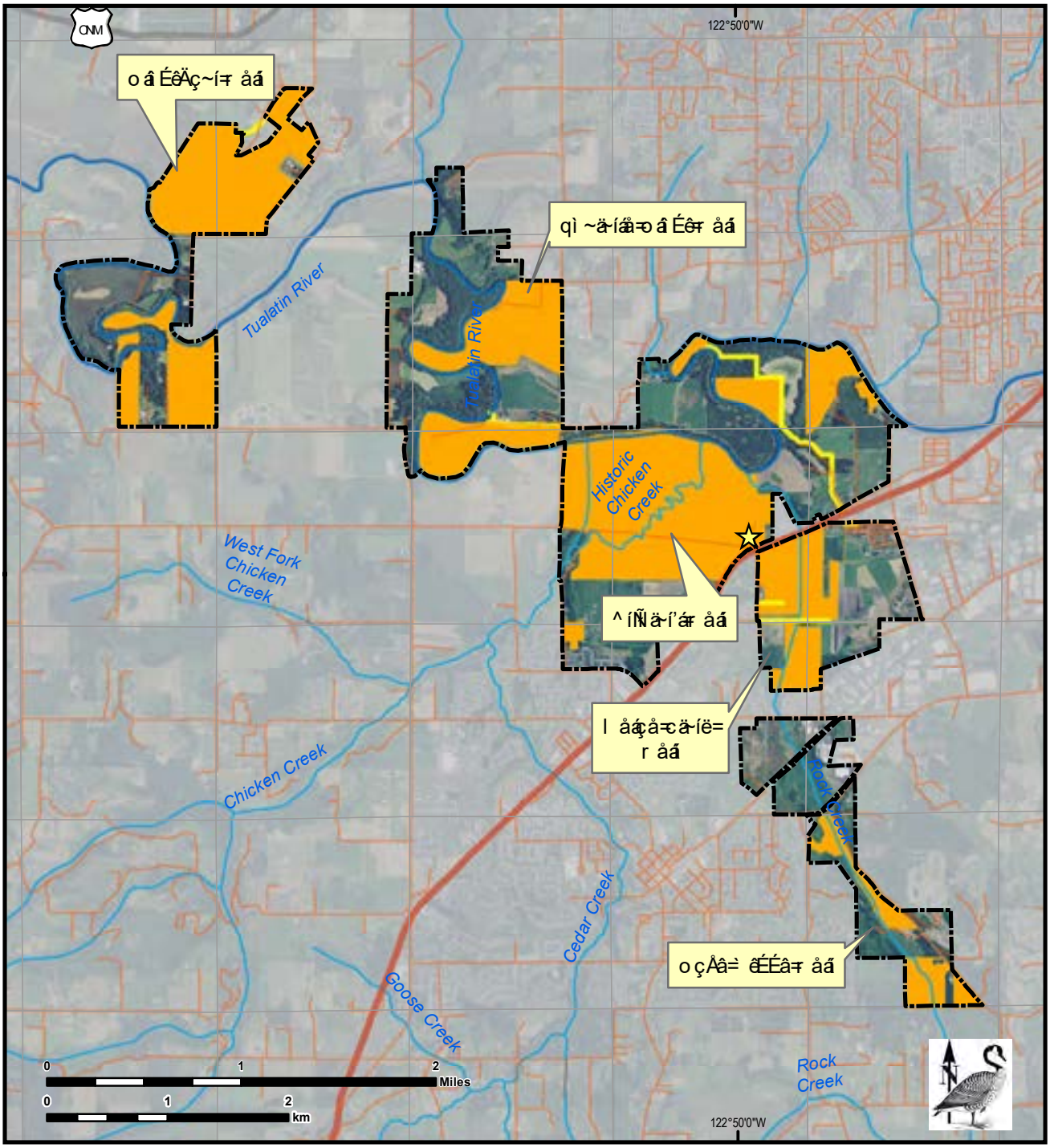
Map 4 ***Sherwood Units, Land Status***



Legend

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- ^é éêçî ÉÇ=_ çì åÇ~êó
- lí ÜÉêo ç~Çë
- j ~àçê=o áÜï ~óë
- b~ëÉã Éåíë
- j ~å~ÖÉÇ=Äó=o ÉÑl ÖÉ

Map Date:2/08/2012 File: 12-160-2.mxd

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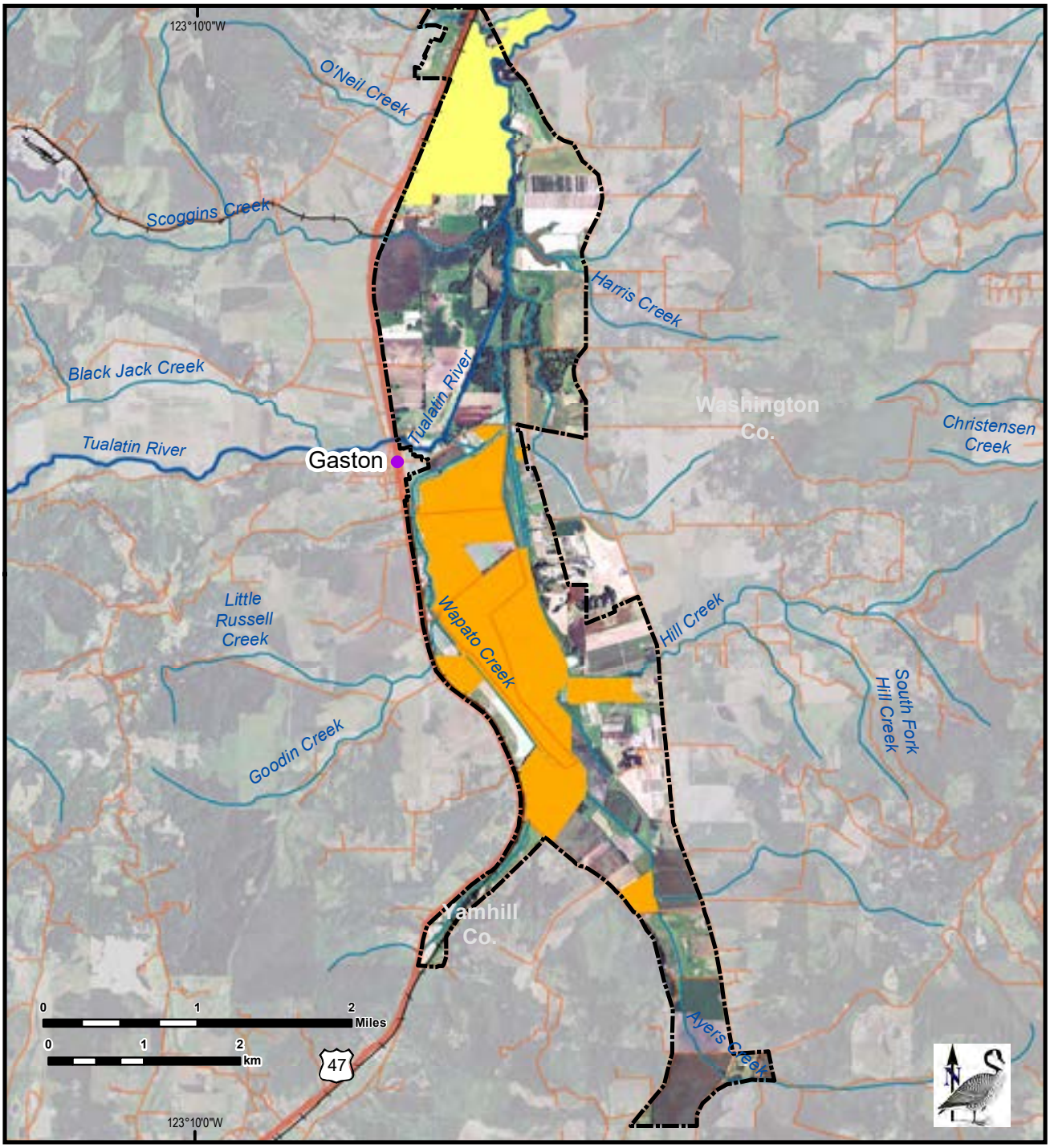
Map 5 ***Wapato Lake Unit, Land Status***



Legend

- Approved Boundary
- Other Roads
- Natural Resource Conservation Service Easement
- Major Highways
- Managed by the Refuge

Map Date:03/15/2013 File: 12-160-5.mxd

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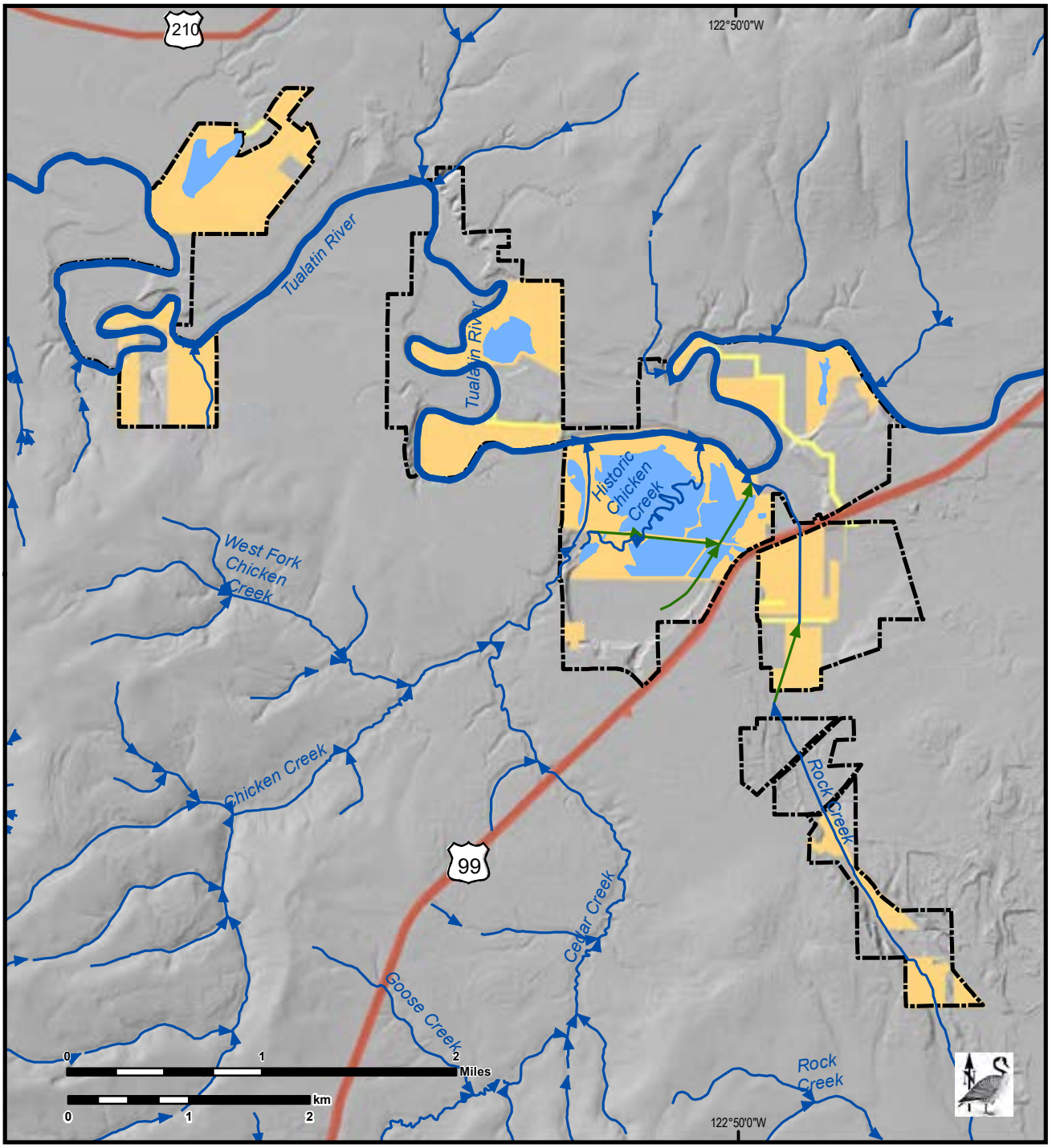
Map 6 ***Sherwood Units, Hydrology***



Legend

- Stream/River
- Canal/Ditch
- Herbaceous Wetland
- Approved Boundary
- Easements
- Managed by the Refuge

Map Date:2/08/2012 File: 12-160-6.mxd

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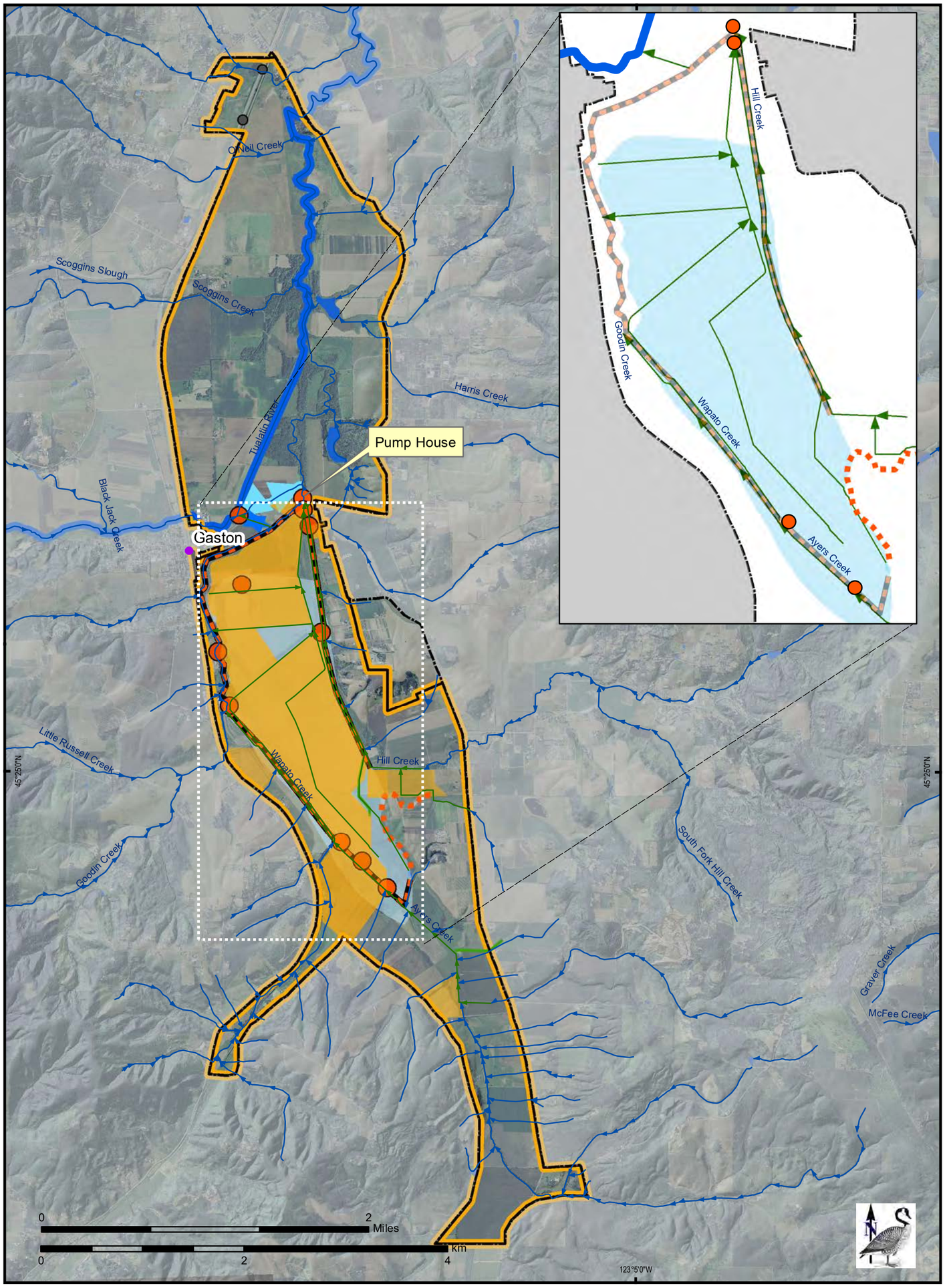
Map 7 ***Wapato Lake Unit Hydrology***



Legend

- Stream/River
- Canal/Ditch
- Water
- Historical Lakebed
- Levee
- Natural Levee
- Water Control Structures
- Acquisition Boundary
- Managed by the Refuge

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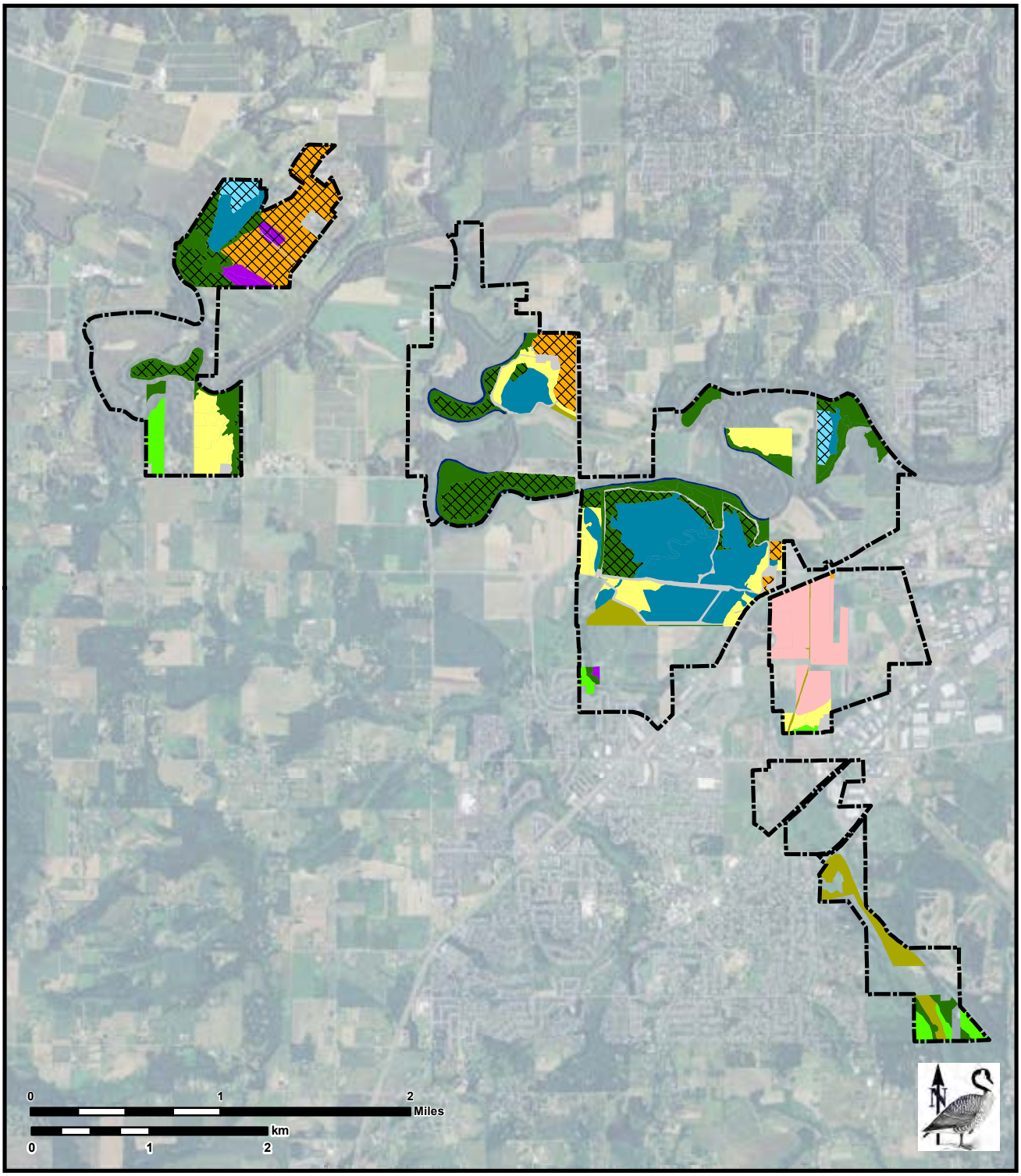
Map 8 ***Sherwood Units, Current Habitat Management***



Legend

- Habitat Currently in Restoration
- Water
- Herbaceous Wetland
- Prairie - Wet
- Riparian Forest
- Mixed Forest
- Scrub-Shrub Wetland
- Oak Savanna & Prairie
- Ruderal Wetland
- Ruderal Upland
- Cultivated
- Developed
- Approved Boundary

Ruderal communities are vegetation resulting from succession following anthropogenic disturbance of an area. They are generally characterized by unnatural combinations of native species or primarily invasive nonnative species, such as disturbed range lands

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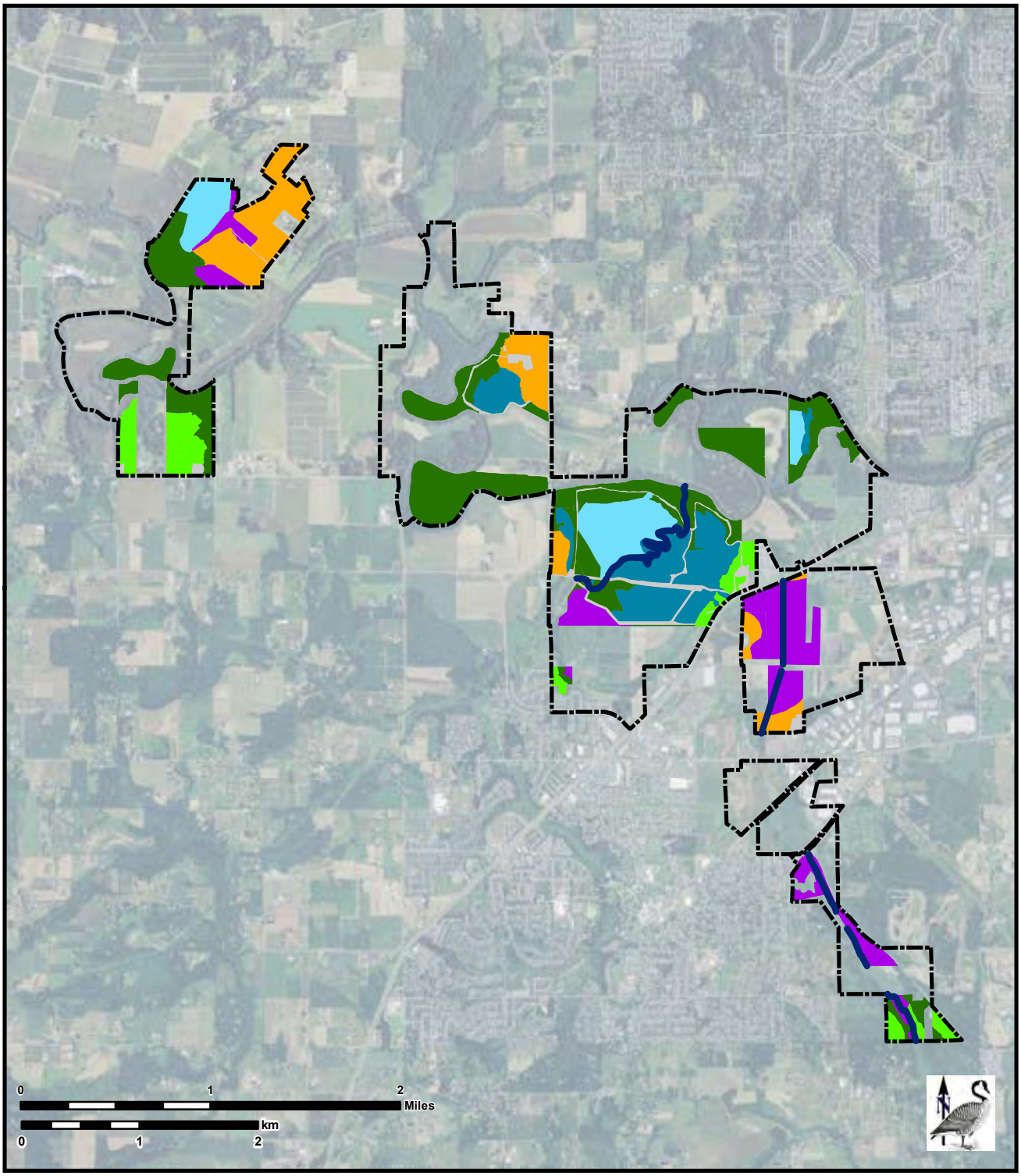
Map 9 ***Sherwood Units, Management Direction***



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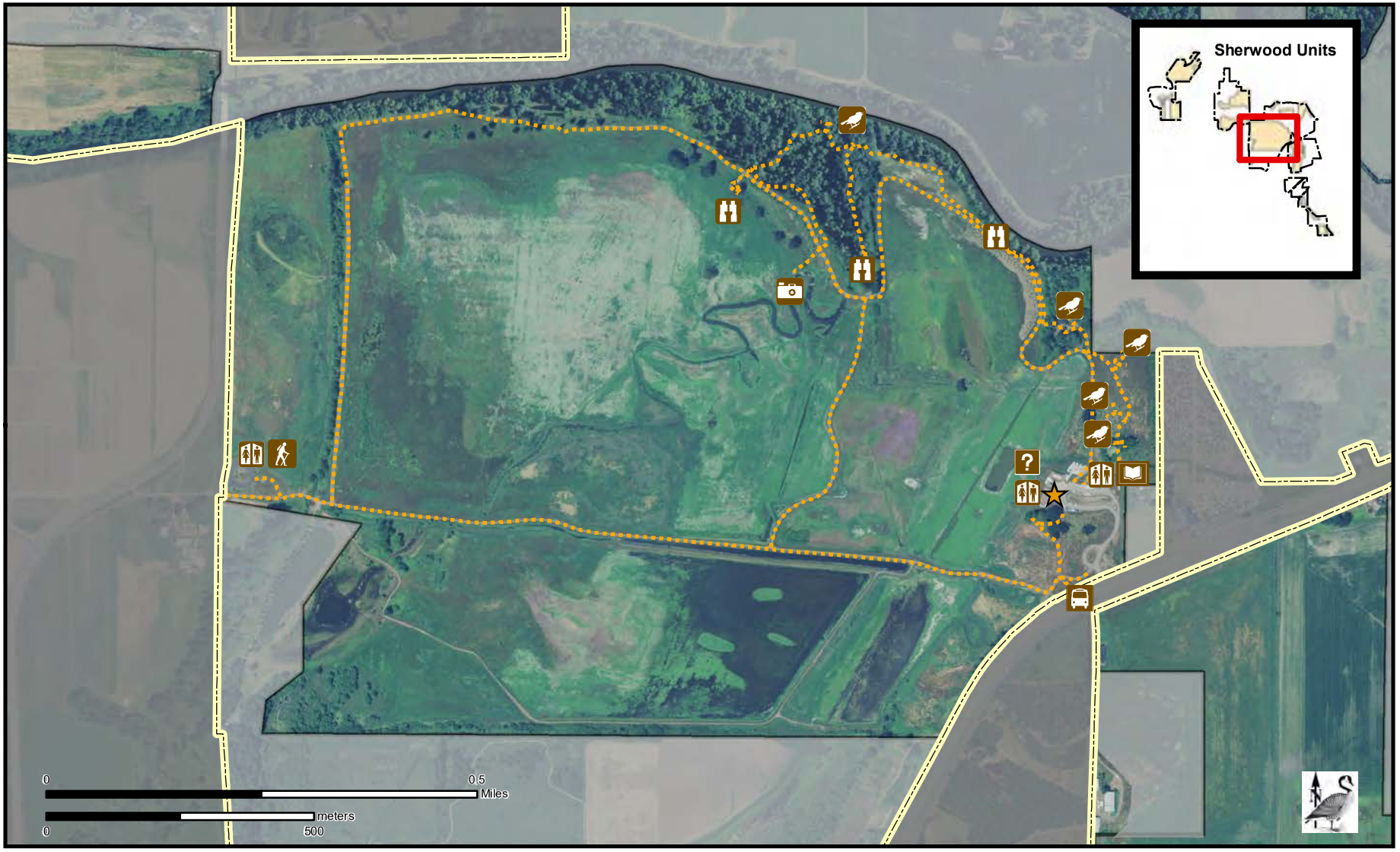
Map 10 ^íÑHä-t'á¤r åáÍl= ì êêÉåí¬j ~å~ÖÉã ÉåíWm ÄäÄ¬r ëÉ‡ ééçêî åáó=^ êÉ~ë



Restroom
Trailhead
Observation Deck
Photo Blind
Study Site
Bus Stop
Visitor Info
Environmental Education Shelter
Wildlife Center
Trails
Approved Refuge Boundary
Outside of Approved Refuge Boundary
Inside Approved Boundary

Map Date:03/15/2013 File: 12-160-10.mxd

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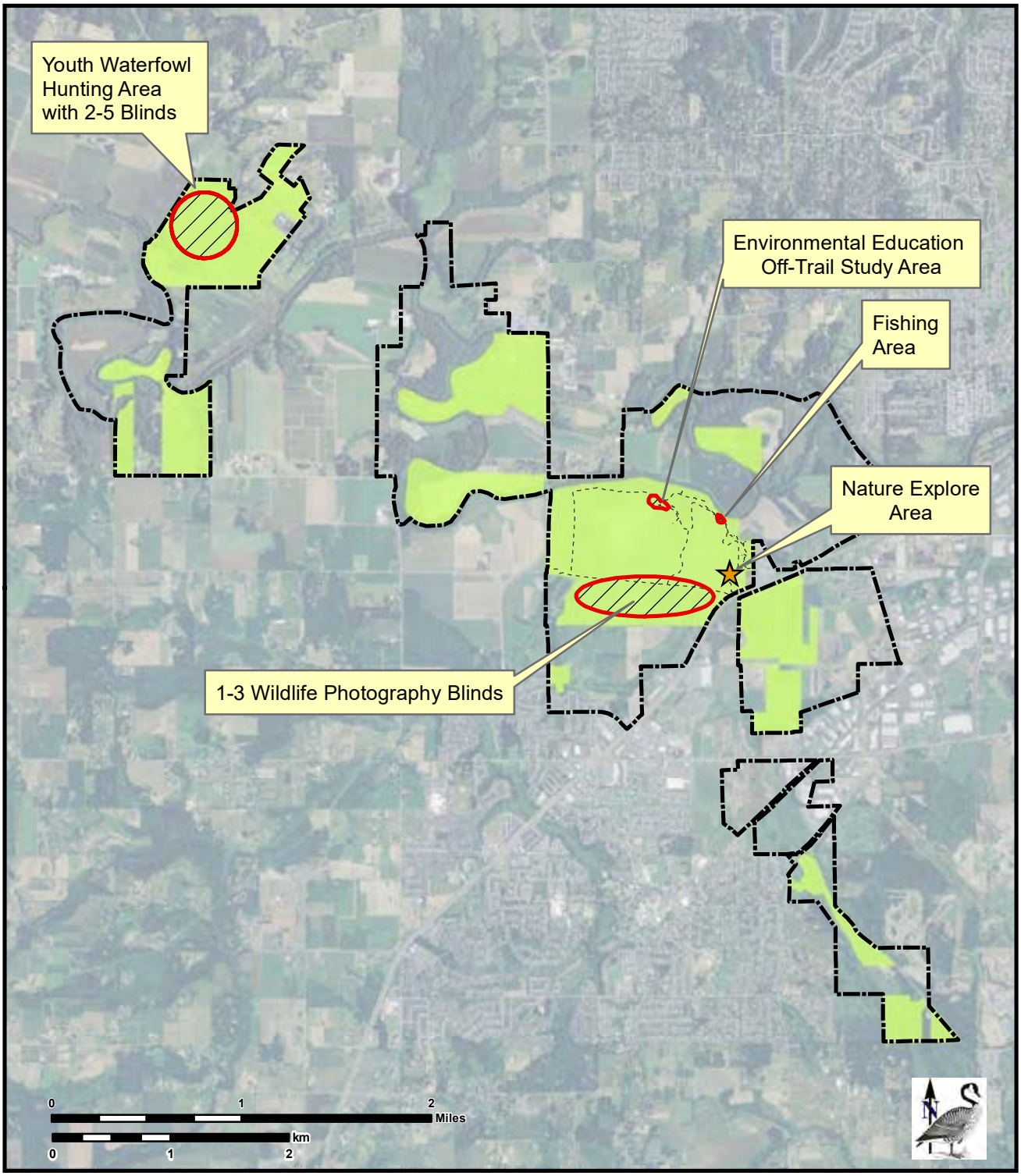
Map 11 ***Sherwood Units, Management Direction: Public Use Opportunity Areas***



Legend

- Approximate Public Use Opportunity Areas
- ExistingTrails
- Wildlife Center
- Approved Refuge Boundary

Map Date:03/15/2013 File: 12-160-11.mxd

U.S. Department of the Interior
U.S. Fish & Wildlife Service
Tualatin River
National Wildlife Refuge
19255 SW Pacific Highway
Sherwood, OR 97140

Phone: 503/625 5944
Fax: 541/947-4414

June 2013

Rough-skinned newt
©Mary Campbell

Landowner's Guide for Compatible Use of BPA Rights-of-Way

February 2011

We need your help to keep the way clear for safe and reliable service

Keeping transmission lines safe and reliable is a critical priority for the Bonneville Power Administration. The key element in achieving those objectives is BPA's ability to construct, operate and maintain its transmission lines and rights-of-way — the area under and around the lines.

You can help BPA keep these rights-of-way clear of trees, brush and structures that could affect the safety or reliability of the transmission system.

Keep the way clear for safety and service

Prior to planting, digging, or constructing within BPA's rights-of-way, fill out BPA's Land Use Application Form. The information you provide on the application helps BPA understand your proposed use and the potential impacts to public safety, and the safety of our crews. BPA also reviews the application to determine whether a proposed use of land is compatible with the construction, operation and maintenance of BPA transmission lines. Coordinating with BPA early in your planning process can keep you safe and avoid wasting time and money.

Coordination of land uses

BPA's rights-of-way can sometimes be available for other, compatible, uses. BPA wants to help you carry out your plans in ways that are safe and satisfactory for everyone. Therefore, you are encouraged to make prior arrangements with BPA through the Land Use Application process.

BPA takes several factors into consideration when applications for use of the right-of-way are reviewed.

Our transmission lines were designed to take topography, physical features, environmental and cultural constraints into consideration. BPA's land rights as they relate to the location of your proposed use are also reviewed. If your project is not compatible with BPA's transmission lines, you may be asked to modify your design. In extreme cases, BPA may be able to modify its transmission facilities; however, you would be required to pay for the modifications.

Please consider the following guidelines when preparing your application:

- Maintain at least 50 feet of clearance from BPA's poles, structures or guy wires, whether it be vegetation, roads, fences, utilities, pipelines, or any other improvements.
- Maintain at least 25 feet of clearance from the top of any vegetation and the lowest point of BPA's wires. Do not attempt to measure this distance yourself! You only need to identify the species of the vegetation you propose to plant in the right-of-way so that BPA can consider the mature height of the vegetation.
- Design roads, underground utilities and piplines to withstand HS-20 loadings (a federal highway standard).

Who we are

The Bonneville Power Administration is a federal agency headquartered in Portland, Ore., that markets wholesale electricity and transmission services to the Pacific Northwest's public and private utilities as well as to some large industries.

BPA provides about one-third of the electricity used in the Northwest and operates more than 15,000 circuit miles of transmission lines. To deliver power, BPA operates and maintains a transmission network throughout Oregon, Washington, Idaho and Montana with small portions into Wyoming, Nevada, Utah and California.

- Design roads, utilities and pipelines to cross BPA's rights-of-way, rather than a long, parallel alignment.
- Ensure concurrence of underlying property owner when not BPA.

Three important steps

There are three important steps that you can take to keep safe and avoid wasting time and money:

1. Call BPA before you plant, dig or build: 1-800-836-6619.
2. Fill out BPA's Land Use Application: *www.transmission.bpa.gov/LanCom/Real_Property.cfm.*
3. Obtain a written Land Use Agreement from BPA before proceeding with your project.

Location surveys

You are encouraged to have a licensed surveyor determine the location of the BPA rights-of-way before beginning any construction activities. Unfortunately, many people inadvertently build structures on BPA rights-of-way because they believe they know the boundaries of their property, and believe measuring off the conductor or centerline of the towers is sufficient to fix the location of the rights-of-way. Without survey instruments, knowledge of survey law and an understanding of BPA's rights-of-ways, it is impossible to accurately locate property boundaries. By having your surveyor coordinate with the BPA Survey Section, we can prevent many of the encroachment problems that BPA experiences (call 1-800-836-6619 and ask to be connected to BPA's Survey Section).

Danger trees

BPA must identify and arrange to cut trees that, although outside the rights-of-way, may threaten the transmission line because they could fall into the conductor (wires) or structures. Trees that are unstable, diseased, dead or leaning toward the transmission facilities don't need to touch power lines to be dangerous. Electricity can "arc" or

Never cut or trim a tree near a power line. Call BPA!

"flashover" from wires, through the air, to trees or equipment, where it can cause fires, injuries or even fatalities to anyone near the tree or equipment. BPA will arrange to remove these trees.

Available uses of BPA-owned land

Although BPA acquired most of its transmission line rights-of-way as easements, some of BPA's transmission lines are constructed on property BPA owns in fee. BPA also has fee ownership of most of its substation sites as well as other properties BPA acquired to meet its responsibilities. There are three possible options if you wish to use land that BPA owns in fee. You will need to fill out BPA's Land Use Application so that we can determine whether your proposed use interferes with BPA's use. Easements may be granted for permanent uses such as private road crossings or utilities. Leases may be granted primarily for agricultural purposes on occupied or vacant BPA property. Nontransferrable Land Use Agreements may also be granted for use of BPA's fee owned property. Current market value of the land is the basis for the consideration for these transactions.

Information resources

For more information, including regional realty specialist contacts, or access to BPA's electronic Land Use Application form visit BPA's Web site at: *www.transmission.bpa.gov/LanCom/Real_Property.cfm.*

Should you have any questions or would like assistance in completing the application, please call 1-800-836-6619. A BPA realty representative will return your call within two business days.

DOs and DON'Ts

BPA does not permit any use of rights-of-way that are unsafe or might interfere with constructing, operating or maintaining our facilities. These restrictions are part of the legal rights BPA acquires for its rights-of-way. Even when no transmission line has been constructed on the rights-of-way, BPA's rights are maintained for future use. You can avoid or minimize incurring redesign or removal costs and benefit from developing reasonable construction schedules by being aware of the prohibited uses and by applying early in your planning process to BPA for concurrence.

DO call BPA before planting, digging or constructing.

DO check your property and review your property records for transmission rights-of-way encumbrances.

DO take the time to plan projects that conform to proper use of the rights-of-way which includes submitting a BPA Land Use Application form for approval.

DO comply with the terms and conditions of the Land Use Agreement provided by BPA for your safety.

DO consult with BPA when planning subdivisions. Backyards and BPA rights-of-way may not be compatible.

DO report criminal or suspicious activities to local authorities and to BPA's federal Crime Witness Hotline at 1-800-437-2744.

DON'T cut or trim a tree near a power line. Call BPA!

DON'T plant, dig or construct in BPA's rights-of-way without first contacting BPA and submitting a BPA Land Use Application for approval.

DON'T store equipment, materials, waste, flammable material or anything that would cause a fire hazard or other safety issue or impede access by line crews to towers and lines.

DON'T assume the location of BPA's fee-owned or rights-of-way boundaries without first contacting a licensed surveyor and having them coordinate with BPA's surveyors by calling 1-800 836-6619.

Vandalizing BPA property is a crime.

Please report any vandalism or theft to BPA property by calling BPA's 24-hour toll-free hotline at 1-800-437-2744. All information reported through the Crime Witness Program is kept confidential. Cash rewards of up to $25,000 will be paid to those providing information that leads to the arrest and conviction of persons committing the crime.

BONNEVILLE POWER ADMINISTRATION
DOE/BP-4265 • Revised February 2011

Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

Public Comment Draft

Housing Production Strategy

October 2024

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1. Executive Summary

This document is the City of Hillsboro's Housing Production Strategy (HPS). The HPS is a plan required by state law (OAR 660-048-0050) that describes how the City will promote the creation of housing to meet the needs identified in the City's 2023 Housing Needs Analysis (HNA). The HPS includes a variety of tools and actions the City will use to help improve the production, availability, and affordability of housing in Hillsboro, both across the income spectrum and for protected classes. The HPS was created in partnership with a variety of community and local stakeholders, including residents, community leaders, and experts on housing policy and development.

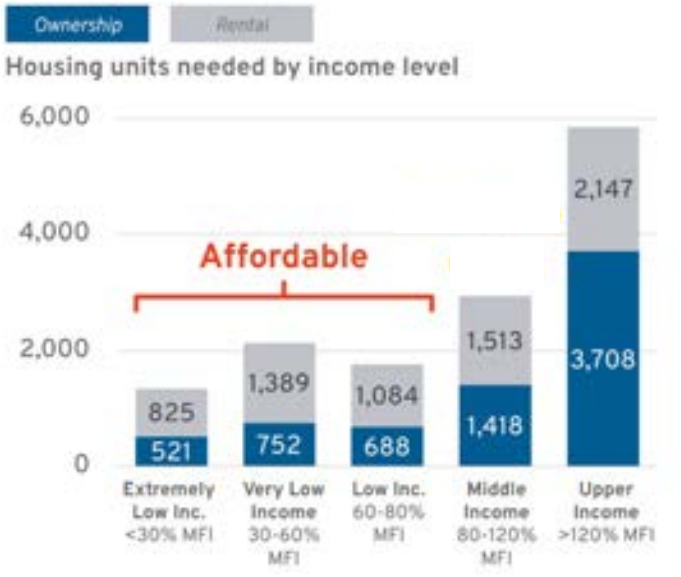
The HPS is organized into seven sections:

1. **Executive Summary.**
2. **Overview of Hillsboro's Contextualized Housing Needs.** This section summarizes current and future housing needs, demographic trends, market factors affecting housing production, and the housing needs of various groups and protected classes.
3. **Community Engagement.** This section summarizes stakeholder and community input used to develop the HPS's actions.
4. **Existing Actions to Promote the Development of Needed Housing.** This section summarizes the actions that Hillsboro has already undertaken to ensure the production of needed housing.
5. **Strategies to Meet Future Housing Need.** This section describes 21 actions the City will undertake to support housing production and fulfill its commitment to meeting its housing needs.
6. **Achieving Fair and Equitable Housing Outcomes.** This section offers a narrative summary of how the actions in the HPS, in combination with other City actions, will achieve equitable housing outcomes.
7. **Measuring Progress.** This section recommends methods and performance metrics for monitoring progress on HPS actions.

Hillsboro's Housing Need

Overall Need

The City of Hillsboro's 2023 HNA showed that the City needs 14,046 new housing units over the next 20 years, including 5,259 units affordable to households earning less than 80% of the median income for a family. The HNA also showed that the housing Hillsboro needs will take a variety of forms, from single detached houses to multi-unit dwellings (i.e. apartments). Roughly half of the need is expected to be for rental units, and the other half is expected to be for ownership units.



Source (Figure on Right): City of Hillsboro's 2023 HNA, Tables EX 5-6

Population-Specific Housing Needs

The diversity of Hillsboro's population is reflected in the diverse range of housing needs present in the City. The list below offers examples of the housing needs experienced by different groups:

Low-income households (less than 80% of median family income). These households represent over 1/3 of the city's need. Due to their limited budgets, they have an elevated need for affordable housing.

Communities of Color. Nearly half (46%) of Hillsboro's residents are People of Color. People of Color have historically had less access to homeownership and tend to be cost burdened (meaning they spend over 30% of their household income on housing) more often than other residents. This means Communities of Color can experience elevated need for affordable housing, particularly ownership housing.

People with disabilities. About 11% of Hillsboro's population has a disability. In Oregon, people with disabilities are more than twice as likely to live in poverty, and some people with disabilities experience difficulties with mobility. This elevates their needs for affordable and physically accessible (e.g. built to Americans with Disabilities Act (ADA) standards) housing.

Seniors. Seniors are 11% of Hillsboro's population and represent a quickly growing population segment in the City. They experience housing problems like cost burden and overcrowding at higher-than-average rates and may experience difficulties with mobility. This elevates their needs for affordable and physically accessible housing.

People experiencing homelessness. As of the 2023 point-in-time count, Washington County has an estimated 773 people experiencing homelessness. This is likely an undercount, given that 753 students in the Hillsboro School District reported extreme housing insecurity or homelessness that same year. People experiencing homelessness have elevated needs for affordable housing, which is sometimes provided with intensive services and given the designation "permanent supportive housing."

The City's housing need is described in greater depth in "Section 2: Overview of Hillsboro's Contextualized Housing Needs."

The City of Hillsboro's HPS Actions

Throughout 2024, City staff—alongside contracted consulting and engagement partners—gathered input from community stakeholders and developed a list of housing actions. These actions aimed at addressing the overall and population-specific housing needs identified in the City's 2023 HNA and Section 2: Overview of Hillsboro's Contextualized Housing Needs. The list of actions draws directly from community members' suggestions, from the team's policymaking experience, from an ongoing audit of Hillsboro's community development code and housing policies, from best practices research, and from a list of potential actions published by Oregon's Department of Land Conservation and Development (DLCD).

The actions are divided into five categories: Regulatory, Land-Based, Partnership, Incentives, and Investments. Later in the document, Section 5: Strategies to Meet Future Housing Need offers a detailed summary of each action, providing with the following information:

- Overview, background, and rationale for the action
- Steps to implement the action, considerations for implementation, and a timeline

- An estimate of magnitude of the action's impact on housing production
- The types of housing need the action addresses (across income, housing type, and tenure)
- The fiscal and administrative impacts of the action on the City
- The Department or Division of the City that will lead implementation

Actions will impact the production of needed housing over time, with some actions having nearer-term effects and others longer-term effects.

Regulatory Actions

- Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates
- Action 1.2: Increase housing in Multi-Dwelling Zones
- Action 1.3: Increase housing in Commercial & Mixed-Use Zones
- Action 1.4: Refine middle housing development standards
- Action 1.5: Streamline design standards
- Action 1.6: User-friendly code
- Action 1.7: Identify and reduce process barriers
- Action 1.8: Explore adopting pre-approved housing plans

Land-Based Actions

- Action 2.1: Coordinate with partners to identify underutilized land
- Action 2.2: Pursue residential land UGB expansion(s)

Partnership Actions

- Action 3.1: Develop new strategic partnerships for state/federal advocacy
- Action 3.2: Continue and expand affordable homeownership partnerships
- Action 3.3 Undertake a Calle Diez Equitable Development Strategy

Incentive Actions

- Action 4.1: Explore fee structure adjustments
- Action 4.2: Analyze scaling select SDCs
- Action 4.3: Evaluate MUPTE to incentivize needed housing and extension of the VHDZ program
- Action 4.4: Evaluate additional tax abatements

Investment Actions

- Action 5.1: Explore strategic infrastructure investments to unlock housing production
- Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production
- Action 5.3: Build a year-round homeless shelter
- Action 5.4: Explore ways to support Permanent Supportive Housing production

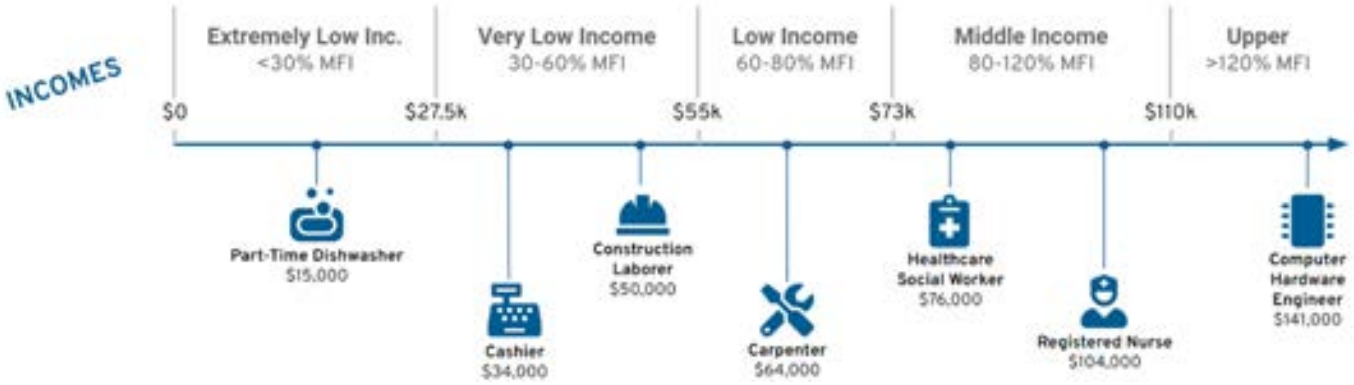
2. Overview of Hillsboro's Contextualized Housing Needs

Hillsboro completed and adopted the 2023 Housing Needs Analysis (HNA) in early 2024. The HNA assesses the City's future land and housing needs and prepares the City to make data-informed decisions about how to respond. This section overviews and reiterates the City's housing needs, ensuring the Housing Production Strategy (HPS) and the actions it includes reflect that latest data. This section fulfills state requirements for a contextualization of the City's current and future housing needs, as found in OAR 660-008-0050 (1).

Understanding the Relationship Between Income & Attainability

Hillsboro's households have a variety of incomes

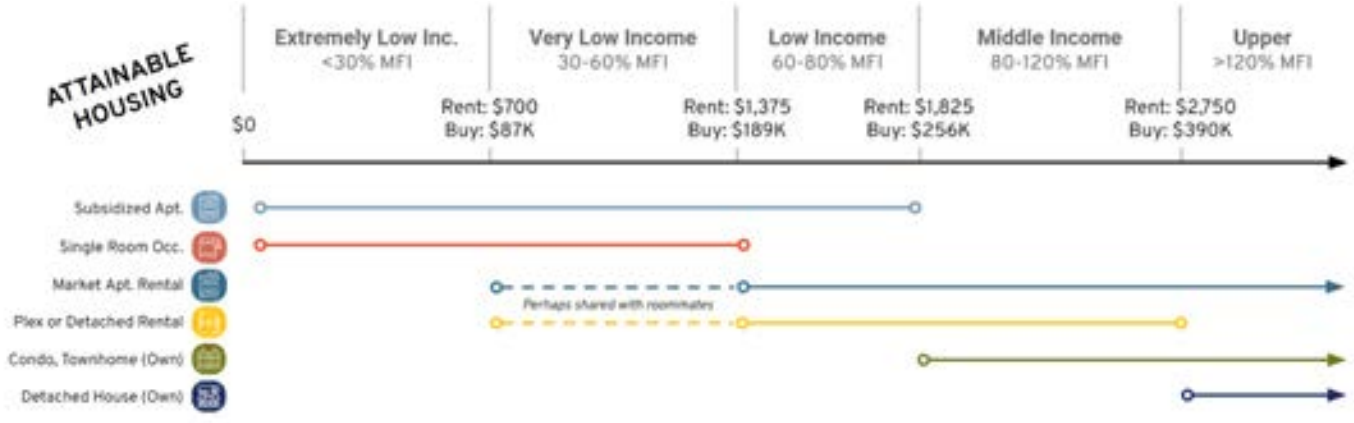
Hillsboro's median household income is about $99,000. This is higher than the statewide and regional medians of $76,500 and $90,500.[1] Despite tending to have more higher income households than a typical Oregon community, Hillsboro still has a range of jobs and incomes. That range is visualized in the graphic below as a spectrum of wages for different common jobs for a community like Hillsboro.



Sources: City of Hillsboro's 2023 HNA, and Bureau of Labor Statistics modeled wage estimates for Oregon, 2022-Vintage. Analyst calculations assume 40 hours per week for a full-time salary.

Income determines the housing price each household can afford, and a variety of housing types are needed to serve households with different incomes

The amount of money a household earns determines how much it can afford to pay for housing. Housing is considered "affordable" when a household spends 30% of their income or less on it. The graphic below



Source: City of Hillsboro's 2023 HNA, specifically for the attainable housing rent and sale prices.

illustrates the idea that different types of housing (e.g. apartments, condos) are available at different prices. This diagram is conceptual – the price ranges it shows are hypothetical rather than based on exact rent data by product type. However, it helps communicate an important principle: a variety of housing types are needed to serve the wide income spectrum in Oregon's communities, Hillsboro included. Ideally, everyone can find housing in their budget. Hillsboro's estimated needs by housing type and income are offered below.

Hillsboro needs 14,046 new housing units over the next 20 years, including 5,259 units affordable to households earning less than 80% of the Median Family Income

As suggested by the graphics on the previous page, the HNA found that the City will need new housing units serving its full income spectrum and taking a variety of forms, from single detached houses to multi-unit dwellings (i.e. apartments). Roughly half of the need will be for rental units, and the other half will be for ownership units. The HNA also projects that over half of the need will be for various forms of attached housing, like townhomes, two-to-four-unit buildings, and apartments. This diverse range of need reflects the diversity of Hillsboro's population and existing housing stock, both of which are described in greater detail below.

Source: City of Hillsboro's 2023 HNA, Tables EX 5-6

Demographic Profile

The City of Hillsboro is a diverse, young, and higher-income place, relative to Oregon as a whole

Per the US Census' American Community Survey, Hillsboro is comparatively:

- **Racially diverse**. Roughly 46% of Hillsboro's residents are people of color, significantly above the statewide rate of 27%. Latino (24%) and Asian (12%) residents are the largest of Hillsboro's communities of color, with Black (3%), Indigenous (1%), and multiracial (6%) populations comprising smaller proportions. F
- **Young**. About 22% of Hillsboro's residents are children – above the statewide rate of 20% – and 11% are seniors – below the statewide rate of 18%. The City's status as a job hub appears to have attracted families with working age parents and children.

- **Has more renters**. Renters comprise half of Hillsboro's households, whereas renters are just over a third of households in the Portland metropolitan region and statewide. This likely stems from a combination of factors, from the housing and job types in Hillsboro, its racial and ethnic makeup, and its age profile.
- **Has higher incomes**. The median household income in Hillsboro is about $8,000 above the regional median, and $20,000 above the state median. This is likely powered by Hillsboro's well-paying semiconductor and tech job sectors. It also reveals the larger budgets the City's middle- and upper-income households have for housing. Despite tending to have a higher income profile, half of the City's households still earn less than that median income and 40% of households are cost burdened.

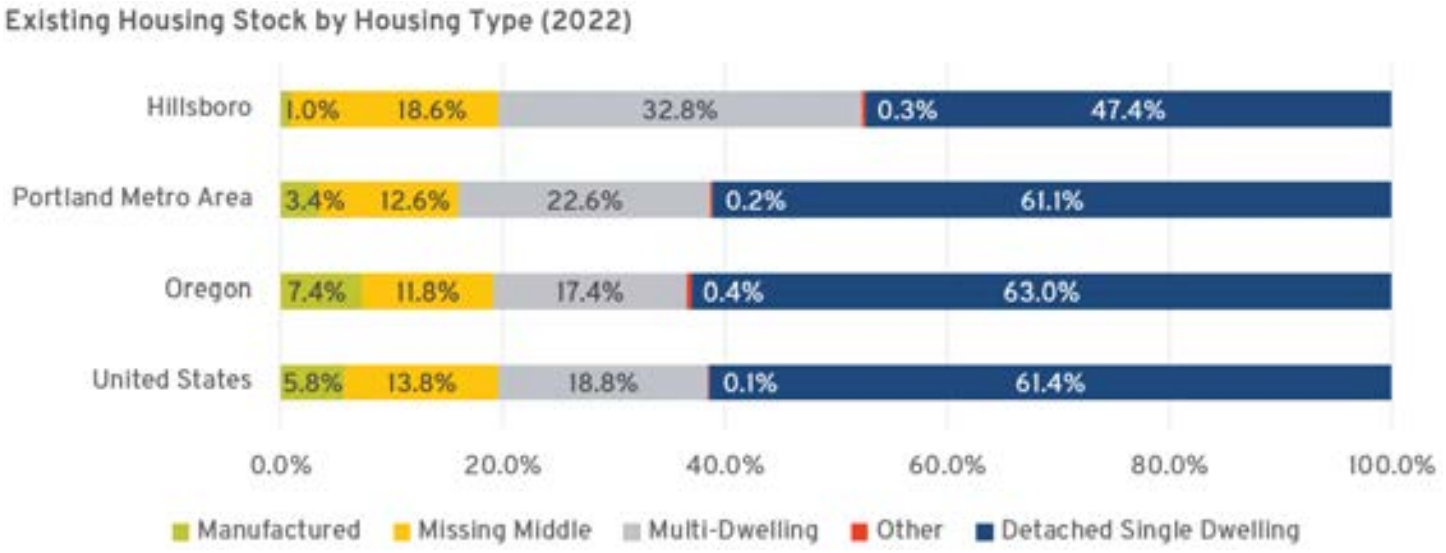
	Hillsboro	Portland Metro Area	Oregon
Race and Ethnicity			
American Indian, Alaska Native	0.4%	0.5%	0.7%
Asian	11.5%	6.8%	4.4%
Black	2.9%	2.8%	1.8%
Hispanic or Latino	24.0%	12.7%	13.8%
Native Hawaiian, Pacific Islander	0.8%	0.5%	0.4%
Other Race	0.4%	0.4%	0.4%
Two or More Races	5.9%	5.6%	5.2%
White	54.1%	70.6%	73.3%
Age			
Under 18	21.8%	20.7%	20.2%
18 to 64 years	67.0%	63.6%	61.5%
Over 65	11.2%	15.6%	18.3%
Tenure			
Renters	49.5%	37.8%	36.8%
Homeowners	50.5%	62.2%	63.2%
Median Household Income	$98,891	$90,451	$76,632

Sources: American Community Survey 5-Year Estimates, 2022-Vintage, Tables B03002, B01001, B19013, and B25003

Existing Housing & Who Lives In Different Kinds of Housing

Hillsboro's housing stock is relatively diverse

About 47% of Hillsboro's housing stock is single detached and 33% is multi-unit. The rest is missing middle housing (e.g. townhomes, two-to-four-unit buildings) and manufactured homes. This stands in contrast with state and regional trends where 63% and 61% of housing is single detached and only 17% and 22% is multi-unit. It also puts Hillsboro's housing stock more in line with the more urban City of Portland (not visualized) than the Portland region as a whole.



Source: American Community Survey 5-Year Estimates, 2022-Vintage, Table 25024

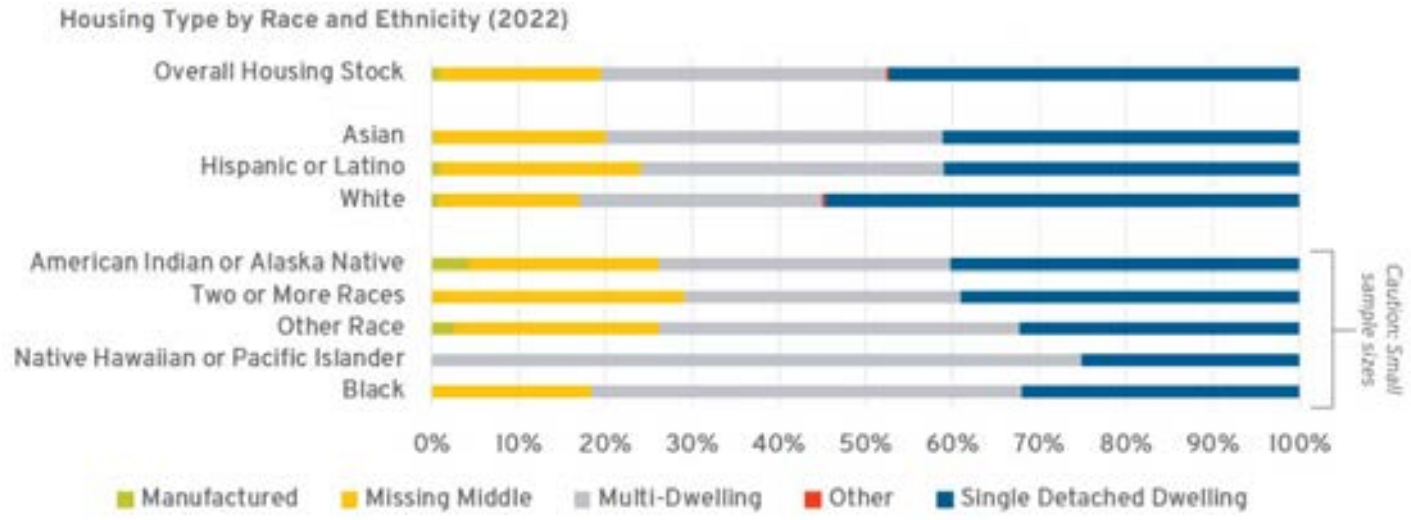
Hillsboro's renter households often live in multi-unit housing

Over 60% of renters live in multi-unit housing, and another 20% live in attached missing middle housing, like townhomes or two-to-four-unit buildings. Initiatives that support further growth of multi-unit and missing middle housing in Hillsboro will help meet the needs of renters and support a competitive rental market in which rents are less likely to rise quickly.

Source: American Community Survey 5-Year Estimates, 2022-Vintage, Table B25032

Hillsboro's Communities of Color households disproportionately live in multi-unit housing

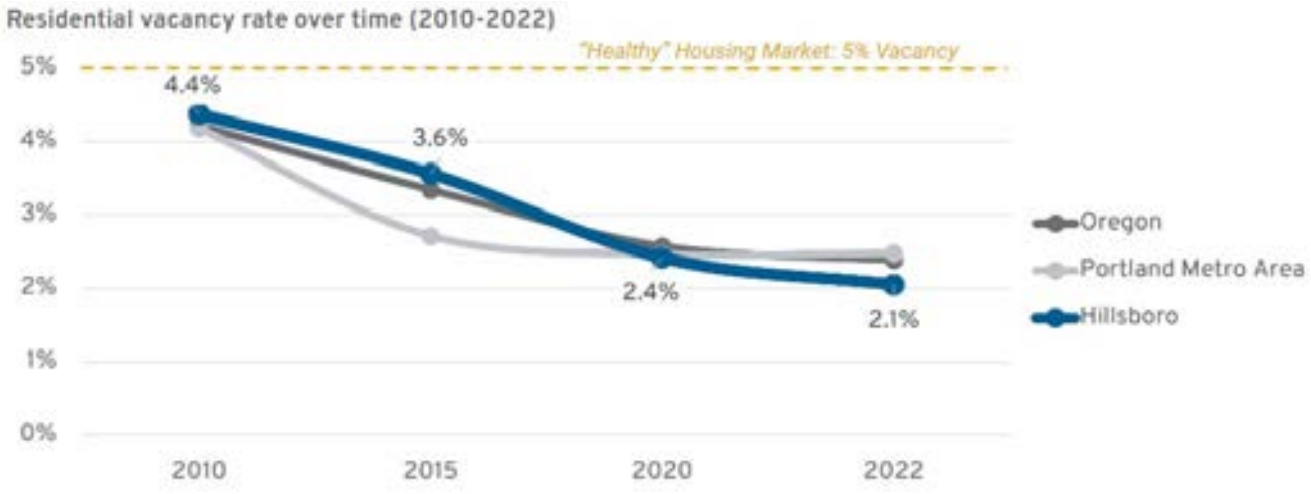
Like renters, Hillsboro's households of color are also less likely to live in Single Detached Units. Whereas 55% of White households live in the 47% of Hillsboro's housing stock that are Single Detached Units, only 41% of Asian and Latino households and only 32% of Black households do. White households' increased access to detached units, which are often ownership housing, increase opportunity for wealth building. However, the prevalence of missing middle housing in Hillsboro – particularly townhomes, which are often ownership housing too – assists other groups in accessing homeownership. 23% of Latino households, 20% of Asian households, and 29% of multiracial households live in missing middle housing, despite that housing type representing only 18% of housing stock. About 40% of that missing middle housing is ownership housing. This suggests that missing middle likely has served (and could continue to serve) as a key tool in building homeownership among Communities of Color. This data also reveals the importance of multi-unit as a housing type that disproportionately serve various Communities of Colors.



Source: American Community Survey 5-Year Estimates, 2022-Vintage, Table B25032 B-I

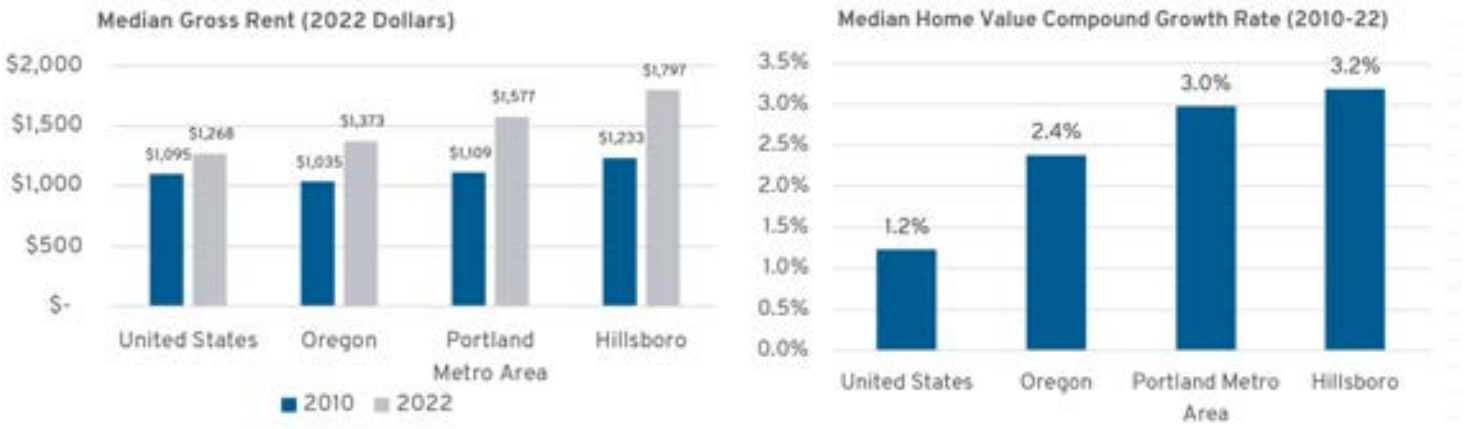
Hillsboro is experiencing very low housing vacancy, which is putting upward pressure on prices

Much of Hillsboro's 20-year housing need comes from forecasted population growth and in-migration. This need is made greater by the underproduction of new housing in the city and region. Hillsboro's residential vacancy rate points to the fact that not enough housing has been built to meet the need. Vacancy has fallen from 4.4% in 2010 to 2.1% in 2022. In practical terms, that means Hillsboro went from a situation where about 1 in 20 homes were available on the rental or for-sale market, to only 1 in 50 homes available as of 2022. This mirrors the vacancy trend seen across Oregon and the Metro Area.



Source: American Community Survey 5-Year Estimates, 2022-Vintage, Table B25004. Note the analyst's calculations include "typical" market vacancy (e.g. for sale, for rent), but excludes vacant units that are actually "recreational or seasonal" housing, and "other" vacancy (e.g. due to abandonment, foreclosure)

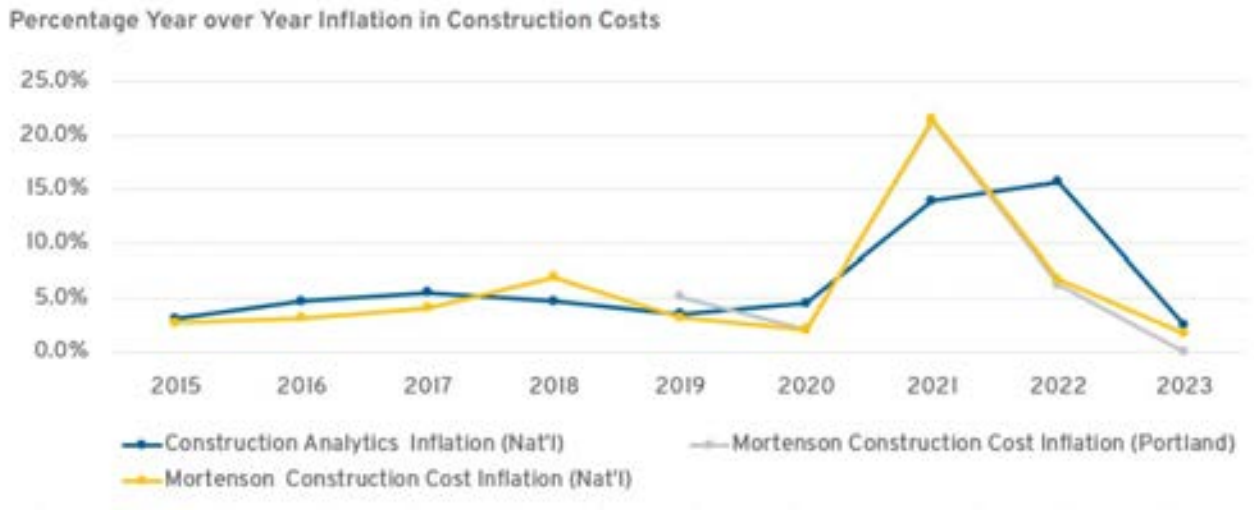
When vacancy is low, typically price increases are observed due to competition among renters and buyers for the limited available stock of housing. Between 2010 and 2022, Hillsboro's median gross monthly rents grew by over $560 after adjusting for inflation, compared with $340 statewide. Likewise, Hillsboro's home values grew at a faster annual rate than state- and nationwide (3.2% vs. 2.4% vs. 1.2 respectively). Increasing housing supply and alleviating low vacancy is crucial to moderating future price increases.



Source: American Community Survey 5-Year Estimates, 2022-Vintage, Tables B25064, B25077

Rapid increases in costs have posed a fresh barrier to production

Since 2020, development costs have risen sharply. Mortenson's Construction Cost Index for Portland indicates the Portland region experienced a 29% total increase in construction costs between 2020 and 2024. Interest rates have also increased, dramatically raising the cost of borrowing for both buyers and builders. These macroeconomic headwinds cause rents and sales prices to fall out of sync with development costs, reducing the financial feasibility of development and ultimately posing a significant barrier to near-term housing production.



Sources: Mortenson Construction Cost Index, accessed in 2024, https://www.mortenson.com/cost-index, and Construction Analytics Inflation Index, accessed in 2024, https://edzarenski.com/2024/01/17/construction-inflation-2024/

A statewide survey of government staff and developers by the University of Oregon's Institute for Policy and Research and Engagement reinforces this perspective that construction costs are major barriers to production.[2] Six of the 12 barriers perceived by respondents as "extreme" barriers had to do with construction costs (both materials and labor) and labor availability. The report also finds the land cost and, relatedly, the availability of development-ready, adequately zoned land were also considered major barriers. Infrastructure, systems development charges, and various regulatory details were deemed more moderate barriers to production. Materials costs and labor availability are difficult to improve with local action. Discussion among members of Hillsboro's Housing Production Strategy Technical Advisory Committee acknowledged the challenges with labor and materials, but also highlighted local zoning, development standards, difficult review and approval processes, and overall fee burden as significant local barriers to production.

Real estate is cyclical, and eventually cost, price, and rent conditions will reach a new equilibrium in which development is more feasible. In the meantime, adopting policies that support lower development costs, broaden the labor pool, open land to development, and prepare that land for development will be crucial to counteracting these conditions.

[2] University of Oregon Development Barriers Survey Brief and Summary Report, 2022. https://www.oregon.gov/lcd/UP/Documents/Appx_F_UO_IPRE_Barriers_Housing_Production.pdf.

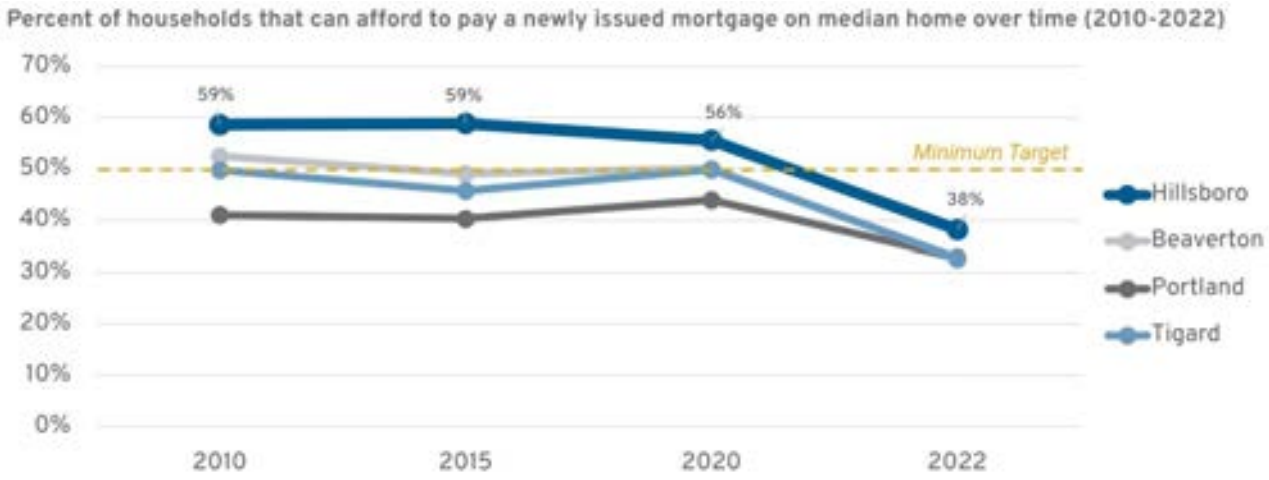
Over 40% of Hillsboro's renter households are cost burdened

Hillsboro as over 22,000 renters, and 43% are cost burdened or severely cost burdened, less than the national (46%), statewide (48%), and regional (49%) rates. However, it does not appear the City's cost burden is lower due to having lots of low-priced housing. In fact, Hillsboro's gross median rent is considerably higher per month than state and national averages ($1,797 vs. $1,373 and $1,268). Rather, Hillsboro's rates of cost burden appear to be lower due to the City's income profile skewing higher than is typical in Oregon and the region.

Source: American Community Survey 5 Year Estimates, 2022-Vintage, Table B25070

After price and interest rate spikes, fewer than half of Hillsboro's households can afford a typical mortgage

While the American Community Survey tracks cost burden among owners, it falls short of capturing an up-to-date picture of engaging with the ownership housing market in 2024. This is because a large share of owners locked in low mortgage rates and decades-old housing prices, resulting in low-cost burden today. The percentage of households that can afford to pay a newly issued mortgage on the median home is a better



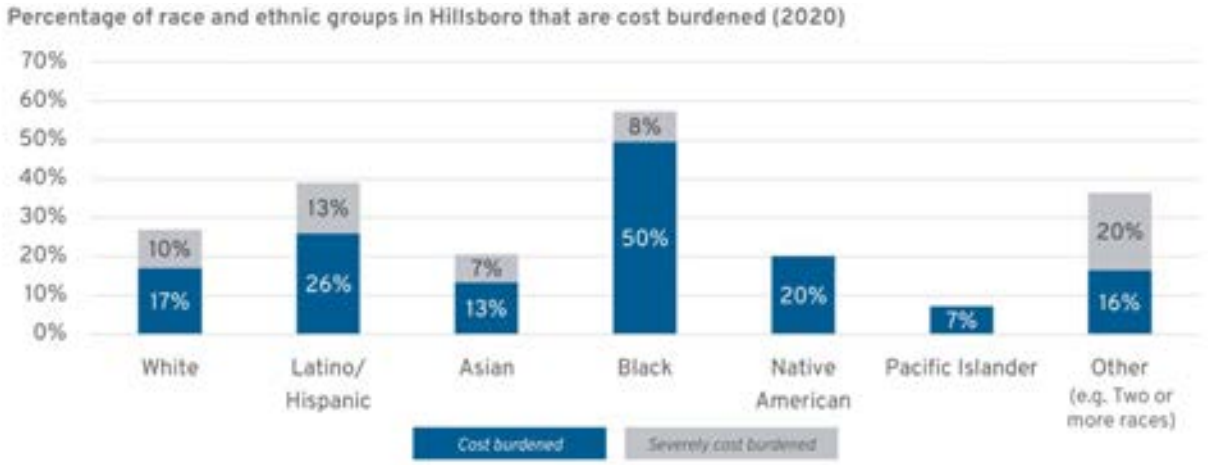
Sources: Zillow Home Value Index, seasonally adjusted for all for sale homes, accessed in 2024; Federal Reserve Bank of St. Louis average 30-year mortgage rates, Table MORTGAGE30US, accessed in 2024; analyst estimate of tax and insurance costs for Oregon using SmartAsset and Nerdwallet

reflection of the *in-the-moment* level of affordability a buyer will experience at any given time. For the past decade, due to its higher than typical income profile, Hillsboro enjoyed relative success in having the majority of its households being able to afford the mortgage on the typical home in the City. However, when rates climbed, Hillsboro, like other peer areas suffered a large blow to ownership affordability. As of 2022, only 38% of households could afford a newly issued mortgage on the City's median-priced home.

Needs of Communities of Color

Hillsboro has a high percentage of residents of color relative to the state as a whole, and Black & Latino households – whether owners or renters – are cost burdened most often

Roughly 46% of Hillsboro's residents are people of color, significantly above the statewide rate of 27%. This alone indicates the importance of planning for the housing needs of communities of color. What's more, people of color in Hillsboro tend to be cost burdened at higher rates than the City's White population. Per the Department of Housing and Urban Development, roughly 58% of Hillsboro's Black residents and 39% of Latino residents are cost burdened. This exceeds the rate of cost burden among White residents (27%) and Asian residents (20%). This demonstrates the connection between the production of affordable housing and meeting the housing needs of communities of color, in particular Hillsboro's Black and Latino residents and others within those cultural communities who might wish to locate in Hillsboro.



Source: HUD Comprehensive Housing Affordability Strategy (CHAS) 5-Year estimates, Table 9, 2020-vintage

For further information on the housing needs of Communities of Color, see the "Needs of People Experiencing Homelessness" and "Existing Housing & Who Lives in Different Kinds of Housing" sections, which contain housing-need data disaggregated by race and ethnicity.

More Washington County residents are experiencing homelessness and are disproportionately from Communities of Color

According to the Oregon Statewide Homelessness Estimates report, 7,480 people in the Portland Tri-County Region were experiencing homelessness as of January 2023.[3] Washington County's Homeless Services Division—the organization (i.e. Continuum of Care) responsible for providing programs to prevent and end homelessness in the County—counted 773 people experiencing homelessness at that time, up from 591 people experiencing homelessness in 2015.[4] This amounts to 3.4% annual growth over those eight years. This is the most granular data available to the City of Hillsboro, which falls within Washington County's Continuum of Care, does not maintain its own city-specific point-in-time count, and cannot access the same federal funds for fighting homelessness as the Continuum of Care can. People experiencing homelessness in Washington County are disproportionately Black (9.6% of homeless population vs. 2.9% of total population), Indigenous (1.9% vs. 1.2%), Native Hawaiian or Pacific Islander (4.7% vs. 0.6%), and Multiracial (6.3% vs. 4.9%). White, Asian, and Hispanic populations are more proportionately represented or are even underrepresented among people experiencing homelessness.

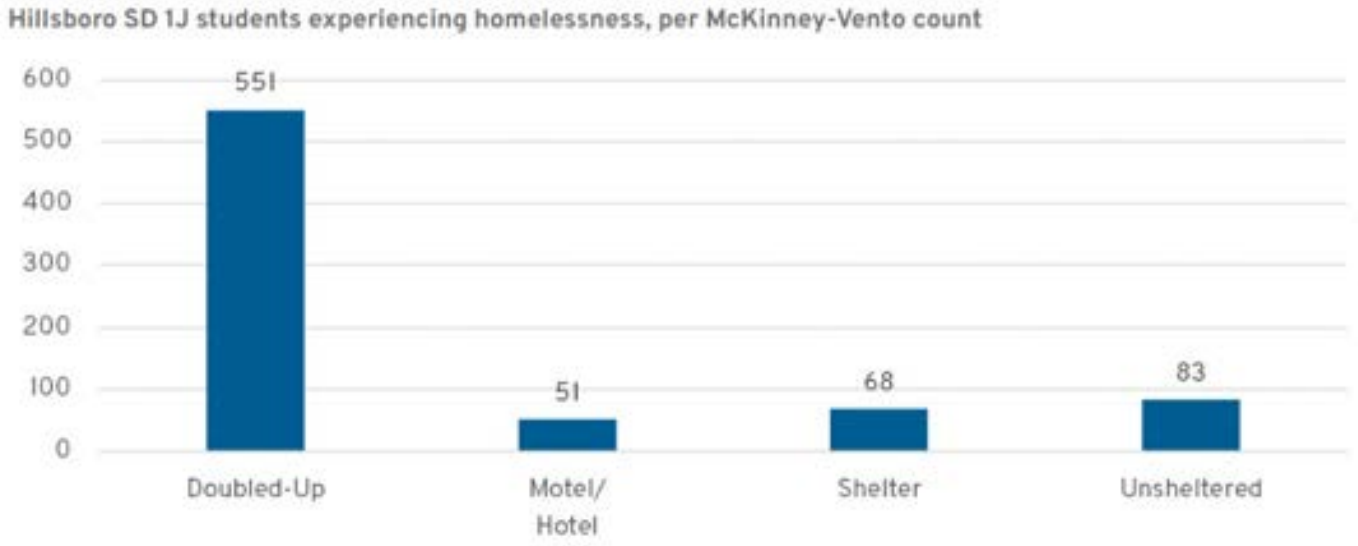
Sources: Washington County, Oregon: Homeless Counts and PIT Resources, accessed 2024, *https://www.washingtoncountyor.gov/housing/efforts-end-homelessness/homeless-counts-and-pit-resources*

Nearly 1 in 25 grade-school students experienced severe housing insecurity or homelessness

Data collected on student homelessness in 2024 under the federal McKinney-Vento Homeless Assistance Act shows that many students in Hillsboro's School District (3.9% of students) experience severe housing insecurity and homelessness. This is roughly equal to the statewide rate of 4%. Much of this homelessness is likely missed by the Continuum of Care's count. That data found that 551 students were living doubled-up with another family, 51 were living out of a hotel or motel, 69 were living in a shelter, and 83 were living unsheltered.

[3] Oregon Statewide Homelessness Estimates, 2023, Tables 1, 4, and 10. https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1042&context=hrac_pub

[4] Washington Count, Oregon: Homeless Counts and PIT Resources, accessed in 2024, https://www.washingtoncountyor.gov/housing/efforts-end-homelessness/homeless-counts-and-pit-resources



Source: McKinney Vento Act, 2022-2023 Houseless Student Data, accessed in 2024, https://www.oregon.gov/ode/schools-and-districts/grants/esea/mckinney-vento/pages/default.aspx

Homelessness services use and provision has risen sharply since 2020, funded by a new tax

The County and region have responded to rising homelessness with investment in homelessness services, funded by the regional supportive services tax. In recent years and as indicated by the figure above, shelter capacity rose, meaning a smaller percentage of people experiencing homelessness in Washington County were counted as unsheltered. Furthermore, Washington County's Longitudinal Systems Analysis of homeless services shows that the number of households served by some facet of the County's homelessness response system –not just shelter, but other forms of housing for people experiencing homelessness–more than doubled between 2020 and 2022, rising from 505 households to 1,275 households over the course of a full year.[5] Put more simply, more people are being served in shelter, transitional housing, rapid rehousing, and Permanent Supportive Housing in Washington County in response to the rise in homelessness.

Needs of Seniors & People with Disabilities

Seniors in Hillsboro are less prevalent than statewide, but more commonly face housing problems

Per the 2022 American Community Survey, Hillsboro had a significantly smaller percentage of seniors than the state as a whole (11% vs. 18%). However, in line with state and national trends, Hillsboro's percentage of seniors among its population has risen steadily over the last decade. Per the Department of Housing and Urban Development, about 38% of Hillsboro's residents ages 62 and above face at least one of the following housing problems: cost burden, overcrowding, or inadequate kitchen or plumbing facilities.[6] This figure is 33% statewide, meaning seniors in Hillsboro tend to have those housing problems at higher rates. Given the growth in the senior population and the housing challenges they face, senior needs are key to plan for in terms of accessibility, affordability, and other housing problems, even if the City is several years behind the statewide curve for population aging.

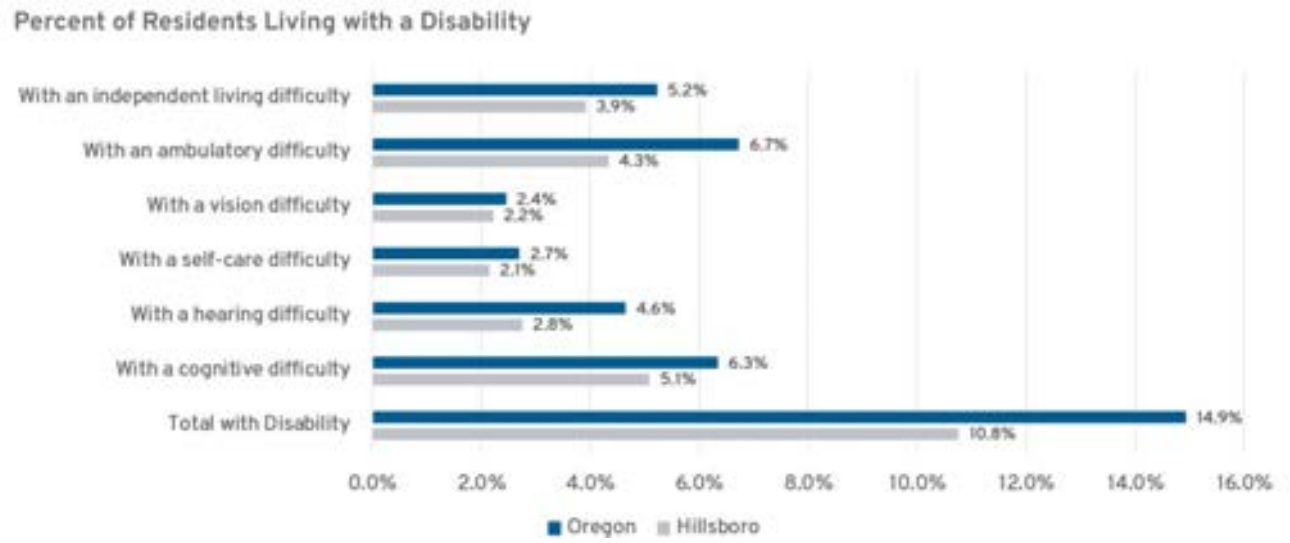
[5] Washington County Longitudinal Systems Analysis, 2023, accessed in 2024, https://www.washingtoncountyor.gov/housing/efforts-end-homelessness/documents/coc-presentation-2022-lsafinal/download?inline

[6] HUD Comprehensive Housing Affordability Strategy (CHAS) 5-Year estimates, Table 5, 2020-Vintage

About 11% of Hillsboro's residents have a disability, and they are more likely to live in poverty

Likely in part due to the fact that Hillsboro's age distribution skews younger, the City also has fewer individuals with disabilities than the state as a whole (11% vs. 15%). This is true overall, but also across disability categories tracked by the US Census. As the City ages, it should expect the percentage of residents living with a disability to rise.

People with disabilities are more likely than people without them to live in poverty, with 21% of Oregon's population with a disability below the poverty line compared with 10% for the no-disability population.[7] This data is not available at the City level, but the statewide trend implies that the City can expect to serve the needs of more households with disabilities if it successfully adds more housing affordable to lower-income households. There are likely people with disabilities who would like to live in Hillsboro but cannot afford to, and affordable, accessible housing is a key route to meeting that need.



Source: American Community Survey 5-Year Estimates, 2022-Vintage, Table S1810

Conclusion

This section provides critical context regarding the City of Hillsboro's housing needs. It demonstrates the extent of the need, as found by the City's HNA. It also demonstrates the diversity of the need, which stems from the diversity of the City's residents themselves—owing to their various backgrounds, life stages, budgets, and needs for support. Subsequent sections of the Housing Production Strategy will describe the many types of actions the City will explore and implement in order to meet those diverse housing needs. The actions will range from activities already ongoing to entirely new initiatives intended to address one or more housing needs experienced within the City.

[7] American Community Survey 5 Year Estimates, 2022-Vintage, Table B18130

3. Community Engagement

This section overviews the Community Engagement conducted by the City of Hillsboro and its partners as part of the City's HNA and HPS processes. The section also describes how that engagement impacted which actions were included in the HPS. This section fulfills state requirements for a narrative summary of how the City engaged both consumers and producers of needed housing, as described in OAR 660-008-0050 (2).

2023 Housing Needs Analysis Engagement

Prior to HPS project commencement, the 2023 HNA involved an extensive community engagement process that reached a representative cross-section of Hillsboro's diverse communities. This included a robust mix of Community Advisory Committee (CAC) members. The CAC was a voluntary committee comprised of 15 community members including people who live or work in Hillsboro, and for-profit and non-profit developers. The CAC met five times from October 2022 through April 2023 and has its final meeting on June 13, 2023. The CAC reviewed and provided feedback on housing data and provided input on the high-level housing policy themes.

The City contracted with two community-based organizations beginning in the fall of 2022 to provide an opportunity for English and a Spanish-language historically marginalized communities (HMC) focus groups (each 12 to 15 community members) to receive valuable input on current and future housing needed in Hillsboro. The role of the HMC focus groups was to provide input and have a voice in the HNA process as they historically have not had this opportunity. A total of four focus group meetings were held (two in English and two in Spanish. A project webpage was established early in the project on the City website, which offered a variety of opportunities to get involved in the project and provided an engagement timeline and project timeline and other relevant project information.

The HNA established a series of high-level policy themes through engagement with the HNA's CAC, Historically Marginalized Communities focus groups, Council and Planning Commission work sessions, and targeted stakeholder interviews. These themes established a starting point for discussion when developing HPS actions that directly address the City's housing needs. The themes include:

- Increase housing development opportunities in multi-dwelling and mixed-use zones
- Identification, acknowledgment, and discussion of multi-generational housing
- Extend high-amenity housing discussion beyond large lot size, since high-amenity housing can come in all forms and lot sizes
- Identification, acknowledgment, and discussion around homelessness
- Support housing for all incomes to align with the results of the HNA
- Support homeownership opportunities for low-and moderate-income community members

Housing Production Strategy Engagement

The City conducted additional community engagement for the HPS. As a first step, the City created the HPS Public Communications and Engagement Plan was approved by the City's Public Engagement Committee and can be found in Appendix C. This plan called for input from a wide variety of stakeholders, including historically marginalized community members and other residents, land and housing developers,

representatives of nearby partner jurisdictions and service districts, representatives of local employment interests, and the Planning Commission. HPS engagement built on the HNA's efforts by engaging with many members of the HNA's HMC focus groups, who had already developed a relationship with the City and its partners by collaborating on this topic. The engagement process during the HPS included:

- Four meetings of a Technical Advisory Committee
- Three rounds of historically marginalized communities focus groups, three in English and three in Spanish
- Three City Council public work sessions
- Two Planning Commission public work sessions
- Two meetings with the Advanced Manufacturing Training & Education Collaborative of Hillsboro (AM-TECH)
- Multiple inter-departmental coordination meetings
- A public facing website ("Housing Production Strategy") with an email address for public question and comment

Technical Advisory Committee (TAC)

The City and its consultant team conducted four TAC meetings between May and September of 2024. The TAC included representatives from Hillsboro's School District, the Washington County Chamber of Commerce, nearby partner jurisdictions, and Hillsboro's technology sector, two planning commissioners, members of the real estate and housing development communities (including multi-unit, detached, small-home, and affordable housing developers), and Hillsboro residents. The following subsections summarize the guidance and themes that emerged from the TAC meetings:

General Guidance

- Be specific about levers that City can pull versus the levers that it cannot.
- Housing production should support a variety of household situations occurring over a lifetime (e.g. various home sizes, housing for rent and ownership).
- Developers support actions that make development more affordable, faster, predictable, and that mitigate risks. Assistance with land and gap funding make the biggest difference in the feasibility of affordable housing development. New housing is supported as well as efforts to preserve affordable housing.
- Make clear each action's goals and how its impact and implementation will be measured

Feedback on Code and Permitting Processes

- Expedite timelines through better coordination of plan approval across departments.
- Avoid pushing projects to Type III review processes, which are long, risky, and costly.

- Pre-application meetings seem to sometimes act as discretionary review points and design negotiations, which increase project uncertainty, the time to receive approval, and the number of de facto approvals required to build.
- Incentivizing density outright is preferable to density bonuses.
- A more user-friendly community development code could get more involved in building. Pre-approved plans could help too.
- Some felt design guidelines are not clear, objective, and achievable.

Feedback on Location of New Housing

- Build community around amenities and employment opportunities. Employer housing partnerships could be fruitful for meeting housing needs.
- Increasing density in residential zones for new housing should align with existing infrastructure capacity.
- Adjacency to transit should come with higher density allowances.
- Mixed-use development in both commercial and residential zones is supported.
- The City should track HOAs, explore how they curtail capacity for new housing, and audit the community development code for ways its "pushes" developers to use HOAs.
- Integrate Permanent Supportive Housing into the broader community rather than isolating it. Support workforce development for Permanent Supportive Housing.

Feedback on Investments and Incentives

- The City should consider exploring land purchases for housing, similar to how it has done for industrial land. Both employment and housing are critical issues in Hillsboro and should be equally elevated.
- SDCs are high in Hillsboro. Not all SDCs are scaled by unit size, meaning large units with large impacts on City systems often pay very similar impact fees to small homes. Other jurisdictions have scaled SDCs.
- The City should consider raising revenue through mechanisms that tap into the strong employment sector, such as a commercial construction excise tax or a business receipts tax.
- Tax exemptions for naturally occurring affordable housing could promote preservation.
- Tax exemptions are best targeted at developments that would not currently be feasible otherwise.
- Some smaller developers might be interested in producing affordable middle-housing units too, and the City should find ways to support them.

City Council Work Sessions

Staff from the City's Community Development Department and its consultant team conducted City Council work sessions in April, June and October of 2024. These work sessions offered information on and solicited feedback regarding Hillsboro's Contextualized Housing Need, Housing Production Strategy requirements and process, and draft actions proposed for the HPS. Council direction fell into several major themes:

Feedback on Prioritization of Financial Resources

- The City has limited financial resources and should focus those resources on affordable housing (targeting <80% MFI) and middle-income housing (targeting 80-120% MFI).
- With financial resources focused on affordable and middle-income housing, the City should use actions with lower fiscal impacts to promote market-rate housing. The City should continue to maintain a development-friendly environment and remove regulatory barriers to promote production. One council member advocated for exploring higher minimum required densities for development when revising the City's community development code.

Feedback on Homeownership

- The Council tended to voice strong support for expanding homeownership and making it attainable to middle-income families, while still understanding the need to balance actions focused on ownership and rental housing.
- One council member emphasized the importance of achieving a policy outcome where homeownership was affordable to middle incomes without subsidy. Across two work sessions, another member emphasized middle housing as a tool and its importance in helping achieve affordable homeownership. The Councilor advocated for setting the City setting ambitious targets in terms of the price it wants to achieve for homes available on the ownership market.

Feedback on Incentives and Investments

- The Council had a variety of creative ideas for funding and producing needed housing. Some on the Council expressed interest in strategies that would raise money while disincentivizing non-desired behaviors in the housing market (e.g. speculation, home flipping, construction of certain housing types). One council member suggested the City be intentional during implementation of being sure developers cannot layer too many incentives together, effectively tipping the balance of benefits away from the City and public. One council member suggested using a construction excise tax to raise money for affordable housing and sought confirmation that it would be considered during the implementation stages of the work.
- The Council supported changes to City controlled fees, with one council member advocating for creating fee incentives related to particular types of needed housing, such as middle housing. The Council acknowledged at multiple points the need for fiscal sustainability when adjusting fees, as well as the administrative difficulties that might come with some changes, in particular fee deferrals.

Other Ideas and Guidance

- The Council wants to see households able to access complete communities, open space, amenities at all income levels. With zoning map changes, two members of the Council expressed concerns around traffic and their desire to manage those impacts carefully.

- One member of the Council expressed clear support for statewide advocacy, in particular around construction defect liability law.
- One member of the Council recommended revising an action related to design-standards streamlining, to emphasize housing production or affordability rather than preservation of difficult-to-define City character.
- The Council wants to better understand where HOAs are and how they're affecting affordability and the ability to produce housing.
- One member advocated for making as strong of policy commitments as the City could, while acknowledging the reasonableness of using language when describing HPS actions that helps the City flexibly and efficiently explore and select from its options during the HPS's implementation phase.

Planning Commission Work Sessions

City staff presented at the May 8 Planning Commission work session and gave an overview of the project timeline, housing needs as outlined in the 2023 Housing Needs Analysis, and the broad categories of potential housing production strategies. Planning Commissioners discussion included:

- Feedback on the importance of presenting data in concise and clear manner, with sources cited. This would allow a better understanding of the existing housing needs in Hillsboro.
- Commentary as to the cyclical nature of housing economics, with periods of slow production due to market conditions.
- Advised staff to look to periods in Hillsboro's development history when the City was seeing more diversity in housing product type.

Staff also presented at the October 9th, Planning Commission work session, giving an overall project status update and shared the final draft new actions. Planning Commissioners expressed appreciation for the proposed final draft actions and anticipation for their involvement in the development code implementation work to follow Council adoption of the Housing Production Strategy Report in 2024.

Advanced Manufacturing Training and Education Collaborative (AM-TECH) of Hillsboro

The City of Hillsboro hosts AM-TECH, which champions public-private partnerships with industry, educational institutions, community organizations and government to support workforce development. The HPS project team presented at the June 12th and August 22nd meetings. The June meeting included a presentation of the project overall and the August meeting focused on discussion. When asked if their employees were having trouble finding affordable housing in Hillsboro, several members of the committee representing large companies in the advanced manufacturing industry shared they themselves could not find affordable housing in Hillsboro. Being unable to live in the community in which they are working causes additional stress with commuting and traffic time. Members also expressed the desire for more single-story housing that would be more accessible. Others noted the cost of living arrangements are increasing more than annual salary increases. Several large-scale employers who often have summer interns also expressed a need for short-term affordable housing. Members also commented on that Hillsboro's housing needs are very unique due to the high employment opportunities, and the need for housing at low and medium densities.

Historically Marginalized Community Focus Groups

The City conducted the first round of historically marginalized communities focus groups on May 14th, 2024, and May 23rd, 2024, conducted in English and in Spanish respectively. Members of the focus groups were recruited by engagement consultant PKS International and were provided with a stipend to each meeting to compensate for their time and participation in the project. There were 14 participants for the English focus group and 20 for the Spanish focus group.

Detailed below are the high-level themes that came out of the focus group discussions:

- The need for a range of housing options at a range of prices
- Importance of having homes near public transportation
- Preference for mixed-use development
- Prioritizing compact, mixed-use development as critical solution to improve transportation access and reduce pollution
- Frustration at having to work two jobs to make ends meet
- High cost of rental housing in Hillsboro
- Feeling priced out of certain neighborhoods or even the city as a whole
- Demand for affordable housing is greater than the supply
- There is a greater need for middle-income housing to help households struggling to pay rent and whose household income is just beyond qualifying for affordable housing
- Challenges in finding accessible and ADA-compliant housing

The second English focus group occurred on July 18 with 11 participants and the Spanish focus group occurred on July 25th with 12 participants. PKS International asked the same individuals to participate in the second round to continue relationship building. In that same vein, prior to the second focus groups, the project team decided to add a third round of focus groups to close the outreach and information-sharing loop. The first round of focus groups included more information sharing by City staff whereas the second focus group centered more around discussion questions. Below is a summary of the questions asked and responses received.

1. What do people think about increased density (and more apartments) in neighborhoods?

The city's growth and population increase have led to a high demand for housing, creating infrastructure issues like heavy traffic and pressure on roads. Participants voiced concerns about how increased density affects quality of life, the rising cost of living, and the need for affordable housing. They stressed the importance of sustainable development, preserving green spaces, and using energy-efficient materials. Despite these concerns, participants recognized the economic benefits of job creation and increased local business activity. Transportation and mixed-use development were highlighted as critical solutions to improve accessibility and reduce pollution, especially in underserved areas.

2. What are the potential upsides and downsides of focusing affordable and workforce housing in new city areas?

The participants consider that housing construction in new areas is often accompanied by infrastructure improvements, such as the creation of parks and schools. This can improve quality of life and offer more services to residents. Participants highlighted the importance of mixed-use housing and transportation

options, expressing concern over limited public transit in some areas. While new housing often brings infrastructure improvements like parks and schools, participants stressed the need to balance accessible green space with affordable housing. They also noted the potential for increased traffic and parking problems if transportation infrastructure does not keep pace with development, despite the economic benefits of new residents stimulating the local economy.

3. Do you know people whose rents are going up and causing them to seek housing outside of Hillsboro?

Participants discussed the rising cost of living in Hillsboro. Many shared concerns about escalating housing costs, others considering moving outside Hillsboro or even out of state. Participants called for regulations to maintain affordable rent in new developments and suggested assistance programs to help control rent increases. Maintenance costs were also mentioned as an added burden.

4. Are you or people you know able to find accessible/ADA housing?

Participants discussed challenges and progress in finding accessible and ADA-compliant housing. While some newer developments include features like ramps, wide doors, and roll-in showers, older buildings often lack these accommodations, and modifications can be costly. Fully affordable, accessible housing remains scarce, and resources for those needing accommodations are limited. Participants stressed the importance of researching accessibility features and increasing awareness of available assistance programs.

5. Are there other programs or housing ideas the City should look into?

During the meeting, several proposals were made to improve housing programs in the city. These included prioritizing housing for families with disabilities, older adults, and youth facing financial challenges. Environmental considerations, such as using ecological materials and recycling systems in construction, were emphasized. Participants also suggested improving park and sidewalk accessibility for people with disabilities, hiring local builders for housing projects, and offering affordable housing options for older adults. Additionally, a free community shuttle service was proposed to improve transportation access, similar to shuttles offered by companies like Intel.

6. Additional comments

During the meeting, participants highlighted the importance of community involvement to improve communication between residents and authorities. There was also a reflection on the city's diversity, with a focus on including Latino perspectives in planning. Attendees expressed a desire for updates on the progress of previous initiatives and suggested creating committees to address community needs, such as transportation and housing. Concerns about the lack of public transportation in Hillsboro were raised, with proposals for a shuttle system connecting to MAX lines to reduce the city's exclusivity to car owners. Parking challenges for larger families living in small apartments were also discussed.

A detailed summary report for each individual focus group is included in Appendix C.

Implementing Community Feedback into HPS

How the HNA Themes Are Incorporated into the HPS

As described above, the HNA's community outreach had several important themes, which the HPS actions directly incorporated.

The HPS includes several regulatory actions aimed at increasing the development capacity in multi-dwelling, mixed-use, and commercial zones, as well as establishing plans to explore new or updated tax abatements for multi-unit housing. The HPS will also explore expanding the areas of the City that allow multi-unit housing through zoning map adjustments. Such adjustments would allow the City to intentionally direct new housing toward high-amenity, high-opportunity neighborhoods.

The HPS includes actions that support housing attainable at all levels of the income spectrum. This includes market rate housing, affordable housing, and specifically homeownership opportunities for low- and moderate-income community members through potential new tax abatements, fee waivers and SDC scaling, middle housing code improvements, and new affordable-ownership partnerships. Homelessness is also addressed, both indirectly by promoting a better functioning housing market and directly through a variety of investment and partnership activities. Those activities include siting and building the City's first year-round shelter, pursuing an equitable development strategy in the Calle Diez neighborhood, supporting Permanent Supportive Housing, and exploring new revenue streams for affordable housing. SDC scaling could also reduce the impact fees imposed on constructing the smallest housing units most easily attainable on a very tight budget, like studios and SROs.

How Outreach During HPS Development Is Incorporated into the HPS

Input from the TAC, the Historically Marginalized Communities focus groups, AM-TECH, inter-departmental input, other stakeholders, and City Leadership directly shaped the actions included in the HPS. Many ideas were added to the HPS wholesale, such as:

- Taking action to make missing middle and affordable homeownership opportunities easier to build.
- Committing to code, design guideline, and review process changes that make it easier and faster to build housing.
- Using zoning map changes to promote access to high opportunity, high amenity, transit adjacent areas.
- Exploring tax abatements to support multi-unit, middle-income, and affordable housing.
- Exploring SDC scaling.

Other ideas, such as how exactly to establish a new revenue source for affordable and middle-income housing, were added, but in more explorative and general terms given the many possibilities advocated for by the stakeholders consulted.

Ultimately, the actions closely resemble the input provided by stakeholders, but with an additional filter applied: the expertise, fiscal knowledge, and anticipated administrative capacity of the City's staff.

Improving Future Engagement Practices

The City's Housing Production Strategy will impact a diverse range of stakeholders, from residents (across age, race and ethnicity, gender, ability, household type, tenure, and protected classes), to businesses who rely on a functioning housing market and may be affected by new tax or incentive programs, to developers, owners, and renters of housing, to non-profits and partner organizations and jurisdictions. Through the City's advisory committees, focus groups, collaboration with community-based organizations, public meetings, and website, the City has created many avenues to reach those different stakeholders. The City should continue this approach. A key idea for the City to consider improving its approach is to explore using a quantitative method for gathering community input, such as a statistically reliable poll that attempts to mirror the City's demographics and gather input on a larger scale (e.g. hundreds of respondents). The City should also consider ways to take advantage of community gatherings, such as Tuesday Night Markets in downtown.

4. Existing Actions to Promote the Development of Needed Housing

Hillsboro has already undertaken many actions to ensure the production of needed housing. Each of these actions has been detailed below, organized by category: regulatory, land, partnership, incentives, and investments. Actions that will continue are marked as such in the "Action Status" category on the table's right. Actions that are marked complete have already been fully implemented or will not continue. Collectively, this list of actions provides important detail regarding the City's pro-housing commitment that contextualizes the City's draft actions to meet future need.

Action Title + Description		Affordability Target	Tenure	Housing Type	Magnitude of Impact	Action Status
		Deeply Affordable, Affordable, Middle-Income, Market, All	*Renter, Owner, Both*	*Single Detached, Middle Housing, Multi-unit, All*	*Low, Medium, High*	*Continuing, Complete*
Regulatory						
E1	**Ensure land zoned for higher density isn't developed at lower densities.** The Community Development Code requires a minimum density for all zones, prohibits new single detached units in high density zones, and requires single detached units in medium density zones to meet minimum density. The code also requires lot divisions to conform to minimum density.	All	Both	All	Medium	Complete
E2	**Offer density or height bonuses for Affordable housing.** SB 8 was adopted into code in 2022. The Witch Hazel Village South Plan District includes automatic density and height bonuses beyond requirements of SB 8.	Affordable	Renter	Multi-Unit	Medium	Complete
E3	**Reduce parking standards for Affordable housing.** Parking standards for Affordable housing have been reduced to 1 space per unit (80% AMI and below) citywide and 0.85 space per unit within a quarter mile of high-frequency transit. Upcoming code amendments, resulting from the state's Climate Friendly and Equitable Communities rulemaking, will remove minimum vehicle parking requirements for affordable housing.	Affordable	Renter	Multi-Unit	Medium	Complete
E4	**Allow for Single Room Occupancy in Residential Zones.** The Community Development Code allows SROs up to 8 bedrooms in all standard residential zones. Multi-Dwelling residential zones allow group living outright.	Affordable, Middle-Income	Renter	Multi-Unit	Medium	Complete
E5	**Provide incentives for ADUs.** The Community Development Code was amended to ease architectural standards and remove off-street parking	All	Renter	Middle Housing	Low	Complete

	requirements for ADUs. In 2022, the approval process for ADUs switched from requiring Type II Development Review to now only requiring a Zoning Review approval. This change removes the requirement for public noticing. The City has a practice of charging SDCs for primary dwelling unit but not Accessory Dwelling Units.					
E6	**Regulate short-term rentals.** The City updated its short-term rental regulations to respond to potential impacts of short-term rentals on current and future rental housing availability and affordability.	Middle-Income, Market	Both	All	Low	Complete
E7	**Incentivize accessible design.** Witch Hazel Village South includes outright setback reductions for visitable units to encourage single story design or visitable units with zero rise entries and bedroom/bathroom on main story.	All	Both	All	Low	Complete
E8	**Adopt a pro housing agenda.** Hillsboro's commitments to allow for the market's development and delivery of a variety of housing choices including Market Rate and Middle Housing, as well as Affordable Housing are demonstrated in the Hillsboro 2035 Community Plan guiding document, Hillsboro Comprehensive Plan goals and policies, and the 2020–2024 Washington County Consolidated Plan.	All	Both	All	Low	Complete
E9	**Adopt Affirmatively Furthering Fair Housing as a Comprehensive Plan Housing Policy.** Comprehensive Policy H 2.7: Employ strategies that support the Fair Housing Act and affirmatively further fair housing; Policy H 2.9: Employ strategies that support the Fair Affordable housing partnerships. Partner with nonprofit housing developers and other agencies to create the opportunity to provide moderate- and low-income housing and rehabilitation activities in Hillsboro.	All	Both	All	Low	Complete
Land-Based						
E10	**Evaluate City land for affordable housing.** Continue to evaluate the utilization of City-owned remnant land for affordable housing.	Affordable	Both	Middle Housing, Multi-Unit	Medium	Continuing
E11	**Evaluate land acquisition in Downtown Hillsboro.** The Hillsboro Economic Development Council will continue to evaluate the acquisition of land in the downtown Urban Renewal Area to spur residential, mixed-use development such as Block 67.	All	Renter	Multi-Unit	Medium	Complete

E12	**Track affordable housing inventory.** Continue to track the inventory of all existing regulated affordable housing units in the City to inform future policy and programs.	Affordable	Renter	Multi-Unit	Low	Continuing
Partnerships						
E13	**Continue to explore strategic partnerships to advocate for state and federal policy changes and funding.** Maintain strategic partnerships for coordinated multi-jurisdictional advocacy for state and federal policy changes and funding.	All	Both	All	High	Continuing
Incentives						
E14	**Continue property tax exemption for non-profit affordable housing.** Continue to offer tax exemptions to non-profits operating qualified affordable rental housing in the city.	Affordable	Renter	Multi-Unit	High	Continuing
E15	**Finance SDCs for the residential development.** Continue to support City financed SDCs for residential development, such as what was done with the 4th Main project in downtown Hillsboro and Orenco Station's Platform District buildings.	Market Rate	Both	Multi-Unit	Medium	Complete
Investments						
E16	**Continue providing gap funding investments.** Continue providing direct investment via gap funding into affordable housing projects and Permanent Supportive Housing, with prioritization of low and extremely low income units for individuals and families. Consider expanding investments for middle-income housing.	Affordable	Renter	Multi-Unit	Medium	Continuing
E17	**Continue administering CDBG program.** Continue administering CDBG federal funds supporting affordable housing programs, such as affordable homeownership, housing rehabilitation, public facility improvements, fair housing awareness, and emergency rent assistance.	Affordable, Middle-Income	Both	All	Medium	Continuing
	Support nonprofit housing organizations, such as the Community Housing Fund. Support and contribute to organizations such as the Community Housing Fund to support land acquisition and predevelopment costs for affordable housing.	Affordable	Renter	Multi-Unit	Medium	Continuing
E18	**Continue partnering on HOME implementation.** Continue partnering with Washington County to guide use of federal funds for affordable housing investment through participation on the Policy Advisory Board.	Affordable	Renter	Multi-Unit	Low	Continuing

5. New Actions to Meet Future Housing Needs

City of Hillsboro's staff and consulting team, considering the input received from community stakeholders, identified a list of housing actions aimed at addressing the needs in Section 2: Overview of Hillsboro's Contextualized Housing Needs. These actions derive from the team's policymaking experience in Oregon, an ongoing audit of Hillsboro's community development code and housing policies, stakeholder consultation, best practices research, and a list of potential actions published by Oregon's Department of Land Conservation and Development (DLCD).

Documentation Format for Each Action

Each action in this document falls into one of five categories:

1. Regulatory actions
2. Land-based actions
3. Partnership actions
4. Incentive actions
5. Investment actions

Each action is documented in a summary table, which includes an:

- Overview, background, and rationale for the action
- An adoption and implementation timeline
- Steps to implement the action
- Considerations for implementation, including discussion of constraints, opportunities, and externalities
- An estimate of magnitude of the action's impact on housing production
- The types of housing need the action addresses (across income, housing type, and tenure)
- The fiscal and administrative impacts of the action on the City

Actions will impact the production of needed housing over time, with some actions having nearer-term effects and others longer-term effects.

Types of Housing Need

Each action's documentation indicates the anticipated impacts it will have on different housing needs:

- **Affordability Targets:** This evaluates the degree to which an action will help to produce housing affordable to various income levels. The evaluation is based on the housing types that are most likely to be produced as a result of the action and the extent to which the City can direct the action to meet housing for certain income levels. The following table summarizes the affordability targets used for this report.

Affordability Target	Percent of Area Median Income (AMI)	Monthly Housing Cost Range
Deeply Affordable	30% and below	$663 or less
Affordable	30% to 80%	$664 to $1,770
Middle Income	80% to 120%	$1,771 to $2,655
Market Rate	Over 120%	$2,656 or more

Source: Oregon Housing and Community Services 2024, 1 Bdrm Income & Rent Limits for Washington County

  - **Deeply Affordable:** Deeply affordable housing refers to housing units that are affordable to households earning 30% and below of the area median income. These housing units are typically rental properties that are developed with public subsidies and include mechanisms such as regulatory agreements to ensure residents meet income requirements.

  - **Affordable:** Affordable housing refers to housing units that are affordable to households earning between 30% and 80% of the area median income. Affordable housing units are typically rental properties that are developed with public subsidies and include mechanisms such as regulatory agreements to ensure residents meet income requirements. Some affordable housing is not regulated due to public subsidies but may be provided by the market. This is often older and lower quality housing stock and may be referred to as naturally occurring affordable housing (NOAH).

  - **Middle Income:** Middle income housing, sometimes called workforce housing, refers to housing units that are affordable to households earning between 80% and 120% of the area median income. Such housing can be rental or ownership units that target middle-income workers, may or may not be developed with public subsidies or support.

  - **Market:** Market rate housing refers to non-subsidized housing properties that are rented or owned by those who pay market rate rents or market value to purchase the property.

- **Housing Type Targets:** This evaluates the degree to which an action will help to produce single detached, middle housing, and multi-unit housing. In this document, these terms are used to refer to housing types as defined below:

  - **Single Detached Housing:** A single detached unit located on its own lot.

  - **Middle Housing:** A range of detached and attached housing types that are typically higher density than single detached units. The types include duplexes, triplexes, quadplexes, townhouses, and cottage cluster housing.

  - **Multi-Unit Housing:** A building with 5 or more attached housing units located on a single lot.
  - **Tenure Targets:** This evaluates the degree to which an action will help to produce housing that is either for-sale or for-rent, regardless of housing type.

Magnitude of Impact

Each action's summary table offers an assessment of the action's magnitude of impact on housing production. Each action is assigned to one of the following categories:

◯ **Low impact**: This indicates that the action is likely to have a minimal or limited effect on housing production. It may support housing production but on its own it is not likely to spur significant new housing development.

◒ **Medium impact**: This indicates that the action is likely to have a substantial impact on housing production generally or on meeting a specific housing need. It may be impactful enough on its own to spur new housing development.

● **High impact**: This indicates that the action is likely to have a significant, wide-reaching impact on housing production or would directly spur housing development that meets a specific housing need.

When an action's impact is particularly uncertain, reasons the impact may or may not be as large as anticipated are documented. A discussion of how the actions collectively promote equity, fair housing, and meet the housing needs of marginalized groups is given in Section 6: Achieving Fair and Equitable Housing Outcomes.

Impacts on the City

The City will incur costs due to the actions taken under the HPS. Those costs take two forms: administrative costs and fiscal costs. Each action's summary table offers a brief assessment of the magnitude of those costs, from low to high.

- **Administrative Time**
  - **Low:** Requires low staff time to develop the action and requires low on-going staff time to implement the action.
  - **Medium:** Requires more staff time to develop the action and requires more ongoing staff time to implement the action.
  - **High:** Requires significant staff time to develop the action and/or significant ongoing staff time to implement the action. May also include adding additional staff.
- **Fiscal Impact**
  - **Low:** Requires little or no local funding (in addition to staff time) to implement.
  - **Medium:** Requires some funding (in addition to staff time) to implement. Acquiring this funding may require new sources of revenue and/or a federal or state grant.
  - **High:** Requires significant funding (in addition to staff time) to implement. Acquiring this funding will likely require new sources of revenue and/or a federal or state grant.
- **Department Lead**
  - **Community Development Department**
    - Planning Division
    - Affordable Housing Team

- Building Division
- Administrative Division
- Economic Development Department

❖ **City Manager's Office**

❖ **Finance Department**

Summary Table of New Actions

Action Group	Action Title	Implementation Years 1-2	3-4	5-6	7-8	Impact on Housing Production
Regulatory Actions	Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates					Medium
	Action 1.2: Increase housing in Multi-Dwelling Zones					High
	Action 1.3: Increase housing in Commercial & Mixed-Use Zones					High
	Action 1.4: Refine middle housing development standards					Medium
	Action 1.5: Streamline design standards					Medium
	Action 1.6: User-friendly code					Low
	Action 1.7: Identify and reduce process barriers					Low
	Action 1.8: Explore adopting pre-approved housing plans					Medium
Land Based Actions	Action 2.1: Coordinate with partners to identify underutilized land	Ongoing				Medium
	Action 2.2: Pursue residential land UGB expansion(s)					High
Partnership Actions	Action 3.1: Develop new strategic partnerships for state/federal advocacy	Ongoing				Medium
	Action 3.2: Continue and expand affordable homeownership partnerships	Ongoing				Medium
	Action 3.3 Undertake a Calle Diez Equitable Development Strategy					Low
Incentive Actions	Action 4.1: Explore fee structure adjustments					Medium
	Action 4.2: Analyze scaling select SDCs					High
	Action 4.3: Evaluate MUPTE to incentivize need housing and extension of the VHDZ program					Medium
	Action 4.4: Evaluate additional tax abatements					Medium
Investment Actions	Action 5.1: Explore strategic infrastructure investments to unlock housing production	Ongoing				Medium
	Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production					Medium
	Action 5.3: Build a year-round homeless shelter					Low
	Action 5.4: Explore ways to support Permanent Supportive Housing production	Ongoing				Low

1. REGULATORY ACTIONS

Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates

Regulatory Actions

Timeline	**1-2 Years**	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Evaluate Comprehensive Plan amendments and updates to the City's zoning map, including identifying areas where additional multi-unit housing capacity would be permitted and encouraged, especially in high-opportunity areas that are close to amenities such as connection to light rail, bus lines, schools, employment and commercial centers, and parks

Background: According to the 2023 Housing Needs Analysis (HNA), the City needs 14,046 new housing units over the next 20 years. The City's Buildable Land Inventory shows that the City currently falls short of having sufficient buildable land to meet that need, including multi-unit need. This and Actions 1.2, 1.3, 1.4, and 2.2 will help add capacity to meet that need.

In addition, a wide range of policy literature has demonstrated that prohibiting denser, multi-unit housing facilitates the creation of high-income, high-opportunity enclaves that lower-income households cannot afford. Through this action, the City can increase zoned capacity in high-opportunity neighborhoods for the type of housing with the greatest chance of achieving deep affordability: multi-unit housing. This will promote fair housing, reduce racial segregation, and expand affordable housing options in high opportunity areas, such as those with quality amenities, schools, transit service, and employment and commercial access. This action will also help the City encourage the creation of more compact, mixed-use neighborhoods.

Implementation Steps

- Identify infrastructure constraints and other barriers to allowing additional housing capacity in the City through the Housing Production Strategy's Development Ready Lands Analysis and Action 5.1.
- Conduct a staff or consultant-led project to holistically consider and recommend where housing capacity be added, alongside any needed Comprehensive Plan amendments.
- Adopt a package of changes to amend the Comprehensive Plan and rezone parts of the City to allow more housing.

Implementation Considerations

Equity

- The City should define and identify high opportunity neighborhoods to guide density increases and rezoning. There are many ways to do this (e.g. California Tax Credit Allocation Committee's Opportunity Map, Opportunity Insight's Opportunity Atlas, City of Portland's Opportunity Map). When defining opportunity, consider the formal definition of affirmatively furthering fair housing and relevant aspects of the City's comprehensive plan language.
- Allowing more construction in existing residential neighborhoods raises the possibility of displacement, both direct (e.g. eviction, demolition) and indirect (e.g. rising rents, loss of neighborhood identity).[8] While research has generally found that increased housing supply holds down housing costs at the regional and neighborhood level, a handful of studies have complicated these findings, showing conflicting local rent effects depending on the quality of the housing and increased churn among

[8] See "Gentrification, Displacement, and the Role of Public Investment." *https://www.urbandisplacement.org/wp-content/uploads/2021/08/gentrification.pdf*.

	neighborhood residents following new housing construction.[9] For these reasons, the City should take care to holistically consider where it adds housing capacity in order to minimize displacement while still facilitating greater housing production. A general rule is allowing more multi-unit housing in already expensive, high opportunity areas bears the least risk of displacement and inadvertently putting upward pressure on the nearby rents of existing housing.[10] <u>Administrative</u> • Each buildable site is unlikely to be developed in any given year, and all of the City's buildable sites are unlikely to be developed over the 20-year planning horizon.[11] To encourage development activity sufficient to meet the need, the City should plan to create more zoned capacity than the minimum amount physically needed to accommodate the City's housing need.
Magnitude of Impact	**Medium impact**. However, the impact could be high if the zoning map changes are significant and provide large upgrades in the total amount of zoned housing capacity in the City in development ready areas.

Affordability Targets	●	Deeply Affordable	●	Middle Income
	●	Affordable	●	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	○	Middle Housing		
Tenure Targets	●	For Rent	◒	For Sale

Fiscal Impact: Low **Admin Needs:** Medium **Lead:** Community Development Department's Planning Division

[9] See the Urban Displacement Project's study "New Development for Whom?" *https://www.urbandisplacement.org/wp-content/uploads/2022/03/IGS_1_New-Production_Brief_03.01.22.pdf*.

[10] See "Key Takeaways" of UCLA Lewis Center's 2021 Research Roundup on "The Effects of Market Rate Development on Neighborhood Rent." https://www.lewis.ucla.edu/research/market-rate-development-impacts/

[11] For an example of this dynamic, see "Technical Summary of Econometric Approach to Estimating Housing Element Site Capacity in the City of Los Angeles." https://planning.lacity.gov/odocument/15117d38-35ca-416b-9980-25eb20201ba2/Appendix_4.6_-_Regression_Methodology.pdf.

Action 1.2: Increase Housing in Multi-Dwelling Zones

Regulatory Actions

Timeline	1-2 Years	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Increase the maximum density, Floor Area Ratio, and height in Multi-Dwelling Zones and explore density bonuses to further increase affordable, middle-income, and accessible units along with mixed-income projects. Evaluate increasing minimum density requirements.

Background: The maximum density standards, Floor Area Ratio, and height standards of many of the City's multi-dwelling zones pose barriers to housing production and affordability by limiting density below levels that are achievable while meeting other form-based standards. For example, it is common for a low rise (2-3 story) apartment development with surface parking of around one space per unit to achieve densities of 30-40 units per acre even while meeting lot coverage, open space, and setback requirements. Additionally, the MR-1, MR-2, MR-3, SCR-DNC, SCR-MD, and SCR-HD zones allow multi-unit structures but limit densities below 30 units per acre. Increasing the maximum density in these zones will bring standards better into alignment with what is physically achievable and reduce the cost of development. Where allowed, the market is producing housing at these and higher densities in much of the Metro region.

Implementation Steps

- As part of the Housing Code Audit, determine an increased maximum density to apply to each multi-dwelling zone. Consider changing form-based standards, such as increased height and floor-area ratios, to ensure desired densities are achievable.
- Explore density bonuses to further increase affordable, middle-income, and accessible units in multi-dwelling zones.
    - Incentives for affordable or middle-income housing would define the level of affordability required as a percentage of Department of Housing and Urban Development's (HUD) annual Area Median Income (AMI) limits and overall percentage of units in a development that are affordable.
    - Incentives for accessible housing units could require the unit to meet certain standards, such as Universal Design or Lifelong Housing Certification.
- Adopt a package of changes through a public hearing process.

Implementation Considerations

Equity

- Rising construction costs make it impossible to build and offer new residential units below certain price thresholds without subsidy. Increasing capacity in multi-dwelling zones could help counteract rising costs by decreasing land cost per unit. Further, the City can help minimize construction costs by pairing increased densities with other code changes that simplify standards (e.g. Action 1.4: Streamline Design Standards) and encourage the affordable construction typologies: 3-4 story, wood framed multi-unit dwellings.[12] This in turn will benefit middle and lower income households via improved affordability within the multi-unit dwelling submarket.
- Adding density bonuses may help the City secure more housing to meet the needs of priority populations (e.g. low-income households). However, if density bonuses reduce

[12] See "Returns to scale in residential construction: The marginal impact of building height." https://onlinelibrary.wiley.com/doi/abs/10.1111/1540-6229.12357

base entitlements and add further process, negotiation, delay, and uncertainty to the development process, the negative effects could outweigh the benefits.[13]

Administrative

- The City should consider adopting that changes to multi-dwelling zones alongside other actions from the regulatory section to maximize overall benefit and allow for holistic consideration of the City's development pattern, goals, and ability to mitigate for any negative externalities of development.

Magnitude of Impact	**High impact**. This action offers a fast and direct way to facilitate the development of more housing units on the City's existing multi-dwelling development sites.

Affordability Targets	●	Deeply Affordable	●	Middle Income
	●	Affordable	●	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	○	Middle Housing		
Tenure Targets	●	For Rent	◒	For Sale

Fiscal Impact:	Low	**Admin Needs:**	Medium	**Lead:**	Community Development Department's Planning Division

[13] For more on this debate, see: "The Pretext Problem: The Pitfalls of Planning While Bargaining." *https://www.planetizen.com/features/113615-pretext-problem-pitfalls-planning-while-bargaining*.

Action 1.3: Increase Housing in Commercial and Mixed-Use Zones

Regulatory Actions

Timeline	1-2 Years	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Provide more flexibility for housing in Commercial and Mixed-Use Zones such as not requiring a portion of the ground floor to be commercial uses, allowing for single-use residential buildings with no commercial space, increasing maximum densities. Explore increasing minimum density requirements and offering density bonuses to further increase affordable, middle-income, and accessible units along with mixed-income projects.

Background: Housing is allowed in most of the commercial and mixed-use zones in Hillsboro's Community Development Code, but with a variety of limitations. Some zones limit housing to upper stories, some allow housing on the ground floor only in certain locations, and some zones require a minimum amount of commercial space in mixed-use developments. These kinds of requirements pose several challenges to prospective developments. Residential developers are often less comfortable with commercial construction and products, and therefore prefer not to build them. Commercial tenants interested in such spaces can sometimes be hard to find, necessitating higher residential rents to offset anticipated lost commercial rent. And affordable housing developers often try to avoid including ground floor commercial space in their projects as it triggers state-level prevailing wages for construction labor.

In response to these issues, the City will evaluate options for providing more flexibility for housing in mixed-use and commercial zones (e.g. Commercial - Neighborhood (C-N), Commercial - General (C-G), Mixed-Use-Neighborhood (MU-N) zones). Strategies to provide more flexibility may include allowing for horizontal mixed-use development (residential behind commercial), only requiring a portion of the ground floor to be commercial uses, allowing for single-use residential buildings with no commercial space, and increasing maximum densities for residential uses in commercial zones.

Implementation Steps

- Holistically evaluate regulations on housing in commercial and mixed-use zones/plan districts to identify the most appropriate strategy for reducing barriers to housing in each zone/plan district as part of the Housing Code Audit.
- Explore incorporating density bonuses in commercial and mixed-use zones to further increase affordable, middle-income, and accessible units there.
    - Incentives for affordable or middle-income housing would define the level of affordability required as a percentage of Area Median Income (AMI) and overall percentage of units in a development that are affordable.
    - Incentives for accessible housing units could require the unit to meet certain standards, such as Universal Design or Lifelong Housing Certification.
- Adopt a package of changes through a public hearing process.

Implementation Considerations

Equity

- Redevelopment of commercial properties for housing could make commercial space scarcer, putting upward pressure on commercial rents and raising the possibility of economic displacement of businesses. The City can combat this by ensuring adequate land zoned for commercial uses and through anti-displacement actions, such as the Calle Diez Equitable Development Strategy (Action 3.3).
- Many commercial areas are along high-traffic, car-oriented roads. Housing added in these areas could come with the drawbacks of limited walkability for residents and

close proximity to particulate pollution from traffic. The City should consider investments to improve walkability and reduce car dependency in and around commercial zones to maximize the livability of new housing built there.

- Adding density bonuses may help the City secure more housing to meet the needs of priority populations (e.g. low-income households). However, if density bonuses 1) reduce base entitlements and therefore development feasibility and 2) add layers of process and negotiation that increase delay and uncertainty in the development process, the negative effects could outweigh the benefits.[14]

Administrative

- The City is required by state law to ensure there is adequate employment land to serve expected job growth. Introducing residential uses to more commercial lands could, over the long term, affect the supply of land for employment.
- The City should consider adopting that changes to Commercial and Mixed-Use zones alongside other actions from the regulatory section to maximize overall benefit and allow for holistic consideration of the City's development pattern, goals, and ability to mitigate for any negative externalities of development.

Magnitude of Impact	**High impact**. This action offers a fast and direct way to facilitate the development of more housing units on the City's existing mixed-use development sites and open more commercial land to multi-unit housing development.

Affordability Targets	●	Deeply Affordable	●	Middle Income
	●	Affordable	●	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	○	Middle Housing		
Tenure Targets	●	For Rent	◒	For Sale

Fiscal Impact:	Low	**Admin Needs:**	Medium	**Lead:**	Community Development Department's Planning Division

[14] *For more on this debate, see: "The Pretext Problem: The Pitfalls of Planning While Bargaining."* https://www.planetizen.com/features/113615-pretext-problem-pitfalls-planning-while-bargaining.

Action 1.4: Refine middle housing development standards

Regulatory Actions

Timeline	1-2 Years	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Explore refinement of development standards to encourage more middle housing, such as allowing detached duplexes and more than one ADU on the same lot, attached units in cottage cluster developments, assessing minimum lot sizes, and clarifying the middle housing land division process.

Background: The CDC complies with state requirements to allow middle housing types in all zones that allow single detached units. However, there remain some barriers within the CDC to developing middle housing. Examples include:

- Minimum lot sizes that could prevent infill development on existing lots
- Restrictions on detached duplexes, attached units in cottage cluster developments, and multiple ADUs on the same lot
- Lack of clarity and certainty in the middle housing land division process

Implementation Steps

- Identify middle-housing related development standards to consider for refinement as part of the Housing Code Audit.
- Evaluate the benefits and tradeoffs of modifying those standards.
- Calibrate and draft code amendments to produce desired outcomes.
- Determine if these changes should be packaged with other code and zoning changes.
- Bring amendments through a public hearing process and adopt a package of changes that increase feasibility of middle housing development.

Implementation Considerations

Equity

- Reducing barriers to middle housing development may add to the supply of housing that is affordable to middle-income households. For instance, some code refinements (such as reduced minimum lot sizes) encourage development of smaller units, which tend to be more affordable and serve priority populations.
- Allowing detached middle-housing units and clarifying the middle housing land division process may encourage developers to build more modestly sized housing units for ownership. Section 2 of the HPS suggests that communities of color may disproportionately rely on missing middle housing to access homeownership (p. 10).

Administrative

- The City should consider adopting refined middle housing standards alongside other actions from the regulatory section to maximize overall benefits and allow for holistic consideration of the City's development pattern, goals, and ability to mitigate for any negative externalities of development.

Magnitude of Impact

Medium impact. The American Community Survey (Table 25024, 5-year data) estimates that Hillsboro added on net 670 attached single detached units, duplex units, triplex units, and fourplex units between 2018 and 2022. By comparison, the City added over 1,700 units in larger apartment buildings with five or more units. While improving middle housing standards should meaningfully increase production, actions aimed at development standards for larger-scale buildings appear more likely to have a high impact.

Affordability Targets	○	Deeply Affordable	●	Middle Income
	◒	Affordable	●	Market Rate
Housing Type Targets	○	Single Detached Unit	○	Multi-Unit
	●	Middle Housing		
Tenure Targets	◒	For Rent	●	For Sale

Fiscal Impact: Low **Admin Needs:** Medium **Lead:** Community Development Department's Planning Division

Action 1.5: Streamline design standards

Regulatory Actions

Timeline	1-2 Years	**3-4 Years**	5-6 Years	7-8 Years

Description

Overview: Clarify and streamline design standards across existing and new neighborhoods to promote and expedite housing production.

Background: Some CDC 12.50.710 Design Standards for All Residential Development and similar standards affecting certain zones and plan districts may impose unnecessary costs and risks on housing development. This may occur, for instance, when standards require using expensive materials, such as with minimum window glazing standards. It may also occur when standards limit development teams' design options or require more expensive construction techniques, causing developers to conclude the standards are unachievable and forcing them to seek discretionary approval for an alternative solution. SB 1537 includes provisions allowing developers greater ability to request variances, and this may provide an avenue for adjustments to challenging design standards. However, that process is not yet well established, nor does it constitute a clear and objective approval path. The City should instead modify its design standards to focus on elements of design that are essential to the character of Hillsboro across existing and new neighborhoods, while limiting the impact on the cost of development and design flexibility. Under this action, the City would evaluate the cost impacts of various design standards, achievability of design standards, identify alternative approaches to meeting the intent of those standards, and adopt code amendments for the purpose of streamlining design standards.

Implementation Steps

- Evaluate the cost impacts of various design standards as part of Housing Code Audit.
- Identify alternative approaches to meeting design standards' intent. Evaluate tradeoffs.
- Calibrate and draft related code amendments to produce desired outcomes. Determine if these changes should be packaged with other code and zoning changes.
- Adopt streamlined development standards via a public hearing process.

Implementation Considerations

- Streamlining design standards and reducing development costs and timelines, specifically for multi-unit developments, may add to the supply of housing that is affordable to low and middle-income households.
- The City should consider adopting streamlined design standards alongside other actions from the regulatory section to maximize overall benefits and allow for holistic consideration of the City's development pattern, goals, and ability to mitigate for any negative externalities of development.

Magnitude of Impact

Medium impact. This action could meaningfully improve the ease of developing by making design standards less costly and more achievable, reducing discretionary reviews.

Affordability Targets	◒ Deeply Affordable	● Middle Income
	● Affordable	● Market Rate
Housing Type Targets	○ Single Detached Unit	● Multi-Unit
	◒ Middle Housing	
Tenure Targets	● For Rent	◒ For Sale

Fiscal Impact: Low **Admin Needs:** High **Lead:** Community Development Department's Planning Division

Action 1.6: User-friendly code

Regulatory Actions

Timeline

1-2 Years | 3-4 Years | **5-6 Years** | 7-8 Years

Description

Overview: Evaluate reorganizing and streamlining the CDC to make it a more user-friendly document, identifying and resolving any redundancies, conflicts, or inconsistencies that may cause confusion or uncertainty.

Background: The CDC is a complex set of regulations that may require substantial time for applicants to navigate to identify applicable regulations. The City has an opportunity to improve the user experience of the code by streamlining the number of zones, plan districts, and/or overlays and taking other steps to reduce the complexity of the CDC. This project could also allow the City to identify and resolve any redundancies, conflicts, or inconsistencies that may cause confusion or uncertainty for users and for staff. This process would also include creating a user guide for the CDC to support less-experienced developers and community members navigate the code.

Implementation Steps

- Evaluate options for reorganizing and streamlining the code to make it user friendly, as well as associated benefits and tradeoffs as part of Housing Code Audit.
- If moving forward with reorganization and streamlining, draft and calibrate code amendments to produce desired outcomes.
- Determine if amendments should be adopted as a whole, in phases, and packaged with other code and zoning changes.
- Adopt user-friendly code through a public hearing process.

Implementation Considerations

Equity

- Creating a more streamlined, user-friendly code may reduce development timelines and add to the supply of housing affordable at various income levels.
- A user-friendly code could expand the development ecosystem by reducing barriers to entry, helping development better reflect and serve a greater diversity of people.

Administrative

- The City should consider adopting a more user-friendly code alongside other actions from the regulatory section, allowing staff to efficiently amend the code as the City proceeds with code-related actions taken during the implementation period.

Magnitude of Impact

Low impact. A user-friendly code could help grow the development ecosystem. However, the user unfriendliness of the existing code likely does not deter sophisticated, large-scale developers from investing in Hillsboro, and those actors tend to build the most housing.

Affordability Targets	○ Deeply Affordable	◒ Middle Income
	◒ Affordable	◒ Market Rate
Housing Type Targets	◒ Single Detached Unit	◒ Multi-Unit
	◒ Middle Housing	
Tenure Targets	◒ For Rent	◒ For Sale

Fiscal Impact: Low **Admin Needs:** High **Lead:** Community Development Department's Planning Division

Action 1.7: Identify and reduce process barriers

Regulatory Actions

Timeline	**1-2 Years**	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Identify and mitigate process barriers, such as creating greater clarity in the review process while streamlining land use, development review, & permitting processes.

Background: Technical Advisory Committee members provided input indicating that some elements of the land use review and approval process can be time-consuming and add risk to the development process by pushing developers into discretionary reviews and negotiations. Implementation of Actions 1.4-1.6 has the potential to reduce several key process barriers, particularly if the City creates more clarity around the middle housing land division process, streamlines its design and/or overlay standards, and creates additional clear, objective, non-discretionary approval pathways for infill and multi-unit development. The action will seek to identify additional process barriers to eliminate, such as by consolidating and coordinating approvals and review by different departments, which was recommended by TAC members.

Implementation Steps

- Identify process barriers not addressed by other actions.
- Evaluate options for reducing barriers, in coordination with assessment and implementation of actions 1.4-1.6.
- Evaluate the benefits and tradeoffs of options for introducing process changes.
- Determine if these changes should be packaged with other regulatory changes.
- Implement process changes.

Implementation Considerations

Equity

- Reducing barriers in the development process may reduce development costs and timelines and help grow Hillsboro's reputation as a place developers want to build. Over time, this should enhance the City's supply of housing, supporting greater affordability across income levels.
- Reducing barriers may create more opportunities for infill and small-scale developers.

Administrative

- The City should consider reducing process barriers alongside other actions from the regulatory section to maximize overall benefits and avoid duplicate efforts.

Magnitude of Impact

Low impact. However, if significant process barriers remain following Actions 1.4 – 1.6, then the magnitude of this action's impact could be larger.

Affordability Targets	◒ Deeply Affordable	● Middle Income
	◒ Affordable	● Market Rate
Housing Type Targets	◒ Single Detached Unit	● Multi-Unit
	● Middle Housing	
Tenure Targets	● For Rent	● For Sale

Fiscal Impact: Low **Admin Needs:** High **Lead:** Community Development Department's Admin Division

Action 1.8: Explore adopting pre-approved housing plans

Regulatory Actions

Timeline	1-2 Years	**3-4 Years**	5-6 Years	7-8 Years

Description

Overview: Explore adopting pre-approved housing plans, especially for ADUs and middle housing typologies, allowing for expedited review time.

Background: Pre-approved plan sets are building designs that have been reviewed for compliance with the building code, compliance with any development standards regulating form and design, and are approved to build. The plans could be designed for constrained lots and cost minimization. They could also focus on accessibility and energy efficiency to support other City goals and housing needs. Pre-approved plans would streamline permitting procedures, thereby reducing development timelines, uncertainty, and costs. Pre-approved plans would also reduce architectural costs and barriers to entry for less seasoned builders, such as homeowners.

Implementation Steps

- Continue participating at the State level in code efforts to create residential building codes changes, estimated to roll out in 2029.
- Determine if plan sets developed by DLCD can be adapted for the City.
- Consider consulting developers and general contractors that have built middle housing and ADU projects in the City to understand how to best create pre-approved plans that will garner uptake and that general contractors will pitch to customers.
- Fund or secure funding to develop pre-approved plans with architects and builders.
- Advertise the pre-approved plans to property owners, contractors, and builders.

Implementation Considerations

Equity

- Consider focusing on accessible and visitable designs to meet the needs of people with disabilities and seniors.

Administrative

- Site plan review would still be required, minimizing time saving component of pre-made, pre-approved plans.

Magnitude of Impact

Medium impact. Pre-approved plans could meaningfully help grow the development ecosystem by reducing barriers to entry for small-scale developers of ADUs and missing middle housing. However, pre-approved plans are less likely to raise the activity of sophisticated, large-scale developers, who often have their own design teams or partners.

Affordability Targets	○ Deeply Affordable	◒ Middle Income
	◒ Affordable	● Market Rate
Housing Type Targets	○ Single Detached Unit	○ Multi-Unit
	● Middle Housing	
Tenure Targets	● For Rent	◒ For Sale

Fiscal Impact: Medium **Admin Needs:** Medium **Lead:** Community Development Department's Building Division

2. LAND-BASED ACTIONS

Action 2.1: Coordinate with partners to identify underutilized land

Land-Based Actions

Timeline	Ongoing across implementation period
Description	Overview: Coordinate with civic, cultural and religious organizations, and real estate developments partners, to identify the limited underutilized land potentially available for affordable and middle-income housing. Background: Some mission-driven organizations or institutional landowners may have property that exceeds their long-term needs. They may also view income-restricted housing development and work benefiting homeless and very-low-income populations as consistent with their missions and are therefore be interested in partnerships with affordable housing developers to support housing development. Parcels owned by institutions may have additional advantages, ranging from property tax exemptions to supportive legal provisions (ORS 227.500, SB 8 (2021)) to eligibility for specialized funding sources or fundraising mechanisms.
Implementation Steps	• Engage with civic, cultural, and religious organizations and other institutional landowners to understand long-term plans for their sites and to encourage partnerships to meet housing needs. • Offer technical support to help institutional landowners understand housing-related zoning and infrastructure issues and pursue relevant grants. • Facilitate connections with local developers that may be interested in partnering to build on institution-owned sites.
Implementation Considerations	• Housing developed through partnerships with institutional or mission driven landowners would likely directly benefit low-income populations and members of marginalized communities. • Income-restricted housing developed through forming partnerships with institutional landowners typically reduces land basis development costs that help translate into lower sales and rental costs. These lower cost housing options would benefit marginalized populations. • This action could also include engaging with local employers regarding land available for middle-income housing development targeted at local workers.
Magnitude of Impact	**Medium impact.** This action may seem limited, at first glance but could lead to one or more new affordable housing developments over 8 years that would not have otherwise been built, at relatively low cost to the City. This action can significantly benefit housing production for homeless and low-income populations.

Affordability Targets	◒	Deeply Affordable	●	Middle Income
	●	Affordable	○	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	◒	Middle Housing		
Tenure Targets	●	For Rent	◒	For Sale

Fiscal Impact: Low **Admin Needs:** Medium **Lead:** Community Development Dept's Affordable Housing Team

Action 2.2: Pursue residential land UGB expansion(s)

Land-Based Actions

Timeline	1-2 Years	**3-4 Years**	5-6 Years	7-8 Years

Description

Overview: Per the 2023 Housing Needs Analysis, pursue increased housing development in centers and along corridors, and additional residential lands through Urban Growth Boundary expansion(s) to address homeownership needs.

Background: Hillsboro's most recent HNA forecasted a need for roughly 14,050 housing units over the next 20 years, based on Metro's forecasted growth rate. This need exceeds total estimated capacity by roughly 2,300 units. While the HNA found a modest surplus of land available for medium-density housing, the projected demand for low-density housing exceeds existing capacity by an estimated 163 gross acres. Additionally, the projected deficit of land for high-density housing types is approximately 36 gross acres. The HNA recommended that a range of potential housing policies and strategies be considered within the HPS to offset these deficits, including considering the ability of future planning areas to meet the need for different types of housing during the 20-year planning period. UGB expansion could be an additional way to offset deficits of land for low- and high-density housing that were identified in the HNA.

Implementation Steps

- Monitor results of Metro's forthcoming growth report, which will determine viability.
- Determine whether housing production targets to be created by the 2025 Oregon Housing Needs Analysis (OHNA) affect the City's process for seeking a UGB expansion
- Re-assess land capacity after accounting for more efficient use of the City's developable land due to actions undertaken as a result of the Code Audit and HPS.
- Pursue UGB expansion in accordance with the requirements of OAR 660-024-0000 and Metro's process for mid-cycle expansion requests.

Implementation Considerations

- New housing created as a result of a UGB expansion is most likely to be primarily market rate housing, often single detached units. Density minimums, housing mix requirements, affordability requirements, and direct investments in non-market rate housing projects in expansion areas could help expansion areas meet a greater diversity of housing needs.
- UGB expansion could pose challenges to meeting Community Plan goals to reduce carbon emissions, enhance transit service, and increase housing density.

Magnitude of Impact

High impact. Hillsboro's adopted Housing Needs Analysis identified the need for additional land to support over 1,500 units of needed housing. This action supports the development of housing for that identified housing need.

Affordability Targets	○ Deeply Affordable	◒ Middle Income
	◒ Affordable	● Market Rate
Housing Type Targets	● Single Detached Unit	● Multi-Unit
	○ Middle Housing	
Tenure Targets	◒ For Rent	● For Sale

Fiscal Impact: Medium **Admin Needs:** High **Lead:** Community Development Department's Planning Division

3. PARTNERSHIP ACTIONS

Action 3.1: Develop new strategic partnerships for state and federal advocacy

Partnership Actions

Timeline	Ongoing across implementation period
Description	Overview: Develop new strategic partnerships for coordinated advocacy on state and federal policy changes and funding, such as more funding for infrastructure, affordable and middle-income housing, and changes to construction defect liability law. Background: Continued state and federal funding and regulatory reform are needed to help cities meet their housing production targets. Recent state legislation has provided important regulatory changes and additional funding to support housing development. However, additional funding would be highly beneficial in supporting homeownership, preserving and expanding affordable housing, and supporting production of new housing for households at all income levels. Likewise, state regulatory reforms – such as to Oregon's construction defect liability laws, which deter developers from building condominiums – could help raise overall housing production of ownership housing. Through this action, the City would seek to form new partnerships to advocate for funding and regulatory reforms. The City may support many more state and federal policy changes than just the examples given above.
Implementation Steps	• Work with City Council on an annual basis to identify key issues to target for legislative lobbying efforts and policy direction. • Explore and develop local, regional and issue-based partnerships for the purpose of lobbying the state Legislature. • Collaborate with state representatives to advocate for proposed changes.
Implementation Considerations	• Additional, targeted funding from the state or federal government would provide critical gap funds for the creation and preservation of affordable housing. • Additional funding for housing-supportive infrastructure could overcome a major cost barrier to unlock additional housing production at all income levels. • State level regulatory reform (e.g. construction defect liability law, stair and egress rules, sprinkler requirements) could unlock development activity previously stifled, enabling new housing types and greater flexibility to meet people's broad needs.
Magnitude of Impact	**Medium impact**. The magnitude of impact depends on which issues the City advocates for and the extent of new funding or regulatory changes from the state.

Affordability Targets	◒ Deeply Affordable	● Middle Income
	● Affordable	◒ Market Rate
Housing Type Targets	◒ Single Detached Unit	● Multi-Unit
	◒ Middle Housing	
Tenure Targets	◒ For Rent	◒ For Sale

Fiscal Impact: Low **Admin Needs:** Medium **Lead:** Community Development Dept's Admin Division

Action 3.2: Continue and expand affordable homeownership partnerships

Partnership Actions

Timeline	Ongoing across implementation period
Description	Overview: Continue partnering with Proud Ground and Habitat for Humanity, and seek additional partnerships with the development community, to support affordable and middle-income homeownership opportunities. Background: Promoting affordable homeownership is a priority for the HPS actions. The City has an ongoing partnership with Proud Ground, a community land trust, to support acquisition and rehabilitation of existing homes for affordable homeownership in Hillsboro. The City also partners with Habitat for Humanity, which has resulted in the recent development of Century Commons (18 homes) and Alder Commons (8 homes). Pursuing additional partnerships with similar organizations could increase and diversify the total unit count of this housing product.
Implementation Steps	• Continue to collaborate with and support community land trusts and other affordable homeownership providers, including ongoing funding support. • Engage developers and service providers who work – or might be interested in working – in the affordable homeownership space to understand and support their needs. • Explore whether incentive actions related to fees and taxes could broaden the pool of developers building housing for affordable and middle-income homeownership. • Explore additional partnership opportunities, including with educational and outreach programming related to affordable homeownership.
Implementation Considerations	• The City should consider coordinating this action with Actions 4.1 and 4.3, which reference the City's interest in financial support for middle-income housing, including ownership housing. A tax abatement could prove an effective tool for expanding or creating new affordable homeownership partnerships. • This action intends to benefit marginalized communities, including BIPOC populations and people with disabilities, as they are the groups more likely to have incomes qualifying for this action.
Magnitude of Impact	**Medium impact.** Paired with other actions (e.g. Actions 2.1, 4.1, and 4.3), expanded partnerships could yield modest unit counts of a deeply needed and desired housing type: affordable ownership housing.

Affordability Targets	○ Deeply Affordable	● Middle Income
	● Affordable	○ Market Rate
Housing Type Targets	● Single Detached Unit	○ Multi-Unit
	● Middle Housing	
Tenure Targets	○ For Rent	● For Sale

Fiscal Impact: High **Admin Needs:** Medium **Lead:** Community Development Department's Affordable Housing Team

Action 3.3: Undertake a Calle Diez Equitable Development Strategy

Partnership Actions

Timeline	**1-2 Years**	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Produce a Calle Diez Equitable Development Strategy, which includes residential and commercial anti-displacement components, in partnership with the community and non-profits.

Background: The Equitable Development Strategy is intended to assist the City and partners to navigate decision-making and avoid negative consequences within and adjacent to the Calle Diez area, a neighborhood centered on 10th Avenue. The City intends to continue making infrastructure investments and business grants and has identified development opportunities in the Calle Diez area. The Equitable Development Strategy is needed to guide these and other initiatives to ensure that Calle Diez is a vibrant and welcoming place for diverse communities. Preventing and mitigating the involuntary displacement of residents and businesses is a central tenet of this work.

Implementation Steps

- Finalize Equitable Development Strategy
- Create Implementation and Evaluation Plan

Implementation Considerations

- This action is aimed at benefiting marginalized communities in Calle Diez, including BIPOC populations and people with disabilities, as they are the groups more likely to experience involuntary displacement.

Magnitude of Impact

Low impact. While this action does not directly relate to housing production, anti-displacement actions are an important component of fair and equitable housing considerations included in the HPS.

Affordability Targets	○ Deeply Affordable	◒ Middle Income
	◒ Affordable	○ Market Rate
Housing Type Targets	◒ Single Detached Unit	◒ Multi-Unit
	◒ Middle Housing	
Tenure Targets	◒ For Rent	◒ For Sale

Fiscal Impact: Medium **Admin Needs:** Medium **Lead:** Economic Development Department

4. INCENTIVE ACTIONS

Action 4.1: Explore fee structure adjustments

Incentive-Based Actions

Timeline	**1-2 Years**	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Evaluate reducing or waiving fees through adjusting fee structures (i.e., plan review fees, permitting fees) to incentivize new affordable housing and middle-income housing with affordability covenants.

Background: The City of Hillsboro levies plan review and permitting fees on new construction to help cover City administrative and program costs. With this action, the City will evaluate whether to forego that fee revenue for housing projects that deliver income-restricted housing. While fee amounts are small relative to overall development costs, fee waivers can help income-restricted projects on the edge of financial feasibility fill their final gap and break ground, getting more such housing produced and faster.

Implementation Steps

- Determine policy objectives for tax abatements.
- Conduct a fee study that identifies the kinds of projects that would be offered fee waivers, the extent of those waivers, the significance of those waivers from a financial feasibility standpoint, and the resulting fiscal impacts to the City.
- Based on the study, determine a recommended fee waiver program design and a recommendation on whether the City should adopt.
- Send the program to Council for adoption
- Inform developers and owners of the opportunity, clarifying which fees are affected and how, and disambiguating this opportunity from SDC scaling.

Implementation Considerations

- Consider speaking with developers of affordable and middle-income housing to qualitatively assess the impact of this foregone revenue on their projects' feasibility. Assess their openness to adding affordability covenants, assuming they do not already apply them to their projects.
- If fiscal capacity remains a key constraint, explore the possibility of a program design that offers fee waivers less often and only in cases in which they would "tip" a project from financially infeasible to feasible. Still advertise the option to pursue fee waivers to partners building needed housing in Hillsboro.

Magnitude of Impact

Medium impact. Fee amounts are modest relative to overall development costs, so fee waivers will likely have a small to medium impact on overall production. However, they will assist income-restricted projects with financial gaps and achieving feasibility faster.

Affordability Targets	○	Deeply Affordable	◒	Middle Income
	◒	Affordable	○	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	◒	Middle Housing		
Tenure Targets	●	For Rent	●	For Sale

Fiscal Impact: High **Admin Needs:** Medium **Lead:** Community Development Department's Administrative Division

Action 4.2: Analyze scaling select SDCs

Incentive-Based Actions

Timeline	1-2 Years	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Evaluate scaling select SDCs based on unit size to align the fee amount with the impact of construction and ongoing system impact. Exploring the scaling of select SDCs will include multi-jurisdictional coordination.

Background: System Development Charges (SDCs) are a substantial upfront cost of housing development. The City of Hillsboro levies sewer, water, parks, supplemental parks and supplemental transportation SDCs, Washington County levies a transportation development tax, and various other water or sewer service providers in Hillsboro levy fees on development within the City's boundaries.

SDCs levied on development in Hillsboro are not all scaled to the expected impact of the development. For example, in the case of the City's Parks SDC and the County's Transportation Development Tax, large dwelling units pay the same amount as smaller dwelling units of the same housing type, despite the fact that the latter will typically produce lower impacts. Scaling SDCs by the size of the unit (e.g. per square foot) could more fairly distribute the cost of SDCs across housing developments. Scaled SDCs incentivize developers to build more modestly sized units as a way to reduce their projects per unit or even total costs. These smaller units tend to be more affordable to occupants, and more such units can fit on each individual site, serving to boost housing production at the project level.

Implementation Steps

Hillsboro has initiated a comprehensive study of its fees and SDC rates. Such an analysis will include the following aspects:

- Identify alternatives for scaling SDCs (e.g. by square footage, by bedroom, by fixture)
- Evaluate the relative incentives and disincentives to housing production that would be created by each alternative
- Evaluate the fiscal impacts of each alternative to the City and overlapping jurisdictions, such as Washington County and Tualatin Valley Water District.
- Explore ways to achieve fiscal balance within each alternative (e.g. raising some rates while lowering others)
- Audit the City's engineering standards to lower the financial obligations they place on the City, thereby increasing its ability to lower the SDCs it levies on development
- Adopt any recommended changes of the study that are fiscally feasible.

Implementation Considerations

Equity

- Scaling is a fairer method of charging development fees, because it seeks to align impact with costs.
- Scaling has positive equity implications. It reduces costs for smaller units, which are usually more affordable than larger ones. Thus, its incentives building more, lower-cost, small units. This benefits households with lower incomes, which have disproportionately high shares of people of color and people with disabilities in Hillsboro.

Fiscal

- May result in lower overall fee revenue, which could hinder key community investments. However, revenue shortfalls can be mitigated by planning for revenue

	neutrality and tailoring SDC rates accordingly, such as by adding a base fee (or increasing the existing base fee) or by raising the SDCs on larger units. <u>Administrative</u> • Recalibrating the fees will require staff time and interjurisdictional collaboration. • Permitting system may need adjustments to collect information related to SDC tiers.
Magnitude of Impact	**High impact**. Hillsboro's Housing Production Strategy Technical Advisory Committee felt that efforts by the City to reduce the SDC burden it levies on developers would significantly improve the attractiveness of adding housing in Hillsboro. Scaling SDCs also incentivizes building lower-cost, small housing units, which may benefit lower-income households and key demographic groups that tend to have lower incomes (e.g. people of color, seniors, people with disabilities).

Affordability Targets	◒ Deeply Affordable	● Middle Income
	● Affordable	● Market Rate
Housing Type Targets	◒ Single Detached Unit	● Multi-Unit
	● Middle Housing	
Tenure Targets	● For Rent	● For Sale

Fiscal Impact:	Variable	**Admin Needs:**	Medium	**Lead:**	Community Development Department's Administrative Division

Action 4.3: Evaluate MUPTE to incentivize needed housing and extension of the Vertical Housing Development Zone program

Incentive-Based Actions

Timeline	**1-2 Years** 3-4 Years 5-6 Years 7-8 Years
Description	Overview: Evaluate a Multi-Unit Property Tax Exemption (MUPTE) and extension of the Vertical Housing Development Zone (VHDZ) program to encourage the production of more multi-dwelling housing units. Background: MUPTE is a state-enabled program that allows cities to incentivize the production of needed housing in specific locations and with specific features that provide a public benefit. Using MUPTE, jurisdictions may grant a property tax exemption on a multi-unit structure's improvement value for up to ten (10) years. The property owner continues to pay taxes on the land value and any commercial portion of the property. The City may cap the total tax abatement available each year. In the past, the City of Hillsboro has used a VHDZ program to offer partial property tax exemptions for mixed-use residential development projects with ground floor commercial space. A legislative extension of the VHDZ program, which is set to sunset in 2026, is anticipated and will be necessary if new VHDZ tax abatements are going to be granted. Unlike MUPTE, VHTZ-qualified projects must include ground-floor commercial space. Despite this limitation, the City may wish to continue using this tool since it is already familiar with its mechanics.

Implementation Steps	• Determine policy objectives for tax abatements, such as overall unit production, affordability, and other public benefits of development.
	• Compare program requirements and potential program designs for a VHDZ program and MUPTE. Review other jurisdictions' programs for design inspiration.
	• Evaluate fiscal impacts to the City, then determine whether to use neither, one, or both programs.
	• If the City elects to pursue MUPTE:
	  • Determine eligibility criteria for the program, such as target locations, tenure status, minimum unit number, potential minimum percentage of dedicated affordable or middle-income housing units, and other public benefits to require (such as accessible units).
	  • Meet with overlapping taxing districts to gather support. In addition to gaining Council approval, MUPTE must be approved by the majority (over 50%) of taxing districts.

Implementation Considerations	Equity • MUPTE and VHDZ programs can promote the development of income-restricted units within market-rate developments. This would reduce housing disparities for marginalized populations and open a new pathway for meeting low- and middle-income housing need separate from common, often oversubscribed tools like low income housing tax credits (LIHTC). MUPTE and VHDZ also have the advantage that they can act as funded, opt-in inclusionary zoning, where the revenue downside of having income-restricted units is offset by a property tax abatement, which encourages developers participate in producing these types of needed housing.

Fiscal

- MUPTE is designed to only grant tax abatements in cases in which it would "tip" a project from financially infeasible to feasible. In other words, MUPTE can be set up to primarily support projects that would not be built in the near term without tax relief or another form of subsidy. This helps the program have a net positive impact on the City's tax base over time by minimizing foregone revenue dedicated to projects that would move forward regardless of tax relief. Consider building a third-party pro-forma review into the application fee and process, which the City can use to help determine if the project is not financially feasible but for the tax abatement.

Administrative

- The City should consider analyzing multiple incentives and investment actions at once, allowing them to adopt a financially calibrated package of policy changes. This would help avoid adopting one policy change only to unintentionally counteract its intended effect via a subsequent policy change.
- The impact of this strategy will depend on the number of taxing districts that participate. This should be part of the City's analysis in the point above.

Magnitude of Impact	**Medium impact**. This action could promote more multi-unit production overall. If the City includes affordability requirements to earn the tax abatements, it the action could also yield income-The American Community Survey (Table 25024, 5-year data) estimates that Hillsboro added roughly 3,100 units in large apartment buildings with five or more units between 2015 and 2022—an eight-year period akin to the HPS implementation timeline. If production over the next eight years holds steady, half of new apartment developments opt into a MUPTE or VHTZ program, and 10% of units produced are income-restricted affordable housing, this action would produce roughly 150 affordable housing units, similar in magnitude to one large LIHTC project.

Affordability Targets	○	Deeply Affordable	●	Middle Income
	◒	Affordable	◒	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	○	Middle Housing		
Tenure Targets	●	For Rent	◒	For Sale

Fiscal Impact:	High	**Admin Needs:**	Medium	**Lead:**	Economic Development Department

Action 4.4: Evaluate additional tax abatements

Incentive-Based Actions

Timeline	1-2 Years	**3-4 Years**	5-6 Years	7-8 Years

Description

Overview: Evaluate extending tax abatements beyond existing non-profit housing for new middle-income housing, conversion of naturally occurring affordable housing (NOAH) to regulated affordable housing, and manufactured home parks all with affordability covenants.

Background: The City of Hillsboro will evaluate property tax abatements for multi-unit dwellings as part of Action 4.4. However, additional needed housing types could be incentivized via tax abatements. The City will explore potential mechanisms for incenting private market actors to build or preserve income-restricted housing via tax abatements.

Implementation Steps

- Determine policy objectives for tax abatements.
- Compare program requirements and potential designs across tax abatement mechanisms that may serve the housing needs listed in the Overview, such as:
    - New construction of middle income housing, including ownership housing: MUPTE, Homebuyer Opportunity Limited Tax Exemption (HOLTE)
    - Preservation or rehabilitation of NOAH, manufactured home parks: MUPTE, HB2377/ORS 307.867
- Design the program(s) per state statute and calibrate tax incentives such that developers and owners will be attracted to participate in the program(s). Evaluate the impact in income-restricted units per dollar spent.
- Adopt the program and gather any needed support from other taxing jurisdictions
- Inform developers and owners of the opportunity.

Implementation Considerations

- The action could help preserve forms of affordable housing at risk of significant price increases because no affordability covenant is in place.
- Depending on the situation, preservation and rehabilitation may cause displacement during renovation or if current tenants exceed new income restrictions.
- Some tax abatement programs can be designed to only grant abatements in cases in which they would "tip" a project from financially infeasible to feasible. This can help programs have a net positive impact on the City's tax base over time by minimizing foregone revenue dedicated to projects that would be built regardless of tax relief.

Magnitude of Impact

Medium impact. The impact of this action depends on the tax abatements adopted and uptake of the abatements.

Affordability Targets	◒ Deeply Affordable	● Middle Income
	● Affordable	○ Market Rate
Housing Type Targets	○ Single Detached Unit	● Multi-Unit
	◒ Middle Housing	
Tenure Targets	● For Rent	● For Sale

Fiscal Impact:	High	**Admin Needs:**	Medium	**Lead:**	Community Development Department's Affordable Housing Team

5. INVESTMENT ACTIONS

Action 5.1 Explore strategic infrastructure investments to unlock housing production

Investment Actions

Timeline	Ongoing across implementation period
Description	Overview: Explore ways to maximize housing production via strategic infrastructure investments for key sites that would significantly improve housing development potential. Background: A common development challenge is maintaining financial viability while paying for infrastructure needed to service a site or district. Sometimes, the expense of needed infrastructure is too great for a single project to bear, requiring collective action (e.g. a Local Improvement District) or government intervention. The City of Hillsboro's ability to fund new infrastructure to facilitate housing development is limited. This means the City must invest strategically to maximize its impact, determining which infrastructure projects unlock the most housing production per dollar spent (along with other City goals for infrastructure). In this action, the City will explore the opportunities available to maximize housing production via strategic infrastructure investments—identifying strategic investments and potential paths for funding them.
Implementation Steps	• Conduct a Development Ready Lands Analysis (see Appendix B) to help identify locations with infrastructure deficiencies that must be resolved to develop them. • Coordinate with Public Works to estimate the costs of infrastructure projects and understand which projects are already in the City's pipeline. Discuss opportunities to reprioritize planned infrastructure projects to focus on unlocking housing production. • Conduct outreach to landowners. Estimate the total housing developable on key sites. Determine whether covering the infrastructure costs for those sites without government assistance is feasible. • Determine which investments unlock the most housing units per infrastructure dollar • Explore potential funding paths, and work to secure or dedicate funding toward the most strategic investments.
Implementation Considerations	• While total housing potential unlocked is a useful filter for infrastructure investments, many other considerations should bear on investment decisions: overall infrastructure or system goals, fair housing goals of facilitating access to high opportunity areas and investing equitably across the City's neighborhoods. • There may be affordable housing projects in pre-development phases that would benefit from an infrastructure investment that helps the project achieve financial feasibility and compete for additional funding.
Magnitude of Impact	**Medium Impact.** Spending limited infrastructure funds more effectively could effectively accelerate or increase the scale of developments across a number of parcels.

Affordability Targets	○	Deeply Affordable	●	Middle Income
	◒	Affordable	●	Market Rate
Housing Type Targets	○	Single Detached Unit	●	Multi-Unit
	○	Middle Housing		
Tenure Targets	●	For Rent	◒	For Sale

Fiscal Impact: High **Admin Needs:** Medium **Lead:** Community Development Dept Admin Division

Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production

Investment Actions

Timeline	1-2 Years	**3-4 Years**	5-6 Years	7-8 Years

Description

Overview: Explore the creation of an ongoing City, County, or Regional revenue source for affordable and middle-income housing production.

Background: Hillsboro's adopted Housing Needs Analysis found that the City will need 5,259 affordable housing units and 2,931 middle-income housing units over the next 20 years. While the market does build some middle-income housing units, it does not typically build affordable units without subsidy. Having a local revenue source to dedicate to affordable and middle-income housing will help more of those units get built and attract more state and federal funding to Hillsboro. The vehicle to create these funds will be determined in concert with overall HPS implementation efforts.

Implementation Steps

- If in 2025 Metro asks voters and they approve of using regional SHS funds on affordable housing with supportive services, focus in the near term on accessing and deploying such funds in Hillsboro.
- If SHS funds are not opened to use for affordable housing, identify additional specific revenue source options.
- Decide which, if any, revenue source to pursue tapping and create a plan for receiving necessary approvals and using raised revenue.
- Internally establish guiding principles for a new revenue source, such as flexibility in how funds are spent, not creating counterproductive disincentives (e.g. to development, to business investment) and being politically feasible.
- Implement that plan, begin collecting revenue, and administer the funds.

Implementation Considerations

Fiscal

- The City of Hillsboro reported a $20M General Fund shortfall in 2023. This limits the extent to which the City can expect to draw on existing City revenue streams to financially support housing investments. Exploring a new City, County, or Regional ongoing revenue source would likely be required.

Equity & Economy

- This action would raise revenue to help fill financial gaps for affordable or deeply affordable housing developments. This would help counter disparities in Hillsboro's housing market experienced acutely by low-income households, communities of color, seniors, and people with disabilities.
- Hillsboro and Washington County are home to the state's largest, traded-sector employers. These organizations are key to the state's economy and are major engines of future job growth. Part of the state's economic development strategy (exemplified by the Oregon CHIPS program) is to offer regulatory flexibility and financial support for these organizations as they pursue expansion in Oregon. With this action, the City must navigate a significant potential tradeoff: raising money to address middle- and low-income housing needs versus offering a favorable tax environment to promote business investment in Hillsboro and Oregon. Ideally, the City would identify and pursue a funding source that balances the two sides of this tradeoff or sidesteps it by finding a politically feasible revenue source to tap other than key business sectors. Administrative
- Newly adopted revenue sources may influence the incentive structure of building or operating housing in the City. As such, the City should consider analyzing multiple

	incentives and investment actions at once, allowing them to adopt a financially calibrated package of policy changes. This would help avoid adopting one policy change only to unintentionally counteract its intended effect via a subsequent policy change.
Magnitude of Impact	**Medium impact**. The impact of this strategy will vary significantly depending on the extent of funds raised and the source used to raise them.

Affordability Targets	● Deeply Affordable	● Middle Income
	● Affordable	○ Market Rate
Housing Type Targets	○ Single Detached Unit	● Multi-Unit
	◒ Middle Housing	
Tenure Targets	● For Rent	◒ For Sale

Fiscal Impact: Low **Admin Needs:** High **Lead:** Finance Department

Action 5.3 Build a year-Round Homeless Shelter

Investment Actions

Timeline	**1-2 Years**	3-4 Years	5-6 Years	7-8 Years

Description

Overview: Build the City's first year-round homeless shelter.

Background: To respond to the local needs of persons living unsheltered, the Hillsboro City Council approved acquisition of a property to be developed into the first year-round emergency shelter for single adults in Hillsboro and neighboring communities. This site has immediate access to frequently serviced bus line, employment opportunities, food, medical care and proximity to day center services.

Once operational this site will provide 24/7, year-round, low barrier shelter to 75 adults. The site will offer both congregate and non-congregate, pod style, shelter options to meet diverse needs. Shelter services will be coupled with housing navigation and supportive services provided by a qualified operator. Operational services will be funded through Supportive Housing Services resources, with Washington County as a close project partner.

Amenities planned for the site include additions such as showers, laundry, meal prep and dining areas, pet areas, storage for belongings, bike parking, and spaces for co-location of services, such as case management and mental health supports. Amenities support participants towards permanent housing and employ trauma informed design and ADA access.

Implementation Steps

- Acquire site, conduct engagement, select design-build contractor (Completed)
- Shepard project through design and permitting
- Assist with operator selection and collaborate on Good Neighbor Agreement prior to shelter opening for first guests

Implementation Considerations

Shelter is not housing, but it is a critical step on the way to housing and it offers a chance to link residents with services. The City has several opportunities, such as helping the shelter staff serve guests as effectively as possible by facilitating connections with affordable housing operators and non-profits active nearby.

Magnitude of Impact

Low impact. This project will not produce housing, but it will produce needed year-round shelter serving as a critical steppingstone to housing.

Affordability Targets	○ Deeply Affordable	○ Middle Income
	○ Affordable	○ Market Rate
Housing Type Targets	○ Single Detached Unit	○ Multi-Unit
	○ Middle Housing	
Tenure Targets	○ For Rent	○ For Sale

Fiscal Impact: Medium **Admin Needs:** Low **Lead:** City Manager's Office

Action 5.4 Explore ways to support Permanent Supportive Housing production

Investment Actions

Timeline	Ongoing across implementation period
Description	Overview: Explore further investment and support for creation of affordable housing units with rental assistance and wrap-around services to serve individuals and families exiting homelessness, also known as Permanent Supportive Housing. Background: Permanent Supportive Housing (PSH) is a model that combines housing assistance with supportive services. PSH aims to provide housing stability, often for households with at least one member who has a disability. It is needed throughout the region and has been one of Metro's focuses in deploying the region's Affordable Housing Bond and Supportive Housing Services (SHS) measure. The City recognizes the need for more Permanent Supportive Housing and is interested in supporting its development in Hillsboro. In this action, the City will explore its options for supporting the creation of more of this housing type, such as direct investment or the strategic use of funds the City accesses as an implementing jurisdiction.
Implementation Steps	Convene City staff and County partners, then affordable housing developers to identify potential resources for supporting the development of Permanent Supportive Housing in Hillsboro. Consider: • Discretionary General Funds the City anticipates having • Remnant land the City could stretch to deploy for housing • State, regional, county, and federal funds and vouchers the City could access, including Supportive Homeless Service funds following a potential 2025 vote • Corporate and business-sector support the City could garner
Implementation Considerations	• Consider conducting a meeting with the Housing Development Center, whose consultants may be able to help identify uncommonly used federal funding sources • Leverage Hillsboro's uniquely strong business and corporate sector and their interest in reducing unsheltered homelessness • Consider how a focus on Permanent Supportive Housing could bolster the City's case when evaluating a new City, County, or Regional ongoing revenue source for affordable and middle-income housing production (Action 5.2)
Magnitude of Impact	**Low impact** until a significant mechanism or resource is identified and dedicated to bolster the production of Permanent Supportive Housing.

Affordability Targets	● Deeply Affordable	○ Middle Income
	◒ Affordable	○ Market Rate
Housing Type Targets	○ Single Detached Unit	● Multi-Unit
	○ Middle Housing	
Tenure Targets	● For Rent	○ For Sale

Fiscal Impact: High **Admin Needs:** Low **Lead:** City Manager's Office

6. Achieving Fair and Equitable Housing Outcomes

Evaluation of Actions Across Fair and Equitable Housing Factors

As a collection, the draft actions included in the HPS will achieve equitable outcomes across all six fair and equitable housing factors described in OAR 660-008-0050. The subsections below define each such factor and how the outcomes of the draft action fulfill the intent of that factor.

Location of Housing

OAR Definition

How the city is striving to meet statewide greenhouse gas emission reduction goals, established under Executive Order No. 20-04, by creating compact, mixed-use neighborhoods available to people part of state and federal protected classes.

Impact of Draft Actions

This HPS outlines multiple actions that will help Oregon meet its statewide greenhouse gas emissions reductions goals and create compact, mixed-use communities. The HPS directly supports the creation of more compact, mixed-use neighborhoods through actions to increase housing allowances and permitted densities in mixed-use, commercial, and multi-dwelling zones. The HPS also supports compactness through its action to explore scaling its SDCs by unit size, which incentivizes smaller housing units and greater density within each development. The HPS also includes several actions to facilitate more compact neighborhoods through the production of middle housing throughout the City, from code revisions to exploring the potential for pre-approved building plans. Finally, the HPS provides for evaluating zoning map changes to allow dense, multi-unit housing in more places, particularly in high opportunity, high amenity, and transit-oriented places. Not only can this action improve housing production in such areas, but it can help target the effects of actions mentioned in other subsections—to promote affordable and accessible housing, increase housing choice, and avoid displacement—on Region 2040 centers and other high opportunity areas.

Collectively, these actions set the City's course toward a more compact, mixed-use built form with more attached and dense housing and smaller distances between homes and businesses. That built form will offer per capita greenhouse gas emissions reductions both in the form of improved energy efficiency via attached housing and reduced vehicle miles traveled.

While other actions indirectly assist in fulfilling this fair and equitable housing goal, the actions that most directly promote the goal are:

- Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates
- Action 1.2: Increase housing in multi-dwelling zones
- Action 1.3: Increase housing in commercial and mixed-use zones
- Action 1.4: Refine middle housing development standards
- Action 1.8: Explore adopting pre-approved housing plans
- Action 4.2: Analyze scaling select SDCs

Fair Housing

OAR Definition

How the city is affirmatively furthering fair housing for all state and federal protected classes. Affirmatively furthering fair housing means addressing disproportionate housing needs, patterns of integration and segregation, racially or ethnically concentrated areas of poverty, and disparities in access to housing opportunity.

Impact of Draft Actions

The HPS's actions collectively affirmatively further fair housing. The "Housing Choice" and "Affordable Homeownerships and Affordable Rental Housing" subsections provide detailed descriptions of how the HPS's actions work to reduce disparities in access to opportunity and break down patterns of segregation and concentrated poverty. The HPS includes two "steps" of actions that assist in affirmatively furthering fair housing. The first step involves actions to reduce barriers to the most affordable forms of housing and allow them to be built in more areas, including in high opportunity areas. The second step involves evaluating a slate of direct investments and incentives that can help produce more income-restricted units, which typically take the forms promoted by the first step. These actions work in tandem to help low-income households access more affordable housing, particularly in high opportunity areas. Because many protected classes disproportionately fall into the lower end of the income spectrum, actions to support lower-income households tend to benefit protected classes, such as communities of color and people with disabilities. Collectively, this is how the HPS's actions affirmatively further fair housing.

While other actions indirectly assist in fulfilling this fair and equitable housing goal, the actions that most directly promote the goal are:

- Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates
- Action 1.2: Increase housing in multi-dwelling zones
- Action 1.3: Increase housing in commercial and mixed-use zones
- Action 1.4: Refine middle housing development standards
- Action 2.1: Coordinate with partners to identify underutilized land
- Action 4.1: Explore fee structure adjustments
- Action 4.3: Evaluate MUPTE to incentivize need housing and extension of the VHDZ program
- Action 4.4: Evaluate additional tax abatements
- Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production

Housing Choice

OAR Definition:

How the city is facilitating access to housing choice for communities of color, low-income communities, people with disabilities, and other state and federal protected classes. Housing choice includes access to existing or new housing that is located in neighborhoods with high-quality community amenities, schooling, employment and business opportunities, and a healthy and safe environment.

Impact of Draft Actions

This HPS takes two sets of coordinated actions to grow housing choice for low-income communities, communities of color, people with disabilities and other protected classes. First, the HPS plans for actions to

ease regulatory hurdles that make it difficult to build the most affordable forms of housing in high opportunity, high amenity areas. Those actions include code changes to support multi-unit and middle housing and an exploration of zoning map changes to allow denser forms of housing in more places. Second, the City will take action to evaluate a slate of investments and incentives to support the financial feasibility of building housing, especially with affordability covenants. That slate includes exploring new revenue sources for income-restricted housing, plan and permit fee reductions for income-restricted housing, and tax abatements for new multi-unit housing, new middle- and low-income ownership housing, and preservation of existing naturally occurring affordable housing. As alluded to above, these opt-in incentives could require affordability covenants as a condition of approval, guaranteeing some or all units in a property are affordable to middle- or lower-income households. Likewise, for new units, incentives could be designed to require a percentage of units meet accessibility standards beyond those required under the Americans with Disabilities Act. These incentives and investments will benefit communities of color, people with disabilities, and other protected classes that tend to have lower incomes. And because they are paired with an evaluation of zoning map changes, the incentives and investments can flow toward opening doors into high opportunity areas.

While other actions indirectly assist in fulfilling this fair and equitable housing goal, the actions that most directly promote the goal are:

- Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates
- Action 1.2: Increase housing in multi-dwelling zones
- Action 1.3: Increase housing in commercial and mixed-use zones
- Action 1.4: Refine middle housing development standards
- Action 4.1: Explore fee structure adjustments
- Action 4.2: Analyze scaling select SDCs
- Action 4.3: Evaluate MUPTE to incentivize need housing and extension of the VHDZ program
- Action 4.4: Evaluate additional tax abatements
- Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production

Housing Options for Residents Experiencing Homelessness

Definition:

How the city is advocating for and enabling the provision of housing options for residents experiencing homelessness and how the city is partnering with other organizations to promote services that are needed to create Permanent Supportive Housing and other housing options for residents experiencing homelessness

Impact of Draft Actions

The HPS includes actions to provide housing and service options for residents experiencing homelessness. At the broadest level, the HPS actions collectively act to increase housing production and reduce scarcity, which research suggests correlates with lower rates of rent increases and homelessness.[1]

More specifically, the HPS plans actions to both reduce displacement—which can prevent someone's homelessness—and provide affordable housing options—which can end someone's homelessness. The HPS's anti-displacement actions are described in the "Gentrification, Displacement, and Housing Stability" section, and include actions like exploring incentives to preserve naturally occurring forms of affordable housing. The HPS's actions to provide affordable housing are described in depth in the "Affordable Homeownership and Affordable Rental Housing" section but include actions such as exploring options for raising money and

identifying underutilized land held by partner organizations for affordable housing. The City recognizes that housing exists on a continuum, and for that reason includes two additional actions that bridge the gap between homelessness and housing. The HPS includes the action of building the City's first year-round shelter, which provides a critical stabilizing safety net and connection point to services and housing. The HPS also includes a general action around Permanent Supportive Housing signals the importance of using limited land and financial resources for deeply affordable forms of housing with services that many residents experiencing homelessness need.

While other actions indirectly assist in fulfilling this fair and equitable housing goal, the actions that most directly promote the goal are:

- Action 2.1: Coordinate with partners to identify underutilized land
- Action 4.4: Evaluate additional tax abatements
- Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production
- Action 5.3: Build a year-round homeless shelter
- Action 5.4: Explore ways to support Permanent Supportive Housing production

Affordable Homeownership and Affordable Rental Housing

OAR Definition

How the city is supporting and creating opportunities to encourage the production of affordable rental housing and the opportunity for wealth creation via homeownership, primarily for state and federal protected classes that have been disproportionately impacted by past housing policies.

Impact of Draft Actions

The HPS supports the production of affordable rental housing and homeownership opportunities through nearly all of its actions. Specifically, there are three main types of actions present in the HPS that support affordable housing.

1. The HPS plans a suite of regulatory actions to support the production of the most affordable types of rental and ownership housing: multi-unit housing and middle housing. In addition to naturally being more affordable due to their efficient use of land and infrastructure, these two types of housing are most likely to earn subsidy and be income-restricted, helping low-income households—and protected classes that tend to be lower-income—afford their rent or mortgage.
2. The HPS builds upon those regulatory changes by planning the exploration of various incentives and investments to both encourage the production of middle-income ownership housing and affordable rental housing. These incentives and investments can support developments that are fully income-restricted—for example, by providing fee reductions or gap funding—as well as mixed-income developments—for example, by creating an opt-in program that offers a tax abatement in exchange for the creation of income-restricted units.
3. The HPS plans several actions for the City to identify partnerships and outside resources (e.g. funding, land) to assist in producing affordable housing. Such partners include local landowning organizations, affordable ownership housing providers, and the state government.

While other actions indirectly assist in fulfilling this fair and equitable housing goal, the actions that most directly promote the goal are:

- Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates
- Action 1.2: Increase housing in multi-dwelling zones
- Action 1.3: Increase housing in commercial and mixed-use zones
- Action 1.4: Refine middle housing development standards
- Action 2.1: Coordinate with partners to identify underutilized land
- Action 3.1: Develop new strategic partnerships for state/federal advocacy
- Action 3.2: Continue and expand affordable homeownership partnerships
- Action 4.1: Explore fee structure adjustments
- Action 4.3: Evaluate MUPTE to incentivize need housing and extension of the VHDZ program
- Action 4.4: Evaluate additional tax abatements
- Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production

Gentrification, Displacement, and Housing Stability

Definition

How the city is increasing housing stability for residents and mitigating the impacts of gentrification, as well as the economic and physical displacement of existing residents resulting from investment or redevelopment.

Impact of Draft Actions

Prior to the HPS, the City collaborated with a consultant to map and better understand the vulnerability to gentrification and displacement experienced in the City's different neighborhoods. That work, presented in Appendix D, will inform City implementation.

The HPS itself plans three sets of actions to increase housing stability and mitigate displacement.

The HPS plans a set of actions to reduce housing scarcity and provide opportunities for homeownership, two outcomes that are useful to increasing housing stability. Such actions described at length in subsections above, but generally operate by reducing regulatory barriers and pursuing new incentives and partnerships.

The HPS creates a set of actions that more directly aim to reduce displacement and increase housing stability. For example, the City identified the Calle Diez area south of downtown Hillsboro as vulnerable to residential and commercial displacement and launched an effort to create the Calle Diez Equitable Development Strategy in response. The HPS includes the implementation of that equitable development strategy as an anti-displacement and partnership action. Further, the HPS plans several actions aimed at supporting the production and preservation of affordable housing, which mitigate displacement by providing more affordable housing options. Those actions include the exploration of new tax and fee incentives as well as the exploration of a new ongoing City, County, or Regional revenue source for affordable and middle-income housing production.

The HPS's includes a set of actions that engage the balancing act implied by the dual goals of producing more housing—including through redevelopment—while also mitigating displacement. The HPS plans an evaluation of zoning map changes but does so with the guidance that changes be oriented toward high opportunity areas. In this way, the City can avoid concentrating housing production in lower-income areas with the cheapest land. Likewise, for housing that *is* built in areas where displacement is a risk and redevelopment is necessary, the HPS provides for exploring incentives that exchange tax or fee abatements for income-restricted units. This provides the opportunity for new housing that could include affordable housing alongside market rate housing.

While other actions indirectly assist in fulfilling this fair and equitable housing goal, the actions that most directly promote the goal are:

- Action 1.1: Evaluate Comprehensive Plan amendments and Zoning Map updates
- Action 1.4: Refine middle housing development standards
- Action 3.2: Continue and expand affordable homeownership partnerships
- Action 3.3: Undertake a Calle Diez Equitable Development Strategy
- Action 4.3: Evaluate tax abatements for preservation and ownership
- Action 4.4: Evaluate MUPTE to incentivize need housing and extension of the VHDZ program
- Action 5.2: Explore creation of an ongoing revenue source for affordable and middle-income housing production

Assessment of Benefits and Burdens

As part of its HPS, the City must consider the anticipated benefits and burdens of each HPS action for populations that have been negatively impacted historically by housing policies and actions ("marginalized populations"). Those populations include: (1) low-income communities; (2) communities of color; (3) people with disabilities, and; (4) other state and federal protected classes. Actions vary in how well they lend themselves to evaluation of benefits or burdens for each of these specific populations. Since communities of color, people with disabilities, and members of protected classes comprise a disproportionate share of low-income communities, this evaluation posits that actions benefitting low-income communities are likely to also benefit communities of color, people with disabilities, and members of other state and federally protected classes who are disproportionately impacted by income disparities. The evaluation assumes that actions burdening low-income communities are likely to also disproportionately burden communities of color, people with disabilities, and members of other state and federally protected classes.

	Action	Benefit	Burden
Regulatory Actions			
1.1	Evaluate Comprehensive Plan amendments and Zoning Map updates	This action will benefit populations across the income spectrum by increasing housing allowances for affordable and market-rate multi-unit projects alike. The amount of benefit to low-income and marginalized populations depends on the zoning map changes the City ultimately elects to adopt. If the City adds significant development capacity for multi-unit housing in high opportunity, high amenity, transit-rich areas, this action will benefit in particular low- and middle-income populations who will have new avenues for accessing housing there. Not only that, if the City adds significant development capacity for multi-unit housing in high opportunity areas, it will boost the maximum benefit of a host of other HPS actions that seek to produce more affordable forms of housing throughout the City. s.	This action could increase rent or displacement-pressure burdens on low-income and marginalized populations if zoning map changes disproportionately add development capacity in lower-income, displacement-vulnerable areas, or areas that are home to naturally occurring affordable housing susceptible to rapid rent increases or redevelopment. The City can mitigate for this possibility by evaluating displacement risk and level of opportunity, comparing those maps with proposed zoning map changes, and electing to add housing capacity primarily in high opportunity areas. The City can also mitigate for displacement risk by prioritizing actions to mitigate and prevent displacement (see the "Gentrification, Displacement, and Housing Stability" subsection above)

1.2	Increase housing in multi-dwelling zones	This action will benefit populations across the income spectrum by easing standards for affordable and market-rate multi-unit projects alike. It may provide additional benefit to low-income households if code changes include a density or other development standard bonus in exchange for affordable housing.	This action could increase rent or displacement-pressure burdens on low-income and marginalized populations if current multi-dwelling zones disproportionately fall in displacement-vulnerable areas or are currently home to naturally occurring affordable housing that may be susceptible to rapid rent increases or redevelopment. The City can mitigate for this possibility by evaluating displacement risk relative to its zoning map and by prioritizing actions to mitigate and prevent displacement (see the "Gentrification, Displacement, and Housing Stability" subsection above)
1.3	Increase housing in Commercial & Mixed-Use Zones	This action will benefit populations across the income spectrum by easing standards for affordable and market-rate multi-unit projects alike. It may provide additional benefit to low-income households if code changes include a density or other development standard bonus in exchange for affordable housing.	This action could increase rent or displacement-pressure burdens on low-income and marginalized populations if current mixed-use and commercial zones disproportionately fall in displacement-vulnerable areas or are currently home to naturally occurring affordable housing that may be susceptible to rapid rent increases or redevelopment. The City can mitigate for this possibility by evaluating displacement risk relative to its zoning map and by prioritizing actions to mitigate and prevent displacement (see the "Gentrification, Displacement, and Housing Stability" subsection above)
1.4	Refine middle housing development standards	This action will benefit populations across the income spectrum by easing standards for affordable homeownership and market-rate projects alike.	This action is unlikely to increase burdens experienced by marginalized populations.
1.5	Streamline design standards	This action will benefit populations across the income spectrum by easing standards for affordable and market-rate multi-unit projects alike.	This action is unlikely to increase burdens experienced by marginalized populations.
1.6	User-friendly code	This action will benefit populations across the income spectrum.	This action is unlikely to increase burdens experienced by marginalized populations.
1.7	Identify and reduce process barriers	This action will benefit populations across the income spectrum (e.g. by easing standards for affordable and market-rate multi-unit projects alike).	This action is unlikely to increase burdens experienced by marginalized populations.
1.8	Explore adopting pre-approved housing plans	This action will benefit populations across the income spectrum, though likely primarily middle- and high-income households that can afford to live in market-rate housing or build housing themselves.	This action is unlikely to increase burdens experienced by marginalized populations.
Land Actions			
2.1	Coordinate with partners to identify underutilized land	This action will benefit low- and middle-income populations. Housing built through this action could also potentially offer additional benefits to specific marginalized	This action is unlikely to increase burdens experienced by marginalized populations.

		groups, such as communities of color and people with disabilities, depending on the development program (e.g. culturally specific housing, accessible housing with services, Permanent Supportive Housing).	
2.2	Pursue residential land UGB expansion(s)	This action will benefit populations across the income spectrum, though likely primarily middle- and high-income households that can afford market-rate housing.	This action is unlikely to directly increase burdens experienced by marginalized populations. However, inefficient land use patterns tend to overextend public infrastructure and services and promote vehicle miles traveled and greenhouse gas emissions. Marginalized populations appear most likely to face the strongest negative consequences of those trends. UGB expansion may be necessary to facilitate growth and meet important housing production goals. As it has in the past, the City should still strive to create compact, accessible, income-diverse communities within UGB expansion areas.
Partnership Actions			
3.1	Develop new strategic partnerships for state/federal advocacy	This action will benefit populations across the income spectrum, though it will depend on the positions the City advocates for and the outcomes of that advocacy. For example, the City has expressed interest in construction defect liability reform and more funding for affordable housing. The former would most benefit middle- and high-income households, while the latter would most benefit low-income households.	This action is unlikely to increase burdens experienced by marginalized populations.
3.2	Continue and expand affordable homeownership partnerships	This action will primarily benefit low- and middle-income households. Communities of color, people with disabilities, and other members of protected classes tend to be disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes.	This action is unlikely to increase burdens experienced by marginalized populations.
3.3	Undertake a Calle Diez Equitable Development Strategy	This action will primarily benefit low- and middle-income households. Communities of color, people with disabilities, and other members of protected classes tend to be disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes.	This action is unlikely to increase burdens experienced by marginalized populations.
Incentive Actions			
4.1	Explore fee structure adjustments	This action will primarily benefit low- and middle-income households. Communities of color, people with disabilities, and other members of protected classes tend to be	This action is unlikely to increase burdens experienced by marginalized populations. However, the action will not have the maximum positive effect for marginalized

		disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes.	populations if the City elects not to adopt the fee adjustments or does not calibrate the adjustments to meaningfully incentivize owners and developers to opt into production of income-restricted units.
4.2	Analyze scaling select SDCs	This action will benefit populations across the income spectrum. It may provide extra benefit to low- and middle-income households by reducing the per-unit SDC cost borne by projects that build modestly sized units, which tend to be most affordable. Any benefits to low-income populations would likely correspond with boosted benefits to communities of color, people with disabilities, and other members of protected classes.	This action is unlikely to increase burdens experienced by marginalized populations. However, the action will not have the maximum positive effect for marginalized populations if the City elects not to scale SDCs following analysis, or the City is not able to convince other jurisdictions that levy SDCs to scale theirs as well.
4.3	Evaluate MUPTE to incentivize need housing and extension of the VHDZ program	This action could primarily benefit low- and middle-income households if it is designed to secure income-restrictions in exchange for tax abatements. Communities of color, people with disabilities, and other members of protected classes tend to be disproportionately represented among low-income households, meaning that—with the design described above—this action would likely provide strong benefits to protected classes. Per the Implementaton Considerations, the City will consider calibrating these tax abatements to compensate developers for providing income-restricted units as a percentage of units built.	This action will not have the maximum positive effect for marginalized populations if the City elects not to adopt the tax abatements or does not calibrate the abatements to meaningfully incentivize owners and developers to opt into the production of new units, particularly income-restricted units. In very specific cases, this action could burden marginalized populations if its ultimate design offered tax abatements to market-rate new construction in displacement-vulnerable areas without securing income restricted units in exchange.
4.4	Evaluate additional tax abatements	This action will primarily benefit low- and middle-income households. Communities of color, people with disabilities, and other members of protected classes tend to be disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes.	This action is unlikely to increase burdens experienced by marginalized populations. However, the action will not have the maximum positive effect for marginalized populations if the City 1) elects not to adopt the tax abatements or 2) does not calibrate the abatements to meaningfully incentivize owners and developers to opt into preservation or production of income-restricted units.
Investment Actions			
5.1	Explore strategic infrastructure investments to unlock housing production	This action will benefit populations across the income spectrum.	To avoid any risk of displacement, the City should evaluate whether any strategic infrastructure investments is likely to cause rapid rent appreciation or redevelopment within existing naturally occurring affordable housing. If so, the City should prioritize Action 4.3 and offering a tax abatement in exchange for preserving that housing as formally income restricted.
5.2	Explore creation of an ongoing revenue source for affordable and	This action will primarily benefit very low, low-, and middle-income households. Communities of color, people with disabilities, and other members of	In general, this action is unlikely to increase burdens experienced by marginalized populations.

	middle-income housing production	protected classes tend to be disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes. Housing built through this action could also potentially offer additional benefits to specific marginalized groups, such as communities of color and people with disabilities, depending on the development program (e.g. culturally specific housing, accessible housing with services, Permanent Supportive Housing). The City may wish to create goals or requirements to ensure such benefits.	However, the creation of an ongoing revenue source may impose direct or indirect costs on marginalized populations (e.g. a residential CET could be passed on to tenants, a GO Bond could raise the property tax obligation of low-income homeowners, a business receipts tax could reduce job opportunities). However, in such cases, costs stemming from the new revenue source would likely be borne across the income spectrum, while the benefits would be concentrated in the middle- and lower-income range. This action will not have a positive effect for marginalized populations if the City, County, or Region ultimately elect not to create a revenue source.
5.3	Build a year-round homeless shelter	This action will primarily benefit very low and low-income households. Communities of color, people with disabilities, and other members of protected classes tend to be disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes. In Washington County specifically, communities of color are overrepresented among residents experiencing homelessness. That means this action will likely provide strong benefits to them. The City will likely need to lean on partners and conduct outreach to maximize benefits to all protected classes and ensure some aren't missed.	This action is unlikely to increase burdens experienced by marginalized populations. The action won't have maximum positive effect for marginalized populations unless the City conducts outreach to such populations and works with partner organizations that specialize in working with those communities.
5.4	Explore ways to support Permanent Supportive Housing production	This action will primarily benefit very low and low-income households. Communities of color, people with disabilities, and other members of protected classes tend to be disproportionately represented among low-income households, meaning this action will likely provide strong benefits to protected classes.	This action is unlikely to increase burdens experienced by marginalized populations. This action will not have the maximum positive effect for marginalized populations if the City ultimately does not identify or create a revenue source in Action 5.2.

[1] See Gregg Colburn's "Homelessness is a Housing Problem" (2022), with summary highlights in the slides linked here. https://caeh.ca/wp-content/uploads/Feb-13-Webinar-Slides.pdf.

7. Measuring Progress

Per OAR 660-008-0060, Hillsboro will track progress on implementing the actions detailed in the HPS. By December 31st three years after adopting the HPS, the city will submit a narrative report to DLCD summarizing its progress on implementation. The report must include a summary of the steps already taken by the city to implement the actions included in the HPS. If the city has not implemented actions on the schedule specified in the HPS, an explanation of the conditions that posed a barrier to implementation and a plan for addressing the identified need that the strategy targeted must be provided. Additionally, the report will include an assessment of the relative efficacy of implemented actions as well as a reflection on actions taken in response to achieving fair and equitable housing outcomes.

In anticipation of this reporting requirement, the following methods and performance metrics for monitoring progress on HPS actions are recommended. The quantity of housing permitted and produced, both Citywide and in areas targeted by actions, should be tracked on an annual basis. The City already tracks number of dwelling units permitted each year. These data should be compared to data from before actions were implemented to monitor the effects of the changes on total production, type of production, and location of production. More specific metrics for measuring progress are included below for each action group.

Type	Methods	Metrics
Regulatory Actions	Progress on implementation of regulatory-based actions can be indicated by the following: • Defining and identifying high opportunity neighborhoods • Adopting one or more packages of regulatory changes that rezone parts of the City to allow more housing, increase housing potential in multi-dwelling zones, commercial zones, and mixed-use zones, make middle-housing related code amendments, and streamline design standards • Adopting streamlined design standards • Evaluating options for reorganizing and streamlining the code and making the code more user friendly. • Evaluating pre-approved plans • Collecting periodic feedback from local developers to gain additional information about the efficacy of various regulatory changes and how well they are facilitating increased housing production	Many of these metrics will benefit from the comparison with data from the years prior to the HPS and peer jurisdictions • # of housing units permitted and produced • # of middle housing units permitted and produced • # of units produced in multi-dwelling zones • # of units produced in commercial and mixed-use zones • % of City land zoned for multi-unit housing • % of high opportunity areas zoned for multi-unit housing • # of pre-approved plans available through the city and # of units produced using pre-approved plans • % of units permitted that are accessible • # (average) days from application submittal to approval, by housing type • % of housing units approved that required at least one discretionary approval
Land Based Actions	Progress on implementation of land-based actions can be indicated by the following:	• # of ownership units produced by landowners contacted for partnership

	• Engaging with key landowners and maintaining a list that tracks which owners may currently have surplus land or may have surplus land in the future they may wish to use for housing. • Pursuing UGB expansion in accordance with the requirements of OAR 660-024-0000 • Continue to track City owned land and look for opportunities to use remnant City land for affordable housing production	• # of affordable units (0-80% AMI) and shelter beds produced by landowners contacted for partnership • # of middle-income units (80-120% AMI) produced by landowners contacted for partnership • # of housing units permitted and produced in residential expansion areas, by type • # of affordable or middle-income units produced on underutilized land the City may possess or track
Partnership Actions	Progress on implementation of partnership actions can be indicated by the following: • Staff reporting of Council and City management activities related to state and federal lobbying on housing production • Staff reporting on existing and new partnerships established with developers and service providers working in the affordable homeownership space • Completion of the Calle Diez Equitable Development Strategy and status updates on outcomes achieved	• # of pro-housing legislative proposals developed in collaboration with partners and state representatives • # of pro-housing legislative proposals formally supported alongside partners and state representatives • # of affordable ownership units (0-80% AMI) produced by affordable homeownership partners • # of middle-income ownership units (80-120% AMI) produced by affordable homeownership partners
Incentive Actions	Progress on implementation of incentive actions can be indicated by the following: • Conducting a fee and SDC rate study • Any adjustments to fee structures that are made as the result of a fee and rate study • Evaluation and availability of tax abatements for middle-income housing, including ownership housing • Evaluation and availability of tax abatements for preservation of naturally occurring affordable apartments and manufactured home parks • Evaluation and availability of a Multi-Unit Property Tax Exemption (MUPTE) and extension of the Vertical Housing Development Zone (VHDZ) program	Many of these metrics will benefit from the comparison with data from the years prior to the HPS and peer jurisdictions • # of housing units permitted and produced, by housing type, tenure and unit size (compared to historical and baseline trends to track size changes after SDC scaling) • # of eligible projects and units produced using one or more incentive programs, broken out by program, housing type, tenure and affordability level • # of eligible properties and # of units preserved using tax abatement programs such as MUPTE, by housing type, tenure and affordability level • Average $ abatement per unit, by incentive program, housing type, tenure and affordability level

Investment Actions	Progress on implementation of investment actions can be indicated by the following: • Identification of specific infrastructure investments with high housing development potential • Evaluation of the creation of an ongoing City, County, or Regional revenue source for affordable and middle-income housing production • Reporting on work in progress to build a year-round homeless shelter • Convening staff and partners and identifying resources to support the development of Permanent Supportive Housing (PSH)	• Amount of funds secured or dedicated toward strategic infrastructure investments and anticipated amount of housing unit potential unlocked • $ raised through new revenue source for affordable and middle-income housing • outside $ attracted to projects supported by new revenue source • # of affordable units (0-80% AMI) produced or otherwise supported via the new revenue source • # of middle-income units (80-120% AMI) produced or otherwise supported via the new revenue source • # year-round shelter beds added • # of permanent shelter guests served • # of permanent shelter guests moved into permanent housing • # units of Permanent Supportive Housing (PSH) created • $ (local or from governmental partners) allocated to PSH

Appendix A: Pre-HPS Survey

#	Strategy	Encourage needed housing (Y/N)	Increase affordability (Y/N)	Reduce Rent Burden (Y/N)	Any Additional Comments
Category A: Zoning and Code Changes					
A01	Ensure Land Zoned for Higher Density is not Developed at Lower Densities	Y	N	N	Community Development Code already requires a minimum density for all zones, prohibits new detached single dwellings in high density zones, and requires single detached dwellings in medium density zones meet minimum density.
A02	Zoning Changes to Facilitate the Use of Lower-Cost Housing Types	Y	Y	N	Manufactured Housing code section was updated in 2022 with Housing Hillsboro to allow manufactured housing below 1,000 square feet. ADU code was also updated to reduce barriers that existed in the code. CDC has provisions for temporary housing placement and construction.
A03	FAR, Density, or Height Bonuses for Affordable Housing	Y	N	N	SB8 was adopted into code in 2022, Witch Hazel Village South Plan District includes automatic density and height bonuses beyond requirements of SB8.
A04	Housing Rehabilitation Codes				
A05	Code Provisions for ADUs	Y	Y	N	Community Development Code was amended to ease architectural standards and remove the off-street parking requirements.
A06	Broaden the Definition of Housing Type				
A07	Allow for Single Room Occupancy in Residential Zones	Y	Y	Y	Community Development Code allows SROs up to 8 bedrooms in all standard residential zones. Multi-Dwelling residential zones allow group living outright.
A08	Promote Cottage Cluster Housing	Y	N	N	Added to Community Development Code to address HB 2001 in 2022.
A09	Short-Term Rentals Regulations	N	Y	N	Community Development Code amendment underway for STR regulations, City Council hearing scheduled for 2/20.
A10	Inclusionary Zoning				
A11	Add Restrictive Covenants to Ensure Affordability	Y	Y	Y	City has executed restrictive covenants/regulatory agreements on affordable housing projects
A12	Align Lot Division Density with Zoning Density	Y	N	N	Lot divisions require applicants to show that minimum density will be met during housing construction.
A13	FAR & Density Transfer Provisions				
A14	Re-examine Requirements for Ground-floor Retail/Commercial				
A15	Encourage Diverse Housing Types in High-Opportunity Neighborhoods				
A16	Manufactured Housing Community Preservation Zone				
A17	Small Dwelling Unit Developments				
A18	Increase Density near Transit Stations and Regional Multi-use Trails				
A19	High Density Requirements for to-be- Annexed Land				
A20	Pre-Approved Plan Sets for Middle Housing Typologies				
A21	Pre-Approved Plan Sets for ADUs				

A22	Mixed Housing Types in Planned Unit Developments				
A23	Accessible Design	Y	N	N	Witch Hazel Village South includes outright setback reductions for visitable units to encourage single story design or visitable units with zero rise entries and bedroom/bathroom on main story.
A24	Legalize Alternative Housing Types on Wheels and in Parks				
A25	Legalize and Encourage Tiny Homes and Villages				

Category B: Reduce Regulatory Impediments					
B01	Remove or Reduce Minimum Parking Requirements	Y	Y	N	Hillsboro reduced parking standards for affordable housing to 1 space per unit (80% AMI and below) citywide and 0.85 space per unit within a quarter-mile of high-frequency transit.
B02	Remove Development Code Impediments for Conversions	Y	Y	N	Conversion of single dwelling to plex requires a "Type 0"/alternative review which has no public notice and 21 day review period. Low-cost application and checklist based.
B03	Expedite Permitting for Needed Housing Types				
B04	Expedite Lot Division for Affordable Housing	Y	N	N	While the regulatory timeframe for these is 120-days, Hillsboro has a typical review timeframe of 4-6 weeks which is much faster than regulatory requirement.
B05	Reduce Regulatory Barriers to Lot Division				
B06	Streamline Permitting Process	Y	N	N	Hillsboro's permit review timelines are very short compartively to other jurisdictions. Our permits have a 2-week first review cycle and 1-week cycles after that for any needed revisions. Permitting is all done through online review system which provides real time transparency to applicants.
B07	Flexible Regulatory Concessions for Affordable Housing				
B08	Waive Off-Site Infrastructure Requirements for Needed or Affordable Housing				
B09	Capital Improvements Programming (CIP)				
B10	Public Facility Planning				
B11	Pro-Housing Agenda	Y	Y	Y	Demonstrated in the Hillsboro 2035 Community Plan, 2020–2024 Washington County Consolidated Plan and the Hillsboro Comprehensive Plan.
B12	Pro Affordable Housing Agenda	Y	Y	Y	Demonstrated in the Hillsboro 2035 Community Plan, 2020–2024 Washington County Consolidated Plan and the Hillsboro Comprehensive Plan and the Affordable Housing Policy and Action Plan. Addressing Affordable Housing and Homelessness is an ongoing City Council priority.
B13	Align Bike Parking Requirements with Actual Use	N	N	N	Multi-dwelling residential requires 0.25 spaces per unit.
B14	Adopt Affirmatively Furthering Fair Housing as a Housing Policy in Comprehensive Plan	Y	Y	Y	Comprehensive Policy H 2.7: Employ strategies that support the Fair Housing Act and affirmatively further fair housing. Policy H 2.9: Employ strategies that support the Fair Affordable housing partnerships. Partner with nonprofit housing developers and other agencies to create the opportunity to provide moderate- and low-income housing and rehabilitation activities in Hillsboro.
B15	Reduce the Power of NIMBYism to stop, slow, change, or reduce affordable housing				
B16	Holistic Planning to Distribute New Density More Equitably				
B17	Reduce on-site Common/Active Open Space Requirements				

B18	Prioritize Home Ownership	Y	Y	Y	Demonstrated in the 2020–2024 Washington County Consolidated Plan and the CDBG Annual Action Plan and the Hillsboro Comprehensive Plan and the Affordable Housing Policy and Action Plan. Addressing Affordable Housing and Homelessness is an ongoing City Council priority.
B19	Survey Applicants on Development Program Decision-Making				

Category C: Financial Incentives					
C01	Reduce or Exempt SDCs for Needed Housing				
C02	Modify SDC fee schedules	Y	Y	Y	On a case-by-case basis, the City has modified/deferred collection of City-controlled SDCs
C03	Reduce or Exempt SDCs for ADUs	Y	Y	Y	ADUs are not charged SDCs in Hillsboro.
C04	Incentivize Manufactured and Modular Housing				
C05	Waive or Finance Park Impact Fees for Affordable Housing				
C06	Publicly Funded Infrastructure Improvements				
C07	Reconsider Applying Park SDCs				
C08	Transportation SDCs Tied to Parking				

Category D: Financial Resources					
D01	Community Development Block Grant (CDBG)	Y	Y	Y	Hillsboro CDBG funds are used to support affordable homeownership, housing rehabilitation, public facility improvements, fair housing awareness, and emergency assistance.
D02	Low Income Housing Tax Credit (LIHTC)	Y	Y	Y	A number of affordable housing projects in Hillsboro have leveraged LIHTC equity funding
D03	Housing Trust Funds				
D04	Operating Subsidies for Affordable Housing Developments				
D05	Employer - Assisted Housing Programs				
D06	HOME Program	Y	Y	Y	Partnership with Washington County.
D07	Dedicated Revenue Sources for Affordable Housing	Y	Y	Y	Includes General Fund resources and Metro Housing Bond funding
D08	Demolition Taxes				
D09	Construction Excise Tax (CET)				
D10	Tax Increment Financing (TIF) Set- Aside				

D11	Flexible Use of Housing Choice Vouchers				
D12	Targeted Vouchers	Y	Y	Y	Partnership with Washington County.
D13	Low-Interest Loans / Revolving Loan Fund	Y	Y	N	Hillsboro contributes since the early 2000's to Community Housing Fund, that funds loans for land acquisition and predevelopment costs.
D14	Eviction Prevention Programs	Y	Y	Y	Hillsboro funded an Emergency Rent Assistance program withCDBG-CV funds in 2020 through 2023
D15	Bond - for Resident Support Services and Permanent Supportive Housing Services	Y	Y	Y	Metro Housing Bond funds allocated to Hillsboro
D16	General Obligation Bonds – for Affordable Housing	Y	Y	Y	Leveraged City general funds and Metro bond funds to support affordable housing projects, specifically $300K in general funds to Willow Creek Crossing Apartments and $17M in Metro bond funds to Nueva Esperanza.
D17	Use IHBG funds for Urban Native Americans				
D18	Weatherization Funds through Community Action Agencies				
D19	Transit-Oriented Development Grants				
D20	Local Innovation and Fast Track (LIFT) Program for Affordable Rental Housing Development	Y	Y	Y	OHCS set-aside for Hillsboro - $2.4 Million in LIFT funds
D21	Mental Health Trust Fund Awards				
D22	Foundations Awards				
D23	State of Oregon Debt				
D24	State of Oregon Debt Support				
D25	Luxury Tax for Equitable Housing				
D26	Reallocate Health and Public Safety Resources to Housing				
D27	Georgist Land Tax				

Category E: Tax Exemption and Abatement **These are a list of tax exemption and abatement programs that are intended to encourage developers to produce housing.**					
E01	Nonprofit Low-Income Rental Housing Exemption	Y	Y	N	Adopted property tax exemption for non-profit affordable housing.
E02	Property Tax Exemption for Affordable Housing Tied to Level of Affordability				
E03	Vertical Housing Development Zone Tax Abatement	Y	N	N	
E04	Multiple Unit Property Tax Exemption (MUPTE)				
E05	Multiple Unit Limited Tax Exemption (MULTE)				

E06	Homebuyer Opportunity Limited Tax Exemption Program (HOLTE)				
E07	Homestead Tax				
E08	Property Tax Relief for Income-Qualified Homeowners				
E09	Investing into Federal Opportunity Zones (OZ)				
E10	Delayed Tax Exemptions				

Category F: Land, Acquisition, Lease, and Partnerships					
F01	Land Banking	Y	Y	N	The city has partnered with Proud Ground for several years.
F02	Joint Development Agreements				
F03	Community Land Trusts	Y	Y	Y	The City partners with Proud Ground to support acquisition and rehabilitation of existing homes for affordable homeownership.
F04	Public/Private Partnerships (P3)	Y	Y	Y	
F05	Preserving Low-Cost Rental Housing to Mitigate Displacement	N	Y	Y	Rehab work supported through CDBG & HOME funds.
F06	Preserving Safe, Affordable Manufactured Homes				Rehab work supported through CDBG
F07	Providing Information and Education to Small Developers				
F08	Conversion of Underperforming or Distressed Commercial Assets				
F09	Enhanced Use Lease of Federal Land				
F10	Prioritize Housing on City/County Owned Land	Y	Y	Y	Conveyed/Donated two city-owned properties totaling nearly 10 acres for the development of affordable housing.
F11	Combine Community Land Trust with Limited Equity Cooperative Model				
F12	Surplus Land for Affordable Housing	Y	Y	Y	See F10
F13	McKinney-Vento Federal Surplus				
F14	Right of First Refusal for Land Purchase				
F15	Ordinances that Address Zombie Housing				
F16	Regulatory Agreement	Y	Y	Y	
F17	Designated Affordable Housing Sites				

F18	Utilize Surplus Land Owned by Faith-Based Organizations for Affordable Housing				
F19	Affordable Housing Preservation Inventory	N	N	Y	City maintains list of total existing regulated units.
F20	Fair Housing Education, Referral, and Other Services	Y	Y	Y	Work carried out through CDBG including sponsored Fair Housing events.
F21	Public or Mission-Driven REITs and Turn-Key Delivery				

Category Z: Custom Options					
Z01	TBD				

Appendix B. Development Ready Lands Analysis

In Progress

Appendix C: Public Communications and Engagement Plan

Housing Production Strategy
Draft Public Communications and Engagement Plan (PCEP)

1. Introduction

The City of Hillsboro is a diverse community of more than 110,000 residents. House Bill 2003 requires cities with a population over 10,000 create a Housing Production Strategy (HPS). The HPS is a guiding planning document that will contain specific and meaningful plans, tools, actions, and policies to address housing needs identified in the 2023 Hillsboro Housing Needs Analysis (HNA). The HPS will include a timeline for adopting and executing each strategy.

The HPS builds upon the work undergone by the City for the HNA. The HNA is an important document that assesses whether Hillsboro has an adequate supply of housing for all household income levels for the next 20 years. Housing can take many forms to meet the community's needs. A housing supply that meets community needs typically offers people a range of places to live and a variety of housing types to choose from that do not overburden the financial resources of any group. An HNA provides the data basis a city needs to develop its approach to meeting the housing needs of its resident and will inform the policies and strategies highlighted in the HPS.

The HPS is estimated to take place between January and December 2024. The City has contracted with consulting firm Cascadia Partners to assist with this work and draft the HPS document.

The HPS final deliverable is a document consistent with Statewide Goal 10 and associated state administrative statutes and administrative rules. The approach will include synthesizing work and data collected in the HNA, Hillsboro Local Implementation Strategy for Metro Housing Bond, Hillsboro Affordable Housing Tools Reports, Hillsboro Displacement and Gentrification Risks and Potential Mitigations Memo, Hillsboro 2035 Community Plan, Hillsboro Comprehensive Plan, and the Washington County Consolidated Plan. Outreach and engagement will include convening Technical Advisory Committee, focus groups, and multiple meetings with City leadership along with informing the public at large of this next phase in City housing-related work.

2. Project Background

City Council for years has included housing in its annual list of priorities. When providing input on multiple land use planning projects involving housing, the Council has expressed interest in a holistic analysis to increase housing production. The City undertaking an HPS also responds to the state requirement to complete this work.

The HPS Report will include a detail description of the contextualized housing needs and development ready lands, summaries of existing measures and final proposed strategies and

new measures, and how the City's existing measures and final proposed strategies and new measures help to achieve fair and equitable housing outcomes, affirmatively further fair housing, and overcome discriminatory housing practices and racial segregation.

The final chapter of the HPS Report will detail a qualitative assessment of how the strategies and measures collectively address the contextualized housing needs identified in both the HNA and HPS and will include a discussion of how the proposed actions, taken collectively, will increase housing options, especially for historically marginalized communities. The final chapter will explore how the City's existing and proposed strategies and measures will affirmatively further fair housing and provide access to areas of opportunity. This chapter will also address needs for people facing homelessness and explore ways to create opportunities for rental housing and homeownership. The HPS will also include the City's plan for monitoring progress on the housing production strategies.

3. Public Engagement Program Overview

The International Association for Public Participation (IAP2) developed The Spectrum of Public Participation to help organizations define the public's role in any public engagement process. The Spectrum is a tool to help project leaders identify the level of influence community members will have over the final decisions being made. The Spectrum includes five levels are that includes Inform, Consult, Involve, Collaborate, and Empower. The Public Communications and Engagement Plan focuses on three levels of engagement: **Inform, Consult, and Involve**.

Inform: To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

Consult: To obtain public feedback on analysis, alternatives and/or decisions.

Involve: To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.

The City will engage the general public at the **Inform** level through a project website, social media posts, and promoting in City publications. The project website will include a comment box that will be checked regularly by staff and staff contact information. The City will be pursuing an HPS informational video in multiple languages and keep the public at-large informed of key project milestones and importance adoption dates.

The City will **Consult** with historically marginalized communities through focus groups. The City will conduct two focus groups in English and two in Spanish. At the Consult level of engagement, members of the focus groups can expect to be informed of project updates, provide input to the City, and to receive a report back how their input was incorporated into the overall HPS.

The City will also engage individually with housing stakeholders at the **Consult** level of engagement on the HPS through individual stakeholder discussions.

The Technical Advisory Committee (TAC) will be engaged at the **Involve** level, meeting with the City directly at a regular basis through the project timeline. TAC members will have an opportunity to voice concerns and opinions in the draft housing production strategies developed and the City will share why select input is not integrated into the final housing production strategies.

TAC members will include:

- Becky Coutinho, Senior Planner
- Dan Rutzick, Long Range Planning Manager
- Chris Hartye, Senior Project Manager
- Omar Martinez, Project Coordinator
- Dan Dias, Economic and Community Development Director
- 4 Market Rate Housing Developer Representatives
- 2 Affordable Housing Developer Representatives
- 2 Community Residents Interested in Housing
- Residential Property Manager Representative
- Residential Real Estate Representative
- Permanent Supportive Housing Representative
- School District Representative
- Large Employer Representative
- 2 Planning Commission members

Public Engagement Goal: *Commit to an open and transparent community engagement process focused on input from housing professionals, informing the public, and conducting targeted outreach to underrepresented communities and key stakeholders throughout the development of the HPS.*

Public Engagement Principles:

1. Ensure the public engagement process offers opportunities that are equitably provided across the spectrum of community members.
2. Provide information to the public in accessible and easy to understand formats, including multiple languages where appropriate.
3. Design public engagement activities in a manner that identifies and addresses participatory barriers such as language and availabilities of technology.
4. Inform and include stakeholders at key decision-making points/milestones throughout the process.
5. Delineate topics for which the City requires and/or desires input and feedback.
6. Establish two-way communications processes with stakeholders to ensure maximum transparency while providing timely feedback.
7. Work to build lasting community relationships and lay the groundwork for development of private/public partnership opportunities.

8. Provide a hospitable and welcoming environment to all participants.
9. Create opportunities to bridge issues, communities, and neighborhoods, building upon common values.

Housing Professionals

Market-rate developers, affordable housing developers, property managers, and realtors will have multiple opportunities to voice ideas and concerns through participation in the TAC.

Historically Marginalized Community Members

Historically marginalized community members will be invited and encouraged to participate in the focus groups, where they can voice ideas and concerns for housing that meets their needs.

Hillsboro Community

The Hillsboro community includes but is not limited to renters, homeowners, property owners, historically marginalized communities, public agencies, social service providers, civic organizations, businesses, special interest groups, faith-based organizations, and others in the community. The Hillsboro community and housing stakeholders will have opportunities to voice ideas and concerns during this project by attending the TAC and focus group meetings, reaching out directly to City staff, and providing feedback on the project website via a comment box.

Public Agencies

Public agencies such as the Department of Land Conservation and Development, Washington County, the Hillsboro School District, and Metro will be invited to provide comment on the HPS Draft Report and supporting documents.

Public Engagement Committee

Information will be shared during the project with the Public Engagement Committee so members can spread awareness through their networks.

Planning Commission

Two Planning Commissioners will serve on the TAC to provide overall guidance on of this projects. The HPS will also go before the Planning Commission at two work sessions to provide project updates. Because the HPS Report approval is not a land use decision, it will not be going to a Planning Commission public hearing for recommendation to City Council.

City Council

City Council work sessions will be held 4-5 times over the course of the project and lead up to the Council final decision-making process and adoption of the proposed HPS Report.

Project Manager

The City's HPS Project Manager is Senior Planner Becky Coutinho. The Project Manager is charged with keeping the project moving forward and on schedule, as well as leading project public engagement for the historically marginalized community focus groups. The City's Project Manager will work closely with the Project Consultants to develop and deliver the HPS and

other project deliverables on time. The City's Project Manager will also meet to coordinate tasks, problem-solve, and provide operational guidance for the project.

Project Consultants

The lead project consultant is Cascadia Partners, and the Consultant's Project Manager is Alex Joyce who is charged with keeping the project moving forward and on schedule, as well as leading and managing the TAC, drafting the HPS document, and other aspects of the project as identified in the project's scope of work.

4. Implementation

The following is a draft schedule of public engagement that will provide opportunities to inform the public and to seek feedback:

January 2024	**Project Kick-Off with Consultants**
	Public Engagement Committee Meeting Input on the draft Public Engagement Plan
	Technical Advisory Committee Recruitment
March 2024	**TAC Meeting #1** Introduction to HPS/Project Overview and Next Steps
	Council Work Session #1 Introduction to HPS/Project Overview
	Planning Commission Work Session #1 Introduction to HPS/Project Overview
April 2024	**TAC Meeting #2** Initial discussion to develop project goals and policies
	Focus Groups (English and Spanish) #1 Introduction to HNA/Project Overview
May 2024	**Council Work Session #2** Update on TAC and focus groups input, receive input on HPS options

June 2024	**TAC Meeting #3** Discussion refining draft strategies and policies
July 2024	**Focus Groups (English and Spanish) #2** Discussion on draft, goals, policies, and strategic actions **Council Work Session #3** Update on TAC and focus groups input, receive input on HPS options
September 2024	**TAC Meeting #3** Report back from focus groups and Council, discussion of draft policy recommendations **City Council Work Session #4** Receive input on HPS options
October 2024	**Planning Commission Work Session #2** Report back from focus groups, TAC, and Council, discussion of policy recommendations **Council Work Session #5** Present final draft HPS and policy recommendations
December 2024	**City Council Meeting** HPS Resolution – 1st Reading **City Council Meeting** HPS Resolution – 2nd Reading/Approval

5. Communication Tools (or Public Awareness Activities)

- **Project Webpage:** Set up a project webpage on the City web site. Post regular project news, updates, upcoming public engagement activities, events, agendas, and background materials. Web materials will also be created and maintained to facilitate automated translation into languages other than English.

- **City Views Newsletter**

- **Social Media:** Utilize the @CityofHillsboro Twitter account, and both the English and Spanish language City Facebook page to publicize upcoming Planning Commission and City Council workshops and public hearings.

- **E-newsletters:** Spanish-language *Creciendo Juntos* Newsletter, and bi-monthly *Happening in Hillsboro* articles (timed with public hearings).

- **Engage Hillsboro:** Online engagement platform

- **HPS Video:** Informational video in multiple languages and keep the public at-large informed of key project milestones and importance adoption dates.

- **Translation:**
    - Produce an HPS executive summary and other content in Spanish and post to the project webpage and Engage Hillsboro webpage.
    - Consider translation style that is informal and easy to understand.

6. Assessment

Periodic assessment will allow staff to improve engagement. This section details plans and expectations for assessment.

Overall indicators and metrics of outreach

Staff will periodically examine key indicators and metrics to help determine the overall performance of the project public engagement program and help illustrate what areas need additional attention or improvement. There are many metrics that can be helpful, but at a minimum, staff intends on tracking the following information about the project on an ongoing basis:

General Participation	• Frequency of people visiting webpage (number of "touches") • Share of repeat webpage participants
Project Engagement	• Attendance at TAC meetings • Attendance at focus groups
Input Characteristics	• Number and means of comments (written, online, email, meetings, etc.) • Overall topic mix of comments
Improvement Opportunities	• Number and frequency of requests for assistance in locating project resources

Assessment outcomes and deliverables

Assessment data, such as the successes and challenges of project public engagement, revisions, or refinements to the PCEP, and specific metrics, will be shared with the Public Engagement Committee in summary form following project completion.

Appendix D: Gentrification and Displacement Memo

ECONorthwest
ECONOMICS • FINANCE • PLANNING

DATE: April 11, 2022
TO: Chris Hartye and Omar Martinez, City of Hillsboro
FROM: Becky Hewitt and Ariel Kane ECONorthwest
SUBJECT: Displacement and Gentrification Risks and Potential Mitigations

Introduction

In 2017, the City of Hillsboro worked with ECONorthwest to prepare a study titled *Affordable Housing Tools: A Review of Policy Options for Hillsboro*. One of the recommendations from that study was to inventory existing "naturally occurring" affordable housing (low-cost market rate housing that offers below-average rents based on its age and/or condition rather than because of a subsidy or affordability agreement) and explore strategies to acquire or otherwise preserve it. This memorandum picks up on that recommendation. It identifies areas within the City where displacement and gentrification risks are highest based on a variety of housing and demographic factors, sets the stage for identifying specific properties within those areas where displacement may be a concern and where the City may wish to explore interventions and provides further evaluation of potential interventions and mitigation measures to address displacement and gentrification risks.

Who is at Risk of Displacement?

Overview

Displacement occurs when a household is forced to relocate due to circumstances beyond household-specific disruptions. Risk of displacement primarily derives from the intersection of two interrelated factors: (1) changes in market conditions that result in rising rents and/or increasing redevelopment potential, and (2) household characteristics that lead to increased susceptibility to changing market conditions.

Our analysis of displacement focuses on households that rent because they are more directly affected by changing market conditions than those that own their property because they are subject to the decisions of the property owner about redevelopment, remodels, rent increases, etc. Property owners in Oregon are largely insulated from the financial effects of market changes due to the property taxation system, which decouples market value from taxable value, meaning that rising property values only impact the owners' property taxes in very limited circumstances. While Oregon state law limits the amount a landlord can raise residential rents annually for most older market-rate rental housing, these increases can still reach about 10 percent per year.[1]

[1] ORS 90.600; rent stabilization provisions were added in 2019 by Senate Bill 608. See this summary from Oregon Law Center for details: https://www.oregonhousingalliance.org/wp-content/uploads/2019/03/Oregon-Law-Center-Detailed-Outline-SB-608-cites-and-page-numbers-Final.pdf.

Among households who rent, those who face disadvantages or discrimination in the real estate market tend to be at greater risk of displacement and experience more harm if they are forced to move. These include low-income and cost-burdened households (spending more than 30% of their income on rent), people without advanced degrees, people of color, people who do not speak English, immigrants and refugees, seniors, and people with disabilities.

Who is at Higher Risk in Hillsboro?

The City/County's latest Consolidated Plan provides information about populations experiencing cost-burden:[2]

- *The largest group of severely cost-burdened households earn between 0 and 30% of MFI and are majority renters. These extremely low-income renters have the most trouble finding affordable units.*
- *Severely cost-burdened owners are generally owners who cannot afford to keep up with property taxes and home insurance costs and are usually elderly owners.*
- *Cost-burden differs somewhat by race and ethnicity: Black/African American households face the highest rate of cost burden (43%) yet the same rate of severe cost burden as most other groups. Hispanic households have the highest rate of severe cost burden (24%) but moderate rates of cost burden.*

To understand how rates of cost-burdening vary by housing type, ECONorthwest analyzed Census data for the Hillsboro area overall, as shown in Exhibit 1. This analysis can help the City target housing types that are most likely to be home to cost-burdened renters.

Exhibit 1: Rates of Cost-Burden By Housing Type, Hillsboro PUMA[3]
Source: ECONorthwest analysis of 2015-2019 PUMS data

	# of cost-burdened HH	% of all cost-burdened HH who live in this type of housing	% of HH living in this type of housing who are cost burdened
Single family house detached	1278	17.5%	36.9%
Single family house attached	911	12.5%	36.2%
Duplex, Triplex and Quadplex	599	8.2%	35.3%
5-9 Apartments	1195	16.4%	44.4%
10-19 Apartments	1046	14.4%	33.4%
20 or more Apartments	2217	30.4%	44.0%
Mobile home or trailer	39	0.5%	57.4%

[2] *2020-2024 Consolidated Plan for Washington County and the Cities of Beaverton and Hillsboro*, Hillsboro section, page 15.

[3] This analysis uses 2015-2019 data from the U.S. Census Bureau's Public Use Microdata Sample (PUMS). The Public Use Microdata Area (PUMA) that best represents Hillsboro is not fully contiguous with City boundaries and includes some adjacent areas in unincorporated Washington County.

This shows:

- Renters living in mobile homes and trailers are more likely to be cost-burdened than those living in other types of housing, though they comprise a very small share of the total cost-burdened renters in the area.
- Apartments with 20 or more units are home to the largest share of cost-burdened renters of any housing type, and the rate of cost-burdening is higher for these larger apartments than for most other types of housing.
- Smaller apartments and plexes combined account for roughly 39% of cost-burdened renters; another 30% live in single-family attached or detached houses. Rates of cost-burdening in these types of housing are generally below the average for renters in the Hillsboro area.

Looking at the existing housing supply within the City of Hillsboro:

- An estimated 3.5% of housing units citywide are both renter-occupied and at moderate to high risk for redevelopment based on their age, property type/number of units, and property value relative to land area. This includes older (built before 2007), unregulated rental housing with 4 or fewer units that is in the bottom quartile for property value per land area and manufactured home parks.
- Roughly 32% of housing units citywide are estimated to be renter-occupied with some risk of rent increases or major remodels that could trigger displacement. This includes older (built before 2007)[4], unregulated rental housing with any number of units, though roughly 60% of these units are in apartments with 20 or more units.

This suggests that focusing the City's efforts on older apartment buildings with 20 or more units will target the housing with the highest concentrations of renters who are more vulnerable to displacement from rising rents due to lower incomes and existing cost-burden.

[4] Newer rental housing can also experience rent increases and tends to closely track changes in the housing market; it is also excluded from Oregon's statewide limitations on rent increases. However, while some older properties are regularly maintained and updated, other older housing may become dated with rents that have fallen below those of newer housing. Older housing that has not been updated may become "naturally occurring affordable housing" where a change in ownership or other factors can lead to larger rent increases or major remodels that can trigger displacement.

Which Areas Have the Greatest Concentrations of Households and Housing at Risk?

Demographic Factors

The following maps show the share of the population/households in demographic categories that may be more likely to experience harm from displacement by Census tract[5], based on the following metrics:

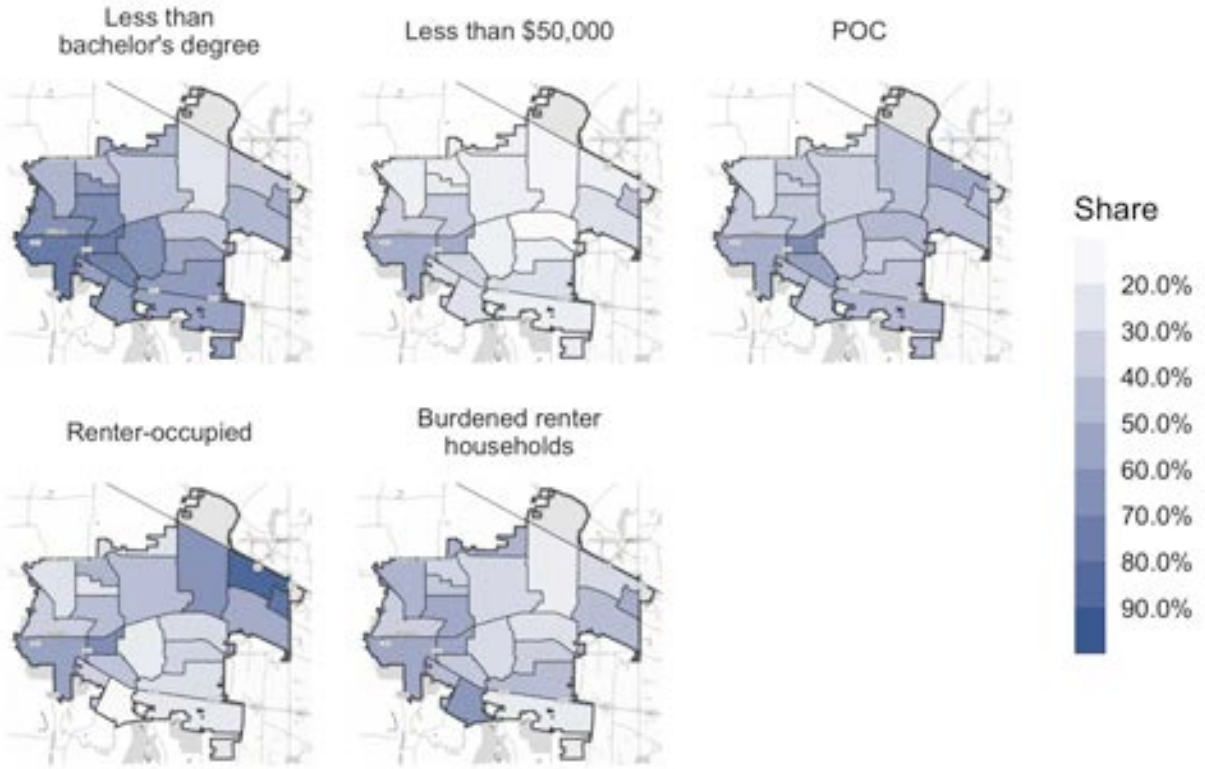
- Households earning less than $50,000 (roughly 50% of the Area Median Income for the Portland region) as a share of all households in the tract
- People of color (POC; combined: all except white non-Hispanic) as a percent of the population in the tract
- Renter households as a share of all households in the tract
- Cost-burdened renter households as a share of all households in the tract
- Adults with less than a bachelor's degree as a percent of all adults in the tract

These metrics are common demographic indicators of vulnerability in displacement risk studies, including those done by the cities of Portland and Seattle, though the details of how they are used vary.[6] Low-income, cost-burdened renters are at greatest risk of being forced to move due to rising rents, since they have little ability to absorb further rent increases, and may already be facing trade-offs between paying rent and covering their household's other basic needs. Those without college degrees have less ability to increase their income to cover higher housing costs and may have to work multiple low-wage jobs to make ends meet. People of color tend to face greater housing discrimination and may have a harder time purchasing a home or finding another apartment if they are forced to move.

[5] The map shows only the portion of the Census tracts that falls within City limits. Several tracts at the north and south edges extend well beyond City limits, but there is relatively little other housing in rural areas outside the City, so data on the population share in a given category is likely relatively accurate for the area in City limits.

[6] Those with limited English proficiency, which is also sometimes used as an indicator, had low statistical reliability at the tract level for Hillsboro and was not included in this analysis.

Exhibit 2. Vulnerability Metric by Share of Population in Tract
Source: ECONorthwest Analysis of 2015-2019 ACS data



This shows that lower-income households and adults without four-year degrees are largely clustered near the downtown, where there are also relatively high concentrations of renters and people of color. This aligns with the latest Washington County Consolidated Plan, which identifies "one R/ECAP [Racially/ethnically-concentrated areas of poverty] in Washington County located in west-central Hillsboro—home to predominately Hispanic residents of Mexican origin."[7]

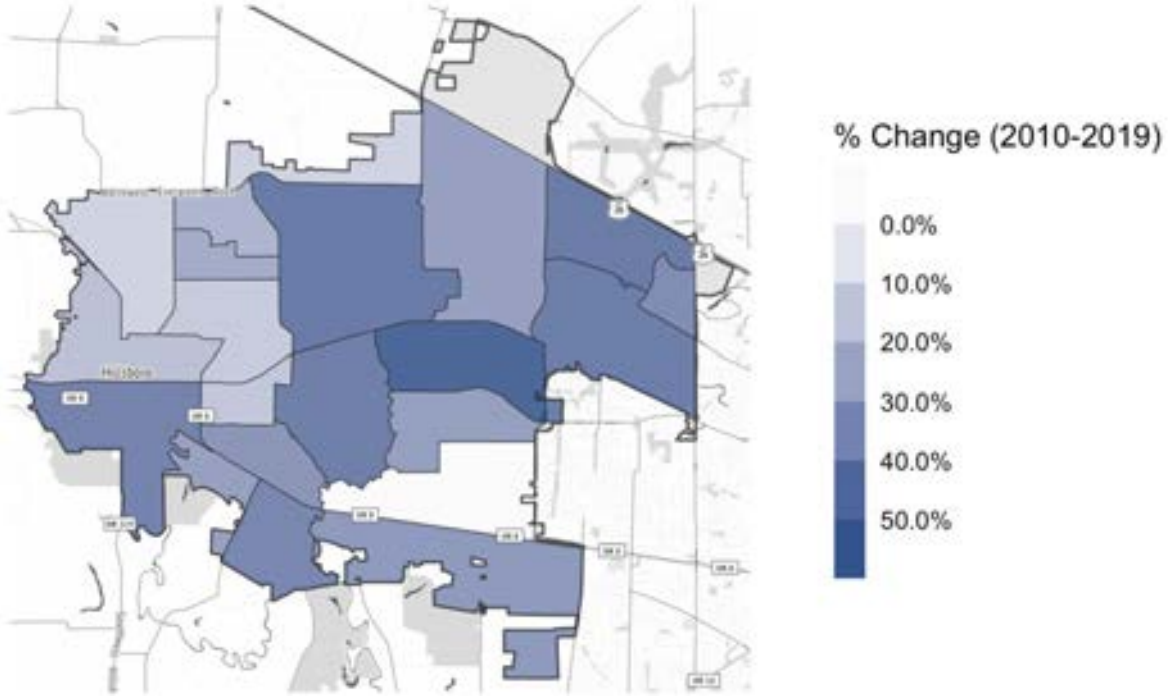
There is also a high concentration of renter-occupied housing in the northeastern portion of the City, around Tanasbourne, because there are a number of apartment complexes in the area and little other housing. However, the Tanasbourne area has a relatively low share of low-income households, cost-burdened renter households, and adults without a college degree, which suggests that these renters may be better able to withstand fluctuations in the housing market.

[7] *2020-2024 Consolidated Plan for Washington County and the Cities of Beaverton and Hillsboro*, page 111.

Rent Trends

Another factor that influences gentrification and displacement risk is the rate of rent increases. While the Census's rent data is an imperfect indicator of changing market conditions,[8] it provides one indicator that aligns with Census geographies. Exhibit 3 shows rent changes highest in central and eastern Hillsboro between 2014 and 2019, with the rents in the downtown increasing less than in other areas.

Exhibit 3. Median Gross Rent Change Since 2010 in Hillsboro by Tract
Source: ECONorthwest Analysis of 2020 Census and ACS 5 Year Data 2010- 2014 and 2015-2019

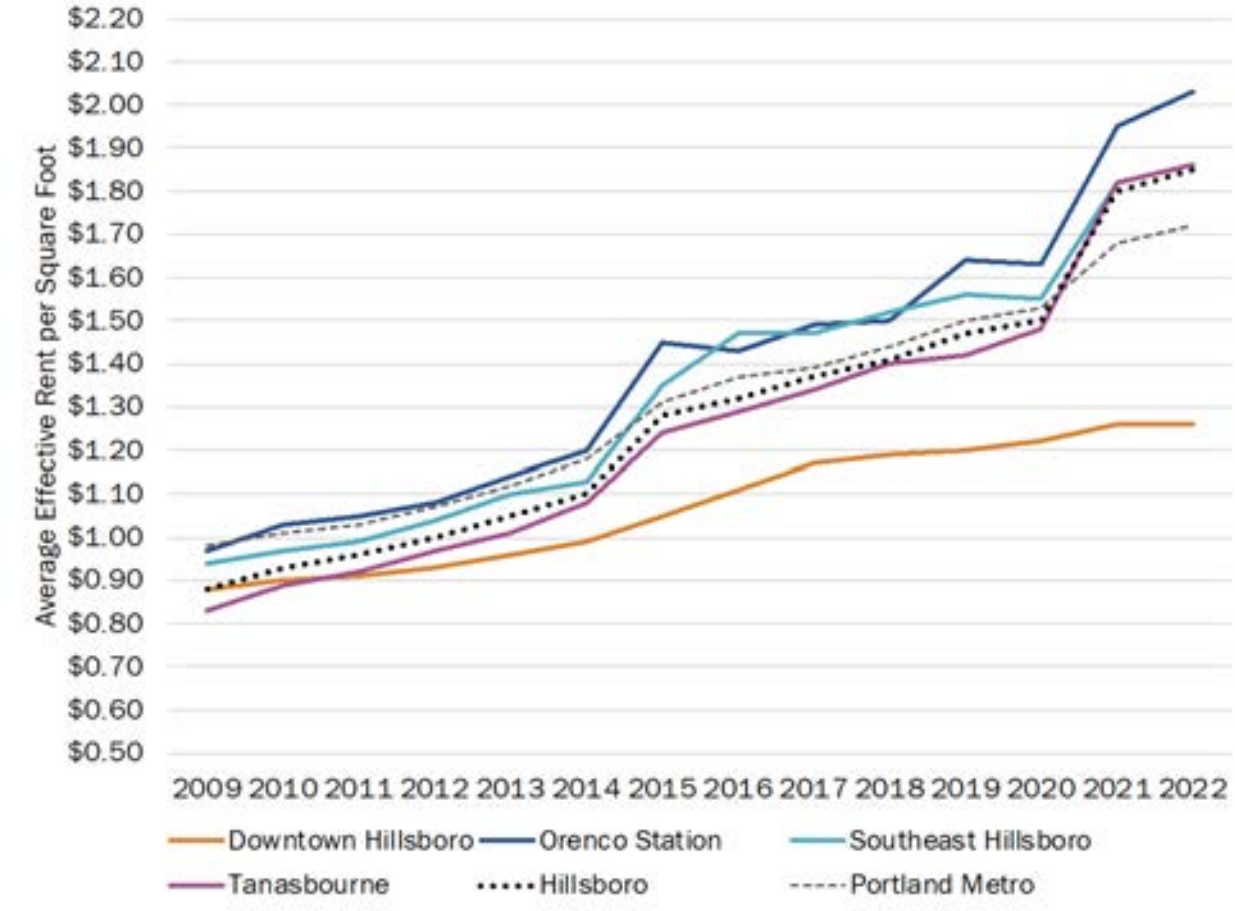


Another indicator of rent trends is the change in rents for older apartment buildings whose rents are tracked in CoStar, a proprietary source of rent and other market data. CoStar is also an imperfect data source,[9] but it provides a more timely sense of rent trends and the ability to identify trends within a subset of the housing market. Exhibit 4 shows how rents for older market-rate apartments (built before 2007) have changed between 2009 and 2022. Excluding new construction from the data allows us to focus on changes for existing housing stock and prevents the addition of newer development at higher rents from skewing the results.

[8] Issues include timeliness of the data and the fact that rents are self-reported and are not adjusted in any way for unit size.

[9] Data for smaller, older apartment buildings is often missing or unreliable because CoStar data is gathered primarily from recent internet listings, and older apartment buildings do not always list availability online. Where listing data is unavailable, CoStar typically estimates likely rent increases at the property level based on trends in the surrounding area. CoStar also does not track the rents that existing tenants are paying or how rent is changing at lease renewal; it only tracks rent for available units.

Exhibit 4. Multifamily Rent Trends in Buildings Built Before 2007, 2009-2021
Source: ECONorthwest Analysis of CoStar March 2022 data



This shows that rents have increased dramatically for older apartments across much of the City and the region, more than doubling from 2009 to early 2022, with substantial rent increases since 2020. However, rents in Downtown Hillsboro, where demographic indicators suggest higher concentrations of vulnerable renters, have increased more slowly than the citywide average. This may change going forward, given the City's current efforts to support redevelopment and revitalizations in Downtown Hillsboro and the 10th Avenue corridor, but suggests that the City may still be ahead of major market-driven displacement in this high-vulnerability area.

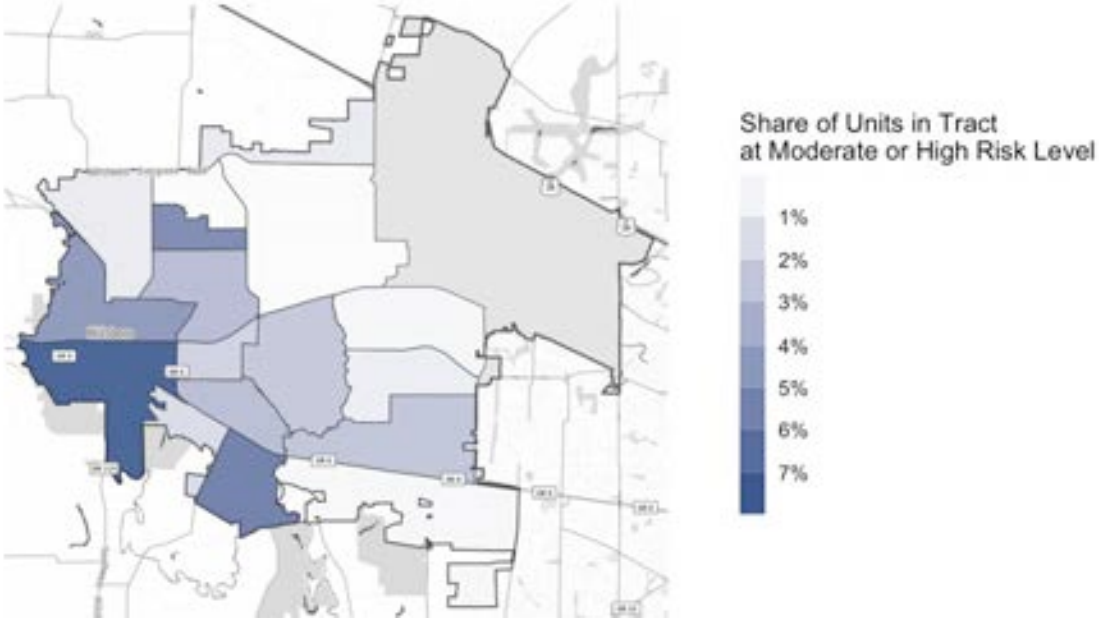
Housing Stock

As an additional indicator, ECONorthwest analyzed characteristics of the existing housing stock to identify two sources of potential for displacement:

- **Redevelopment Risk:** Small, older rental properties with low property values[10] were identified as moderate risk, or high risk if they are part of a group of adjacent properties under common ownership. Manufactured home parks, which can be targeted for redevelopment despite some state protections, were identified as being at moderate risk.
- **Rent Increase Risk:** Older market-rate rentals where changes in ownership or investment strategy or upgrades to units could lead to larger rent increases that could displace current renters were identified as being at some risk. Further property-specific analysis would be required to establish risk in more detail within this group of properties.

The distribution of housing units that are both renter-occupied and at moderate to high risk for redevelopment is shown in Exhibit 5. While there are few units at risk of redevelopment, they are more concentrated in southwestern Hillsboro (surrounding and south of the downtown). The concentration in this area reflects the presence of a number of manufactured home parks along with some low-value rental homes.

Exhibit 5. Share of Units that are Rentals with Moderate to High Redevelopment Risk by Tract
Source: ECONorthwest, using data from Metro's Regional Land Information System (RLIS) tax lot layer



The greatest concentration of units at higher risk of rent increases is in northeast Hillsboro, as shown in Exhibit 6, because of the concentration of market-rate apartments in that area. Most of

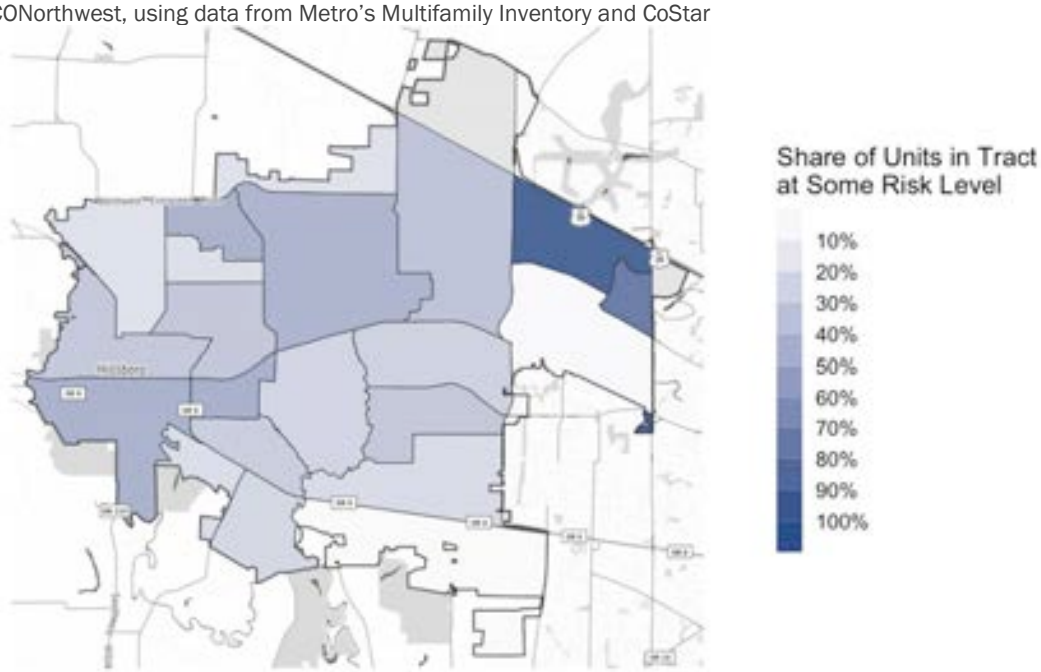
[10] This is defined as properties in the bottom quartile for all single-family homes in the city based on real market value (per tax assessor's records) per square foot of land area.

the older apartments in that area were built in the 1990s; while they may need repairs and upgrades, they are mostly larger properties with more amenities, which tend to be professionally managed and upgraded over time as units turn over. This decreases the risk that tenants will be displaced due to upgrades; however, rents at these properties are also more likely to track the market over time, as the rent trend data shows. Tenants in these properties may be more likely to face rent increases at the upper limit of what is allowed under state law when rents are escalating as fast as they have over the past two years. However, as noted above, demographic data suggests that renters in the Tanasbourne area may be better able to withstand fluctuations in the housing market without experiencing displacement.

Older, smaller apartment developments with few amenities are less likely to be professionally managed and upgraded over time; they can become deteriorated and potentially need major upgrades that would require tenants to move out, but they also tend to be slower to raise rents in the absence of upgrades. Apartments with under 100 units that are more than 30 years old and have few amenities are largely concentrated in Downtown Hillsboro. Many of the older apartments in Downtown Hillsboro have less than 40 units, and there are many smaller apartments with less than 20 units in Downtown Hillsboro as well.

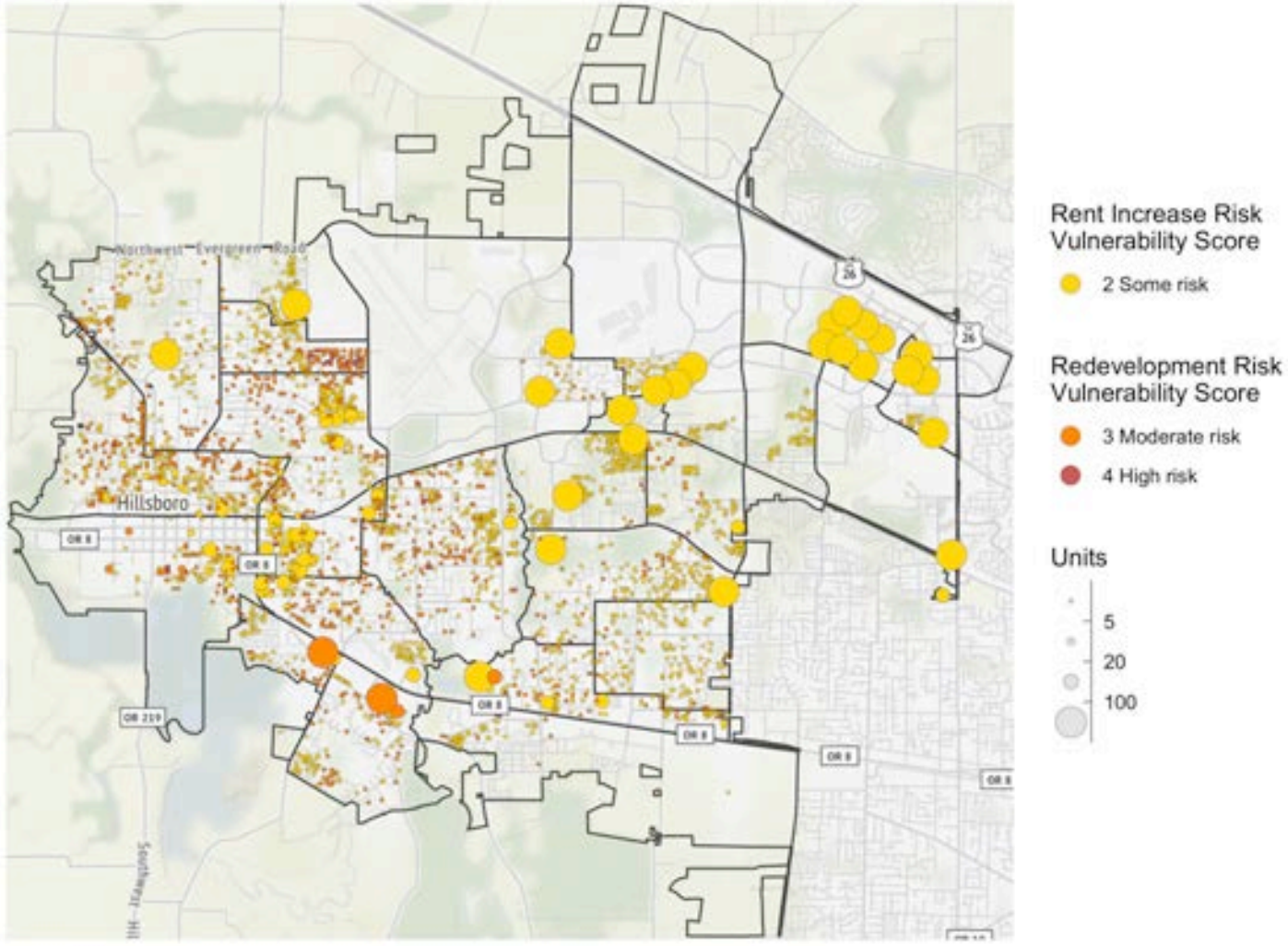
Exhibit 6. Share of Units that are Rentals at Some Risk of Displacement due to Rent Increase by Tract

Source: ECONorthwest, using data from Metro's Multifamily Inventory and CoStar



Properties identified as being at risk of either redevelopment or rent increase are shown in Exhibit 7.

Exhibit 7: Housing with Greater Potential for Displacement Due to Redevelopment or Rent Increases from Repositioning
Source: ECONorthwest, using data from Metro's Multifamily Inventory and Regional Land Information System (RLIS) tax lot layer



ECONorthwest will provide additional detail on properties in higher risk areas that City staff may want to evaluate for potential interventions as a follow-up step under the current contract.

Manufactured Home Communities

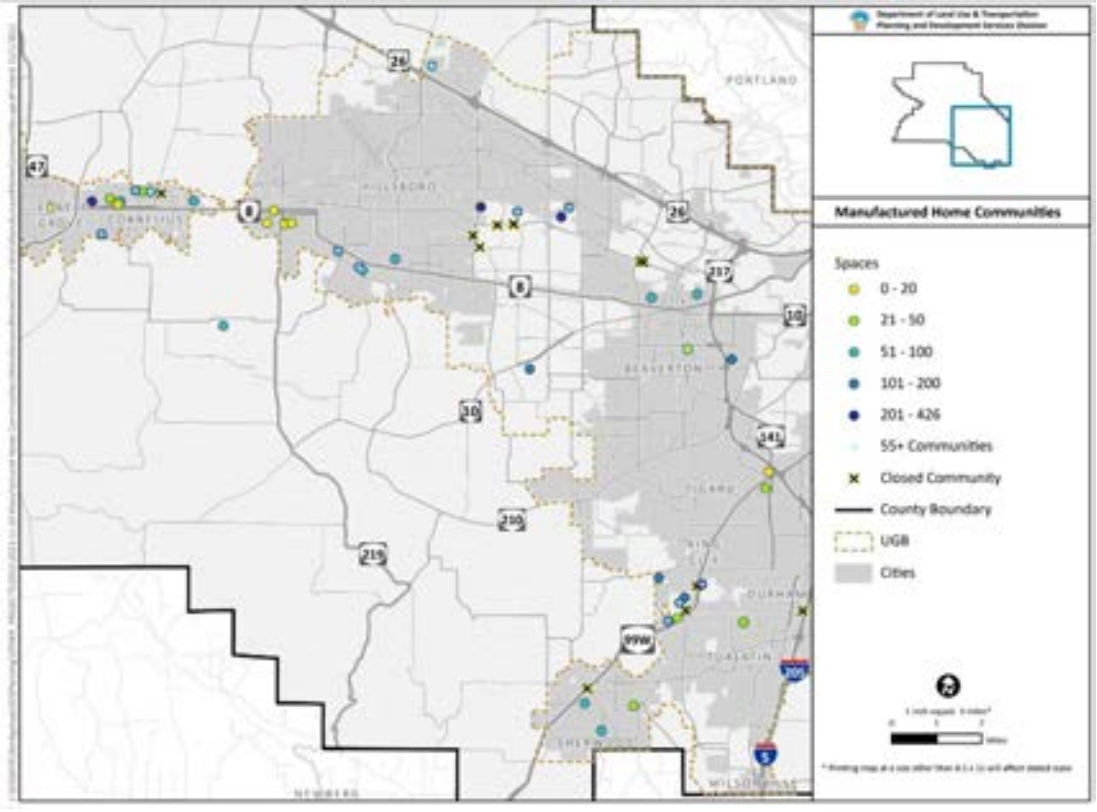
In the early 2000's there was a loss of 15 manufactured housing communities in Washington county, estimated to have displaced 1,100 households with a loss of about 1 in 5 spaces for manufactured housing. In Hillsboro there are 8 MHCs with 392 spaces presently.[11]

Exhibit 8: Manufactured Dwelling Spaces in Hillsboro

Name	Address	Acreage	Spaces
Emerald Village Mobile Home Park	2200SE 45th Ave	9.95	59
Fir Tree Mobile Estates	2865SE River Rd	8.40	59
Garden Circle Mobile Home Court	316SW Baseline St	1.80	18
Hillsboro Trailer Park	159SE Maple St	1.02	9
Maple Lane Mobile Court	535SW Maple Ln	1.37	18
River Road Mobile Estate	2681SE River Rd	14.76	105
South Side Mobile Park	640SE 3rd Ave	1.50	20
Terra Buena Terrace	1901SE Mintner Bridge Rd	11.13	104
Total		**49.93**	**392**

Exhibit 9. Map of Manufactured Housing Communities in Washington County

Source: Washington County's Manufactured Housing Communities Facts, Risks, And Resources Final Report April 2022.



[11] Washington County's Manufactured Housing Communities Facts, Risks, And Resources Final Report April 2022.

Potential Interventions and Mitigation Measures

Overview

The City wants to increase housing stability and has already taken steps to expand the supply of affordable, stable rental housing in Hillsboro. (These are described in more detail in a separate memorandum.) Potential measures to support housing stability include:

- **Prioritizing displaced or at-risk households for housing support**. The City could augment or focus existing housing programs and investments in higher-risk areas. For example:
  - Investing in additional regulated affordable housing within gentrifying areas to give residents more access to stable housing (the City is already doing this)
  - Targeting homebuyer assistance (including housing acquisition with Proud Ground) to renters living in areas with greater displacement risks through additional marketing efforts or prioritization of funding
  - Increasing funding for home repair for low-income homeowners in areas where the for-sale housing market is changing quickly
- **Supporting tenant protections.** Cities are pre-empted from establishing local rent regulations by state statute,[12] and many renter protections are addressed at the state level, including rent stabilization and eviction protections enacted with Senate Bill 608 in 2019. Programs providing information on tenant rights, legal support for tenants facing eviction or other housing issues, and emergency rent assistance are largely handled by the County and nonprofit organizations. However, the City could explore opportunities to support partners in these efforts through targeted outreach, funding, referrals, or other means.
- **Preserving and stabilizing existing "naturally occurring affordable housing"**. There are two general approaches to preservation of older apartments for cities that do not have their own Housing Authority to own and manage housing directly:
  - Supporting **acquisition and rehabilitation** by nonprofits or others who would keep rents affordable or convert to regulated affordable housing
  - **Incentives for property owners** (e.g., tax abatement, grants/loans) to make needed health and safety improvements while stabilizing rents

  The City can also explore options to help support preservation of manufactured housing parks, drawing on the findings of an ongoing Washington County study.

Preservation measures are the focus of the balance of this memorandum and are discussed in more detail below.

[12] ORS 91.225

Acquisition and Rehabilitation

Acquisition and rehabilitation of existing apartments by providers of regulated affordable housing for conversion to regulated affordable housing can be funded through state and federal programs such as the Low-Income Housing Tax Credit (LIHTC).

Acquisition/rehabilitation projects are complex on many levels, including understanding the capital needs required to rehabilitate the property, analyzing rents and cash flow, and converting units to be income-qualified without displacing existing renters (who may not be eligible for the income-restricted units). There are ways for the City to support these efforts without undertaking the acquisition and rehabilitation directly. An additional challenge is the need to compete with private investors, which often requires acting quickly when a property becomes available for purchase. The City can potentially help overcome this challenge in a few ways:

- Establish a **flexible local funding** source that can be deployed quickly to help with property acquisition and preservation.
- Research and **evaluate potential target properties** to identify a short-list of properties where acquisition and rehabilitation would be a priority if they came available and reach out to property owners to gauge interest in selling for preservation when they are ready to part with the property.

Example Acquisition/Rehabilitation Project: Rosewood Place (Gresham)

Nonprofit Human Solutions acquired a 26-unit market-rate apartment building in Gresham with a history of property issues and converted it into regulated affordable housing with supportive services. The project also included development of 19 additional affordable housing units on the site and a community dental clinic. Rents are affordable to households earning 30-50% of AMI. Acquisition cost $1.37 million (in 2013), and the total project budget was over $13 million. Funding included $937,500 from the Network of Oregon Affordable Housing and a $350,000 property acquisition loan from the Housing Development Center's Community Fund; Gresham HOME funds; LIHTC equity and state funds; and a capital campaign by Human Solutions.[13]

Some communities require that property owners seeking to sell certain types of rental housing (e.g., properties with 20 or more units built before a certain year or manufactured home parks) offer a **"right of first refusal"** (ROFR) to the local housing authority, the current tenants, and/or qualified nonprofit organizations. The ROFR generally allows the opportunity for the housing authority or other party to purchase the property for the same terms as the potential buyer. Oregon has ROFR policies in place for regulated affordable housing with expiring affordability restrictions[14] and for manufactured housing parks[15]. There are no existing programs in Oregon that apply a ROFR to other market rate rental housing. While such programs do exist in other communities (for example, Montgomery and Prince George's Counties in Maryland), they may require state-level changes to statute in Oregon and are not considered further here.

[13] Metro, "Opportunities and challenges for equitable housing," January 2016. https://www.oregonmetro.gov/sites/default/files/2016/01/28/EquitableHousingReport-20160122.pdf;

Housing Development Center, "Rosewood Plaza," April 1, 2016, https://www.hdc-nw.org/development-projects/rosewood-plaza

[14] ORS 456.250 to 456.265

[15] ORS 90.800 to 90.850

Flexible Local Funding for Acquisition/Preservation

Flexible local funding that can be deployed quickly for acquisition can come from a variety of sources, including general fund or a Construction Excise Tax. In the example programs described below, public funding was pooled with funds from philanthropic partners, banks, and/or CDFIs.

Examples

The **Oregon Housing Preservation Project** offers acquisition loans that provide bridge financing until the buyer is able to complete the necessary steps to secure long-term funding and prepare to rehabilitate the property.[16] The program offers acquisition loans with favorable terms to help borrowers acquire unregulated market rate properties and transition them to regulated affordable housing. This funding provides time to align public subsidies and obtain long-term or construction financing. (There are other loan programs specific to preservation of regulated affordable housing with expiring restrictions—this program has been a bigger priority for the organization.) Funding comes from public partners, such as the City of Portland, Oregon Housing and Community Services, Fannie Mae, and CDFI funds, private foundations, and private banks.

Greater Minnesota Housing Fund - NOAH Impact Fund is a social impact fund in the Minneapolis-St. Paul region that connects developers and owner-operators with social impact investors to preserve low-cost market rate housing. The fund offers a double-bottom line impact to investors in the form of social impact and return on equity, with the goal of investor repayment in ten years. Since the fund's inception in 2015, it has leveraged $25 million in capital investments to invest $100 million in property acquisitions to preserve 1,000 at-risk unregulated affordable housing units in the Twin Cities area. The fund acquires and rehabilitates these unregulated affordable housing properties (Class B and C properties, from 40 to 200 units), and partners with local affordable housing organizations to operate them with 15-year affordability restrictions.[17] NOAH Impact Fund investors include several banks, the Minnesota Housing Finance Agency, the county, and local philanthropic organizations.[18]

Key Questions

- Where would City funding come from to capitalize an acquisition/preservation fund? Capitalizing a fund from a flexible funding source (e.g., general fund, or potentially in the future a Construction Excise Tax) would allow the fund to be more nimble.
- Would the City want to partner with others (e.g., the existing Oregon Housing Preservation Project) to leverage additional public and private resources, even if it meant less control over the program and where it would focus?

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[16] Preserve Oregon Housing, "Loans: Purchase of Existing Project to Convert to Affordable," http://www.preserveoregonhousing.org/loans.php

[17] NOAH Impact Fund Presentation. Greater Minnesota Housing Fund. September 7, 2017.

[18] NOAH Impact Fund, "About," https://noahimpactfund.com/about/

- How much risk is the City willing to take on its participation in an acquisition/preservation fund?
- Would the City want to provide funds as grants or loans? In some cases, all or a portion of the funds may be repaid from other sources later when the project receives financing.
- Can the City provide enough capital to enable acquisition of a typical property without partnering with others? The average sale price for recent transactions of older apartments with few amenities in Hillsboro is approximately $150,000 per unit.[19] For a 20-unit property, this could mean roughly $3 million in acquisition costs.

Property Inventory and Research

Oregon Housing and Community Services (OHCS) currently maintains an inventory of regulated affordable properties with affordability restrictions that are near expiring. This strategy is focused on identifying unregulated "naturally occurring affordable housing" that could be targeted for acquisition and preservation or for incentive programs. ECONorthwest will provide a preliminary property inventory as part of this project, focused on older, unregulated apartments. ECONorthwest will work with staff to refine the criteria for inclusion in the inventory, including year built, number of units, location, property value, presence of amenities such as a pool, recent sales or remodels, and current rent levels (if known).[20]

Manufactured Home Communities Preservation

Washington County's recent report on manufactured home communities provides a summary of state protections for manufactured home communities and options for local actions to support their preservation. Currently, Oregon regulates the sale of manufactured home communities through various laws. Tenants must be given notice of intent to sell with 25 days to express purchase interest. If the landlord sells to a nonprofit, the gains are exempt from Oregon Income Tax, at least until the end of 2025. There must also be a year's notice if the community will close.[21] The report identifies opportunities for local governments to support the preservation of manufactured home communities, including:

- Assist with the purchase and preservation of manufactured homes as permanently affordable housing. This could include use of the Washington County Housing Production Opportunity Fund (HPOF), which has up to $500,000 available annually to support a resident-owned cooperative or nonprofit organization purchase of manufactured home communities, or Community Development Block Grants.

[19] ECONorthwest analysis of CoStar data for apartment properties built before 1992 with more than 12 units, rated as 2 stars by CoStar based on amenities and quality, sold since 2018.

[20] While ECONorthwest has access to proprietary data sources such as CoStar that detailed information about the properties, we are prohibited from transferring this data to third parties. However, we can use it to filter and identify properties that likely meet the City's criteria for further evaluation.

[21] Washington County Manufactured Housing Communities Facts, Risks, and Resources Final Report (April 2022).

- Target outreach of existing and future programs for preservation or displacement mitigation at manufactured homeowners and communities. Oregon Housing and Community Services worked with other partners to develop The Local Agency Toolkit with guidance on rapid response organization to a community closure.[22] This could include working with Washington County to develop a plan for assisting households displaced from MHCs and assisting with outreach and services reach key populations including older adults, people with disabilities, Latinx/Hispanic families, veterans, and households with lower incomes.
- Target manufactured homes communities and owners for state and federal repair, rehabilitation, weatherization, and replacement assistance and programs, such as the Home Access and Repair for the Disabled and Elderly (HARDE) program, the Community Action Weatherization Program,[23] and energy efficiency incentives from Energy Trust of Oregon.[24]
- Explore the opportunity to preserve manufactured home communities through land use regulation. Several Oregon cities have made efforts to preserve communities through overlay zones or code development:
  - The City of Cornelius adopted a Manufactured Home Park zone allowing manufactured housing communities as a permitted use with a prohibition of conventional single-family and multi-family units. Redevelopment would likely trigger a zone change requiring public testimony and council and commission discussion.[25]
  - The City of Portland adopted a manufactured housing zone in 2018.[26]

Incentives for Property Owners

Some property owners may want to help their tenants and keep their rents low but may not have the resources to maintain and improve the property without raising rents. Others may be willing to consider stabilizing rents if there are strong enough financial incentives to do so. The main approaches that cities can use to incentivize property owners to invest in property maintenance or upgrades without increasing rents are grants, low-interest loans, or tax abatements. Any of these can be paired with a requirement to provide affordability commitments.

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[22] See https://www.oregon.gov/ohcs/mmcrc/Documents/Manufacture-Home-Park-Solutions-Collaborative-Local-Agency-Toolkit.pdf for more information.

[23] See https://caowash.org/programs/housing-stability/conservation.html for more information for more information.

[24] See https://www.energytrust.org/wp-content/uploads/2021/05/Manufactured-Home-Replacement-Pilot-Evaluation_Final-.pdf for more information.

[25] See https://www.codepublishing.com/OR/Cornelius/#!/Cornelius18/Cornelius1830.html#18.30 for more information.

[26] See https://www.portland.gov/sites/default/files/2020-02/manufacturedpark_asadopted_082218.pdf for more information.

Grants/Loans for Stabilization

Funds could be distributed as grants or loans with varying terms to increase affordability and incentives for landlords to participate. There are meaningful trade-offs between offering grants or loans, and the City could offer both funding types, choosing between them depending on the borrower's creditworthiness.

- If the City offered grants, there is potential for deeper affordability for the units or the borrower, because grant funds do not accrue interest and are not expected to be repaid. As such, the funds are gifted to the property to help lower the cost of the rehabilitation project and thus increase affordability. However, the City would not receive its funding back and it cannot be used for future preservation projects.
- If the City were to offer loans, it would become a real-estate lender to the private market. Loans come with the expectation that the borrower repays the full principal plus interest over the life of the loan. If the City offered loans, although affordability can vary based on loan terms, it is not as affordable for the borrower as a grant. However, loans mean that the City can reinvest its funds in future preservation projects, and loans may induce greater accountability (such as through a lien on the property), for the borrower.

Either way, funding would be distributed in exchange for an agreement with the landlords or property owners to rehabilitate the properties to adhere to certain safety, code, or habitability standards, and provide a certain level of affordability for a defined period of time. The City would need to ensure that any loans could be paid back with the affordability restrictions in place. If the City were the only source of funds for the project, the City would also need to take on monitoring and enforcement to ensure the terms of the affordability agreement were being met.

Example

The City of Beaverton has been working on a Housing Preservation Pilot Project for the past several years. Housing staff has been exploring partnerships with a few interested property owners to stabilize existing multifamily rental housing while retaining existing property ownership. However, current low interest rates are creating little incentive to take a City loan with affordability requirements, which has hampered program implementation to date.[27]

Tax Abatements

There are two property tax abatement programs authorized under state statute that the City could consider as incentives for preservation and rehabilitation of older apartments:

- Multiple-Unit tax abatement (also called MUPTE or MULTE in some jurisdictions)[28]

[27] ECONorthwest, *Beaverton Downtown Equity Strategy: Summary of Potential Best Practices for Displacement Prevention and Mitigation and Inclusive Downtown,* February 15, 2022.

[28] ORS 307.600 to ORS 307.637

- Rehabilitated Residential Property tax abatement[29]

Multiple Unit Tax Abatement

The Multiple Unit tax abatement (referred to here as the MULTE program) is a flexible tax abatement program for multiple-unit rental housing that offers substantial local control over eligibility. It can apply to apartments and/or to middle housing, depending on how the city sets the local requirements. It exempts the full value of the residential improvements, but not land value. It is normally limited to a 10-year abatement; however, if there is an affordability agreement in place, the abatement can last as long as the term of the affordability agreement. The City may only exempt its own taxes, unless the boards of districts representing at least 51% of combined levy agree to the exemption for a given property, in which case all districts are included. (If Washington County agreed to participate in the program, County taxes could also be included in the exemption.)

State statute allows for the MULTE program to be used for existing multiple-unit housing that is or becomes subject to an affordability agreement with a public agency. This means that the City could offer the tax abatement in exchange for signing an agreement with a public agency (such as the Washington County Housing Authority or another affordable housing provider) to regulate rents. Because the statute is flexible about the nature of the affordability agreement, it could be structured to limit the annual increase in rents or to require a reduction based on the value of the tax abatement. The City could require that participating property owners invest in renovations in order to qualify, but this is not required under statute. Possible options include:

- **Rehabilitation emphasis:** Make renovations an eligibility requirement, with a required investment amount that is proportional to (and less than) the value of the tax abatement to the property owner. Require that participating property owners prioritize investments in health and safety improvements first, and then improvements for energy efficiency, universal accessibility, etc. Limit the rate of rent increases for the duration of the tax abatement (e.g., 2% or less). This would not require income qualification.
- **Rent reduction emphasis:** Do not require renovations (except in cases where they are needed for health and life safety) but require that rents be reduced in proportion to the tax abatement, with a limit on the rate of increase year-to-year. This would not necessarily require income qualification.
- **Income-restricted affordability emphasis:** Do not require renovations (except in cases where they are needed for health and life safety) but require that a percentage of the units be made affordable at a specific income level and require income qualification. The share of units to be made affordable and the income level could be set on a property-by-property basis.

Requiring income qualification has some downsides: it creates an administrative burden for the property owner, and some existing residents may not qualify. For enforcement, participating property owners could be required to submit current rent rolls and provide written notice to all

[29] ORS 308.450 to ORS 308.481

tenants of the affordability agreement with contact information to report any potential violations. If income qualification was not required, the City could in theory establish affordability contracts directly with property owners. This would require some additional administrative effort, but much less than income certification.

Additional testing of MULTE as an incentive for specific properties and outreach to property owners would be needed as a follow-up step to determine whether it could provide a viable incentive for rehabilitation and stabilization. However, as an initial indication, older apartments in Downtown Hillsboro with few amenities are currently paying roughly $950 per unit per year in property taxes.[30] If 80-90% of this is based on improvement value,[31] that means an abatement through MULTE could be worth roughly $760-860 per unit per year (roughly $60-70 per month per unit), or $7,600 to $8,600 per unit over 10 years (in today's dollars, assuming that the 3% annual increase in property value is counteracted by 3% average annual inflation). Whether this would provide a sufficient financial incentive to reduce/stabilize rents or invest in needed property upgrades depends on the property's condition and current rents, but the amount is likely not enough on its own to support rehabilitation if major repairs are needed. This program could potentially be paired with a low-interest loan or grant as described above for projects with more extensive capital needs.

Rehabilitated Residential Property Tax Abatement

This program provides a 10-year property value freeze for rehabilitation of existing units in substandard condition, and for the conversion of transient accommodation or nonresidential structures to permanent residential units, in areas designated by the jurisdiction as "distressed"—residential areas that are deteriorated, lacking proper facilities, or that have vacant or abandoned homes or structures. No more than 20% of the jurisdiction's total land area may be included. For properties subject to affordability restrictions, the freeze can remain in place for the duration of the restrictions. The City may only exempt its own taxes, unless the boards of districts representing at least 51% of combined levy agree to the exemption for a given property, in which case all districts are included.

Structures must be at least 25 years old and not meet local building or housing codes prior to the improvement. The value of the improvements must be at least 50% of the existing assessed value of the property. All housing types are eligible, which would make the program available for single-family (rental or owner-occupied), middle housing, or apartments. This versatility could make it a good choice for areas where much of the lower-cost housing stock is in poor condition but includes a mix of housing types.

This program is more restrictive than the MULTE program and offers less of an incentive because only a portion of the improvement value is exempt. However, because both programs

[30] ECONorthwest analysis of CoStar data for apartment properties built before 1992 with more than 12 units, rated as 2 stars by CoStar based on amenities and quality, located in Downtown Hillsboro. CoStar provides 2020 property taxes per unit, which were adjusted to a 2022 estimate.

[31] Based on Washington County tax assessor records for selected example apartment properties within this set.

require support from overlapping taxing districts in order to apply to more than just the City's taxes, the fact that this program does not decrease the tax base may make it more acceptable to other taxing districts. In addition, the flexibility in housing type and tenure could make it a good fit for certain areas.

Conclusions and Next Steps

Demographic indicators of vulnerability to displacement (low-income households, cost-burdened renters, adults without college degrees, and people of color) all point to an area near Downtown Hillsboro (just east of 10th Avenue) as the area with the greatest vulnerability to displacement. While rents for older apartments in that area have been growing more slowly than the City overall, upcoming investments in the 10th Avenue corridor and ongoing revitalization efforts downtown could increase the potential for repositioning of older properties. The Tanasbourne/Amberglen area stands out for its high concentration of market-rate apartments, including many large apartment complexes where rents have increased dramatically in recent years. However, renters in that area tend to have higher incomes, lower rates of cost-burden, and higher levels of education than those in the Downtown area, which reduces their risk of displacement due to the rising rents and increases the chances that they will find other suitable housing if they do have to move. This suggests that the area near 10th Avenue should be Hillsboro's top priority for preservation efforts and housing stabilization programs.

Local efforts to preserve "naturally occurring affordable housing" are challenging because of the need to intervene in the private market in ways that are beneficial for both the property owner (so that they are willing to participate) and the tenants (so that the preservation efforts succeed in preventing displacement) while protecting the City's interests. This is especially true with the staffing limitations of a city without a housing authority. Still, there are a range of potential interventions the City should consider exploring further, including:

- Grants or loans to support acquisition and rehabilitation by affordable housing providers;
- Grants or loans and/or property tax abatements as incentives to the existing owners for preservation/stabilization; and
- Augmenting existing programs to support low-income homeownership in higher-risk areas.

The City's ability to dedicate flexible, locally-controlled funding and the support of potential partners (e.g., affordable housing providers, other funders, and overlapping taxing districts) will determine which of the available interventions are most appropriate for implementation. Feedback from potential partners and stakeholders will also inform how those programs should be structured.

In the near term, the City should engage with stakeholders and partners to gather feedback on the potential interventions identified in this memorandum. This should include:

- Overlapping taxing districts—particularly Washington County and Hillsboro School District—to gauge support for adopting a tax abatement for preserving affordability of low-cost market-rate apartments.
- Property owners/managers of target properties identified by ECONorthwest's upcoming analysis to gauge their interest in participating in a preservation program through tax abatements or grants/loans, and whether they would consider selling to an affordable housing provider in the future.
- Washington County Housing Authority, nonprofit affordable housing providers, and other funders to explore program design options for City acquisition and/or preservation grant/loan programs.

Over the coming years, City should also consider how it can dedicate additional local funding to support preservation and housing stabilization efforts, including:

- Identifying an appropriate flexible local funding source (e.g., CET or general fund) to support acquisition and/or preservation grant/loan programs.
- Allocating additional funding to homebuyer assistance and home repair programs for low-income households in areas at higher risk of displacement.

Sherwood School District

Sherwood, Oregon

10-Year Student Forecast

By Residence

Fall 2023-2032

(Based on Fall 2022 Data)

April 25, 2023

Prepared by

DAVIS DEMOGRAPHICS | MGT

11801 Pierce Street, Suite 125
Riverside, California 92505
Phone: (951)-270-5211
www.DavisDemographics.com

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INTRODUCTION

The Sherwood School District has contracted with Davis Demographics & Planning, Inc. (DD) to develop and analyze demographic data relevant to the District's facility planning efforts. The scope of contracted work includes mapping the District, address matching the current student file, developing, and researching pertinent demographic data, identifying future residential development plans, and developing a ten-year student population forecast. DD will then assist the District in developing solutions for housing future student population. Additionally, this study was prepared to assist the District's efforts in evaluating future site requirements and attendance area changes.

The purpose of this report is to identify and inform the District of current trends occurring in the community; how these trends may affect future student population; and to assist in illustrating facility adjustments that may be necessary to accommodate the potential student population shifts. The District can then use this information to better plan for the need, location and timing of facility or boundary adjustments.

The **Sources of Data** section details where the two sources of data, geographic and non-geographic, are collected and how each data item is used in the ten-year student population forecast model.

The **Ten Year Forecast Methodology** section discusses in detail how the factors used in the study were calculated and why they were used. These factors include the calculation of incoming kindergarten classes, additional students from new housing (referred to as student yield), the effects of student mobility, and a detailed review of planned residential development within the District.

While reading this report, it is important to remember that this is a snapshot of current (October 2022), and potential student population based upon data gathered in Fall 2022. DD uses known residential housing projects that have been filed with the City or County and estimates future annual phasing of only these projects. DD does not estimate any additional units beyond the "known" filed projects and therefore it is possible that more units could be built during this ten-year timeframe. Population demographics, development plans, funding opportunities and district priorities can all change, and therefore, new forecasts and adjustments to the overall Master Plan will continue to be necessary in the future.

On February 12, 2020, the Sherwood SD Board of Directors approved new elementary school boundaries that went into effect in time for the 2020/21 SY and a series of changes took place. The new location for Sherwood HS is located in the western portion of the District. The former Sherwood HS site became the new district-wide middle school. Four main elementary schools still exist, but the old Hopkins ES site became the new District Office, and the former Sherwood MS site is now called Hawks View ES. The former Laurel Ridge MS site was combined with its former Edy Ridge ES site to become a larger campus called Ridges ES. The 10-year forecasted figures in this report will focus on these new boundaries.

EXECUTIVE SUMMARY

Davis Demographics & Planning, Inc. is assisting the Sherwood School District in planning for future student population changes. By factoring current and historical student data with demographic data and planned residential development, DD calculated a ten-year student population forecast. This forecast is based upon the residence of the students and is designed to alert the District as to when and where student population shifts will occur.

On February 12, 2020, the Sherwood SD Board of Directors approved new elementary school boundaries that went into effect in time for the 2020/21 SY and a series of changes took place. A new location for Sherwood HS was located in the western portion of the District. The former Sherwood HS site became the new district-wide middle school. Four main elementary schools are still in existence, but the old Hopkins ES site is now the new District Office and the former Sherwood MS is now called Hawks View ES. The former Laurel Ridge MS site combined with its neighboring Edy Ridge ES to become a larger campus called Ridges ES. The 10-year forecasted figures in this report will focus on these new boundaries.

The Sherwood School District experienced growth in resident student population from 2012 to 2017 but has seen some declines over the last few years, especially in 2020. The District experienced a big jump in its K-12 Student population from fall 2014 to fall 2015, but in 2016 the growth was minimal, and that slow growth trend continued in 2017. Between 2018 and 2019 the Sherwood SD declined by 83 K-12 students and in 2020 that drop was more dramatic; the District lost 400 K-12 students in 2020. Most of the decline in 2020 occurred in the elementary school grades (K-5). The K-5 loss was 18% or 324 students, while the middle school grades 6-8 lost 5.5% (67 6-8 students) and the high school grades lost only 9 total students. The main reason for the loss in 2020 was due to the impact of COVID and the parents pulling their students out of public school (mostly at the Kindergarten level). Over the last few years, the Sherwood SD student population gained back some students, but not many. As of 2022, the District contained 4,674 K-12 students, only 56 more than in 2020; not really gaining back much from that initial 400 student loss.

According to the forecast, the Sherwood School District should see one more year of slight declines in 2023 and then start to see its K-12 student population over the next five years as some of the larger new development begins to start construction. In 2022, the K-12 student population is at 4,674 and that is projected to grow by almost 246 more students over the next five years (to 4,920 K-12 by 2028). It is possible that more students will return to the District over the next few years, but the current trends show otherwise. Now that we are a few years out from the worst of the pandemic, it might be safe to say that the "numbers are the numbers" and that the current forecast might be the most accurate looking forward than in recent years. The lower sized grade classes currently within the elementary school grades eventually reach the District's middle and high school grades and therefore produce a set of declining forecasts for most of the next ten years, despite the growth in new

housing. Most of the District is "aging out" with less students transitioning from grade to grade as well as the birth rate figures continuing to lower.

The progress of the large specific plans, including the beginning of the Autumn Sunrise projects (within the Basalt Creek Planning Area) and the Middlebrook Subdivision (within the Brookman Road Concept plan) all play a large role in whether there is going to be additional student growth within the District boundary. The start-up of these two large projects is included in the 10-year forecast, but the long-delayed Sherwood West units are not. The Autumn Sunrise units began in 2022 and will have their first occupants in 2023 and build for about 5-6 years. The Brookman Road Concept Plan units are currently underway (Middlebrook) and go through 2028. If any changes to these large projects occur (a ramp up or a decline) then they will have an impact on the forecast. Further delays could even cause declines to continue. On the other hand, the ramping-up of the unit construction could generate even more students than forecasted in this report. The progress of this future development will need to be closely monitored by the District.

According to the forecast contained in this report, the K-5 resident student population is expected to see very little growth over the next ten years. The K-5 student count for 2020 dropped down to 1,801 and only regained some of those lost students by 2022 when it reached 1,850. The forecast shows that the K-5 student population may bottom out at around 1,778 by 2023 and then start to see annual increases as it climbs back over 1,800 students by 2024 and then peaks at 1,948 by 2028 (5.2% net growth). The Kindergarten class size took a dramatic hit in 2020 (only 232 K in 2020 compared to 301 in 2019, 332 in 2018 and 331 in 2017). COVID was the main reason for the decline in 2020, but the K class size has only slightly recovered in 2022 with a count of 256 K. These lower Kindergarten class size, causes a ripple effect in future K and other grades as those students matriculate through the grades. The projected increase in new housing over the next 10 years will contribute to net growth in certain areas of the District. However, if the larger Kindergarten class sizes do not get restored, then even the new residential development may not even be enough to help the District's enrollment.

Middle school grades are expected to decline for most of the next ten years as smaller incoming 6th grade classes enter from the declining elementary schools. As of fall 2020, the District had a middle school population of 1,209 students. Now in 2022, the 6th grade class size is even lower at 1,135. If current trends continue, then the middle school counts could peak at 1,155 6-8 by 2025 and then see it drop down to 1,053 by 2032 (a net loss of 82 6-8 students or a net decline of 7.3%).

The current forecast shows a reversal of what was expected for the District's high school compared to previous reports. There is expected to be growth at the high school level but it might peak at around 1,838 9-12 students by 2027. By 2028, the high school population could start to see annual declines as smaller 9th grade classes start to enter the District. Currently (2022), the District has 1,689 9-12 students and

the forecast shows that the District's 9-12 student population could drop down to 1,610 by 2032 (a net loss of 79 9-12 students, a drop of nearly 5%).

SOURCES OF DATA

Geographic Map Data

Five geographic data layers were created for use in the ten-year student population forecasts:

1. Street Centerline Database
2. Study Areas
3. Schools
4. Students – Historical and Current
5. Planned Residential Development

1) Street Centerline Data

The street database has associated attributes that contains but are not limited to, the following fields: full street name, address range and street classification.

The main function of the streets is in the geo-coding process of the student data. Each student is address-matched to the streets by their given address. The geo-coding process places a point on the map for every student in the exact location that student resides. This enables DD to analyze the student data in a geographic manner.

Another vital utilization of the digital street database is in the construction of study areas. Freeways, major streets, and neighborhood streets are used as boundaries for the study areas.

2) Study Areas

Study areas are small geographic areas and the building blocks of a school district; they are similar to neighborhoods. Study areas are geographically defined following logical boundaries of the neighborhood, such as freeways, streets, railroad tracks, rivers, etc. Each study area is then coded with the elementary, middle, and high school that area is assigned to attend. By gathering information about the District at the study area level, you can closely monitor growth and demographic trends in particular regions and spot potential need for boundary changes or new facilities. There are 109 study areas created for the Sherwood SD.

3) Schools

The District provided school detailed information to DD for mapping the District facilities.

4) Student Data

a. Historical Student Data - Historical enrollment is used to compare past student population growth and trends as well as the effects of mobility (move in, move out from existing housing) throughout the District. DD utilized the last three

years (2019, 2020, and 2021) of student enrollment data for each October from fall 2019 through fall 2021.

b. Current Student Data - A student data file representing October 2022 (received by DD as a computer data file from the School District) summarized by grade level and by study area is used as a base for student forecasts. Existing students were categorized by study area through the address-matching process that locates each student within a particular area based upon their given address. The forecasts run each of the next ten years from fall 2022 through fall 2032.

The Student Accounting Summary (Table 1) indicates the total student enrollment as of October 1, 2022 and the number of students used in the ten year student population forecasts. The forecast model is based upon student residence and excludes students residing outside of the District's boundary, students with Grades = 13, Special Education students, independent study students, prekindergarten students and students in which DD was unable to match. Special Education students were excluded from the forecasts (due to different classroom loading standards and not all of the District's elementary schools housed Special Education Students).

Table 1– Student Accounting Summary

Fall 2022 Actual Enrollment (Representing October 1, 2022)

Total Students Provided by the District to DD	4,730
Students Living outside of District boundary	-155
Students with Grades = 13 (excluded from study)	-14
Students with a grade = -1 (excluded from study)	-44
STUDENTS USED IN FORECAST (K-12)	**4,517**

5) Planned Residential Development - This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries, and planning officials from the cities of Sherwood and Tualatin. Data includes, when available, development name, developer/owner, location, housing type, total number of units, and projected move-in dates (phasing estimates). Phasing for planned housing is factored into the ten-year forecast. (See Section Two for a detailed listing of the planned residential development). In the student population forecast, DD includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the forecast timeframe. The planned residential development information and phasing estimates show a snapshot of the District at the time of this study. Any of the residential development information contained within this report may change and should therefore, be updated at least annually.

Non-Geographic Data

Two basic sets of non-geographic data were compiled and reviewed for use in the ten-year student population forecasts by residence:

1. Births by Zip Code
2. Mobility Factors

1) Births by Zip Code Data - Birth data by postal zip code was obtained from the Oregon State Center for Health Statistics, for the years 2004-2019 and roughly correlated to the Sherwood School District's boundary. Past changes in historical birthrates are used to estimate incoming kindergarten student population from existing housing.

2) Mobility Factors - Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). Mobility, similar to a cohort, is applied as a percentage of increase/decrease among each grade for every year of the forecasts. The Mobility Factors help account for apartment movement, housing resales, and dropout rates at the high school level.

TEN YEAR "RESIDENCE" FORECAST METHODOLOGY

The forecast methodology used in this study combines historical student population figures, and past and present demographic characteristics to forecast future student population at the study area level. District-wide forecasts are summarized from the individual study area forecasts. **These forecasts are based upon where the students reside and where they should be attending school. DD uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate estimate of where future school facilities should be located.** The best way to plan for future student population shifts is to know where the next group of students will be residing. The following details the methodology used in preparing the student population forecasts by residence.

Ten-Year Forecasts

Forecasts are calculated ten years from the date of forecast for several reasons. The planning horizon for any type of facility is typically no less than five years, often longer. Ten years is sufficient to adequately plan for any facility. It is a short to mid-term solution for planning needs. Forecasts beyond ten years are based upon speculation due to the lack of reliable information on birthrates, new home construction, economic conditions etc.

Why Forecasts are Calculated by Residence

Typically, school district forecasts are based on enrollment by school. However, this method is inadequate when used to locate future school facility needs because the location of the students is not taken into consideration. A school's enrollment can fluctuate due to variables in the curriculum, program changes, school administration, and open enrollment policies. These variables can skew the apparent need for new or additional facilities in an area.

The method used by DD is unique because it modifies a standard cohort forecast with demographic factors and actual student location. **DD bases its forecasts on the belief that school facility planning is more accurate when facilities are located where the greatest number of students reside.**

The best way to plan for future schools is to know where the next group of students will be coming from. The following details the methodology used in preparing the student population forecasts.

1) Progression - Each year of the forecasts, 12th grade students graduate, and continuing students' progress through to the next grade level. This normal progression of students is modified by the following factors.

2) Incoming Kindergarten – Live birth data is reported to the Oregon State Center for Health Statistics, by the resident postal zip code of the mother. DD uses birth data

by zip code so, if need be, a different birth factor can be applied to various areas of the District.

Incoming kindergarten classes, for existing homes, are estimated by comparing changes in past births and birthrates. Table 2 shows the total births for the two main zip codes in the Sherwood School District area from 2004 to 2021. Incoming kindergarten classes are determined by multiplying the existing kindergarten class (2022) by the percent increase/decrease in the birthrate for the year the kindergarten class was born (2017). Assuming that the fall 2022 kindergarten class was born in 2017, DD compared the total births in 2017 to the total births in 2018, to determine a factor for next year's kindergarten class (Fall 2023). Similarly, 2017 was compared to 2019 (Fall 2023 K class), 2017 to 2020 (Fall 2025 K class) and 2017 to 2021 (Fall 2026 K class). 2022 live birth data was not yet available at the time of this report.

Table 2– Birth Data by Zip Code

Births by Zip Code					Birth Rate		
Birth Year	Kinder Year	97140 (Washington)	97140 (Clackamas)	Total	% Change*	Birthrate Used in Forecast	School Year
2004	2009	299	7	306	137.8%		2009/10
2005	2010	316	0	316	142.3%		2010/11
2006	2011	351	0	351	158.1%		2011/12
2007	2012	318	2	320	144.1%		2012/13
2008	2013	311	14	325	146.4%		2013/14
2009	2014	269	13	282	127.0%		2014/15
2010	2015	266	11	277	124.8%		2015/16
2011	2016	231	10	241	108.6%		2016/17
2012	2017	255	9	264	118.9%		2017/18
2013	2018	240	11	251	113.1%		2018/19
2014	2019	225	7	232	104.5%		2019/20
2015	2020	220	10	230	103.6%		2020/21
2016	2021	234	10	244	109.9%		2021/22
2017	2022	211	11	222	Base Year		2022/23
2018	2023	205	7	212	95.5%	0.955	2023/24
2019	2024	231	10	241	108.6%	1.086	2024/25
2020	2025	176	5	181	81.5%	0.815	2025/26
2021	2026	210	8	218	98.2%	0.982	2026/27
2022	2027	Birth Data was not available at the time of study.			96.1%	0.961	2027/28
2023	2028				91.9%	0.919	2028/29
2024	2029				95.4%	0.954	2029/30
2025	2030				94.5%	0.945	2030/31
2026	2031				93.9%	0.939	2031/32
2027	2032				94.6%	0.946	2032/33

** % Change refers to the change in total births for each year compared to the base year.*

Source: Oregon Department of Health Statistics

= Peak year in births

According to Table 2, the birth data for zip code 97140 (the District's predominant zip code) shows that there was a decrease of births from 2006 to 2011. Births had been relatively unstable with average births from 2003 to 2010 around 312. There was a peak in births in 2006 of 351 live births and then annual declines occurred through 2011 (down to 231). A slight resurgence occurred in 2012 (2017 K) and 2013 (2018 K) and then the births count started to drop again. The future birth rates show that future kindergarten classes should be declining in 2023 then see a spike

for 2024 before returning to more declines in 2025-2026. Birth factors for 2027-2032 are an average of the previous three years and are conducted in this manner because the birth data is not available, or the children have not yet been born. DD elects to follow this common practice because it does not want to over or under project incoming future kindergarteners.

3) Student Mobility Factors - Student mobility factors further refine the ten-year student population forecasts. Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). This factor considers the apartment movement within the District, as well as housing resales and dropout rates at the high school level. Mobility, similar to a cohort, is applied as a percentage of increase/decrease to each grade for every year of the forecasts. DD used the District's historical student data (representing data taken from the fall timeframe) for calculating these factors. The sampling used for the Mobility Factors are taken from the District's established neighborhoods without any recent new housing construction. The idea is to capture the trends of the students where and when they enter the District and apply those similar rates to future grade classes.

A net increase or decrease of zero students over time is represented by a factor of 100%. A net student loss is represented by a factor less than 100% and a net gain by a factor greater than 100% (see the example below).

Example: 100 K grade students in the Archer Glen ES area for fall 2022
X 101.0% (the K-1 Archer Glen ES area Mobility Factor)
101.0 1st grade students in fall 2023 for that area in Archer Glen

The sampling used was taken over a four-year period (student data from 2019 through 2022) and three yearly groupings were calculated. For example, a comparison was made for the fall 2019 K student population to the fall 2020 1st grade students. This comparison was also conducted for the fall 2020 & fall 2021 and fall 2021 & Fall 2022 groupings. Table 3, below, shows the Mobility Factors that were used for this year's report.

Table 3-Mobility Factors

Attendance Area	K to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12
Archer Glen ES	1.01	0.99	0.98	0.99	1.01	1.02	1.00	0.93	1.08	0.97	0.99	0.97
Hawks View ES	0.96	0.94	0.96	1.09	0.96	1.01	0.95	0.97	1.07	0.97	1.00	0.95
Middleton ES	1.03	0.98	0.98	1.04	0.95	1.00	0.97	1.04	1.03	0.95	0.99	0.98
Ridges ES	1.02	0.95	1.02	1.02	1.03	1.03	0.98	0.99	1.06	0.98	0.93	1.02
District-wide Average:	1.01	0.97	0.99	1.04	0.99	1.02	0.98	0.98	1.06	0.97	0.98	0.98

Using Fall 2019 through 2022 Student Data (3 Years of Change) by Elementary Attendance Area

Ridges ES's K to 1 Mobility Factor is 102.0%. That means that for Ridges' area, as students transition from Kindergarten to 1st grade (K to 1st) there is an average student increase of 2%. Since kindergarten is not a required grade, many parents choose to keep their children in daycare facilities through kindergarten and then

bring them into 1st grade at the public school. Hawks View ES area is the only one that sees a net loss from K to 1 (-4%). Most of the Districts mobility factors (56%) are red (less than 1.00). This means that, for the most part, parents are choosing to move out of the Sherwood School District. Most of the losses (red) seen above are some very slight high school dropout rates (in the 2-3% range). The Grade 8 to 9 transition is also typically high (green), and this is due to student entering the District from private or parochial K-8 schools and enrolling in the District's high schools. Slight but typical drop-out rates (red cells) occur in the later high school grades; however, Sherwood SD's figures show a high retention rate of students at that particular level.

4) Student Yield Factors (SYF'S) – Ten-Year Forecasts **-** The Student Yield Factors, when applied to planned residential development units, determine how many additional students will be generated from new housing construction within the District (see **Section Two** for details on planned residential development schedules). Student Yield Factors are sometimes referred to as Student Generation Rates (SGR's). For the 2018-19 study, Davis Demographics conducted a survey of 358 Single-Family Detached (SFD) units built over the last 20 years (1998-2017) and included the results in the table below. However, due to a lack of a large enough sample size for multi-family units, Davis Demographics still used Student Yield Factors from neighboring West Linn-Wilsonville SD (see below). It was not part of Davis Demographics' scope of work this year to update the SYF's, therefore, the same yield factors that were used in last year' study were applied in the 2020 report.

Table 4- Student Yield Factors

Student Yield Factors used in the Sherwood SD 2022/23 Study

Grade	Single Family Detached		Multi-Family (MF) Units	
	358 Units*		605 Units**	
	Students	Factor	Students	Factor
K-6	172	0.480	68	0.112
7-8	60	0.168	19	0.031
9-12	112	0.313	37	0.061
K-12	344	0.961	124	0.205

* = Units constructed within the Sherwood SD area from 1998 - 2018 (20 year period)

Condos, townhomes and apartments, etc.

** = Unit sample from neighboring West Linn-Wilsonville SD (units built between 2007-2013)

Before the SYF's can be applied to the current housing units, the year of construction for each housing type must be analyzed. In general, new housing attracts young families with elementary school aged children. Over the next 12 to 15 years, the children grow older and pass through the grades. This cycle is then repeated throughout the life of the home. Analyzing the year of construction for new housing units can help estimate the number of facilities needed to accommodate new students.

5) <u>Planned Residential Development and Student Yield Factors</u> **-** Closely related to the Student Yield Factors (SYF) are planned residential development units. Planned residential development data is collected to determine the number of new residential units that will be built over the ten-year period of the student population forecasts. The units built within the next ten years will have the appropriate SYF applied to it to determine the number of new students the planned residential development will yield.

This residential development data was obtained through the District, developers that have current or future projects within District boundaries and planning officials from the cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. (see **Section Two** for details on planned residential development occupancy).

In the resident student forecasts, DD includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the forecast timeframe. The planned residential development information and phasing estimates is a snapshot of the District at the time of this study. The residential development information changes quite often and should be updated at least on an annual basis.

APPLYING THE VARIABLES TO GENERATE THE FORECASTS

The following paragraphs summarize how DD uses the factors to determine the student population forecasts. Remember that these forecasts are based on residence.

The Sherwood School District has been broken up into 109 study areas and each are coded for each of the District's elementary, middle, and high school, depending upon what attendance area they fall in. The residential forecasts are calculated at the study area level. This means that DD conducts 109 individual forecasts that are based upon the number of students residing in each study area.

The first step in running these forecasts involves listing the number of students that live in a particular study area by each individual grade (Kindergarten through 12th grade). The current student base (Fall 2022) is then passed onto the next year's grade (2022's K become 2023's 1st graders, 2022's 1st graders become 2023's 2nd graders, and so on). After the natural progressions of students through the grades are applied, Birth Factors are then multiplied to the current Kindergarten class to generate a base for the following year's Kindergarten class (*Section One*).

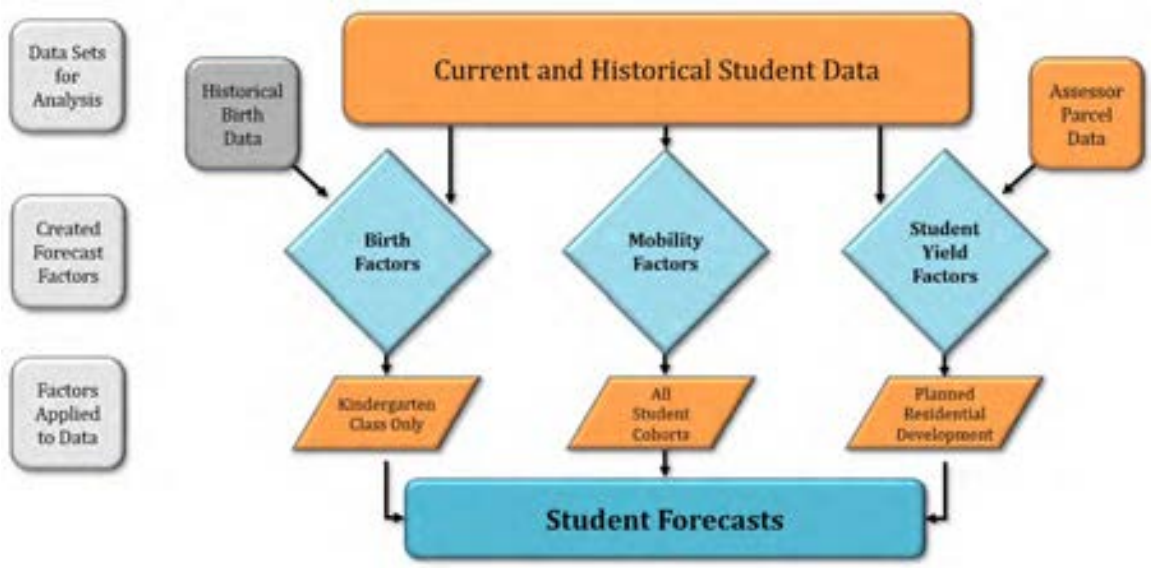
Next, a Mobility Factor is applied to all grades. Again, these factors consider the natural in/out migration of students throughout the District. A specific Mobility Factor was calculated for each grade transition (K to 1st, 1st to 2nd, etc.) within each elementary attendance area and is applied to the appropriate grade (and school area) to estimate the next year's progressed students.

The last essential layer applied to the forecasts deals with additional students from planned residential development (*Section Two*). This is a simple calculation, again conducted at the study area level, where the estimated number of new housing units for a particular year is multiplied by the appropriate Student Yield Factors. For example, if 100 single-family detached (SFD) units are to be built in a specific study area in a given year, then you would multiply this number (100 units, for example) by the SFD K-6 Student Yield Factor (.480) and the resulting number (48 K-6 students) is divided evenly among the six grades (*Section One*).

To finish generating the forecasts by residence, the same process is conducted for each of the 109 study areas. Once the forecasts have been run at the study area level, then it is simple addition to determine forecasts for each of the District's attendance areas or for a district-wide summary. For example, the residential forecasts for Archer Glen Elementary School are simply the summary of all of the study areas that make up this specific attendance area (see *Section Five* for the forecasts of each elementary attendance area). The District Summary for the "residence" forecasts (*Section Four)* is a total summary of all 109 study areas, which excludes all of the students that attend a district school and live outside of the District's boundaries and students unable to be mapped. Then out-of-district students are factored back into the forecasts by simply adding the existing totals in

at the bottom of the forecasts (please see the Attendance Matrices in *Section Three* for a breakdown of the out-of-district students by school). DD adds the current total out-of-district to each year of the forecasts because there is no accurate way to forecast these students in the future.

Davis Demographics' Forecast Methodology Flowchart



PLANNED RESIDENTIAL DEVELOPMENT

This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries and planning officials from the Cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. Please see the next page (page 12) for a map of the known residential projects in the Sherwood School District area. Following the map (on page 13) is a breakdown of the estimated occupancy date for new housing units over the next ten years (from Fall 2023 through Fall 2032) by Study Area and by the three main housing types (single family detached – SFD – units; multi-family attached – MFA – units; and apartments – APT – units). This document is referred to as the District-Wide Residential Development Summary. In addition, DD has included a Residential Development List (page 13), which is sorted by Study Area and is an inventory of all known residential projects that are expected to be active over the next ten years.

DD estimates that as many as 1,552 Single-Family Detached units, 454 multi-family units, and 67 Apartment units could be built within the Sherwood District boundary over the next ten years (a grand total of 2,073 mixed units). This number of units is definitely possible and is not unprecedented. Most of these units are estimated to be constructed within a six-year period (fall 2022 through fall 2028 school years) with an estimated average of 301 units to be built each year during that time span.

Please note that all phasing schedules are based on occupancy, all Approved and Tentative maps plus proposed and potential development are included on these lists, the Summary only includes units that may be occupied in the ten year timeframe of the forecasts and are based upon data gathered during October to December of 2022 and may not reflect recent changes.

Sherwood School District

Known Active and Future
Residential Development Projects
Over the Next 10 Years

Sherwood
SCHOOL DISTRICT

London Estates
20 SFD Units (active)

Sherwood West
Mostly SFD Units
Not Included in Ten Year Projection

Denali Summit / Denali Meadows
48 SFD Units together (active)

rest of Basalt Creek Planning Area
134 SFD Units
67 APT Units
374 MFA Units

Brookman Road Concept Plan
362 SFD Units

Middlebrook Subdivision
145 SFD units (active)

Brookman Road Concept Plan
577 SFD Units

Autumn Sunrise by Lennar
(part of Basalt Creek Planning Area)
320 SFD and 80 MFA Units
(active)

Study Areas
New Housing Development
Streets
Study Areas

N

0 0.5 1 Miles

Map Prepared by
DAVIS MGT
April 25, 2023

Total SFD = 1,552 Total MFA = 454 Total APT = 67 Total Units = 2,073

Based on new boundaries approved 2/12/2020

Study Area	10/1/2022 - 9/30/2023			10/1/2023 - 9/30/2024			10/1/2024 - 9/30/2025			10/1/2025 - 9/30/2026			10/1/2026 - 9/30/2027			10/1/2027 - 9/30/2028			10/1/2028 - 9/30/2029			10/1/2029 - 9/30/2030			10/1/2030 - 9/30/2031			10/1/2031 - 9/30/2032			Total Units	Study Area	Elementary School Area	Middle School Area	High School Area
	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT					
42	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	**42**	Middleton ES	Sherwood MS	Sherwood HS
46C	0	0	0	0	0	0	25	0	0	35	0	0	35	0	0	35	0	0	35	0	0	35	0	0	162	0	0	0	0	0	362	**46C**	Middleton ES	Sherwood MS	Sherwood HS
75	23	0	0	16	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	**75**	Hawks View ES	Sherwood MS	Sherwood HS
82B	20	25	0	100	80	33	139	100	34	105	100	0	30	100	0	30	49	0	30	0	0	0	0	0	0	0	0	0	0	0	975	**82B**	Hawks View ES	Sherwood MS	Sherwood HS
86D	55	0	0	105	0	0	125	0	0	125	0	0	125	0	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	682	**86D**	Ridges ES	Sherwood MS	Sherwood HS
Totals:	104	25	0	221	80	33	298	100	34	265	100	0	190	100	0	212	49	0	65	0	0	35	0	0	162	0	0	0	0	0	2,073	**Total**			
	Total 22 / 23 = 129			**Total 23 / 24 = 334**			**Total 24 / 25 = 432**			**Total 25 / 26 = 365**			**Total 26 / 27 = 290**			**Total 27 / 28 = 261**			**Total 28 / 29 = 65**			**Total 29 / 30 = 35**			**Total 30 / 31 = 162**			**Total 31 / 32 = 0**							

SFD - Single Family Detached MFA - Multiple Family Attached APT - Apartments

Contact/Owner Developer	Project/Area	Study Area	Total Units	Type of Units	Left to Build	Comments
City of Sherwood	Sherwood West	4	4,400	SFD	All	A ways off, still at least 10 years out before occupants arrive. NOT PART OF ABOVE 10-YEAR FORECAST.
Unknown	London Estates	42	20	SFD	6	Project underway and 1st 14 units of 20 are completed / last 6 units are under construction
City of Sherwood	Brookman Road Concept Plan	46C	362	SFD	All	Annexed by City in April 2017...There are a few pre-applications, per City, but probably 2-3 years from first occupants.
JT Roth, Inc.	Denali Summit / Denali Meadows	75	48	SFD	All	First occupants in 2023. Two products from the same developer.
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	320	SFD	All	Per City - Lennar has now come in to build new community ("Autumn Sunrise") - 2 types of housing / Lennar may build out the rest?
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	80	MFA	All	
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	134	SFD	All	Lennar may build the rest of these units???
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	374	MFA	All	
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	67	APT	All	
City of Sherwood	Middlebrook Subdivision	86D	145	SFD	105	1st of the Brookman Road Concept Plan units to be built. This part is now referred to as the "Middlebrook Subdivision". First occupants were in 2022.
City of Sherwood	Brookman Road Concept Plan	86D	577	SFD	All	Assumed to begin once Middlebrook Subdivision is a few years underway. Still needs to be more defined by City planning.

= Projects in progress SFD - Single Family Detached MFA - Multiple Family Attached APT - Apartments

THE K-5 ATTENDANCE MATRIX

An Elementary (K-5) Attendance Matrix has been included to provide a better understanding of where students reside and where they attend school. This matrix helps to see a "snapshot" of the District's current Open Enrollment patterns. DD has also created a Middle and High Attendance Matrix on the following pages. The following three matrices are based upon the new boundaries, approved by the Board on 2/12/2020; which just took effect this year, in time for the 2020/21 SY.

The attendance matrix acts as a checks and balance for student accounting. It shows where the students reside (what is their School of Residence) based upon our address matching capabilities and what school they attend (School of Attendance) based upon data in the student file supplied by the District. The inclusion of this matrix is essential to showing how the students used in the forecasts match up to the District's records of enrollment for each school. The best way to plan for future facilities is to know where the next group of students will be coming from, not necessarily which school they are currently attending.

Remember, DD's forecasts are based upon where the students reside, not where they attend school. DD uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate depiction of where future facilities (if necessary) should be located. Therefore, since the forecasts are based upon where the students reside, the figures DD uses as a base for each school's resident forecast may be slightly higher or lower than the actual reported enrollment for each school.

READING THE MATRIX

Looking at the K-5 Elementary School Attendance Matrix on page 16, let us begin with Archer Glen ES as an example. Following down the second column with the "Archer Glen ES (#1334)" heading, on the first row you see that there are 316 K-5 grade students attending Archer Glen ES and residing in the Archer Glen ES attendance area. Continuing downward, 7 students attended Archer Glen ES, but resided in the Hawks View ES attendance area. Next, it shows that no students attend Archer Glen ES and reside in the Middleton ES attendance area, and two students attended Archer Glen ES in October 2022, but lived within the Ridges ES boundary.

The row entitled "Pre Kindergarten" shows the number of PK students attending Archer Glen ES in October 2022; there were no PK students attending Archer Glen ES. The row named "Special Education" refers to all elementary level Special Day Class students attending the District. Eleven special education students attended Archer Glen ES in 2022. The row entitled "Out-of-District" refers to students living completely outside of Sherwood School District but attending one of the District's schools. There are six Out-of-District students attending Archer Glen ES. The "K-5 Totals" row shows the total number of K-5 students attending a school regardless of where they reside; this should reflect the District's enrollment counts for each school as of October 1st, 2022. There were 331 students attending Archer Glen ES as

of October 2022. At the bottom of the matrix, DD lists the District's "Open Enrollment Percentage," a figure that lists the total number of students attending the particular school but live outside of the designated boundary. There were 15 out-of-zone students attending Archer Glen ES in October 2022; a percentage of 4.6% of Archer Glen ES's students came from outside of its current boundary.

The next step is to read across the matrix, beginning with the Archer Glen ES attendance area row. It is now understood that the 316 represent the total number of K-5 grade students that reside in the Archer Glen ES attendance area and attend Archer Glen ES. The next column, titled "Hawks View ES (#1191)", lists the number of K-5 grade students that reside in the Archer Glen ES attendance area, but attend Hawks View ES. Eight K-5 students reside in the Archer Glen ES attendance area but attend Hawks View ES as of October 2022, and so on.

The K-5 Students column in the beginning represents the total number of students living in that particular attendance area. There are 3302 K-5 students residing in the Archer Glen ES attendance area. Reading down the Totals column, you will find the number of K-5 students used in the fall 2022 forecasts - - 1,795 K-5 students (excluding Special Education and Out-of-District students). A total of 1,894 PK-5 students attended a District school as of October 1, 2022 (with a District-wide "Transfer-In" rate of 5.4%).

The Middle School 6-8 Matrix (on page 17) and the High School 9-12 Matrix (on page 18) is read in the same manner as the Elementary School Matrix.

Fall 2022/2023 K-5 (Elementary School) Attendance Matrix

"Open Enrollment" Patterns

BASED ON NEW BOUNDARIES THAT WENT INTO EFFECT FOR THE 2020/21 SY

SCHOOL OF RESIDENCE (BASED ON "NEW" CURRENT ATTENDANCE AREAS)		SCHOOL OF ENROLLMENT				
Attendance Area	Count of K-5 Students Living in Attendance Area	Archer Glen ES (#1334)	Hawks View ES (#1191)	Middleton ES (#3322)	Ridges ES (#4730)	Transfer Out Rates
Archer Glen ES (#1334)	330	316	8	5	1	4.2%
Hawks View ES (#1191)	441	7	431	2	1	2.3%
Middleton ES (#3322)	359	0	8	349	2	2.8%
Ridges ES (#4730)	665	2	13	4	646	2.9%
Resident K-5 Sub-Totals:	1,795	325	460	360	650	
Pre Kindergarten:	44	0	16	12	16	
Special Education:	11	0	1	10	0	
Out of District Students:	44	6	7	29	2	
K-5 Totals:	1,894	331	484	411	668	
# Enrolled, But Not Living in Attendance Area:	97	15	36	40	6	
Open Enrollment % ("Transfer In" %):	5.4%	4.6%	7.8%	11.1%	0.9%	
	District-wide					

The data above represents enrollment counts as of October 1st, 2022

Fall 2022/2023 6-8 (Middle School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS) — Attendance Area	Count of 6-8 Students Living in Attendance Area	SCHOOL OF ENROLLMENT: Sherwood MS (#1192)
Sherwood MS (#1192)	**1,099**	**1,099**
Special Education:	5	5
Out of District:	31	31
6-8 Totals:	**1,135**	**1,135**
# Enrolled, But Not Living in Attendance Area:	**31**	**31**
Open Enrollment % ("Transfer In" %):	**2.8%**	**2.8%**
	District-wide	

The data above represents enrollment counts as of October 1st, 2022

BASED ON NEW BOUNDARIES THAT WENT INTO EFFECT FOR THE 2020/21 SY

Fall 2022/2023 9-12 (High School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS) — Attendance Area	9-12 Students	SCHOOL OF ENROLLMENT: Sherwood HS (#1193)
Sherwood HS (#1193)	**1,603**	**1,603**
Special Education:	6	6
Out of District:	80	80
Grade 13 Students:	14	14
9-12 Totals:	**1,703**	**1,703**
# Enrolled, But Not Living in Attendance Area:	**80**	**80**
Open Enrollment % ("Transfer In" %):	**4.7%**	**4.7%**
	District-wide	

The data above represents enrollment counts as of October 1st, 2022

DISTRICT-WIDE STUDENT FORECASTS (BY "RESIDENCE")

The student population is projected out ten years for each of the study areas and for the entire Sherwood School District. The District-Wide Summary enables the District to see a broad overview of future growth and what impact this growth will have on existing facilities. The study area listings enable the District to monitor student population growth or decline in smaller geographic areas within the District (please see *Appendix A* for the individual 109 Study Area forecasts).

At any point in time, study areas and their projected resident students can be shifted between schools to assist in balancing enrollment growth. Together, these forecast summaries present the means for identifying the timing of additional student arrival and overall facility requirements and location to accommodate the District's expected growth.

The following page shows the District-Wide Forecasts by "Residence" using the fall 2022 (early-October) student data as the base; the fall 2019 through fall 2021student listings are there for reference. Ten consecutive years are then projected from fall 2023 through fall 2032 with the Out-of-District students separated from the sub-totals. The Out-of-District are added back into the 10-year forecast using the same fall 2022 figures. At the bottom of the District-Wide Forecast, a projected annual change is listed.

For an exact breakdown of how many Out-of-District, Special Education and Unmatched students there were for each elementary school as of fall 2022, please see the K-5 Attendance Matrix on page 16, the 6-8 Middle School Matrix on page 17, and the 9-12 High School Matrix on page 18.

District-Wide 10-Year Forecast

Projection Date: 10/1/2022

	Historical Studennt Information			"Current"	Forecasted Resident Student Counts									
	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032
K	301	232	297	256	252.0	299.0	244.4	296.5	296.6	294.5	300.8	298.8	307.3	304.0
1	342	270	269	302	264.4	269.5	322.0	264.4	311.7	312.7	299.6	303.9	310.9	308.3
2	350	297	278	274	297.3	269.7	279.7	327.2	267.0	313.1	303.7	289.3	302.0	298.2
3	336	316	318	284	278.8	311.3	289.0	296.1	338.2	279.5	314.4	303.1	297.2	298.7
4	373	326	346	333	302.0	306.6	346.5	321.4	323.5	367.7	295.5	329.3	326.5	308.9
5	396	341	342	356	339.0	316.3	326.8	363.4	333.2	336.2	369.1	295.4	337.1	323.4
6	429	389	365	349	369.6	362.4	344.8	352.7	384.8	354.7	346.7	378.1	311.7	342.9
7	408	406	383	371	349.0	379.5	379.6	358.4	360.1	392.4	350.0	339.7	380.7	302.9
8	425	398	396	384	373.9	363.5	399.8	396.3	369.9	372.8	392.4	347.8	349.0	375.9
9	396	443	419	429	416.3	416.5	412.2	447.5	437.7	410.5	400.5	418.4	381.6	369.4
10	389	374	447	402	424.1	422.7	428.6	421.7	450.1	441.9	403.3	391.5	418.1	370.1
11	391	380	362	427	398.6	429.0	433.1	437.0	423.7	453.1	432.1	393.2	391.1	404.4
12	416	379	385	350	429.7	410.9	448.2	449.4	446.8	435.4	451.0	429.2	400.0	385.8

Sub Total of Resident Students:	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032	Sub Total of Resident Students:
K-5	2,098	1,782	1,850	1,805	1,733.5	1,772.4	1,808.4	1,869.0	1,870.2	1,903.7	1,883.1	1,819.8	1,881.0	1,841.5	
6-8	1,262	1,193	1,144	1,104	1,092.5	1,105.4	1,124.2	1,107.4	1,114.8	1,119.9	1,089.1	1,065.6	1,041.4	1,021.7	
9-12	1,592	1,576	1,613	1,608	1,668.7	1,679.1	1,722.1	1,755.6	1,758.3	1,740.9	1,686.9	1,632.3	1,590.8	1,529.7	
K-12	4,952	4,551	4,607	4,517	4,494.7	4,556.9	4,654.7	4,732.0	4,743.3	4,764.5	4,659.1	4,517.7	4,513.2	4,392.9	

Out-of-District Students:	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032	Out-of-District Students:
K-5	27	19	11	44	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	
6-8	14	16	15	31	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	
9-12	25	32	60	80	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
K-12	66	67	86	155	155.0	155.0	155.0	155.0	155.0	155.0	155.0	155.0	155.0	155.0	

Totals:	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032	Change from 2022-2032 #	Change from 2022-2032 %
K-5	2,125	1,801	1,861	1,850	1,777.5	1,816.4	1,852.4	1,913.0	1,914.2	1,947.7	1,927.1	1,863.8	1,925.0	1,885.5	35.5	1.9%
6-8	1,276	1,209	1,159	1,135	1,123.5	1,136.4	1,155.2	1,138.4	1,145.8	1,150.9	1,120.1	1,096.6	1,072.4	1,052.7	-82.3	-7.3%
9-12	1,617	1,608	1,673	1,689	1,748.7	1,759.1	1,802.1	1,835.6	1,838.3	1,820.9	1,766.9	1,712.3	1,670.8	1,609.7	-79.3	-4.7%
K-12	5,018	4,618	4,693	4,674	4,649.7	4,711.9	4,809.7	4,887.0	4,898.3	4,919.5	4,814.1	4,672.7	4,668.2	4,547.9	-126.1	-2.7%

% Change:	'19 to '20	'20 to '21	'21 to '22	'22 to '23	'23 to '24	'24 to '25	'25 to '26	'26 to '27	'27 to '28	'28 to '29	'29 to '30	'30 to '31	'31 to '32	% Change:
	-18.0%	3.2%	-0.6%	-4.1%	2.1%	1.9%	3.2%	0.1%	1.7%	-1.1%	-3.4%	3.2%	-2.1%	
	-5.5%	-4.3%	-2.1%	-1.0%	1.1%	1.6%	-1.5%	0.6%	0.4%	-2.7%	-2.1%	-2.3%	-1.9%	
	-0.6%	3.9%	0.9%	3.4%	0.6%	2.4%	1.8%	0.1%	-1.0%	-3.1%	-3.2%	-2.5%	-3.8%	
	-8.7%	1.6%	-0.4%	-0.5%	1.3%	2.0%	1.6%	0.2%	0.4%	-2.2%	-3.0%	-0.1%	-2.6%	

# of Students Change:	From '19 to '20	From '20 to '21	From '21 to '22	From '22 to '23	From '23 to '24	From '24 to '25	From '25 to '26	From '26 to '27	From '27 to '28	From '28 to '29	From '29 to '30	From '30 to '31	From '31 to '32	# of Students Change:
	-324	60	-11	-72.5	38.9	36.0	60.6	1.2	33.5	-20.6	-63.3	61.2	-39.5	
	-67	-50	-24	-11.5	12.9	18.8	-16.8	7.4	5.1	-30.8	-23.5	-24.2	-19.7	
	-9	65	16	59.7	10.4	43.0	33.5	2.7	-17.4	-54.0	-54.6	-41.5	-61.1	
	-400	75	-19	-24.3	62.2	97.8	77.3	11.3	21.2	-105.4	-141.4	-4.5	-120.3	

The above projections are based upon a student data file provided to Davis Demographics by the Sherwood School District representing October 1, 2022.

Forty four (44) students with a grade = -1 were given to Davis Demographics in the original student data file and were excluded from the above projections.
Fourteen (14) students with a grade = 13 were given to Davis Demographics in the original student data file and were excluded from the above projections.

District Wide Student Population Forecast Trends ("Residence" Method)

The Sherwood School District experienced growth in resident student population from 2012 to 2017 but has seen some declines the last few years, especially in 2020. The District experienced a big jump in its K-12 Student population from fall 2014 to fall 2015, but in 2016 the growth was minimal, and that slow growth trend continued in 2017. Between 2018 and 2019 the Sherwood SD declined by 83 K-12 students and in 2020 that drop was more dramatic; the District lost 400 K-12 students in 2020. Most of the decline in 2020 occurred in the elementary school grades (K-5). The K-5 loss was 18% or 324 students, while the middle school grades 6-8 lost 5.5% (67 6-8 students) and the high school grades lost only 9 total students. The main reason for the loss in 2020 was due to the impact of COVID and the parents pulling their students out of public school (mostly at the Kindergarten level). Over the last few years, the Sherwood SD student population gained back some students, but not many. As of 2022, the District contained 4,674 K-12 students, only 56 more than in 2020; not really gaining back much from that initial 400 student loss.

According to the forecast, the Sherwood School District should see one more year of slight declines in 2023 and then start to see its K-12 student population over the next five years as some of the larger new development begins to start construction. In 2022, the K-12 student population is at 4,674 and that is projected to grow by almost 246 more students over the next five years (to 4,920 K-12 by 2028). It is possible that more students will return to the District over the next few years, but the current trends show otherwise. Now that we are a few years out from the worst of the pandemic, it might be safe to say that the "numbers are the numbers" and that the current forecast might be the most accurate looking forward than in recent years. The lower sized grade classes currently within the elementary school grades eventually reach the District's middle and high school grades and therefore produce a set of declining forecasts for most of the next ten years, despite the growth in new housing. Most of the District is "aging out" with less students transitioning from grade to grade as well as the birth rate figures continuing to lower.

The progress of the large specific plans, including the beginning of the Autumn Sunrise projects (within the Basalt Creek Planning Area) and the Middlebrook Subdivision (within the Brookman Road Concept plan) all play a large role in whether there is going to be additional student growth within the District boundary. The start-up of these two large projects is included in the 10-year forecast, but the long-delayed Sherwood West units are not. The Autumn Sunrise units began in 2022 and will have their first occupants in 2023 and build for about 5-6 years. The Brookman Road Concept Plan units are currently underway (Middlebrook) and go through 2028. If any changes to these large projects occur (a ramp up or a decline) then they will have an impact on the forecast. Further delays could even cause declines to continue. On the other hand, the ramping-up of the unit construction could generate even more students than forecasted in this report. The progress of this future development will need to be closely monitored by the District.

According to the forecast contained in this report, the K-5 resident student population is expected to see very little growth over the next ten years. The K-5 student count for 2020 dropped down to 1,801 and only regained some of those lost students by 2022 when it reached 1,850. The forecast shows that the K-5 student population may bottom out at around 1,778 by 2023 and then start to see annual increases as it climbs back over 1,800 students by 2024 and then peaks at 1,948 by 2028 (5.2% net growth). The Kindergarten class size took a dramatic hit in 2020 (only 232 K in 2020 compared to 301 in 2019, 332 in 2018 and 331 in 2017). COVID was the main reason for the decline in 2020, but the K class size has only slightly recovered in 2022 with a count of 256 K. These lower Kindergarten class size, causes a ripple effect in future K and other grades as those students matriculate through the grades. The projected increase in new housing over the next 10 years will contribute to net growth in certain areas of the District. However, if the larger Kindergarten class sizes do not get restored, then even the new residential development may not even be enough to help the District's enrollment.

The middle school grades are expected to decline for most of the next ten years as smaller incoming 6th grade classes enter from the declining elementary schools. As of fall 2020, the District had a middle school population of 1,209 students. Now in 2022, the 6th grade class size is even lower at 1,135. If current trends continue, then the middle school counts could peak at 1,155 6-8 by 2025 and then see it drop down to 1,053 by 2032 (a net loss of 82 6-8 students or a net decline of 7.3%).

The current forecast shows a reversal of what was expected for the District's high school compared to previous reports. There is expected to be growth at the high school level but it might peak at around 1,838 9-12 students by 2027. By 2028, the high school population could start to see annual declines as smaller 9th grade classes start to enter the District. Currently (2022), the District has 1,689 9-12 students and the forecast shows that the District's 9-12 student population could drop down to 1,610 by 2032 (a net loss of 79 9-12 students, a drop of nearly 5%).

Sherwood
SCHOOL DISTRICT

NOTE: Current counts are based on 2022/23 SY resident K-5 counts. The 2025, 2027 and 2032 projected resident counts are based on K-5 counts for the new boundaries. All counts EXCLUDE out-of-District students (see Matrix).

Sherwood School District

New Elementary School Attendance Boundaries with Current and Projected K-5 Resident Student Counts

The elementary school boundaries shown on the map are the new boundaries approved by the Sherwood Schools Board of Directors on February 12, 2020. These new boundaries took effect for the beginning of the 2020/21 school year.

Ridges ES
K-5 Resident Forecast
Current Year: 668
2025: 694
2027: 734
2032: 694

Hawks View ES
K-5 Resident Forecast
Current Year: 442
2025: 535
2027: 571
2032: 514

Middleton ES
K-5 Resident Forecast
Current Year: 364
2025: 320
2027: 324
2032: 397

Archer Glen ES
K-5 Resident Forecast
Current Year: 331
2025: 260
2027: 241
2032: 235

Elementary Schools
Streets
Layer
Current Elementary School Boundaries
Archer Glen ES
Hawks View ES
Middleton ES
Ridges ES

N

Map Prepared by
DAVIS MGT
April 25, 2023

0 0.75 1.5 Miles

Sherwood
SCHOOL DISTRICT

Sherwood School District

Elementary School
Net K-5 Resident Changes
2022 through 2032 by Study Area

Elementary Schools
Streets
ES Boundaries
K-5 Forecasted Changes
2022 to 2032
-33 - -16.5
-16.5 - -1
No Change
78.5 - 1
157 - 78.5

ZOOMED-IN VIEW OF CENTER OF DISTRICT

Ridges ES
Hawks View ES
Middleton ES
Archer Glen ES

N

Map Prepared by
DAVIS MGT
April 25, 2023

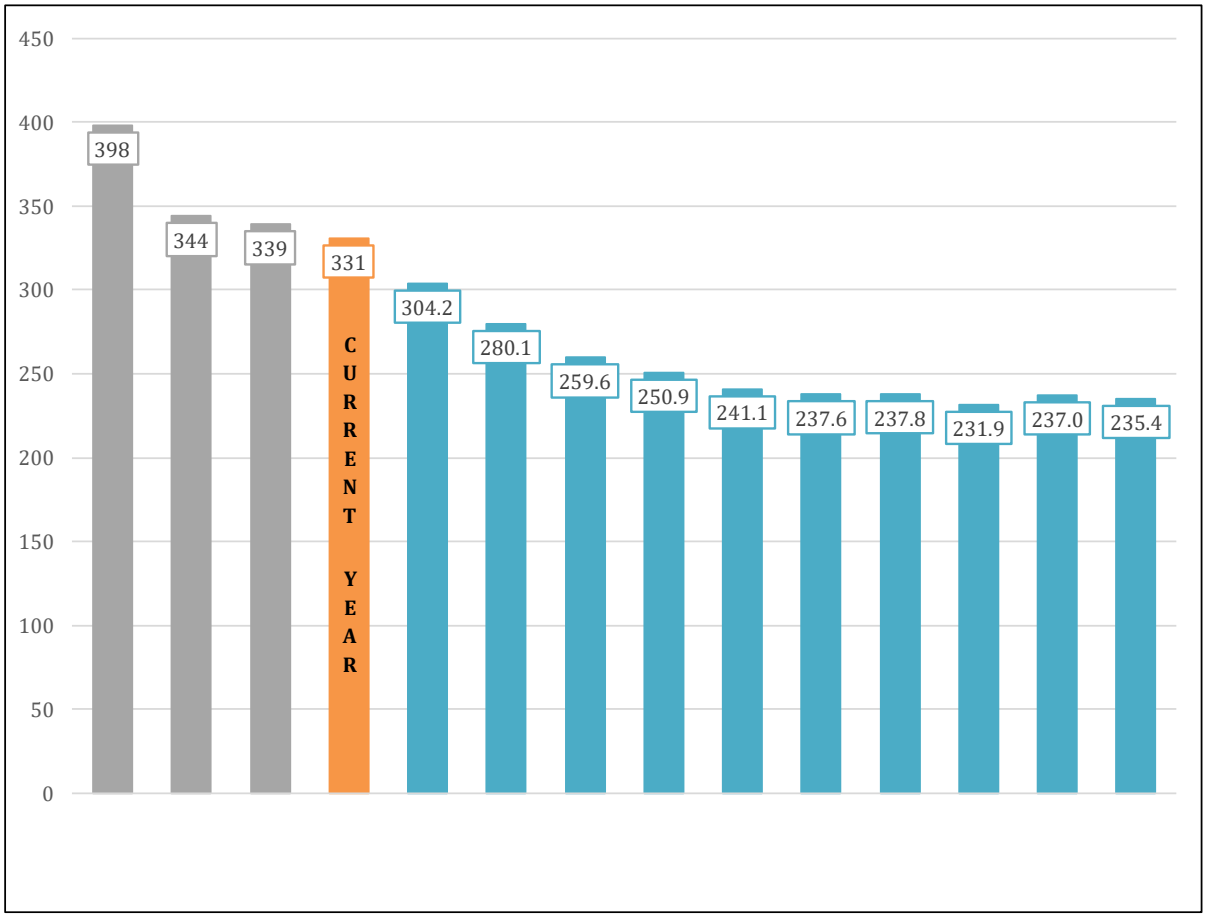
0 0.75 1.5 Miles

Elementary School Attendance Area Forecasts (by "Residence")

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Archer Glen ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	56	41	51	42	40.1	45.6	34.2	41.2	40.4	38.6	40.1	39.7	39.4	39.7	K
1	70	53	45	51	42.4	40.5	46.1	34.6	41.7	40.8	39.0	40.5	40.1	39.8	1
2	74	65	52	50	50.5	42.0	40.1	45.6	34.2	41.2	40.4	38.6	40.1	39.7	2
3	53	67	66	54	49.0	49.5	41.2	39.3	44.7	33.5	40.4	39.6	37.8	39.3	3
4	76	50	66	68	53.5	48.5	49.0	40.7	38.9	44.2	33.2	40.0	39.2	37.4	4
5	69	68	59	66	68.7	54.0	49.0	49.5	41.2	39.3	44.7	33.5	40.4	39.5	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	398	344	339	331	304.2	280.1	259.6	250.9	241.1	237.6	237.8	231.9	237.0	235.4	Total K-5

Annual Change	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
	-54.0	-5.0	-8.0	-26.8	-24.1	-20.5	-8.7	-9.8	-3.5	0.2	-5.9	5.1	-1.6
	-13.6%	-1.5%	-2.4%	-8.1%	-7.9%	-7.3%	-3.4%	-3.9%	-1.5%	0.1%	-2.5%	2.2%	-0.7%



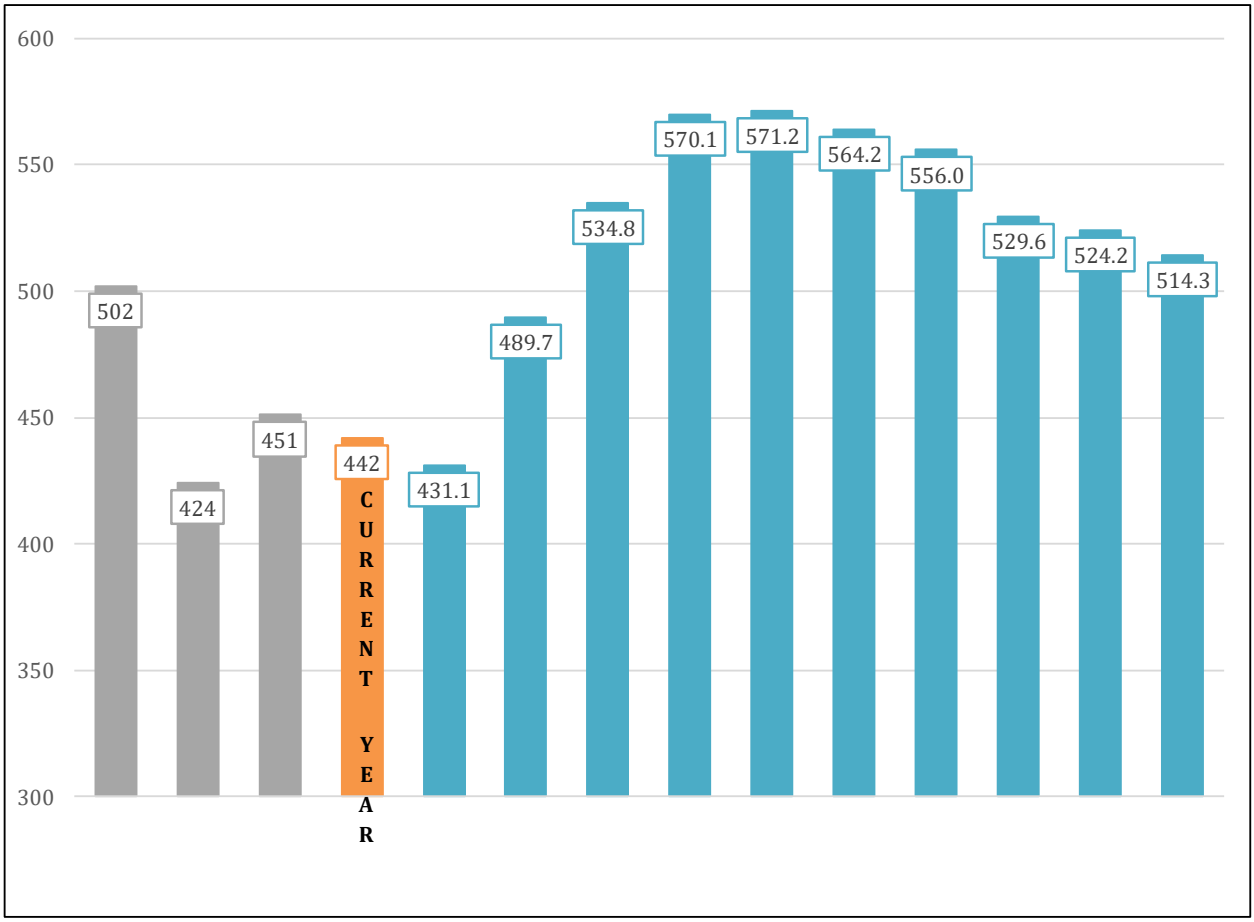
Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Elementary School Attendance Area Forecasts (by "Residence") continued

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Hawks View ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	72	66	76	72	72.1	89.8	78.0	93.2	91.3	89.4	92.7	91.1	90.6	91.1	K
1	78	62	74	69	72.3	78.6	98.0	83.4	93.0	90.3	87.8	89.0	87.4	87.0	1
2	86	66	69	67	68.0	77.2	85.4	100.4	81.8	90.1	86.9	82.5	83.6	82.2	2
3	74	75	68	69	67.5	74.7	85.9	90.5	99.9	81.3	88.4	83.4	79.2	80.3	3
4	90	74	92	72	78.9	84.3	94.8	103.2	102.6	111.9	90.8	96.4	90.9	86.4	4
5	102	81	72	93	72.3	85.1	92.7	99.4	102.6	101.2	109.4	87.2	92.5	87.3	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	502	424	451	442	431.1	489.7	534.8	570.1	571.2	564.2	556.0	529.6	524.2	514.3	Total K-5

	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Annual Change	-78.0	27.0	-9.0	-10.9	58.6	45.1	35.3	1.1	-7.0	-8.2	-26.4	-5.4	-9.9
	-15.5%	6.4%	-2.0%	-2.5%	13.6%	9.2%	6.6%	0.2%	-1.2%	-1.5%	-4.7%	-1.0%	-1.9%



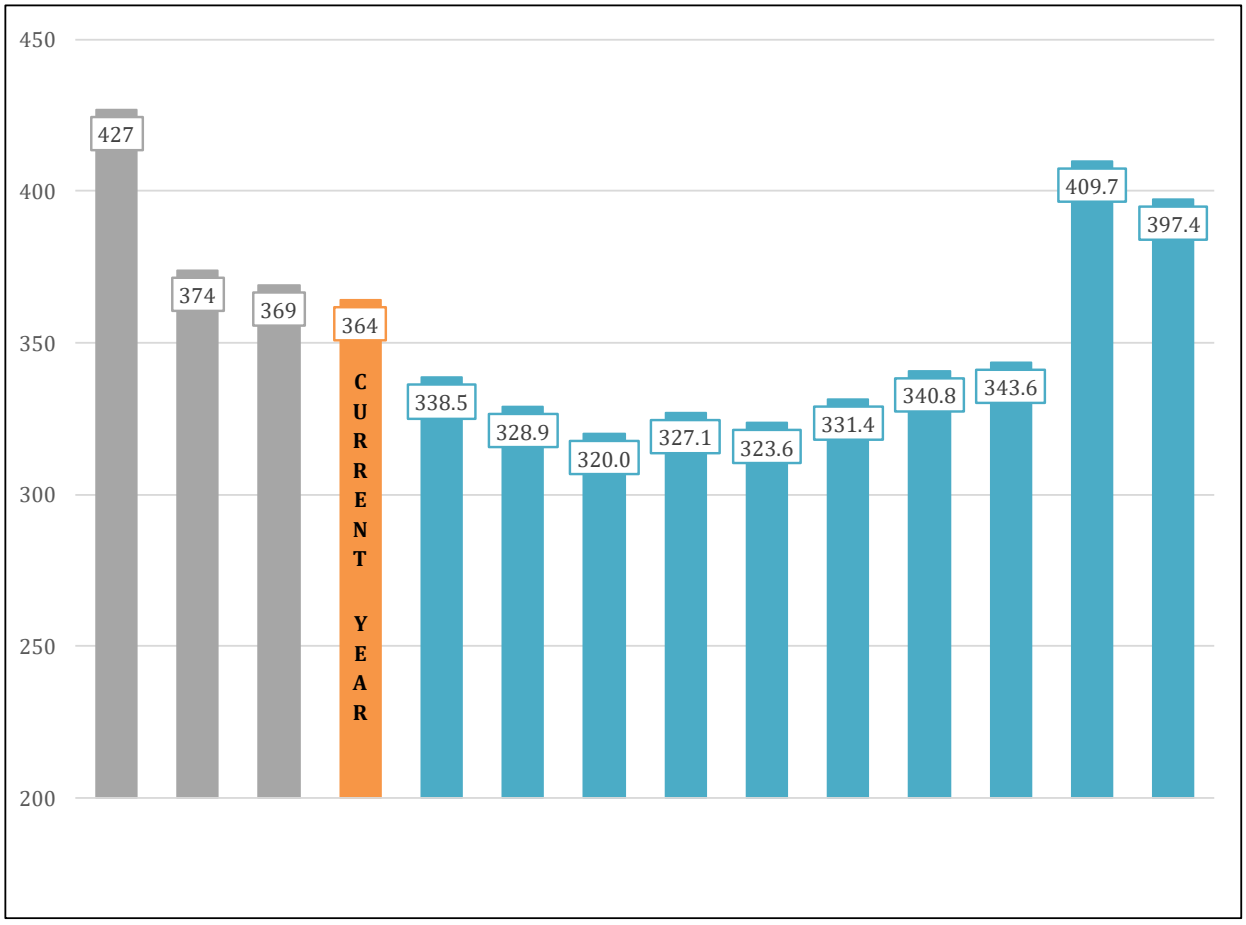
Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Elementary School Attendance Area Forecasts (by "Residence") continued

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Middleton ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	67	42	60	49	47.2	53.4	41.9	51.7	51.9	51.2	54.2	55.0	64.7	59.9	K
1	71	61	48	65	50.9	48.6	56.8	45.6	55.7	56.0	55.2	58.3	68.1	66.7	1
2	69	63	58	54	64.1	49.9	49.3	58.0	47.0	56.9	57.2	56.4	68.0	66.7	2
3	73	64	64	59	53.3	62.8	50.6	50.7	59.2	48.5	58.1	58.4	66.2	66.6	3
4	79	73	71	64	61.8	55.5	67.1	55.1	55.2	64.1	52.9	63.0	72.3	68.8	4
5	68	71	68	73	61.2	58.7	54.3	66.0	54.6	54.7	63.2	52.5	70.4	68.7	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	427	374	369	364	338.5	328.9	320.0	327.1	323.6	331.4	340.8	343.6	409.7	397.4	Total K-5

Annual Change	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
	-53.0	-5.0	-5.0	-25.5	-9.6	-8.9	7.1	-3.5	7.8	9.4	2.8	66.1	-12.3
	-12.4%	-1.3%	-1.4%	-7.0%	-2.8%	-2.7%	2.2%	-1.1%	2.4%	2.8%	0.8%	19.2%	-3.0%



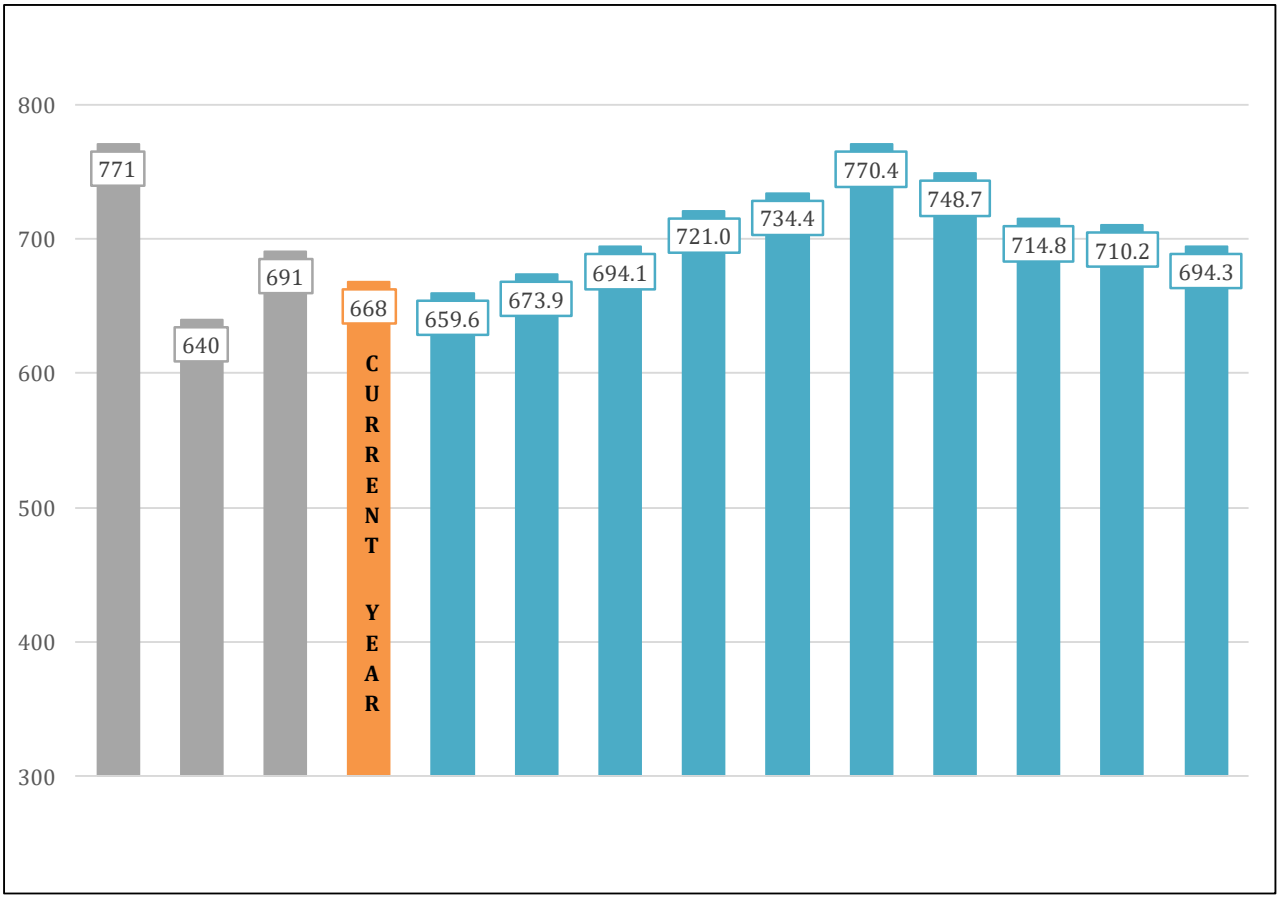
Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Elementary School Attendance Area Forecasts (by "Residence") continued

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Ridges ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	106	83	110	93	92.6	110.2	90.3	110.4	113.1	115.3	113.9	113.1	112.5	113.2	K
1	123	94	102	117	98.7	101.8	121.2	100.8	121.4	125.6	117.6	116.2	115.3	114.8	1
2	121	103	99	103	114.7	100.6	104.8	123.3	103.9	124.9	119.3	111.7	110.4	109.6	2
3	136	110	120	102	108.9	124.4	111.4	115.7	134.5	116.3	127.4	121.7	114.0	112.6	3
4	128	129	117	129	107.9	118.4	135.6	122.3	126.7	147.4	118.6	129.9	124.2	116.2	4
5	157	121	143	124	136.8	118.5	130.8	148.5	134.8	140.9	151.9	122.2	133.8	127.9	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	771	640	691	668	659.6	673.9	694.1	721.0	734.4	770.4	748.7	714.8	710.2	694.3	Total K-5

Annual Change	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
	-131.0	51.0	-23.0	-8.4	14.3	20.2	26.9	13.4	36.0	-21.7	-33.9	-4.6	-15.9
	-17.0%	8.0%	-3.3%	-1.3%	2.2%	3.0%	3.9%	1.9%	4.9%	-2.8%	-4.5%	-0.6%	-2.2%



Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Forecast Trends for the District's Elementary School (K-5) Attendance Areas ("Residence" Forecasts)

On February 12, 2020, the Sherwood SD Board of Directors approved new elementary school boundaries that went into effect in time for the 2020/21 SY and a series of changes took place. A new location for Sherwood HS is now located in the western portion of the District. The former Sherwood HS site has become the new district-wide middle school. The four main elementary schools will still be in place, but the old Hopkins ES site will become the new District Office and the former Sherwood MS will be the "new" Hawks View ES. The former Laurel Ridge MS site will be combined with its neighboring Edy Ridge ES to become a larger campus now called Ridges ES. The 10-year forecasted figures in this report will focus on these new boundaries.

In the current set of forecasts, the Sherwood School District is now projected to experience minimal growth in its resident student population among the elementary grades over the next ten years. Since 2019, the District has lost 275 K-5 students, mostly due the impact of COVID (starting in 2020), but over the following two years the District did not fully recover the number of "missing" students (2,125 K-5 in 2019 and 1,850 K-5 in 2022). The incoming residence Kindergarten class in 2020 was much lower than anticipated. The Kindergarten class sizes the previous four years were 301 K in 2019, 332 K in 2018, 331 K in 2017 and 292 in 2016. In 2020, the resident K class size was 232 (obviously low due to parents holding back their Kindergarteners). In 2021, the K class size did climb back up to 297, but in 2022 it dropped back down to 256 which does impact this years' forecast. In this year's report, the District is expected to see its resident K-5 student population bottom out around 1,734 in 2023 and then see increases each year through 2028, reaching 1,903 and then slowing dropping off until it settles around 1,842 in 2032.

The new Archer Glen attendance area is the only one of the four elementary boundaries that is expected to see a net decline over the next 10 years. The areas with the largest projected resident K-5 gains over the next ten years are, in order (1) Hawks View ES (+72 K-5), (2) Middleton ES (+33 K-5) and (3) Ridges ES (+26 K-5). Archer Glen's new boundary could lose 96 K-5 students. The new Hawks View area could have 1,023 new housing units built over the next 10 years, the new Ridges ES area has the potential for 682 new housing units and the Middleton boundary area does have a potential for 368 new housing units over the next ten years. Archer Glen's new area does not have any new planned development at this time. Overall, the student forecasts in this report are lower than those prior to the pandemic.

INDIVIDUAL ELEMENTARY SCHOOL ATTENDANCE AREA ANALYSIS

The **Archer Glen Elementary School** attendance area is the only region among the District's four elementary zones that is expected to decline over the next ten years. After the boundary changes a few years ago, the Archer Glen ES boundary is now the District's smallest elementary school both in terms of its geography as well as its

resident population. In addition, as of now there are no new housing units planned for this region. As of fall 2022, the Archer Glen ES attendance area contained 331 resident K-5 students living within its boundaries, after having as many as 398 as recently as 2019. Obviously, a lot of this decline was due to COVID, but the counts in the region did not rebound after 2020. Based on the current set of forecasts, the Archer Glen boundary is expected to lose another 96 K-5 students by 2032. The capacity for the Archer Glen ES is 390. Therefore, it appears that the new Archer Glen ES should be able to handle its projected resident count for the next ten years. Archer Glen ES should have the capacity to help out some of its neighboring schools.

For the 2020/21 school year, the **Ridges Elementary School** campus expanded with the incorporation of the previous Edy Ridge campus plus the former Laurel Ridge MS site. The new capacity for Ridges ES is at around 955. Therefore, it made sense to expand the Ridges' boundary when exploring new adjustments. The new Ridges ES attendance area is forecasted to experience growth over the next ten years. As of fall 2019, there were 771 resident K-5 students living within the new Ridges new attendance area and that figure dropped to 640 K-5 students in 2020 (a net loss of 131 K-5 students in one year). There was a slight rebound in 2021 when the Ridges ES had 691 resident K-5 students, but then dropped down again in 2022 to 668 residents. The impact of COVID hit this area the most and it affected its forecast as well; not as high a count of students is expected in this report compared to those previous to 2020. Over the next year, the Ridges area could actually drop a bit more (660 K-5 residents in 2023), but it should then start to see annual increases through 2028 as the residential development picks up (770 K-5 residents by 2028). At that point, the resident K-5 counts for the Ridges area could slowly drop down to around 694 students by 2032. The majority of the Brookman Road Concept Plan is now located within the Ridges boundary and its portion contains just 722 new SFD units. These new housing units are the biggest contributor to the projected increase in students for the Ridges area. The first of the Brookman projects is the Middlebrook Subdivision, which contains 145 units and its first occupants were expected in late 2022/early 2023. In previous reports it was looking like the Ridges ES may exceed its design capacity due to this development, but with the reduction of students due to COVID, it does not appear likely over the next 10 years. However, the District will need to closely monitor the progress of the new housing units and if it grows faster than expected, then interim measures may need to be made to house additional students, such as diverting some students to other sites or adding temporary portables.

Starting the 2020/21 school year, **Hawks View Elementary School** is now permanently located at the former Sherwood MS site. The Hawks View ES attendance area shows 16% growth over the next ten years. In 2019, the Hawks View ES area contained 502 K-5 students and in 2020, that figure has dropped to 442 in 2022. The forecast in this year's report shows that the Hawks View area could drop a bit more down to 431 in 2023 and then see its resident counts rise up to 570 by 2026. In 2027, slow declines could occur and then the Hawks View ES area could settle down to around 514 resident K-5 students by 2032: still a net

growth of 72 K-5 students. During the boundary process an ideal capacity figure of 506 was used for the Hawks View ES site (however, as Sherwood MS that site regularly housed student counts around 700 students). The Hawks View ES boundary does contain the District's portion of the Autumn Sunrise projects (aka Basalt Creek Planning Area), which consists of 454 single-family homes, 454 condos/townhomes and 67 apartment units. The Autumn Sunrise projects should see its first occupants this year (2023) and continuing for at least the next seven years. These new units are the largest contributor to the Hawks View area growth. It appears that the Hawks View ES site should be able to house these additional students from this new housing. However, the progress of this development will need to be followed closely by the District and temporary portables may be necessary if the growth is larger than expected.

The new **Middleton Elementary School** boundary could see a small net growth of another 33 K-5 students over the next 10 years. In fall 2019, the new Middleton ES attendance area contained 427 K-5 students, but the 2020 K-5 dropped by 53 K-5 students (374 K-5). Since then, the resident K-5 counts for the Middleton ES area have dropped a bit more, to 369 in 2021 and 364 in 2022. The Kindergarten class size alone went from 65 in 2019 to 42 in 2020, back up to 60 in 2021 and then down to 49 in 2022. The lower K class size in 2022 alone caused this year's forecast to be lower than in the past. COVID was the main contributor for the sudden decline in Middleton residents in 2020 but many of those "missing" students really didn't return. Therefore, this set of forecasts for the Middleton area has the resident K-5 counts bottom out at 320 in 2025 and then climb back up to 410 K-5 students by 2031. A piece of the Brookman Road Concept Plan (362 SFD units) is still located within the Middleton ES boundary and could start to see new occupants as soon as 2024 or 2025. The goal capacity used for Middleton ES was 470 during the boundary adjustments a few years back; therefore, Middleton ES should be fine if this forecast is correct. Middleton ES has had enrollment in the range of 544 (2019) to 621 (2015) K-5 students. The purpose of the boundary adjustments was to have Middleton ES have a more reasonable total enrollment, but it appears that it could hold up to 600 K-5 students, if necessary. Like the Ridges ES area, the District will need to closely monitor the residential development within the Middleton area and may need to take additional measures to properly house the additional students if it rebounds and resembles higher counts from previous forecasts.

ELEMENTARY SCHOOL CONCLUSIONS

Adjustments to all four of the District's current elementary school boundaries were approved by the Board of Directors on February 12, 2020. Two of the main site changes included the expansion of Edy Ridge ES site (combining with the former Laurel Ridge MS site) to form the new Ridges ES campus and Hawks View ES taking over the former Sherwood MS site. In the forecast contained within this report shows that the Sherwood SD is expected to only grow by 35 more K-5 students through 2032, much lower than forecasts prior to COVID. The areas with the largest projected resident K-5 gains over the next ten years are, in order (1) Ridges ES (+73 K-5), (2) Hawks View ES (+38 K-5), and (3) Middleton ES (+13 K-5). Archer Glen's new boundary could lose 88 K-5 students. With the now larger Ridges and Hawks View sites, the District should be able to accommodate the new growth in their areas over the next ten years. The exact start dates of some of the larger planned residential developments such as the Brookman Road Concept Plan and the Autumn Sunrise projects (within the Basalt Creek Planning Area), need to be closely monitored by the District. The Autumn Sunrise and Middlebrook Subdivision already has occupants arriving this upcoming school year. Units from these projects are included in the ten-year forecasts in this report. If any of these projects are sped up or delayed, then the forecasts included in this report could change. Temporary actions, such as using portables, may be needed in order to properly house some of the future students. However, it does appear that based on previous enrollment counts at these existing sites the District should be able to accommodate the projected K-5 growth over the next 10 years.

Sherwood
SCHOOL DISTRICT

Sherwood School District

Middle School
Attendance Boundaries
with Current and Projected
6-8 Resident Student Counts

Sherwood MS
6-8 Resident Forecast
Current Year: 1,104
2025: 1,124
2027: 1,115
2032: 1,022

Sherwood MS

N

Map Prepared by
DAVIS MGT

0 0.75 1.5 Miles

April 25, 2023

Middle School
Middle School Boundary
Streets

Sherwood SCHOOL DISTRICT

Sherwood School District

Middle School
Net 6-8 Resident Changes
2022 through 2032 by Study Area

Schools
Streets
6-8 Resident Changes
2022 to 2032
-23 - -11.5
-11.5 - -1
No Change
64 - 1
128 - 64

ZOOMED-IN VIEW OF CENTER OF DISTRICT

Map Prepared by
DAVIS MGT
April 25, 2023

0 0.75 1.5 Miles

Middle School Forecasts (by "Residence")

Sherwood Middle School Forecast Date
Attendance Area 11/1/2022

	HISTORICAL			CURRENT	FORECASTED RESIDENT STUDENTS									
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
K	301	232	297	256	252.0	299.0	244.4	296.5	296.6	294.5	300.8	298.8	307.3	304.0
1	342	270	269	302	264.4	269.5	322.0	264.4	311.7	312.7	299.6	303.9	310.9	308.3
2	350	297	278	274	297.3	269.7	279.7	327.2	267.0	313.1	303.7	289.3	302.0	298.2
3	336	316	318	284	278.8	311.3	289.0	296.1	338.2	279.5	314.4	303.1	297.2	298.7
4	373	326	346	333	302.0	306.6	346.5	321.4	323.5	367.7	295.5	329.3	326.5	308.9
5	396	341	342	356	339.0	316.3	326.8	363.4	333.2	336.2	369.1	295.4	337.1	323.4
6	429	389	365	349	369.6	362.4	344.8	352.7	384.8	354.7	346.7	378.1	311.7	342.9
7	408	406	383	371	349.0	379.5	379.6	358.4	360.1	392.4	350.0	339.7	380.7	302.9
8	425	398	396	384	373.9	363.5	399.8	396.3	369.9	372.8	392.4	347.8	349.0	375.9
6-8	1,262	1,193	1,144	1,104	1,092.5	1,105.4	1,124.2	1,107.4	1,114.8	1,119.9	1,089.1	1,065.6	1,041.4	1,021.7

NOTE: On February 12, 2020, the Sherwood SD Board of Directors approved new boundaries for the school district that will take effect in time for the 2020/21 school year. One of those changes was to open a new high school site (on the west side of the District) and repurpose the "old" Sherwood HS site to be a district-wide middle school. The old Sherwood MS opened as the new Hopkins ES (the old Hopkins site is going to be the new District Office) and the old Laurel Ridge MS site was combined with its neighboring Edy Ridge ES to form Ridges ES, which now has a much larger capacity. Therefore, there will no longer be multiple middle school boundary zones. The new Sherwood Middle School (the former Sherwood HS) has district-wide boundaries.

Above forecasts EXCLUDE Out-of-District students.
Please see the Middle School 6-8 Attendance Matrix for a detailed breakdown of this student group.

Forecast Trends for the District's Middle School (6-8) Attendance Areas ("Residence" Forecasts)

Starting in the current 2020/21 SY, the Sherwood SD went from a two middle school District to a one middle school district. The former Sherwood HS site was converted into the new Sherwood MS, which now can house even more 6-8 students than in its previous design.

MIDDLE SCHOOL CONCLUSIONS

The District's middle school population had been growing about 40-50 students a year up until 2019. In 2020, the 6-8 student population declined by 67 students, which was most likely due to COVID, but still lost another 74 7-8 students between 2020 and 2022. As a result, the 10-year forecast has the 6-8 student population dropping by 82 students through 2032 (a 7.2% decline). It is possible that some of the decline was due to parents pulling their students out of the public school system as a result of COVID, but it is now looking unlikely at this point that those "missing" students are actually going to return to the District. Currently, the District contains 1,135 6-8 students and it drop down to 1,053 6-8 students by 2032. New housing developments are included in this estimate, but those new units and students do not make up enough growth to counter the smaller grade classes entering the system plus the lower birth counts (it is starting to "age out" over most of the District territory). Overall, it appears that the District's middle school should have no problems accommodating the forecasted 6-8 student population contained within this report.

The District will need to closely monitor the progress of the two specific plans, in addition to the delayed Sherwood West units, especially if these developments start sooner than expected and generate more students than forecasted.

Sherwood
SCHOOL DISTRICT

Sherwood School District

High School Attendance Boundaries with Current and Projected 9-12 Resident Student Counts

Sherwood HS
9-12 Resident Forecast
Current Year: 1,608
2025: 1,722
2027: 1,758
2032: 1,530

Sherwood HS

N

Map Prepared by
DAVIS MGT

0 0.75 1.5 Miles

April 25, 2023

Sherwood HS
High School
Streets

Sherwood
SCHOOL DISTRICT

Sherwood School District

High School
Net 9-12 Resident Changes
2022 through 2032 by Study Area

High School
Streets
2022 to 2032
-20 - -13
-12 - -1
NO CHANGE
1 - 8
9 - 197

ZOOMED-IN VIEW OF CENTER OF DISTRICT

Sherwood HS

Map Prepared by
DAVIS MGT

April 25, 2023

0 0.75 1.5 Miles

High School Attendance Area Forecasts (by "Residence")

Sherwood High School Forecast Date
Attendance Area 11/1/2022

	HISTORICAL			CURRENT	FORECASTED RESIDENT STUDENTS									
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
K	301	232	297	256	252.0	299.0	244.4	296.5	296.6	294.5	300.8	298.8	307.3	304.0
1	342	270	269	302	264.4	269.5	322.0	264.4	311.7	312.7	299.6	303.9	310.9	308.3
2	350	297	278	274	297.3	269.7	279.7	327.2	267.0	313.1	303.7	289.3	302.0	298.2
3	336	316	318	284	278.8	311.3	289.0	296.1	338.2	279.5	314.4	303.1	297.2	298.7
4	373	326	346	333	302.0	306.6	346.5	321.4	323.5	367.7	295.5	329.3	326.5	308.9
5	396	341	342	356	339.0	316.3	326.8	363.4	333.2	336.2	369.1	295.4	337.1	323.4
6	429	389	365	349	369.6	362.4	344.8	352.7	384.8	354.7	346.7	378.1	311.7	342.9
7	408	406	383	371	349.0	379.5	379.6	358.4	360.1	392.4	350.0	339.7	380.7	302.9
8	425	398	396	384	373.9	363.5	399.8	396.3	369.9	372.8	392.4	347.8	349.0	375.9
9	396	443	419	429	416.3	416.5	412.2	447.5	437.7	410.5	400.5	418.4	381.6	369.4
10	389	374	447	402	424.1	422.7	428.6	421.7	450.1	441.9	403.3	391.5	418.1	370.1
11	391	380	362	427	398.6	429.0	433.1	437.0	423.7	453.1	432.1	393.2	391.1	404.4
12	416	379	385	350	429.7	410.9	448.2	449.4	446.8	435.4	451.0	429.2	400.0	385.8
9-12	1,592	1,576	1,613	1,608	1,668.7	1,679.1	1,722.1	1,755.6	1,758.3	1,740.9	1,686.9	1,632.3	1,590.8	1,529.7

NOTE: On February 12, 2020, the Sherwood SD Board of Directors approved new boundaries for the school district that took effect in time for the 2020/21 school year. One of those changes was to open a new high school site (on the west side of the District) and repurpose the "old" Sherwood HS site to be a district-wide middle school. The old Sherwood MS site opened as the new Hopkins ES (the old Hopkins site is the new District Office) and the old Laurel Ridge MS site combined with its neighboring Edy Ridge ES to form Ridges ES, which has a much larger capacity. Therefore, there will no longer be multiple middle school boundary zones. The new middle school (the former Sherwood HS) will have district-wide boundaries. The above forecasts for the new Sherwood High School forecasts remain the same, except for the actual location of the "new" Sherwood HS.

Above forecasts EXCLUDE 80 9-12 Out-of-District students
and 14 students with a grade designation of 13.

Forecast Trends for the District's High School (9-12) Attendance Area ("Residence" Forecasts)

The Sherwood School District has one high school, Sherwood HS. The high school has experienced growth within the 9-12 resident student population from 2012 to 2017, but then saw slight declines starting in 2018 and has continued through 2020. An uptick in the 9-12 student population happened in 2021 and 2022, but most of that was due to increasing number of high school students from outside the District (32 9-12 out-of-District students in 2020, up to 60 in 2021 and then up to 80 for 2022). A net decline of 79 9-12 students is expected over the next ten years as smaller 9th grade classes begin to enter the District's high schools. Therefore, based on this current set of forecasts, the District's new high school should have no problems accommodating its resident population though 2032.

Overall, the District will need to closely monitor the progress of the large specific plans (especially the delayed Sherwood West units) within the District boundary since those developments may potentially start sooner than expected and could generate more students than forecasted.

School Codes and School Assignments by Study Area

The Sherwood School District has assigned each school a code and DD has incorporated these same codes in the databases and data layers that they have created/maintained for the district. Each study area is then coded with the elementary, middle, and high school that the area is assigned to attend.

ELEMENTARY SCHOOLS (K-5)

Only Schools with assigned attendance areas are listed. The below boundaries are based upon those approved by the Sherwood School District Board of Directors on February 12th, 2020.

School Code	Elementary School Name	Study Areas for Each Attendance Area
1334	Archer Glen ES **16 Study Areas**	58, 59A, 59B, 60, 61, 62, 63, 65, 66, 67, 68, 69A, 69B, 78, 79, 80
4730	Ridges ES **37 Study Areas**	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 20, 21, 22, 33A, 33B, 34, 35, 36, 37A, 45, 45D, 86A, 86D, 87
1191	Hawks View ES **33 Study Areas**	23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 64, 70, 71, 72, 73, 74, 75, 76, 77, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86B, 86C
3222	Middleton ES **23 Study Areas**	37B, 38, 39, 40, 41, 42, 43, 44, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54A, 54B, 55, 56, 57
	4 Elementary Schools	**109 Study Areas**

School Codes and School Assignments by Study Area (continued)

MIDDLE SCHOOLS (6-8) and HIGH SCHOOLS (9-12)

Only Schools with assigned attendance areas are listed. The below boundaries are based upon those approved by the Sherwood School District Board of Directors on February 12th, 2020.

Middle School Name	Study Areas for Each Attendance Area
Sherwood MS (109 Study Areas)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 20, 21, 22, 23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37A, 37B, 38, 39, 40, 41, 42, 43, 44, 45, 45D, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54A, 54B, 55, 56, 57, 58, 59A, 59B, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69A, 69B, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
1 Middle School	**109 Study Areas**

High School Name	Study Areas for Each Attendance Area
Sherwood HS (109 Study Areas)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 20, 21, 22, 23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37A, 37B, 38, 39, 40, 41, 42, 43, 44, 45, 45D, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54A, 54B, 55, 56, 57, 58, 59A, 59B, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69A, 69B, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
1 High School	**109 Study Areas**

On February 12th, 2020, the Sherwood School District Board of Directors approved new boundaries that went into effect starting at the beginning of the 2020/21 school year. Among the changes in the boundaries included consolidating the 2 middle schools into now one District-wide boundary to be housed at the former "old" Sherwood HS site. The boundaries for the District's high schools did not change. The HS boundaries are still district-wide, but now are housed at a new Sherwood HS site (located on the west side of the District).

Sherwood
SCHOOL DISTRICT

Sherwood School District

Elementary School (Est. 2020-21 SY)
Attendance Boundaries with
Study Areas and Study Area Numbers

Ridges ES
Hawks View ES
Middleton ES
Archer Glen ES

Elementary Schools
Streets
Study Areas

ES Boundaries (Est. 2020-21 SY)
- Archer Glen ES
- Hawks View ES
- Middleton ES
- Ridges ES

Map Prepared by
DAVIS MGT
April 25, 2023

N
0 0.75 1.5 Miles

Individual
Study Area Forecasts

Please see page 43 of this report for a map depicting the District's 109 study areas

Pages 45 – 99
(Double Sided on Print-out)

Study Area 1
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	3	1.0	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	4	3.1	1.0	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	3	4.1	3.1	1.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	5	3.1	4.2	3.2	1.0	3.1	3.0	3.4	2.5	3.1	3.0
6	6	5.2	3.2	4.3	3.3	1.0	3.2	3.1	3.5	2.6	3.2
7	2	5.9	5.0	3.1	4.2	3.2	1.0	3.1	3.0	3.4	2.6
8	5	2.0	5.8	5.0	3.1	4.2	3.2	1.0	3.1	3.0	3.4
9	5	5.3	2.1	6.2	5.3	3.3	4.5	3.4	1.1	3.3	3.2
10	3	4.9	5.2	2.1	6.0	5.2	3.2	4.4	3.3	1.1	3.2
11	3	2.8	4.6	4.8	1.9	5.6	4.8	3.0	4.1	3.1	1.0
12	2	3.1	2.8	4.6	4.9	2.0	5.7	4.9	3.0	4.1	3.2
K-5	19	17.3	17.4	15.7	15.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	13	13.1	14.0	12.4	10.6	8.4	7.4	7.2	9.6	9.0	9.2
9-12	13	16.1	14.7	17.7	18.1	16.1	18.2	15.7	11.5	11.6	10.6
K-12	45	46.5	46.1	45.8	44.1	42.0	42.9	40.2	37.8	37.8	36.8

Study Area 2
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	5.1	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	4.1	5.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5	2.1	4.2	5.4	5.1	0.0	0.0	0.0	0.0	0.0	0.0
6	2	5.2	2.1	4.3	5.5	5.2	0.0	0.0	0.0	0.0	0.0
7	9	2.0	5.0	2.1	4.2	5.4	5.1	0.0	0.0	0.0	0.0
8	8	8.9	1.9	5.0	2.1	4.2	5.4	5.1	0.0	0.0	0.0
9	7	8.5	9.4	2.1	5.3	2.2	4.5	5.7	5.4	0.0	0.0
10	3	6.9	8.3	9.3	2.0	5.2	2.1	4.4	5.6	5.3	0.0
11	7	2.8	6.4	7.7	8.6	1.9	4.8	2.0	4.1	5.2	4.9
12	11	7.1	2.8	6.5	7.9	8.8	1.9	4.9	2.0	4.1	5.3
K-5	21	16.1	14.2	10.3	5.1	0.0	0.0	0.0	0.0	0.0	0.0
6-8	19	16.1	9.0	11.4	11.8	14.8	10.5	5.1	0.0	0.0	0.0
9-12	28	25.3	26.9	25.6	23.8	18.1	13.3	17.0	17.1	14.6	10.2
K-12	68	57.5	50.1	47.3	40.7	32.9	23.8	22.1	17.1	14.6	10.2

Study Area 3
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	6	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7	5.6	5.7
1	0	6.1	5.8	6.6	5.0	6.0	5.9	5.6	5.8	5.8	5.7
2	4	0.0	5.8	5.6	6.3	4.7	5.7	5.6	5.3	5.5	5.5
3	5	4.1	0.0	5.9	5.7	6.4	4.8	5.8	5.7	5.4	5.7
4	6	5.1	4.2	0.0	6.0	5.8	6.6	4.9	5.9	5.8	5.6
5	3	6.2	5.3	4.3	0.0	6.2	5.9	6.8	5.1	6.1	6.0
6	6	3.1	6.4	5.4	4.4	0.0	6.4	6.1	7.0	5.2	6.3
7	6	5.9	3.0	6.2	5.3	4.3	0.0	6.3	6.0	6.8	5.1
8	8	5.9	5.8	3.0	6.2	5.2	4.3	0.0	6.2	5.9	6.8
9	10	8.5	6.3	6.2	3.2	6.5	5.6	4.5	0.0	6.6	6.3
10	6	9.8	8.3	6.2	6.0	3.1	6.4	5.5	4.4	0.0	6.5
11	10	5.6	9.1	7.7	5.7	5.6	2.9	6.0	5.1	4.1	0.0
12	5	10.2	5.7	9.3	7.9	5.9	5.7	3.0	6.1	5.2	4.2
K-5	24	27.2	27.6	27.3	28.9	34.9	34.4	34.4	33.5	34.2	34.2
6-8	20	14.9	15.2	14.6	15.9	9.5	10.7	12.4	19.2	17.9	18.2
9-12	31	34.1	29.4	29.4	22.8	21.1	20.6	19.0	15.6	15.9	17.0
K-12	75	76.2	72.2	71.3	67.6	65.5	65.7	65.8	68.3	68.0	69.4

Study Area 4
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	3	1.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	1	3.1	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	1.0	3.1	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	3	2.1	1.1	3.2	2.0	2.1	2.0	2.3	1.7	2.0	2.0
6	4	3.1	2.1	1.1	3.3	2.1	2.1	2.0	2.3	1.7	2.1
7	1	3.9	3.0	2.1	1.1	3.2	2.1	2.1	2.0	2.3	1.7
8	2	1.0	3.9	3.0	2.1	1.0	3.2	2.0	2.1	2.0	2.3
9	3	2.1	1.0	4.1	3.2	2.2	1.1	3.4	2.2	2.2	2.1
10	1	2.9	2.1	1.0	4.0	3.1	2.1	1.1	3.3	2.1	2.2
11	6	0.9	2.7	1.9	1.0	3.7	2.9	2.0	1.0	3.1	2.0
12	1	6.1	0.9	2.8	2.0	1.0	3.8	3.0	2.0	1.0	3.2
K-5	13	12.0	12.1	12.9	11.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	7	8.0	9.0	6.2	6.5	6.3	7.4	6.1	6.4	6.0	6.1
9-12	11	12.0	6.7	9.8	10.2	10.0	9.9	9.5	8.5	8.4	9.5
K-12	31	32.0	27.8	28.9	28.4	27.9	28.8	27.1	26.1	25.7	27.0

Study Area 5
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	2	1.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	4	2.0	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	6	4.1	2.1	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	4	6.2	4.2	2.1	2.0	2.1	2.0	2.3	1.7	2.0	2.0
6	5	4.1	6.4	4.3	2.2	2.1	2.1	2.0	2.3	1.7	2.1
7	6	4.9	4.0	6.2	4.2	2.2	2.1	2.1	2.0	2.3	1.7
8	8	5.9	4.9	4.0	6.2	4.2	2.1	2.0	2.1	2.0	2.3
9	6	8.5	6.3	5.1	4.2	6.5	4.5	2.3	2.2	2.2	2.1
10	4	5.9	8.3	6.2	5.0	4.2	6.4	4.4	2.2	2.1	2.2
11	5	3.7	5.5	7.7	5.7	4.7	3.9	6.0	4.1	2.1	2.0
12	5	5.1	3.8	5.6	7.9	5.9	4.8	3.9	6.1	4.1	2.1
K-5	20	18.1	14.2	11.8	11.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	19	14.9	15.3	14.5	12.6	8.5	6.3	6.1	6.4	6.0	6.1
9-12	20	23.2	23.9	24.6	22.8	21.3	19.6	16.6	14.6	10.5	8.4
K-12	59	56.2	53.4	50.9	47.1	41.4	37.4	34.2	32.2	27.8	25.9

Study Area 6
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	5	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	3	4.8	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	5	3.1	4.8	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	2	5.1	3.1	4.9	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	7	2.1	5.3	3.2	5.1	4.2	4.0	4.5	3.4	4.1	4.0
6	2	7.2	2.1	5.4	3.3	5.2	4.3	4.1	4.6	3.5	4.2
7	4	2.0	7.1	2.1	5.3	3.2	5.1	4.2	4.0	4.6	3.4
8	6	4.0	1.9	7.0	2.1	5.2	3.2	5.1	4.2	4.0	4.5
9	4	6.4	4.2	2.1	7.4	2.2	5.6	3.4	5.4	4.4	4.2
10	7	3.9	6.2	4.1	2.0	7.3	2.1	5.5	3.3	5.3	4.3
11	7	6.5	3.6	5.8	3.8	1.9	6.8	2.0	5.1	3.1	4.9
12	7	7.1	6.6	3.7	5.9	3.9	1.9	6.9	2.0	5.2	3.2
K-5	26	23.0	25.3	23.5	24.3	23.4	23.0	22.9	22.5	23.0	22.8
6-8	12	13.2	11.1	14.5	10.7	13.6	12.6	13.4	12.8	12.1	12.1
9-12	25	23.9	20.6	15.7	19.1	15.3	16.4	17.8	15.8	18.0	16.6
K-12	63	60.1	57.0	53.7	54.1	52.3	52.0	54.1	51.1	53.1	51.5

Study Area 7
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	0	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	2	0.0	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	0	2.0	0.0	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	5	0.0	2.1	0.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	7	5.2	0.0	2.1	0.0	3.1	3.0	3.4	2.5	3.1	3.0
6	9	7.2	5.3	0.0	2.2	0.0	3.2	3.1	3.5	2.6	3.2
7	4	8.8	7.1	5.2	0.0	2.2	0.0	3.1	3.0	3.4	2.6
8	3	4.0	8.7	7.0	5.1	0.0	2.1	0.0	3.1	3.0	3.4
9	4	3.2	4.2	9.3	7.4	5.5	0.0	2.3	0.0	3.3	3.2
10	5	3.9	3.1	4.1	9.1	7.3	5.3	0.0	2.2	0.0	3.2
11	3	4.7	3.6	2.9	3.8	8.4	6.8	5.0	0.0	2.1	0.0
12	6	3.1	4.7	3.7	3.0	3.9	8.6	6.9	5.1	0.0	2.1
K-5	17	13.2	11.2	13.6	14.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	16	20.0	21.1	12.2	7.3	2.2	5.3	6.2	9.6	9.0	9.2
9-12	18	14.9	15.6	20.0	23.3	25.1	20.7	14.2	7.3	5.4	8.5
K-12	51	48.1	47.9	45.8	45.0	44.8	43.3	37.7	33.6	31.6	34.7

Study Area 8
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	8	7.6	8.7	6.5	7.9	7.7	7.4	7.6	7.6	7.5	7.6
1	14	8.2	7.8	8.9	6.7	8.0	7.8	7.5	7.8	7.7	7.7
2	14	13.3	7.8	7.4	8.4	6.3	7.6	7.4	7.1	7.4	7.3
3	9	14.3	13.6	7.9	7.6	8.6	6.4	7.8	7.6	7.3	7.5
4	15	9.2	14.6	13.8	8.1	7.7	8.8	6.6	7.9	7.8	7.4
5	13	15.5	9.5	15.0	14.3	8.3	7.9	9.0	6.8	8.2	8.0
6	15	13.4	15.9	9.7	15.5	14.7	8.6	8.2	9.3	7.0	8.4
7	18	14.7	13.1	15.6	9.5	15.1	14.4	8.4	8.0	9.1	6.8
8	14	17.8	14.6	13.0	15.4	9.4	15.0	14.2	8.3	7.9	9.0
9	9	14.8	18.9	15.4	13.8	16.4	10.0	15.9	15.1	8.8	8.4
10	14	8.8	14.5	18.5	15.1	13.5	16.0	9.8	15.6	14.8	8.6
11	13	13.0	8.2	13.5	17.2	14.1	12.6	14.9	9.1	14.5	13.8
12	8	13.3	13.3	8.4	13.8	17.6	14.3	12.8	15.2	9.3	14.8
K-5	73	68.1	62.0	59.5	53.0	46.6	45.9	45.9	44.8	45.9	45.5
6-8	47	45.9	43.6	38.3	40.4	39.2	38.0	30.8	25.6	24.0	24.2
9-12	44	49.9	54.9	55.8	59.9	61.6	52.9	53.4	55.0	47.4	45.6
K-12	164	163.9	160.5	153.6	153.3	147.4	136.8	130.1	125.4	117.3	115.3

Study Area 9
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	13	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	6	12.4	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	8	6.1	12.6	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	13	8.2	6.2	12.8	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	7	13.4	8.4	6.4	13.2	4.2	4.0	4.5	3.4	4.1	4.0
6	11	7.2	13.8	8.7	6.6	13.6	4.3	4.1	4.6	3.5	4.2
7	6	10.8	7.1	13.5	8.5	6.5	13.4	4.2	4.0	4.6	3.4
8	14	5.9	10.7	7.0	13.4	8.4	6.4	13.2	4.2	4.0	4.5
9	13	14.8	6.3	11.3	7.4	14.2	8.9	6.8	14.0	4.4	4.2
10	7	12.7	14.5	6.2	11.1	7.3	13.9	8.7	6.7	13.7	4.3
11	6	6.5	11.8	13.5	5.7	10.3	6.8	12.9	8.1	6.2	12.8
12	12	6.1	6.6	12.1	13.8	5.9	10.5	6.9	13.2	8.3	6.3
K-5	51	48.0	39.3	34.6	32.4	23.4	23.0	22.9	22.5	23.0	22.8
6-8	31	23.9	31.6	29.2	28.5	28.5	24.1	21.5	12.8	12.1	12.1
9-12	38	40.1	39.2	43.1	38.0	37.7	40.1	35.3	42.0	32.6	27.6
K-12	120	112.0	110.1	106.9	98.9	89.6	87.2	79.7	77.3	67.7	62.5

Study Area 10
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	7	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	7	6.7	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	4	7.1	6.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	8	4.1	7.3	6.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	8.2	4.2	7.5	7.1	2.1	2.0	2.3	1.7	2.0	2.0
6	7	2.1	8.5	4.3	7.7	7.3	2.1	2.0	2.3	1.7	2.1
7	9	6.9	2.0	8.3	4.2	7.6	7.2	2.1	2.0	2.3	1.7
8	7	8.9	6.8	2.0	8.2	4.2	7.5	7.1	2.1	2.0	2.3
9	8	7.4	9.4	7.2	2.1	8.7	4.5	7.9	7.5	2.2	2.1
10	5	7.8	7.3	9.3	7.1	2.1	8.6	4.4	7.8	7.4	2.2
11	8	4.7	7.3	6.8	8.6	6.6	1.9	8.0	4.1	7.2	6.9
12	5	8.2	4.7	7.4	6.9	8.8	6.7	2.0	8.1	4.1	7.4
K-5	30	30.0	24.3	22.1	16.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	23	17.9	17.3	14.6	20.1	19.1	16.8	11.2	6.4	6.0	6.1
9-12	26	28.1	28.7	30.7	24.7	26.2	21.7	22.3	27.5	20.9	18.6
K-12	79	76.0	70.3	67.4	61.6	56.9	50.0	45.0	45.1	38.2	36.1

Study Area 11A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	7	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	1	6.7	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	3	1.0	6.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	3	3.1	1.0	6.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	3.1	3.2	1.1	7.1	2.1	2.0	2.3	1.7	2.0	2.0
6	4	2.1	3.2	3.2	1.1	7.3	2.1	2.0	2.3	1.7	2.1
7	6	3.9	2.0	3.1	3.2	1.1	7.2	2.1	2.0	2.3	1.7
8	4	5.9	3.9	2.0	3.1	3.1	1.1	7.1	2.1	2.0	2.3
9	8	4.2	6.3	4.1	2.1	3.3	3.3	1.1	7.5	2.2	2.1
10	5	7.8	4.2	6.2	4.0	2.1	3.2	3.3	1.1	7.4	2.2
11	10	4.7	7.3	3.9	5.7	3.7	1.9	3.0	3.0	1.0	6.9
12	2	10.2	4.7	7.4	3.9	5.9	3.8	2.0	3.0	3.1	1.1
K-5	18	17.8	17.0	15.7	16.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	14	11.9	9.1	8.3	7.4	11.5	10.4	11.2	6.4	6.0	6.1
9-12	25	26.9	22.5	21.6	15.7	15.0	12.2	9.4	14.6	13.7	12.3
K-12	57	56.6	48.6	45.6	39.9	38.1	34.1	32.1	32.2	31.0	29.8

Study Area 11B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	2	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	1	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	1	1.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	2	1.0	1.0	2.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	0	2.1	1.1	1.1	2.0	1.0	1.0	1.1	0.8	1.0	1.0
6	1	0.0	2.1	1.1	1.1	2.1	1.1	1.0	1.2	0.9	1.1
7	1	1.0	0.0	2.1	1.1	1.1	2.1	1.0	1.0	1.1	0.9
8	0	1.0	1.0	0.0	2.1	1.0	1.1	2.0	1.0	1.0	1.1
9	3	0.0	1.0	1.0	0.0	2.2	1.1	1.1	2.2	1.1	1.1
10	1	2.9	0.0	1.0	1.0	0.0	2.1	1.1	1.1	2.1	1.1
11	3	0.9	2.7	0.0	1.0	0.9	0.0	2.0	1.0	1.0	2.0
12	4	3.1	0.9	2.8	0.0	1.0	1.0	0.0	2.0	1.0	1.1
K-5	7	8.0	7.1	6.9	6.8	5.9	5.8	5.7	5.5	5.7	5.6
6-8	2	2.0	3.1	3.2	4.3	4.2	4.3	4.0	3.2	3.0	3.1
9-12	11	6.9	4.6	4.8	2.0	4.1	4.2	4.2	6.3	5.2	5.3
K-12	20	16.9	14.8	14.9	13.1	14.2	14.3	13.9	15.0	13.9	14.0

Study Area 12
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	1	2.8	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	2	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	3	2.0	1.0	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	3.1	2.1	1.1	3.1	2.1	2.0	2.3	1.7	2.0	2.0
6	2	2.1	3.2	2.2	1.1	3.1	2.1	2.0	2.3	1.7	2.1
7	1	2.0	2.0	3.1	2.1	1.1	3.1	2.1	2.0	2.3	1.7
8	5	1.0	1.9	2.0	3.1	2.1	1.1	3.1	2.1	2.0	2.3
9	6	5.3	1.0	2.1	2.1	3.3	2.2	1.1	3.2	2.2	2.1
10	5	5.9	5.2	1.0	2.0	2.1	3.2	2.2	1.1	3.2	2.2
11	4	4.7	5.5	4.8	1.0	1.9	1.9	3.0	2.0	1.0	2.9
12	2	4.1	4.7	5.6	4.9	1.0	1.9	2.0	3.0	2.1	1.1
K-5	13	12.8	12.0	11.8	12.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	8	5.1	7.1	7.3	6.3	6.3	6.3	7.2	6.4	6.0	6.1
9-12	17	20.0	16.4	13.5	10.0	8.3	9.2	8.3	9.3	8.5	8.3
K-12	38	37.9	35.5	32.6	29.1	26.2	27.0	27.0	26.9	25.8	25.8

Study Area 13
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	4.1	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	1.0	4.2	3.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	5	2.1	1.1	4.3	3.3	1.0	0.0	0.0	0.0	0.0	0.0
7	4	4.9	2.0	1.0	4.2	3.2	1.0	0.0	0.0	0.0	0.0
8	1	4.0	4.9	2.0	1.0	4.2	3.2	1.0	0.0	0.0	0.0
9	2	1.1	4.2	5.1	2.1	1.1	4.5	3.4	1.1	0.0	0.0
10	2	2.0	1.0	4.1	5.0	2.1	1.1	4.4	3.3	1.1	0.0
11	5	1.9	1.8	1.0	3.8	4.7	1.9	1.0	4.1	3.1	1.0
12	1	5.1	1.9	1.9	1.0	3.9	4.8	2.0	1.0	4.1	3.2
K-5	11	9.2	8.3	4.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	10	11.0	8.0	7.3	8.5	8.4	4.2	1.0	0.0	0.0	0.0
9-12	10	10.1	8.9	12.1	11.9	11.8	12.3	10.8	9.5	8.3	4.2
K-12	31	30.3	25.2	23.6	21.4	20.2	16.5	11.8	9.5	8.3	4.2

Study Area 14
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	1	2.8	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	3	1.0	2.9	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	4	3.1	1.0	3.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	5	4.1	3.2	1.1	3.1	3.1	3.0	3.4	2.5	3.1	3.0
6	4	5.2	4.2	3.2	1.1	3.1	3.2	3.1	3.5	2.6	3.2
7	4	3.9	5.0	4.2	3.2	1.1	3.1	3.1	3.0	3.4	2.6
8	7	4.0	3.9	5.0	4.1	3.1	1.1	3.1	3.1	3.0	3.4
9	3	7.4	4.2	4.1	5.3	4.4	3.3	1.1	3.2	3.3	3.2
10	2	2.9	7.3	4.1	4.0	5.2	4.3	3.3	1.1	3.2	3.2
11	9	1.9	2.7	6.8	3.8	3.7	4.8	4.0	3.0	1.0	2.9
12	2	9.2	1.9	2.8	6.9	3.9	3.8	4.9	4.1	3.1	1.1
K-5	19	17.0	16.2	15.6	17.5	17.5	17.3	17.3	16.7	17.2	17.0
6-8	15	13.1	13.1	12.4	8.4	7.3	7.4	9.3	9.6	9.0	9.2
9-12	16	21.4	16.1	17.8	20.0	17.2	16.2	13.3	11.4	10.6	10.4
K-12	50	51.5	45.4	45.8	45.9	42.0	40.9	39.9	37.7	36.8	36.6

Study Area 15
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	0	1.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	4	0.0	1.9	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	1	4.1	0.0	2.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	2	1.0	4.2	0.0	2.0	3.1	3.0	3.4	2.5	3.1	3.0
6	1	2.1	1.1	4.3	0.0	2.1	3.2	3.1	3.5	2.6	3.2
7	4	1.0	2.0	1.0	4.2	0.0	2.1	3.1	3.0	3.4	2.6
8	6	4.0	1.0	2.0	1.0	4.2	0.0	2.0	3.1	3.0	3.4
9	1	6.4	4.2	1.0	2.1	1.1	4.5	0.0	2.2	3.3	3.2
10	3	1.0	6.2	4.1	1.0	2.1	1.1	4.4	0.0	2.1	3.2
11	3	2.8	0.9	5.8	3.8	0.9	1.9	1.0	4.1	0.0	2.0
12	0	3.1	2.8	0.9	5.9	3.9	1.0	2.0	1.0	4.1	0.0
K-5	12	13.0	15.2	13.5	16.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	11	7.1	4.1	7.3	5.2	6.3	5.3	8.2	9.6	9.0	9.2
9-12	7	13.3	14.1	11.8	12.8	8.0	8.5	7.4	7.3	9.5	8.4
K-12	30	33.4	33.4	32.6	34.4	31.8	31.1	32.9	33.6	35.7	34.6

Study Area 16
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	6	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	4	5.7	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	4	4.1	5.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	7	4.1	4.2	5.9	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	3	7.2	4.2	4.3	6.1	1.0	1.0	1.1	0.8	1.0	1.0
6	4	3.1	7.4	4.3	4.4	6.3	1.1	1.0	1.2	0.9	1.1
7	5	3.9	3.0	7.3	4.2	4.3	6.2	1.0	1.0	1.1	0.9
8	2	5.0	3.9	3.0	7.2	4.2	4.3	6.1	1.0	1.0	1.1
9	8	2.1	5.2	4.1	3.2	7.6	4.5	4.5	6.5	1.1	1.1
10	3	7.8	2.1	5.1	4.0	3.1	7.5	4.4	4.4	6.3	1.1
11	9	2.8	7.3	1.9	4.8	3.7	2.9	7.0	4.1	4.1	5.9
12	9	9.2	2.8	7.4	2.0	4.9	3.8	3.0	7.1	4.1	4.2
K-5	25	23.1	17.3	14.0	10.9	5.9	5.8	5.7	5.5	5.7	5.6
6-8	11	12.0	14.3	14.6	15.8	14.8	11.6	8.1	3.2	3.0	3.1
9-12	29	21.9	17.4	18.5	14.0	19.3	18.7	18.9	22.1	15.6	12.3
K-12	65	57.0	49.0	47.1	40.7	40.0	36.1	32.7	30.8	24.3	21.0

Study Area 17A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	6	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7	5.6	5.7
1	1	6.1	5.8	6.6	5.0	6.0	5.9	5.6	5.8	5.8	5.7
2	0	1.0	5.8	5.6	6.3	4.7	5.7	5.6	5.3	5.5	5.5
3	1	0.0	1.0	5.9	5.7	6.4	4.8	5.8	5.7	5.4	5.7
4	1	1.0	0.0	1.0	6.0	5.8	6.6	4.9	5.9	5.8	5.6
5	2	1.0	1.1	0.0	1.0	6.2	5.9	6.8	5.1	6.1	6.0
6	2	2.1	1.1	1.1	0.0	1.0	6.4	6.1	7.0	5.2	6.3
7	1	2.0	2.0	1.0	1.1	0.0	1.0	6.3	6.0	6.8	5.1
8	1	1.0	1.9	2.0	1.0	1.0	0.0	1.0	6.2	5.9	6.8
9	3	1.1	1.0	2.1	2.1	1.1	1.1	0.0	1.1	6.6	6.3
10	3	2.9	1.0	1.0	2.0	2.1	1.1	1.1	0.0	1.1	6.5
11	1	2.8	2.7	1.0	1.0	1.9	1.9	1.0	1.0	0.0	1.0
12	1	1.0	2.8	2.8	1.0	1.0	1.9	2.0	1.0	1.0	0.0
K-5	11	14.8	20.2	24.0	29.9	34.9	34.4	34.4	33.5	34.2	34.2
6-8	4	5.1	5.0	4.1	2.1	2.0	7.4	13.4	19.2	17.9	18.2
9-12	8	7.8	7.5	6.9	6.1	6.1	6.0	4.1	3.1	8.7	13.8
K-12	23	27.7	32.7	35.0	38.1	43.0	47.8	51.9	55.8	60.8	66.2

Study Area 17B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	2	3.1	1.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
7	2	2.0	3.0	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
8	7	2.0	1.9	3.0	1.0	0.0	1.1	0.0	0.0	0.0	0.0
9	4	7.4	2.1	2.1	3.2	1.1	0.0	1.1	0.0	0.0	0.0
10	9	3.9	7.3	2.1	2.0	3.1	1.1	0.0	1.1	0.0	0.0
11	3	8.4	3.6	6.8	1.9	1.9	2.9	1.0	0.0	1.0	0.0
12	3	3.1	8.5	3.7	6.9	2.0	1.9	3.0	1.0	0.0	1.1
K-5	5	2.0	1.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	11	7.1	6.0	4.0	2.1	1.1	1.1	0.0	0.0	0.0	0.0
9-12	19	22.8	21.5	14.7	14.0	8.1	5.9	5.1	2.1	1.0	1.1
K-12	35	31.9	28.5	19.8	16.1	9.2	7.0	5.1	2.1	1.0	1.1

Study Area 18A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	0	1.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	5	0.0	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	5.1	0.0	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	4	1.0	5.3	0.0	2.0	2.1	2.0	2.3	1.7	2.0	2.0
6	5	4.1	1.1	5.4	0.0	2.1	2.1	2.0	2.3	1.7	2.1
7	3	4.9	4.0	1.0	5.3	0.0	2.1	2.1	2.0	2.3	1.7
8	2	3.0	4.9	4.0	1.0	5.2	0.0	2.0	2.1	2.0	2.3
9	2	2.1	3.1	5.1	4.2	1.1	5.6	0.0	2.2	2.2	2.1
10	3	2.0	2.1	3.1	5.0	4.2	1.1	5.5	0.0	2.1	2.2
11	1	2.8	1.8	1.9	2.9	4.7	3.9	1.0	5.1	0.0	2.0
12	2	1.0	2.8	1.9	2.0	2.9	4.8	3.9	1.0	5.2	0.0
K-5	14	11.9	13.2	9.7	11.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	10	12.0	10.0	10.4	6.3	7.3	4.2	6.1	6.4	6.0	6.1
9-12	8	7.9	9.8	12.0	14.1	12.9	15.4	10.4	8.3	9.5	6.3
K-12	32	31.8	33.0	32.1	32.1	31.8	31.1	28.0	25.9	26.8	23.8

Study Area 18B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	5	3.8	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	4	5.1	3.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	4.1	5.2	4.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	3	1.0	4.2	5.4	4.1	2.1	2.0	2.3	1.7	2.0	2.0
6	4	3.1	1.1	4.3	5.5	4.2	2.1	2.0	2.3	1.7	2.1
7	3	3.9	3.0	1.0	4.2	5.4	4.1	2.1	2.0	2.3	1.7
8	5	3.0	3.9	3.0	1.0	4.2	5.4	4.1	2.1	2.0	2.3
9	3	5.3	3.1	4.1	3.2	1.1	4.5	5.7	4.3	2.2	2.1
10	1	2.9	5.2	3.1	4.0	3.1	1.1	4.4	5.6	4.2	2.2
11	8	0.9	2.7	4.8	2.9	3.7	2.9	1.0	4.1	5.2	3.9
12	2	8.2	0.9	2.8	4.9	2.9	3.8	3.0	1.0	4.1	5.3
K-5	19	17.9	19.3	17.1	13.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	12	10.0	8.0	8.3	10.7	13.8	11.6	8.2	6.4	6.0	6.1
9-12	14	17.3	11.9	14.8	15.0	10.8	12.3	14.1	15.0	15.7	13.5
K-12	45	45.2	39.2	40.2	39.5	36.2	35.4	33.8	32.6	33.0	31.0

Study Area 18C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	0	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	2	0.0	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	1	2.0	0.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	1.0	2.1	0.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	1.0	1.1	2.1	0.0	2.1	2.0	2.3	1.7	2.0	2.0
6	3	2.1	1.1	1.1	2.2	0.0	2.1	2.0	2.3	1.7	2.1
7	1	2.9	2.0	1.0	1.1	2.2	0.0	2.1	2.0	2.3	1.7
8	2	1.0	2.9	2.0	1.0	1.0	2.1	0.0	2.1	2.0	2.3
9	3	2.1	1.0	3.1	2.1	1.1	1.1	2.3	0.0	2.2	2.1
10	1	2.9	2.1	1.0	3.0	2.1	1.1	1.1	2.2	0.0	2.2
11	0	0.9	2.7	1.9	1.0	2.8	1.9	1.0	1.0	2.1	0.0
12	1	0.0	0.9	2.8	2.0	1.0	2.9	2.0	1.0	1.0	2.1
K-5	8	7.9	9.2	9.8	9.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	6	6.0	6.0	4.1	4.3	3.2	4.2	4.1	6.4	6.0	6.1
9-12	5	5.9	6.7	8.8	8.1	7.0	7.0	6.4	4.2	5.3	6.4
K-12	19	19.8	21.9	22.7	22.1	21.8	22.7	22.0	21.8	22.6	23.9

Study Area 19
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	3	1.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	3	3.1	1.9	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	5	3.1	3.1	2.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	6	5.2	3.2	3.2	2.0	3.1	3.0	3.4	2.5	3.1	3.0
6	4	6.2	5.3	3.2	3.3	2.1	3.2	3.1	3.5	2.6	3.2
7	1	3.9	6.1	5.2	3.2	3.2	2.1	3.1	3.0	3.4	2.6
8	8	1.0	3.9	6.0	5.1	3.1	3.2	2.0	3.1	3.0	3.4
9	3	8.5	1.0	4.1	6.4	5.5	3.3	3.4	2.2	3.3	3.2
10	4	2.9	8.3	1.0	4.0	6.2	5.3	3.3	3.3	2.1	3.2
11	2	3.7	2.7	7.7	1.0	3.7	5.8	5.0	3.0	3.1	2.0
12	5	2.0	3.8	2.8	7.9	1.0	3.8	5.9	5.1	3.1	3.2
K-5	22	19.3	17.3	16.7	16.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	13	11.1	15.3	14.4	11.6	8.4	8.5	8.2	9.6	9.0	9.2
9-12	14	17.1	15.8	15.6	19.3	16.4	18.2	17.6	13.6	11.6	11.6
K-12	49	47.5	48.4	46.7	47.3	42.3	44.0	43.1	39.9	37.8	37.8

Study Area 20
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	5	5.1	4.9	5.5	4.2	5.0	4.9	4.7	4.9	4.8	4.8
2	4	4.8	4.8	4.6	5.3	3.9	4.8	4.7	4.5	4.6	4.6
3	0	4.1	4.8	4.9	4.7	5.4	4.0	4.9	4.7	4.5	4.7
4	6	0.0	4.2	4.9	5.0	4.8	5.5	4.1	5.0	4.8	4.6
5	4	6.2	0.0	4.3	5.1	5.2	5.0	5.6	4.2	5.1	5.0
6	1	4.1	6.4	0.0	4.4	5.2	5.3	5.1	5.8	4.4	5.3
7	4	1.0	4.0	6.2	0.0	4.3	5.1	5.2	5.0	5.7	4.3
8	5	4.0	1.0	4.0	6.2	0.0	4.3	5.1	5.2	5.0	5.6
9	2	5.3	4.2	1.0	4.2	6.5	0.0	4.5	5.4	5.5	5.3
10	6	2.0	5.2	4.1	1.0	4.2	6.4	0.0	4.4	5.3	5.4
11	7	5.6	1.8	4.8	3.8	0.9	3.9	6.0	0.0	4.1	4.9
12	2	7.1	5.7	1.9	4.9	3.9	1.0	3.9	6.1	0.0	4.2
K-5	24	25.0	24.1	28.3	29.2	29.1	28.8	28.8	28.0	28.5	28.4
6-8	10	9.1	11.4	10.2	10.6	9.5	14.7	15.4	16.0	15.1	15.2
9-12	17	20.0	16.9	11.8	13.9	15.5	11.3	14.4	15.9	14.9	19.8
K-12	51	54.1	52.4	50.3	53.7	54.1	54.8	58.6	59.9	58.5	63.4

Study Area 21
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	6	5.1	4.9	5.5	4.2	5.0	4.9	4.7	4.9	4.8	4.8
2	5	5.7	4.8	4.6	5.3	3.9	4.8	4.7	4.5	4.6	4.6
3	3	5.1	5.8	4.9	4.7	5.4	4.0	4.9	4.7	4.5	4.7
4	9	3.1	5.2	5.9	5.0	4.8	5.5	4.1	5.0	4.8	4.6
5	4	9.3	3.2	5.4	6.1	5.2	5.0	5.6	4.2	5.1	5.0
6	3	4.1	9.5	3.2	5.5	6.3	5.3	5.1	5.8	4.4	5.3
7	5	2.9	4.0	9.4	3.2	5.4	6.2	5.2	5.0	5.7	4.3
8	6	5.0	2.9	4.0	9.3	3.1	5.4	6.1	5.2	5.0	5.6
9	6	6.4	5.2	3.1	4.2	9.8	3.3	5.7	6.5	5.5	5.3
10	5	5.9	6.2	5.1	3.0	4.2	9.6	3.3	5.6	6.3	5.4
11	4	4.7	5.5	5.8	4.8	2.8	3.9	8.9	3.0	5.2	5.9
12	2	4.1	4.7	5.6	5.9	4.9	2.9	3.9	9.1	3.1	5.3
K-5	32	33.1	29.3	30.4	30.2	29.1	28.8	28.8	28.0	28.5	28.4
6-8	14	12.0	16.4	16.6	18.0	14.8	16.9	16.4	16.0	15.1	15.2
9-12	17	21.1	21.6	19.6	17.9	21.7	19.7	21.8	24.2	20.1	21.9
K-12	63	66.2	67.3	66.6	66.1	65.6	65.4	67.0	68.2	63.7	65.5

Study Area 22
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	3	2.8	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	0	3.1	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	0.0	3.1	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	1	1.0	0.0	3.2	3.1	2.1	2.0	2.3	1.7	2.0	2.0
6	5	1.0	1.1	0.0	3.3	3.1	2.1	2.0	2.3	1.7	2.1
7	2	4.9	1.0	1.0	0.0	3.2	3.1	2.1	2.0	2.3	1.7
8	3	2.0	4.9	1.0	1.0	0.0	3.2	3.1	2.1	2.0	2.3
9	3	3.2	2.1	5.1	1.1	1.1	0.0	3.4	3.2	2.2	2.1
10	3	2.9	3.1	2.1	5.0	1.0	1.1	0.0	3.3	3.2	2.2
11	3	2.8	2.7	2.9	1.9	4.7	1.0	1.0	0.0	3.1	2.9
12	2	3.1	2.8	2.8	3.0	2.0	4.8	1.0	1.0	0.0	3.2
K-5	10	10.8	12.0	13.9	12.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	10	7.9	7.0	2.0	4.3	6.3	8.4	7.2	6.4	6.0	6.1
9-12	11	12.0	10.7	12.9	11.0	8.8	6.9	5.4	7.5	8.5	10.4
K-12	31	30.7	29.7	28.8	28.1	26.7	26.8	24.1	25.1	25.8	27.9

Study Area 23A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	0	0.0	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	0	0.0	0.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	0	0.0	0.0	0.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9	0.9
6	0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.8	0.9	0.7
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.9
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
10	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
11	2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	1	2.0	2.9	3.6	4.5	5.3	5.3	5.5	5.0	5.3	5.3
6-8	0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	2.6	2.4	2.5
9-12	3	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8
K-12	4	4.9	3.9	3.6	4.5	5.3	6.2	7.3	7.6	8.6	9.6

Study Area 23B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
8	1	0.0	0.9	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
9	0	1.1	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
10	1	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
11	0	1.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
12	0	0.0	1.0	0.0	1.0	0.0	0.9	0.0	0.0	1.0	0.0
K-5	1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	2	1.0	0.9	1.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0
9-12	1	2.1	2.0	2.0	2.0	1.0	1.9	1.0	1.0	1.0	0.0
K-12	4	4.2	3.9	3.1	3.0	2.0	1.9	1.0	1.0	1.0	0.0

Study Area 24A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 24B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 25A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	1	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	2	0.9	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	1	1.9	0.9	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	0	1.1	2.1	1.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	2	0.0	1.0	2.0	0.9	0.9	0.9	1.0	0.7	0.9	0.9
6	0	2.0	0.0	1.1	2.0	1.0	0.9	0.9	1.0	0.7	0.9
7	4	0.0	1.9	0.0	1.0	1.9	0.9	0.9	0.8	0.9	0.7
8	5	3.9	0.0	1.9	0.0	1.0	1.9	0.9	0.8	0.8	0.9
9	2	5.4	4.2	0.0	2.0	0.0	1.0	2.0	0.9	0.9	0.9
10	2	1.9	5.2	4.0	0.0	1.9	0.0	1.0	1.9	0.9	0.9
11	3	2.0	1.9	5.2	4.0	0.0	1.9	0.0	1.0	1.9	0.9
12	3	2.8	1.9	1.8	4.9	3.8	0.0	1.8	0.0	1.0	1.8
K-5	7	5.9	6.9	6.6	5.4	5.3	5.3	5.5	5.0	5.3	5.3
6-8	9	5.9	1.9	3.0	3.0	3.9	3.7	2.7	2.6	2.4	2.5
9-12	10	12.1	13.2	11.0	10.9	5.7	2.9	4.8	3.8	4.7	4.5
K-12	26	23.9	22.0	20.6	19.3	14.9	11.9	13.0	11.4	12.4	12.3

Study Area 25B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	1	0.9	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	4	1.0	0.9	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	1	4.4	1.0	1.0	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	1	1.0	4.2	1.0	0.9	1.8	1.7	2.0	1.5	1.8	1.7
6	0	1.0	1.0	4.2	1.0	1.0	1.8	1.7	2.0	1.5	1.8
7	2	0.0	1.0	0.9	4.0	1.0	0.9	1.7	1.7	1.9	1.4
8	1	1.9	0.0	0.9	0.9	3.9	0.9	0.9	1.7	1.6	1.8
9	1	1.1	2.1	0.0	1.0	1.0	4.2	1.0	0.9	1.8	1.7
10	2	1.0	1.0	2.0	0.0	1.0	0.9	4.0	1.0	0.9	1.8
11	1	2.0	1.0	1.0	2.0	0.0	1.0	0.9	4.0	1.0	0.9
12	4	1.0	1.9	0.9	1.0	1.9	0.0	0.9	0.9	3.8	0.9
K-5	10	11.1	11.9	9.1	10.1	10.8	10.6	10.6	10.5	10.6	10.5
6-8	3	2.9	2.0	6.0	5.9	5.9	3.6	4.3	5.4	5.0	5.0
9-12	8	5.1	6.0	3.9	4.0	3.9	6.1	6.8	6.8	7.5	5.3
K-12	21	19.1	19.9	19.0	20.0	20.6	20.3	21.7	22.7	23.1	20.8

Study Area 25C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	3	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	1	2.8	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	3	1.0	2.7	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	1	3.3	1.0	3.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	3	1.0	3.1	1.0	2.8	0.9	0.9	1.0	0.7	0.9	0.9
6	1	3.0	1.0	3.2	1.0	2.9	0.9	0.9	1.0	0.7	0.9
7	7	1.0	2.9	0.9	3.0	1.0	2.7	0.9	0.8	0.9	0.7
8	2	6.8	0.9	2.8	0.9	2.9	0.9	2.6	0.8	0.8	0.9
9	2	2.1	7.3	1.0	3.0	1.0	3.1	1.0	2.8	0.9	0.9
10	3	1.9	2.1	7.0	1.0	2.9	0.9	3.0	1.0	2.7	0.9
11	0	3.0	1.9	2.1	7.0	1.0	2.9	0.9	3.0	1.0	2.7
12	3	0.0	2.8	1.8	2.0	6.7	0.9	2.8	0.9	2.9	0.9
K-5	12	10.1	9.7	7.6	7.3	5.3	5.3	5.5	5.0	5.3	5.3
6-8	10	10.8	4.8	6.9	4.9	6.8	4.5	4.4	2.6	2.4	2.5
9-12	8	7.0	14.1	11.9	13.0	11.6	7.8	7.7	7.7	7.5	5.4
K-12	30	27.9	28.6	26.4	25.2	23.7	17.6	17.6	15.3	15.2	13.2

Study Area 26
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 27
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	2	3.8	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	4	1.9	3.6	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	7	4.4	2.1	3.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	1	6.7	4.2	2.0	3.8	1.8	1.7	2.0	1.5	1.8	1.7
6	4	1.0	6.8	4.2	2.0	3.8	1.8	1.7	2.0	1.5	1.8
7	1	3.8	1.0	6.4	4.0	1.9	3.6	1.7	1.7	1.9	1.4
8	4	1.0	3.7	0.9	6.3	3.9	1.9	3.5	1.7	1.6	1.8
9	1	4.3	1.0	3.9	1.0	6.7	4.2	2.0	3.8	1.8	1.7
10	5	1.0	4.2	1.0	3.8	1.0	6.5	4.0	1.9	3.6	1.8
11	7	5.0	1.0	4.2	1.0	3.8	1.0	6.5	4.0	1.9	3.6
12	3	6.7	4.8	0.9	3.9	1.0	3.6	0.9	6.2	3.8	1.8
K-5	20	20.6	15.7	13.0	13.0	10.8	10.6	10.6	10.5	10.6	10.5
6-8	9	5.8	11.5	11.5	12.3	9.6	7.3	6.9	5.4	5.0	5.0
9-12	16	17.0	11.0	10.0	9.7	12.5	15.3	13.4	15.9	11.1	8.9
K-12	45	43.4	38.2	34.5	35.0	32.9	33.2	30.9	31.8	26.7	24.4

Study Area 28
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	2	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	4	1.9	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	0	3.8	1.8	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	2	0.0	4.2	2.0	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	4	1.9	0.0	4.0	1.9	3.6	3.5	3.9	3.0	3.6	3.5
6	2	4.0	1.9	0.0	4.1	1.9	3.7	3.5	4.0	3.0	3.6
7	6	1.9	3.8	1.8	0.0	3.9	1.8	3.5	3.3	3.8	2.8
8	1	5.8	1.8	3.7	1.8	0.0	3.7	1.8	3.4	3.2	3.7
9	2	1.1	6.2	2.0	4.0	1.9	0.0	4.0	1.9	3.6	3.4
10	4	1.9	1.0	6.0	1.9	3.9	1.9	0.0	3.9	1.8	3.5
11	6	4.0	1.9	1.0	6.0	1.9	3.9	1.9	0.0	3.9	1.8
12	3	5.7	3.8	1.8	1.0	5.7	1.8	3.7	1.8	0.0	3.7
K-5	16	15.2	17.6	20.4	19.9	21.5	21.3	21.2	20.8	21.2	21.1
6-8	9	11.7	7.5	5.5	5.9	5.8	9.2	8.8	10.7	10.0	10.1
9-12	15	12.7	12.9	10.8	12.9	13.4	7.6	9.6	7.6	9.3	12.4
K-12	40	39.6	38.0	36.7	38.7	40.7	38.1	39.6	39.1	40.5	43.6

Study Area 29
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS								
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	0	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	3	0.0	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	3	2.9	0.0	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	2	3.3	3.1	0.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	9	1.9	3.1	3.0	0.0	2.7	2.6	3.0	2.2	2.7	2.6
6	4	9.1	1.9	3.2	3.0	0.0	2.7	2.6	3.0	2.2	2.7
7	3	3.8	8.6	1.8	3.0	2.9	0.0	2.6	2.5	2.8	2.1
8	2	2.9	3.7	8.4	1.8	2.9	2.8	0.0	2.5	2.4	2.7
9	4	2.1	3.1	3.9	9.0	1.9	3.1	3.0	0.0	2.7	2.6
10	6	3.9	2.1	3.0	3.8	8.7	1.9	3.0	2.9	0.0	2.6
11	3	6.0	3.9	2.1	3.0	3.8	8.7	1.9	3.0	2.9	0.0
12	4	2.8	5.7	3.7	2.0	2.9	3.6	8.3	1.8	2.9	2.8
K-5	20	13.9	15.0	13.7	13.4	16.1	16.1	16.0	15.5	15.9	15.8
6-8	9	15.8	14.2	13.4	7.8	5.8	5.5	5.2	8.0	7.4	7.5
9-12	17	14.8	14.8	12.7	17.8	17.3	17.3	16.2	7.7	8.5	8.0
K-12	46	44.5	44.0	39.8	39.0	39.2	38.9	37.4	31.2	31.8	31.3

Study Area 30
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS								
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	3.3	2.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3	0.0	3.1	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6	1	3.0	0.0	3.2	2.0	1.0	0.0	0.0	0.0	0.0	0.0
7	4	1.0	2.9	0.0	3.0	1.9	0.9	0.0	0.0	0.0	0.0
8	0	3.9	0.9	2.8	0.0	2.9	1.9	0.9	0.0	0.0	0.0
9	5	0.0	4.2	1.0	3.0	0.0	3.1	2.0	0.9	0.0	0.0
10	2	4.9	0.0	4.0	1.0	2.9	0.0	3.0	1.9	0.9	0.0
11	7	2.0	4.9	0.0	4.0	1.0	2.9	0.0	3.0	1.9	0.9
12	5	6.7	1.9	4.6	0.0	3.8	0.9	2.8	0.0	2.9	1.8
K-5	9	6.1	6.1	3.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	5	7.9	3.8	6.0	5.0	5.8	2.8	0.9	0.0	0.0	0.0
9-12	19	13.6	11.0	9.6	8.0	7.7	6.9	7.8	5.8	5.7	2.7
K-12	33	27.6	20.9	18.6	13.9	13.5	9.7	8.7	5.8	5.7	2.7

Study Area 31
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	3	4.8	4.6	5.2	3.9	4.7	4.6	4.4	4.6	4.5	4.5
2	6	2.8	4.5	4.3	4.9	3.7	4.4	4.3	4.1	4.3	4.3
3	2	5.8	2.7	4.3	4.1	4.7	3.5	4.3	4.2	4.0	4.1
4	3	2.2	6.3	3.0	4.7	4.5	5.1	3.8	4.6	4.5	4.3
5	2	2.9	2.1	6.0	2.8	4.5	4.3	4.9	3.7	4.5	4.4
6	2	2.0	2.9	2.1	6.1	2.9	4.6	4.4	5.0	3.7	4.5
7	2	1.9	1.9	2.8	2.0	5.8	2.7	4.3	4.2	4.7	3.5
8	2	1.9	1.8	1.9	2.7	1.9	5.6	2.6	4.2	4.0	4.6
9	6	2.1	2.1	2.0	2.0	2.9	2.1	6.0	2.8	4.5	4.3
10	4	5.8	2.1	2.0	1.9	1.9	2.8	2.0	5.8	2.7	4.4
11	4	4.0	5.8	2.1	2.0	1.9	1.9	2.8	2.0	5.8	2.7
12	7	3.8	3.8	5.5	2.0	1.9	1.8	1.8	2.6	1.9	5.5
K-5	21	23.3	25.6	26.9	25.3	26.9	26.5	26.5	25.9	26.5	26.3
6-8	6	5.8	6.6	6.8	10.8	10.6	12.9	11.3	13.4	12.4	12.6
9-12	21	15.7	13.8	11.6	7.9	8.6	8.6	12.6	13.2	14.9	16.9
K-12	48	44.8	46.0	45.3	44.0	46.1	48.0	50.4	52.5	53.8	55.8

Study Area 32
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	7	6.7	7.6	5.7	6.9	6.7	6.4	6.7	6.6	6.6	6.6
1	4	6.7	6.4	7.3	5.5	6.6	6.5	6.2	6.4	6.4	6.3
2	2	3.8	6.3	6.0	6.9	5.1	6.2	6.1	5.8	6.0	6.0
3	7	1.9	3.6	6.1	5.8	6.6	4.9	6.0	5.8	5.6	5.8
4	2	7.6	2.1	3.9	6.6	6.3	7.2	5.4	6.5	6.4	6.1
5	5	1.9	7.3	2.0	3.8	6.3	6.1	6.9	5.2	6.2	6.1
6	9	5.1	1.9	7.4	2.0	3.8	6.4	6.1	7.0	5.2	6.3
7	5	8.5	4.8	1.8	7.0	1.9	3.6	6.1	5.8	6.6	5.0
8	4	4.9	8.3	4.7	1.8	6.8	1.9	3.5	5.9	5.6	6.4
9	6	4.3	5.2	8.9	5.0	1.9	7.3	2.0	3.8	6.3	6.0
10	14	5.8	4.2	5.0	8.6	4.8	1.9	7.1	1.9	3.6	6.1
11	5	14.0	5.8	4.2	5.0	8.6	4.8	1.9	7.1	1.9	3.6
12	5	4.8	13.3	5.5	3.9	4.8	8.2	4.6	1.8	6.7	1.8
K-5	27	28.6	33.3	31.0	35.5	37.6	37.3	37.3	36.3	37.2	36.9
6-8	18	18.5	15.0	13.9	10.8	12.5	11.9	15.7	18.7	17.4	17.7
9-12	30	28.9	28.5	23.6	22.5	20.1	22.2	15.6	14.6	18.5	17.5
K-12	75	76.0	76.8	68.5	68.8	70.2	71.4	68.6	69.6	73.1	72.1

Study Area 33A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	3	1.0	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	2	3.1	1.0	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	2	2.0	3.1	1.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	5	2.1	2.1	3.2	1.0	3.1	3.0	3.4	2.5	3.1	3.0
6	1	5.2	2.1	2.2	3.3	1.0	3.2	3.1	3.5	2.6	3.2
7	5	1.0	5.0	2.1	2.1	3.2	1.0	3.1	3.0	3.4	2.6
8	4	5.0	1.0	5.0	2.1	2.1	3.2	1.0	3.1	3.0	3.4
9	6	4.2	5.2	1.0	5.3	2.2	2.2	3.4	1.1	3.3	3.2
10	4	5.9	4.2	5.1	1.0	5.2	2.1	2.2	3.3	1.1	3.2
11	2	3.7	5.5	3.9	4.8	0.9	4.8	2.0	2.0	3.1	1.0
12	7	2.0	3.8	5.6	3.9	4.9	1.0	4.9	2.0	2.1	3.2
K-5	16	14.2	15.3	15.7	15.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	10	11.2	8.1	9.3	7.5	6.3	7.4	7.2	9.6	9.0	9.2
9-12	19	15.8	18.7	15.6	15.0	13.2	10.1	12.5	8.4	9.6	10.6
K-12	45	41.2	42.1	40.6	37.9	37.0	34.8	37.0	34.7	35.8	36.8

Study Area 33B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	1.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	0.0	1.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	1.0	0.0	1.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0
7	1	0.0	1.0	0.0	1.1	2.2	0.0	0.0	0.0	0.0	0.0
8	1	1.0	0.0	1.0	0.0	1.0	2.1	0.0	0.0	0.0	0.0
9	4	1.1	1.0	0.0	1.1	0.0	1.1	2.3	0.0	0.0	0.0
10	0	3.9	1.0	1.0	0.0	1.0	0.0	1.1	2.2	0.0	0.0
11	5	0.0	3.6	1.0	1.0	0.0	1.0	0.0	1.0	2.1	0.0
12	1	5.1	0.0	3.7	1.0	1.0	0.0	1.0	0.0	1.0	2.1
K-5	4	3.0	3.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	2	2.0	1.0	2.1	3.3	3.2	2.1	0.0	0.0	0.0	0.0
9-12	10	10.1	5.6	5.7	3.1	2.0	2.1	4.4	3.2	3.1	2.1
K-12	16	15.1	9.8	9.9	6.4	5.2	4.2	4.4	3.2	3.1	2.1

Study Area 34
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	1	5.1	4.9	5.5	4.2	5.0	4.9	4.7	4.9	4.8	4.8
2	4	1.0	4.8	4.6	5.3	3.9	4.8	4.7	4.5	4.6	4.6
3	4	4.1	1.0	4.9	4.7	5.4	4.0	4.9	4.7	4.5	4.7
4	2	4.1	4.2	1.0	5.0	4.8	5.5	4.1	5.0	4.8	4.6
5	2	2.1	4.2	4.3	1.0	5.2	5.0	5.6	4.2	5.1	5.0
6	7	2.1	2.1	4.3	4.4	1.0	5.3	5.1	5.8	4.4	5.3
7	2	6.9	2.0	2.1	4.2	4.3	1.0	5.2	5.0	5.7	4.3
8	3	2.0	6.8	2.0	2.1	4.2	4.3	1.0	5.2	5.0	5.6
9	2	3.2	2.1	7.2	2.1	2.2	4.5	4.5	1.1	5.5	5.3
10	7	2.0	3.1	2.1	7.1	2.1	2.1	4.4	4.4	1.1	5.4
11	4	6.5	1.8	2.9	1.9	6.6	1.9	2.0	4.1	4.1	1.0
12	5	4.1	6.6	1.9	3.0	2.0	6.7	2.0	2.0	4.1	4.2
K-5	18	21.2	24.5	24.4	25.1	29.1	28.8	28.8	28.0	28.5	28.4
6-8	12	11.0	10.9	8.4	10.7	9.5	10.6	11.3	16.0	15.1	15.2
9-12	18	15.8	13.6	14.1	14.1	12.9	15.2	12.9	11.6	14.8	15.9
K-12	48	48.0	49.0	46.9	49.9	51.5	54.6	53.0	55.6	58.4	59.5

Study Area 35
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	6	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	1	5.7	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	3	1.0	5.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	4	3.1	1.0	5.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	4.1	3.2	1.1	6.1	2.1	2.0	2.3	1.7	2.0	2.0
6	4	2.1	4.2	3.2	1.1	6.3	2.1	2.0	2.3	1.7	2.1
7	3	3.9	2.0	4.2	3.2	1.1	6.2	2.1	2.0	2.3	1.7
8	2	3.0	3.9	2.0	4.1	3.1	1.1	6.1	2.1	2.0	2.3
9	4	2.1	3.1	4.1	2.1	4.4	3.3	1.1	6.5	2.2	2.1
10	2	3.9	2.1	3.1	4.0	2.1	4.3	3.3	1.1	6.3	2.2
11	5	1.9	3.6	1.9	2.9	3.7	1.9	4.0	3.0	1.0	5.9
12	2	5.1	1.9	3.7	2.0	2.9	3.8	2.0	4.1	3.1	1.1
K-5	18	17.8	16.0	14.7	15.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	9	9.0	10.1	9.4	8.4	10.5	9.4	10.2	6.4	6.0	6.1
9-12	13	13.0	10.7	12.8	11.0	13.1	13.3	10.4	14.7	12.6	11.3
K-12	40	39.8	36.8	36.9	35.2	35.2	34.2	32.1	32.3	29.9	28.8

Study Area 36
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	1	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	0	1.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	2	0.0	1.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	1	2.0	0.0	1.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	2	1.0	2.1	0.0	1.0	1.0	1.0	1.1	0.8	1.0	1.0
6	1	2.1	1.1	2.2	0.0	1.0	1.1	1.0	1.2	0.9	1.1
7	1	1.0	2.0	1.0	2.1	0.0	1.0	1.0	1.0	1.1	0.9
8	0	1.0	1.0	2.0	1.0	2.1	0.0	1.0	1.0	1.0	1.1
9	0	0.0	1.0	1.0	2.1	1.1	2.2	0.0	1.1	1.1	1.1
10	1	0.0	0.0	1.0	1.0	2.1	1.1	2.2	0.0	1.1	1.1
11	2	0.9	0.0	0.0	1.0	0.9	1.9	1.0	2.0	0.0	1.0
12	2	2.0	0.9	0.0	0.0	1.0	1.0	2.0	1.0	2.1	0.0
K-5	7	6.0	6.2	4.8	5.8	5.9	5.8	5.7	5.5	5.7	5.6
6-8	2	4.1	4.1	5.2	3.1	3.1	2.1	3.0	3.2	3.0	3.1
9-12	5	2.9	1.9	2.0	4.1	5.1	6.2	5.2	4.1	4.3	3.2
K-12	14	13.0	12.2	12.0	13.0	14.1	14.1	13.9	12.8	13.0	11.9

Study Area 37A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	6	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	2	5.7	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	2	2.0	5.8	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	3	2.0	2.1	5.9	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	1	3.1	2.1	2.1	6.1	4.2	4.0	4.5	3.4	4.1	4.0
6	4	1.0	3.2	2.2	2.2	6.3	4.3	4.1	4.6	3.5	4.2
7	6	3.9	1.0	3.1	2.1	2.2	6.2	4.2	4.0	4.6	3.4
8	3	5.9	3.9	1.0	3.1	2.1	2.1	6.1	4.2	4.0	4.5
9	3	3.2	6.3	4.1	1.1	3.3	2.2	2.3	6.5	4.4	4.2
10	6	2.9	3.1	6.2	4.0	1.0	3.2	2.2	2.2	6.3	4.3
11	3	5.6	2.7	2.9	5.7	3.7	1.0	3.0	2.0	2.1	5.9
12	1	3.1	5.7	2.8	3.0	5.9	3.8	1.0	3.0	2.1	2.1
K-5	18	20.7	22.1	23.4	25.3	23.4	23.0	22.9	22.5	23.0	22.8
6-8	13	10.8	8.1	6.3	7.4	10.6	12.6	14.4	12.8	12.1	12.1
9-12	13	14.8	17.8	16.0	13.8	13.9	10.2	8.5	13.7	14.9	16.5
K-12	44	46.3	48.0	45.7	46.5	47.9	45.8	45.8	49.0	50.0	51.4

Study Area 37B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6	2	1.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
7	0	1.9	1.0	0.9	0.0	0.0	0.9	0.0	0.0	0.0	0.0
8	0	0.0	2.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
9	1	0.0	0.0	2.1	1.0	1.0	0.0	0.0	1.0	0.0	0.0
10	1	1.0	0.0	0.0	2.0	1.0	0.9	0.0	0.0	0.9	0.0
11	5	1.0	0.9	0.0	0.0	2.0	1.0	0.9	0.0	0.0	0.9
12	1	4.9	1.0	0.9	0.0	0.0	1.9	1.0	0.9	0.0	0.0
K-5	3	2.0	1.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	2	2.9	4.0	1.9	1.0	0.9	0.9	1.0	0.0	0.0	0.0
9-12	8	6.9	1.9	3.0	3.0	4.0	3.8	1.9	1.9	0.9	0.9
K-12	13	11.8	6.9	5.9	4.9	4.9	4.7	2.9	1.9	0.9	0.9

Study Area 38
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	7	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	3	6.9	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0
3	4	2.9	6.7	1.0	0.9	1.1	0.8	1.0	1.0	0.9	0.9
4	6	4.2	3.1	7.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	7	5.7	4.0	2.9	6.6	1.0	0.9	1.1	0.8	1.0	0.9
6	3	7.0	5.7	4.0	2.9	6.6	1.0	0.9	1.1	0.8	1.0
7	5	2.9	6.8	5.5	3.8	2.8	6.4	0.9	0.9	1.0	0.8
8	4	5.2	3.0	7.1	5.8	4.0	2.9	6.7	1.0	0.9	1.1
9	12	4.1	5.4	3.1	7.3	5.9	4.1	3.0	6.9	1.0	1.0
10	3	11.4	3.9	5.1	3.0	6.9	5.6	3.9	2.9	6.6	1.0
11	5	3.0	11.3	3.9	5.0	2.9	6.8	5.6	3.9	2.8	6.5
12	7	4.9	2.9	11.1	3.8	4.9	2.9	6.7	5.5	3.8	2.8
K-5	28	21.7	16.9	13.8	11.4	5.9	5.7	5.8	5.6	5.8	5.6
6-8	12	15.1	15.5	16.6	12.5	13.4	10.3	8.5	3.0	2.7	2.9
9-12	27	23.4	23.5	23.2	19.1	20.6	19.4	19.2	19.2	14.2	11.3
K-12	67	60.2	55.9	53.6	43.0	39.9	35.4	33.5	27.8	22.7	19.8

Study Area 39
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	6	5.2	4.9	5.6	4.2	5.1	4.9	4.7	4.9	4.9	4.8
2	4	5.9	5.0	4.8	5.5	4.1	5.0	4.9	4.6	4.8	4.8
3	5	3.9	5.8	4.9	4.7	5.4	4.0	4.9	4.8	4.5	4.7
4	7	5.2	4.1	6.0	5.1	4.9	5.6	4.2	5.1	4.9	4.7
5	4	6.7	4.9	3.9	5.7	4.9	4.7	5.3	4.0	4.8	4.7
6	3	4.0	6.7	4.9	3.9	5.7	4.9	4.7	5.3	4.0	4.8
7	8	2.9	3.9	6.5	4.8	3.8	5.5	4.7	4.5	5.1	3.9
8	7	8.3	3.0	4.0	6.7	5.0	3.9	5.7	4.9	4.7	5.4
9	12	7.2	8.6	3.1	4.2	6.9	5.1	4.0	5.9	5.1	4.8
10	5	11.4	6.8	8.1	3.0	3.9	6.6	4.9	3.8	5.6	4.8
11	9	5.0	11.3	6.8	8.1	2.9	3.9	6.5	4.8	3.8	5.6
12	5	8.8	4.9	11.1	6.6	7.9	2.9	3.8	6.4	4.7	3.7
K-5	31	31.7	30.1	29.3	30.1	29.2	28.8	28.8	28.1	28.6	28.4
6-8	18	15.2	13.6	15.4	15.4	14.5	14.3	15.1	14.7	13.8	14.1
9-12	31	32.4	31.6	29.1	21.9	21.6	18.5	19.2	20.9	19.2	18.9
K-12	80	79.3	75.3	73.8	67.4	65.3	61.6	63.1	63.7	61.6	61.4

Study Area 40
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	5	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	0	4.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	1	0.0	4.8	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	2	1.0	0.0	5.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	3	1.9	1.0	0.0	4.7	2.9	2.8	3.2	2.4	2.9	2.8
6	2	3.0	1.9	1.0	0.0	4.7	2.9	2.8	3.2	2.4	2.9
7	0	1.9	2.9	1.8	1.0	0.0	4.6	2.8	2.7	3.1	2.3
8	1	0.0	2.0	3.0	1.9	1.0	0.0	4.8	3.0	2.8	3.2
9	4	1.0	0.0	2.1	3.1	2.0	1.0	0.0	4.9	3.0	2.9
10	4	3.8	1.0	0.0	2.0	3.0	1.9	1.0	0.0	4.7	2.9
11	1	4.0	3.8	1.0	0.0	2.0	2.9	1.9	1.0	0.0	4.6
12	4	1.0	3.9	3.7	0.9	0.0	1.9	2.9	1.8	0.9	0.0
K-5	14	13.8	15.1	16.7	19.3	17.4	17.4	17.2	16.8	17.2	17.0
6-8	3	4.9	6.8	5.8	2.9	5.7	7.5	10.4	8.9	8.3	8.4
9-12	13	9.8	8.7	6.8	6.0	7.0	7.7	5.8	7.7	8.6	10.4
K-12	30	28.5	30.6	29.3	28.2	30.1	32.6	33.4	33.4	34.1	35.8

Study Area 41
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	3	2.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	4	2.9	2.9	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	1	4.2	3.1	3.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	9	1.0	4.0	2.9	2.8	2.9	2.8	3.2	2.4	2.9	2.8
6	3	9.0	1.0	4.0	2.9	2.8	2.9	2.8	3.2	2.4	2.9
7	2	2.9	8.7	0.9	3.8	2.8	2.8	2.8	2.7	3.1	2.3
8	3	2.1	3.0	9.1	1.0	4.0	2.9	2.9	3.0	2.8	3.2
9	5	3.1	2.1	3.1	9.4	1.0	4.1	3.0	3.0	3.0	2.9
10	6	4.8	2.9	2.0	3.0	8.9	0.9	3.9	2.9	2.8	2.9
11	3	5.9	4.7	2.9	2.0	2.9	8.8	0.9	3.9	2.8	2.8
12	5	2.9	5.8	4.6	2.8	2.0	2.9	8.6	0.9	3.8	2.8
K-5	23	17.0	19.3	17.6	17.4	17.4	17.4	17.2	16.8	17.2	17.0
6-8	8	14.0	12.7	14.0	7.7	9.6	8.6	8.5	8.9	8.3	8.4
9-12	19	16.7	15.5	12.6	17.2	14.8	16.7	16.4	10.7	12.4	11.4
K-12	50	47.7	47.5	44.2	42.3	41.8	42.7	42.1	36.4	37.9	36.8

Study Area 42
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	4.2	4.6	3.5	4.1	4.1	3.9	4.0	4.0	4.0	4.0
1	2	4.5	4.4	4.7	3.6	4.3	4.2	4.0	4.2	4.1	4.1
2	4	2.4	4.5	4.3	4.6	3.5	4.2	4.1	3.9	4.1	4.0
3	4	4.3	2.3	4.4	4.2	4.5	3.4	4.1	4.0	3.9	4.0
4	3	4.6	4.5	2.4	4.5	4.4	4.7	3.6	4.3	4.2	4.0
5	6	3.2	4.4	4.3	2.3	4.3	4.1	4.5	3.4	4.1	4.0
6	4	6.4	3.2	4.4	4.3	2.3	4.3	4.1	4.5	3.4	4.1
7	4	4.4	6.2	3.1	4.2	4.1	2.2	4.2	4.0	4.3	3.3
8	5	4.7	4.5	6.5	3.3	4.4	4.3	2.3	4.3	4.2	4.5
9	6	5.6	4.8	4.7	6.7	3.4	4.5	4.4	2.4	4.5	4.3
10	6	6.1	5.4	4.6	4.4	6.3	3.2	4.3	4.2	2.3	4.3
11	5	6.4	6.1	5.3	4.5	4.4	6.3	3.2	4.3	4.2	2.2
12	4	5.4	6.3	6.0	5.2	4.4	4.3	6.1	3.1	4.2	4.1
K-5	23	23.2	24.7	23.6	23.3	25.1	24.5	24.3	23.8	24.4	24.1
6-8	13	15.5	13.9	14.0	11.8	10.8	10.8	10.6	12.8	11.9	11.9
9-12	21	23.5	22.6	20.6	20.8	18.5	18.3	18.0	14.0	15.2	14.9
K-12	57	62.2	61.2	58.2	55.9	54.4	53.6	52.9	50.6	51.5	50.9

Study Area 43
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	3	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	4	2.9	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	4	4.2	3.1	2.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	2	3.8	4.0	2.9	1.9	2.0	1.9	2.1	1.6	1.9	1.9
6	2	2.0	3.8	4.0	2.9	1.9	2.0	1.9	2.1	1.6	1.9
7	3	1.9	1.9	3.7	3.8	2.8	1.8	1.9	1.8	2.1	1.5
8	8	3.1	2.0	2.0	3.8	4.0	2.9	1.9	2.0	1.9	2.1
9	4	8.2	3.2	2.1	2.1	3.9	4.1	3.0	2.0	2.0	1.9
10	3	3.8	7.8	3.1	2.0	2.0	3.8	3.9	2.9	1.9	1.9
11	2	3.0	3.8	7.7	3.0	2.0	2.0	3.7	3.9	2.8	1.9
12	4	2.0	2.9	3.7	7.6	3.0	1.9	1.9	3.6	3.8	2.8
K-5	17	16.9	15.2	12.6	11.8	11.6	11.5	11.4	11.3	11.4	11.4
6-8	13	7.0	7.7	9.7	10.5	8.7	6.7	5.7	5.9	5.6	5.5
9-12	13	17.0	17.7	16.6	14.7	10.9	11.8	12.5	12.4	10.5	8.5
K-12	43	40.9	40.6	38.9	37.0	31.2	30.0	29.6	29.6	27.5	25.4

Study Area 44
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	0	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	3	0.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	2	2.9	0.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	2.1	3.1	0.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	3	1.9	2.0	2.9	0.0	2.0	1.9	2.1	1.6	1.9	1.9
6	2	3.0	1.9	2.0	2.9	0.0	2.0	1.9	2.1	1.6	1.9
7	4	1.9	2.9	1.8	1.9	2.8	0.0	1.9	1.8	2.1	1.5
8	1	4.2	2.0	3.0	1.9	2.0	2.9	0.0	2.0	1.9	2.1
9	3	1.0	4.3	2.1	3.1	2.0	2.1	3.0	0.0	2.0	1.9
10	3	2.8	1.0	4.1	2.0	3.0	1.9	2.0	2.9	0.0	1.9
11	2	3.0	2.8	1.0	4.0	2.0	2.9	1.9	1.9	2.8	0.0
12	2	2.0	2.9	2.8	0.9	3.9	1.9	2.9	1.8	1.9	2.8
K-5	12	10.9	11.3	10.6	9.9	11.6	11.5	11.4	11.3	11.4	11.4
6-8	7	9.1	6.8	6.8	6.7	4.8	4.9	3.8	5.9	5.6	5.5
9-12	10	8.8	11.0	10.0	10.0	10.9	8.8	9.8	6.6	6.7	6.6
K-12	29	28.8	29.1	27.4	26.6	27.3	25.2	25.0	23.8	23.7	23.5

Study Area 45
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	2	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	6	1.9	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	2	6.1	1.9	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	4	2.0	6.2	2.0	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	4	4.1	2.1	6.4	2.0	4.2	4.0	4.5	3.4	4.1	4.0
6	4	4.1	4.2	2.2	6.6	2.1	4.3	4.1	4.6	3.5	4.2
7	4	3.9	4.0	4.2	2.1	6.5	2.1	4.2	4.0	4.6	3.4
8	8	4.0	3.9	4.0	4.1	2.1	6.4	2.0	4.2	4.0	4.5
9	10	8.5	4.2	4.1	4.2	4.4	2.2	6.8	2.2	4.4	4.2
10	4	9.8	8.3	4.1	4.0	4.2	4.3	2.2	6.7	2.1	4.3
11	5	3.7	9.1	7.7	3.8	3.7	3.9	4.0	2.0	6.2	2.0
12	3	5.1	3.8	9.3	7.9	3.9	3.8	3.9	4.1	2.1	6.3
K-5	22	22.0	22.3	23.8	21.2	23.4	23.0	22.9	22.5	23.0	22.8
6-8	16	12.0	12.1	10.4	12.8	10.7	12.8	10.3	12.8	12.1	12.1
9-12	22	27.1	25.4	25.2	19.9	16.2	14.2	16.9	15.0	14.8	16.8
K-12	60	61.1	59.8	59.4	53.9	50.3	50.0	50.1	50.3	49.9	51.7

Study Area 45D
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	0	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	3	0.0	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	0	3.1	0.0	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	2	0.0	3.2	0.0	0.0	1.0	1.0	1.1	0.8	1.0	1.0
6	1	2.1	0.0	3.2	0.0	0.0	1.1	1.0	1.2	0.9	1.1
7	1	1.0	2.0	0.0	3.2	0.0	0.0	1.0	1.0	1.1	0.9
8	2	1.0	1.0	2.0	0.0	3.1	0.0	0.0	1.0	1.0	1.1
9	0	2.1	1.0	1.0	2.1	0.0	3.3	0.0	0.0	1.1	1.1
10	3	0.0	2.1	1.0	1.0	2.1	0.0	3.3	0.0	0.0	1.1
11	0	2.8	0.0	1.9	1.0	0.9	1.9	0.0	3.0	0.0	0.0
12	0	0.0	2.8	0.0	2.0	1.0	1.0	2.0	0.0	3.1	0.0
K-5	6	5.1	6.3	3.8	4.8	5.9	5.8	5.7	5.5	5.7	5.6
6-8	4	4.1	3.0	5.2	3.2	3.1	1.1	2.0	3.2	3.0	3.1
9-12	3	4.9	5.9	3.9	6.1	4.0	6.2	5.3	3.0	4.2	2.2
K-12	13	14.1	15.2	12.9	14.1	13.0	13.1	13.0	11.7	12.9	10.9

Study Area 46A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	1.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	1.9	1.0	1.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0
6	5	2.0	1.9	1.0	1.9	2.8	0.0	0.0	0.0	0.0	0.0
7	5	4.9	1.9	1.8	1.0	1.9	2.8	0.0	0.0	0.0	0.0
8	3	5.2	5.0	2.0	1.9	1.0	2.0	2.9	0.0	0.0	0.0
9	3	3.1	5.4	5.2	2.1	2.0	1.0	2.0	3.0	0.0	0.0
10	6	2.8	2.9	5.1	4.9	2.0	1.9	1.0	1.9	2.8	0.0
11	5	5.9	2.8	2.9	5.0	4.9	2.0	1.9	1.0	1.9	2.8
12	3	4.9	5.8	2.8	2.8	4.9	4.8	1.9	1.8	0.9	1.9
K-5	10	7.8	5.9	4.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0
6-8	13	12.1	8.8	4.8	4.8	5.7	4.8	2.9	0.0	0.0	0.0
9-12	17	16.7	16.9	16.0	14.8	13.8	9.7	6.8	7.7	5.6	4.7
K-12	40	36.6	31.6	25.7	22.4	19.5	14.5	9.7	7.7	5.6	4.7

Study Area 46B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	0	1.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	2	0.0	1.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	2.1	0.0	1.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	1	1.0	2.0	0.0	0.9	2.0	1.9	2.1	1.6	1.9	1.9
6	3	1.0	1.0	2.0	0.0	0.9	2.0	1.9	2.1	1.6	1.9
7	1	2.9	1.0	0.9	1.9	0.0	0.9	1.9	1.8	2.1	1.5
8	4	1.0	3.0	1.0	1.0	2.0	0.0	1.0	2.0	1.9	2.1
9	5	4.1	1.1	3.1	1.0	1.0	2.1	0.0	1.0	2.0	1.9
10	2	4.8	3.9	1.0	3.0	1.0	0.9	2.0	0.0	0.9	1.9
11	2	2.0	4.7	3.9	1.0	2.9	1.0	0.9	1.9	0.0	0.9
12	2	2.0	1.9	4.6	3.8	1.0	2.9	1.0	0.9	1.9	0.0
K-5	7	8.1	9.2	8.7	10.8	11.6	11.5	11.4	11.3	11.4	11.4
6-8	8	4.9	5.0	3.9	2.9	2.9	2.9	4.8	5.9	5.6	5.5
9-12	11	12.9	11.6	12.6	8.8	5.9	6.9	3.9	3.8	4.8	4.7
K-12	26	25.9	25.8	25.2	22.5	20.4	21.3	20.1	21.0	21.8	21.6

Study Area 46C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	2.5	4.3	5.6	6.8	8.2	9.4	19.4	14.3
1	3	1.0	1.0	2.9	5.1	6.9	8.2	9.5	10.9	21.2	20.0
2	0	2.9	1.0	2.6	5.2	7.3	9.1	10.4	11.7	21.5	20.7
3	1	0.0	2.9	2.7	4.9	7.4	9.5	11.3	12.5	22.3	21.1
4	0	1.0	0.0	4.8	5.3	7.6	10.2	12.4	14.2	24.6	23.2
5	3	0.0	1.0	1.6	6.8	7.3	9.5	12.0	14.1	24.1	23.4
6	2	3.0	0.0	2.7	4.0	9.2	9.7	11.9	14.4	25.2	24.1
7	0	1.9	2.9	2.0	5.5	6.8	11.8	12.2	14.4	27.2	24.4
8	1	0.0	2.0	5.2	5.2	8.7	10.1	15.3	15.8	29.2	28.2
9	1	1.0	0.0	4.1	8.2	8.2	11.8	13.2	18.6	29.3	30.0
10	1	1.0	1.0	1.9	6.5	10.4	10.3	13.8	15.2	29.7	27.9
11	2	1.0	0.9	2.9	4.6	9.1	13.0	13.0	16.4	27.6	29.4
12	1	2.0	1.0	2.8	5.5	7.1	11.6	15.4	15.4	28.5	27.0
K-5	8	5.9	7.0	17.1	31.6	42.1	53.3	63.8	72.8	133.1	122.7
6-8	3	4.9	4.9	9.9	14.7	24.7	31.6	39.4	44.6	81.6	76.7
9-12	5	5.0	2.9	11.7	24.8	34.8	46.7	55.4	65.6	115.1	114.3
K-12	16	15.8	14.8	38.7	71.1	101.6	131.6	158.6	183.0	329.8	313.7

Study Area 47
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	1	2.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	4	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	3	4.2	1.0	3.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	2	2.8	4.0	1.0	2.8	2.0	1.9	2.1	1.6	1.9	1.9
6	2	2.0	2.8	4.0	1.0	2.8	2.0	1.9	2.1	1.6	1.9
7	3	1.9	1.9	2.8	3.8	0.9	2.8	1.9	1.8	2.1	1.5
8	7	3.1	2.0	2.0	2.9	4.0	1.0	2.9	2.0	1.9	2.1
9	5	7.2	3.2	2.1	2.1	3.0	4.1	1.0	3.0	2.0	1.9
10	6	4.8	6.8	3.1	2.0	2.0	2.8	3.9	1.0	2.8	1.9
11	6	5.9	4.7	6.8	3.0	2.0	2.0	2.8	3.9	0.9	2.8
12	3	5.9	5.8	4.6	6.6	3.0	1.9	1.9	2.7	3.8	0.9
K-5	15	14.9	14.1	11.7	12.7	11.6	11.5	11.4	11.3	11.4	11.4
6-8	12	7.0	6.7	8.8	7.7	7.7	5.8	6.7	5.9	5.6	5.5
9-12	20	23.8	20.5	16.6	13.7	10.0	10.8	9.6	10.6	9.5	7.5
K-12	47	45.7	41.3	37.1	34.1	29.3	28.1	27.7	27.8	26.5	24.4

Study Area 48
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	2	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0
3	3	2.0	0.0	1.0	0.9	1.1	0.8	1.0	1.0	0.9	0.9
4	1	3.1	2.0	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	3	1.0	3.0	1.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9
6	5	3.0	1.0	3.0	1.9	0.0	1.0	0.9	1.1	0.8	1.0
7	3	4.9	2.9	0.9	2.9	1.9	0.0	0.9	0.9	1.0	0.8
8	4	3.1	5.0	3.0	1.0	3.0	2.0	0.0	1.0	0.9	1.1
9	6	4.1	3.2	5.2	3.1	1.0	3.1	2.0	0.0	1.0	1.0
10	6	5.7	3.9	3.1	4.9	3.0	0.9	2.9	1.9	0.0	1.0
11	4	5.9	5.6	3.9	3.0	4.9	2.9	0.9	2.9	1.9	0.0
12	6	3.9	5.8	5.5	3.8	3.0	4.8	2.9	0.9	2.8	1.9
K-5	10	8.1	8.1	5.8	4.8	5.9	5.7	5.8	5.6	5.8	5.6
6-8	12	11.0	8.9	6.9	5.8	4.9	3.0	1.8	3.0	2.7	2.9
9-12	22	19.6	18.5	17.7	14.8	11.9	11.7	8.7	5.7	5.7	3.9
K-12	44	38.7	35.5	30.4	25.4	22.7	20.4	16.3	14.3	14.2	12.4

Study Area 49
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	5	2.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	3	4.9	2.9	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	4	3.1	5.1	3.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	7	3.8	3.0	4.8	2.8	2.9	2.8	3.2	2.4	2.9	2.8
6	8	7.0	3.8	3.0	4.8	2.8	2.9	2.8	3.2	2.4	2.9
7	5	7.8	6.8	3.7	2.9	4.7	2.8	2.8	2.7	3.1	2.3
8	3	5.2	8.1	7.1	3.8	3.0	4.9	2.9	3.0	2.8	3.2
9	4	3.1	5.4	8.3	7.3	3.9	3.1	5.0	3.0	3.0	2.9
10	3	3.8	2.9	5.1	7.9	6.9	3.8	2.9	4.8	2.8	2.9
11	7	3.0	3.8	2.9	5.0	7.8	6.8	3.7	2.9	4.7	2.8
12	4	6.9	2.9	3.7	2.8	4.9	7.7	6.7	3.6	2.8	4.6
K-5	25	20.7	20.3	19.5	17.4	17.4	17.4	17.2	16.8	17.2	17.0
6-8	16	20.0	18.7	13.8	11.5	10.5	10.6	8.5	8.9	8.3	8.4
9-12	18	16.8	15.0	20.0	23.0	23.5	21.4	18.3	14.3	13.3	13.2
K-12	59	57.5	54.0	53.3	51.9	51.4	49.4	44.0	40.0	38.8	38.6

Study Area 50
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	2.9	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	1.0	3.1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	1.0	1.0	2.9	4.7	0.0	0.0	0.0	0.0	0.0	0.0
6	2	2.0	1.0	1.0	2.9	4.7	0.0	0.0	0.0	0.0	0.0
7	3	1.9	1.9	0.9	1.0	2.8	4.6	0.0	0.0	0.0	0.0
8	1	3.1	2.0	2.0	1.0	1.0	2.9	4.8	0.0	0.0	0.0
9	2	1.0	3.2	2.1	2.1	1.0	1.0	3.0	4.9	0.0	0.0
10	3	1.9	1.0	3.1	2.0	2.0	0.9	1.0	2.9	4.7	0.0
11	1	3.0	1.9	1.0	3.0	2.0	2.0	0.9	1.0	2.8	4.6
12	2	1.0	2.9	1.8	0.9	3.0	1.9	1.9	0.9	0.9	2.8
K-5	12	9.8	8.9	7.9	4.7	0.0	0.0	0.0	0.0	0.0	0.0
6-8	6	7.0	4.9	3.9	4.9	8.5	7.5	4.8	0.0	0.0	0.0
9-12	8	6.9	9.0	8.0	8.0	8.0	5.8	6.8	9.7	8.4	7.4
K-12	26	23.7	22.8	19.8	17.6	16.5	13.3	11.6	9.7	8.4	7.4

Study Area 51
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	3	3.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	5	2.9	3.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	5.2	3.1	4.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	1	1.9	4.9	2.9	3.8	2.0	1.9	2.1	1.6	1.9	1.9
6	3	1.0	1.9	4.9	2.9	3.8	2.0	1.9	2.1	1.6	1.9
7	7	2.9	1.0	1.8	4.8	2.8	3.7	1.9	1.8	2.1	1.5
8	5	7.3	3.0	1.0	1.9	5.0	2.9	3.8	2.0	1.9	2.1
9	4	5.2	7.5	3.1	1.0	2.0	5.1	3.0	3.9	2.0	1.9
10	5	3.8	4.9	7.1	3.0	1.0	1.9	4.9	2.9	3.7	1.9
11	3	5.0	3.8	4.8	7.1	2.9	1.0	1.9	4.8	2.8	3.7
12	7	2.9	4.9	3.7	4.7	6.9	2.9	1.0	1.8	4.7	2.8
K-5	17	17.9	18.0	14.6	13.7	11.6	11.5	11.4	11.3	11.4	11.4
6-8	15	11.2	5.9	7.7	9.6	11.6	8.6	7.6	5.9	5.6	5.5
9-12	19	16.9	21.1	18.7	15.8	12.8	10.9	10.8	13.4	13.2	10.3
K-12	51	46.0	45.0	41.0	39.1	36.0	31.0	29.8	30.6	30.2	27.2

Study Area 52
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	3	1.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	0	2.9	1.0	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	4	0.0	3.1	1.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	1	3.8	0.0	2.9	0.9	2.9	2.8	3.2	2.4	2.9	2.8
6	1	1.0	3.8	0.0	2.9	0.9	2.9	2.8	3.2	2.4	2.9
7	1	1.0	1.0	3.7	0.0	2.8	0.9	2.8	2.7	3.1	2.3
8	1	1.0	1.0	1.0	3.8	0.0	2.9	1.0	3.0	2.8	3.2
9	0	1.0	1.1	1.0	1.0	3.9	0.0	3.0	1.0	3.0	2.9
10	0	0.0	1.0	1.0	1.0	1.0	3.8	0.0	2.9	0.9	2.9
11	1	0.0	0.0	1.0	1.0	1.0	1.0	3.7	0.0	2.8	0.9
12	0	1.0	0.0	0.0	0.9	1.0	1.0	1.0	3.6	0.0	2.8
K-5	12	13.7	13.4	15.6	15.5	17.4	17.4	17.2	16.8	17.2	17.0
6-8	3	3.0	5.8	4.7	6.7	3.7	6.7	6.6	8.9	8.3	8.4
9-12	1	2.0	2.1	3.0	3.9	6.9	5.8	7.7	7.5	6.7	9.5
K-12	16	18.7	21.3	23.3	26.1	28.0	29.9	31.5	33.2	32.2	34.9

Study Area 53
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	6	4.1	3.9	4.5	3.4	4.0	4.0	3.8	3.9	3.9	3.9
2	2	5.9	4.0	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.8
3	1	2.0	5.8	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	2	1.0	2.0	6.0	4.1	3.9	4.5	3.4	4.0	4.0	3.8
5	3	1.9	1.0	1.9	5.7	3.9	3.7	4.2	3.2	3.8	3.8
6	4	3.0	1.9	1.0	1.9	5.7	3.9	3.7	4.2	3.2	3.8
7	5	3.9	2.9	1.8	1.0	1.9	5.5	3.8	3.6	4.1	3.1
8	1	5.2	4.0	3.0	1.9	1.0	2.0	5.7	3.9	3.8	4.3
9	7	1.0	5.4	4.2	3.1	2.0	1.0	2.0	5.9	4.1	3.9
10	5	6.7	1.0	5.1	3.9	3.0	1.9	1.0	1.9	5.6	3.9
11	5	5.0	6.6	1.0	5.0	3.9	2.9	1.9	1.0	1.9	5.6
12	9	4.9	4.9	6.5	0.9	4.9	3.8	2.9	1.8	0.9	1.9
K-5	18	18.7	21.0	23.6	25.3	23.2	23.1	23.0	22.4	23.0	22.9
6-8	10	12.1	8.8	5.8	4.8	8.6	11.4	13.2	11.7	11.1	11.2
9-12	26	17.6	17.9	16.8	12.9	13.8	9.6	7.8	10.6	12.5	15.3
K-12	54	48.4	47.7	46.2	43.0	45.6	44.1	44.0	44.7	46.6	49.4

Study Area 54A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0
7	3	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0
8	0	3.1	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0
9	0	0.0	3.2	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
10	0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	1.0	0.9	0.0
11	0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.9	0.9
12	1	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.9
K-5	2	2.0	2.0	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	3	3.1	0.0	0.0	1.0	1.8	1.9	1.0	0.0	0.0	0.0
9-12	1	0.0	3.2	3.1	3.0	3.0	0.0	1.0	2.0	1.8	1.8
K-12	6	5.1	5.2	5.1	4.9	4.8	1.9	2.0	2.0	1.8	1.8

Study Area 54B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	4	2.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	7	3.9	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	4	7.3	4.1	3.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	3	3.8	6.9	3.9	2.8	2.0	1.9	2.1	1.6	1.9	1.9
6	3	3.0	3.8	6.9	3.9	2.8	2.0	1.9	2.1	1.6	1.9
7	0	2.9	2.9	3.7	6.7	3.8	2.8	1.9	1.8	2.1	1.5
8	3	0.0	3.0	3.0	3.8	7.0	3.9	2.9	2.0	1.9	2.1
9	5	3.1	0.0	3.1	3.1	3.9	7.2	4.0	3.0	2.0	1.9
10	5	4.8	2.9	0.0	3.0	3.0	3.8	6.8	3.8	2.8	1.9
11	1	5.0	4.7	2.9	0.0	2.9	2.9	3.7	6.8	3.8	2.8
12	7	1.0	4.9	4.6	2.8	0.0	2.9	2.9	3.6	6.6	3.7
K-5	23	21.9	20.1	14.6	12.7	11.6	11.5	11.4	11.3	11.4	11.4
6-8	6	5.9	9.7	13.6	14.4	13.6	8.7	6.7	5.9	5.6	5.5
9-12	18	13.9	12.5	10.6	8.9	9.8	16.8	17.4	17.2	15.2	10.3
K-12	47	41.7	42.3	38.8	36.0	35.0	37.0	35.5	34.4	32.2	27.2

Study Area 55
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	1	1.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	3	1.0	1.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	3.1	1.0	1.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	3	1.9	3.0	1.0	0.9	2.0	1.9	2.1	1.6	1.9	1.9
6	4	3.0	1.9	3.0	1.0	0.9	2.0	1.9	2.1	1.6	1.9
7	3	3.9	2.9	1.8	2.9	0.9	0.9	1.9	1.8	2.1	1.5
8	1	3.1	4.0	3.0	1.9	3.0	1.0	1.0	2.0	1.9	2.1
9	5	1.0	3.2	4.2	3.1	2.0	3.1	1.0	1.0	2.0	1.9
10	1	4.8	1.0	3.1	3.9	3.0	1.9	2.9	1.0	0.9	1.9
11	5	1.0	4.7	1.0	3.0	3.9	2.9	1.9	2.9	0.9	0.9
12	3	4.9	1.0	4.6	0.9	3.0	3.8	2.9	1.8	2.8	0.9
K-5	12	11.0	11.2	9.7	10.8	11.6	11.5	11.4	11.3	11.4	11.4
6-8	8	10.0	8.8	7.8	5.8	4.8	3.9	4.8	5.9	5.6	5.5
9-12	14	11.7	9.9	12.9	10.9	11.9	11.7	8.7	6.7	6.6	5.6
K-12	34	32.7	29.9	30.4	27.5	28.3	27.1	24.9	23.9	23.6	22.5

Study Area 56
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	4	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	5	3.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	2	4.9	3.8	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	9	2.1	5.1	4.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	5	8.5	2.0	4.8	3.8	2.9	2.8	3.2	2.4	2.9	2.8
6	3	5.0	8.5	2.0	4.8	3.8	2.9	2.8	3.2	2.4	2.9
7	8	2.9	4.9	8.3	1.9	4.7	3.7	2.8	2.7	3.1	2.3
8	4	8.3	3.0	5.0	8.6	2.0	4.9	3.8	3.0	2.8	3.2
9	5	4.1	8.6	3.1	5.2	8.9	2.1	5.0	3.9	3.0	2.9
10	11	4.8	3.9	8.1	3.0	4.9	8.4	2.0	4.8	3.7	2.9
11	3	10.9	4.7	3.9	8.1	2.9	4.9	8.4	1.9	4.7	3.7
12	7	2.9	10.7	4.6	3.8	7.9	2.9	4.8	8.2	1.9	4.6
K-5	28	25.4	20.2	20.5	18.4	17.4	17.4	17.2	16.8	17.2	17.0
6-8	15	16.2	16.4	15.3	15.3	10.5	11.5	9.4	8.9	8.3	8.4
9-12	26	22.7	27.9	19.7	20.1	24.6	18.3	20.2	18.8	13.3	14.1
K-12	69	64.3	64.5	55.5	53.8	52.5	47.2	46.8	44.5	38.8	39.5

Study Area 57
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	1	4.1	3.9	4.5	3.4	4.0	4.0	3.8	3.9	3.9	3.9
2	2	1.0	4.0	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.8
3	2	2.0	1.0	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	3	2.1	2.0	1.0	4.1	3.9	4.5	3.4	4.0	4.0	3.8
5	2	2.8	2.0	1.9	0.9	3.9	3.7	4.2	3.2	3.8	3.8
6	2	2.0	2.8	2.0	1.9	0.9	3.9	3.7	4.2	3.2	3.8
7	3	1.9	1.9	2.8	1.9	1.9	0.9	3.8	3.6	4.1	3.1
8	0	3.1	2.0	2.0	2.9	2.0	2.0	1.0	3.9	3.8	4.3
9	3	0.0	3.2	2.1	2.1	3.0	2.1	2.0	1.0	4.1	3.9
10	2	2.8	0.0	3.1	2.0	2.0	2.8	2.0	1.9	0.9	3.9
11	5	2.0	2.8	0.0	3.0	2.0	2.0	2.8	1.9	1.9	0.9
12	1	4.9	1.9	2.8	0.0	3.0	1.9	1.9	2.7	1.9	1.9
K-5	14	15.8	17.2	18.6	20.5	23.2	23.1	23.0	22.4	23.0	22.9
6-8	5	7.0	6.7	6.8	6.7	4.8	6.8	8.5	11.7	11.1	11.2
9-12	11	9.7	7.9	8.0	7.1	10.0	8.8	8.7	7.5	8.8	10.6
K-12	30	32.5	31.8	33.4	34.3	38.0	38.7	40.2	41.6	42.9	44.7

Study Area 58
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	2	5.1	4.8	5.5	4.1	5.0	4.9	4.6	4.8	4.8	4.7
2	7	2.0	5.0	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7
3	5	6.9	1.9	4.9	4.7	5.3	4.0	4.8	4.7	4.5	4.7
4	7	5.0	6.8	1.9	4.9	4.6	5.3	4.0	4.8	4.7	4.5
5	3	7.1	5.0	6.9	1.9	4.9	4.7	5.3	4.0	4.8	4.7
6	7	3.1	7.2	5.1	7.0	2.0	5.0	4.8	5.4	4.1	4.9
7	7	7.0	3.1	7.2	5.1	7.0	2.0	5.0	4.8	5.4	4.1
8	3	6.5	6.5	2.8	6.7	4.7	6.5	1.8	4.6	4.4	5.0
9	2	3.2	7.0	7.0	3.1	7.2	5.1	7.0	2.0	5.0	4.8
10	3	1.9	3.1	6.8	6.8	3.0	7.0	5.0	6.8	1.9	4.9
11	7	3.0	1.9	3.1	6.8	6.8	3.0	7.0	4.9	6.7	1.9
12	1	6.8	2.9	1.9	3.0	6.5	6.5	2.9	6.7	4.8	6.5
K-5	29	30.9	28.9	28.1	25.9	28.7	28.4	28.3	27.6	28.3	28.0
6-8	17	16.6	16.8	15.1	18.8	13.7	13.5	11.6	14.8	13.9	14.0
9-12	13	14.9	14.9	18.8	19.7	23.5	21.6	21.9	20.4	18.4	18.1
K-12	59	62.4	60.6	62.0	64.4	65.9	63.5	61.8	62.8	60.6	60.1

Study Area 59A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	4	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	1	4.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	3	1.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	3	3.0	1.0	3.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	4	3.0	3.0	1.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9
6	3	4.1	3.1	3.1	1.0	4.0	1.0	1.0	1.1	0.8	1.0
7	0	3.0	4.1	3.1	3.1	1.0	4.0	1.0	1.0	1.1	0.8
8	1	0.0	2.8	3.8	2.9	2.8	0.9	3.7	0.9	0.9	1.0
9	6	1.1	0.0	3.0	4.1	3.1	3.1	1.0	4.0	1.0	1.0
10	2	5.8	1.0	0.0	2.9	4.0	3.0	3.0	1.0	3.9	1.0
11	5	2.0	5.8	1.0	0.0	2.9	3.9	3.0	3.0	1.0	3.8
12	5	4.9	1.9	5.6	1.0	0.0	2.8	3.8	2.9	2.9	0.9
K-5	16	13.0	11.0	8.7	8.7	5.8	5.7	5.8	5.5	5.7	5.4
6-8	4	7.1	10.0	10.0	7.0	7.8	5.9	5.7	3.0	2.8	2.8
9-12	18	13.8	8.7	9.6	8.0	10.0	12.8	10.8	10.9	8.8	6.7
K-12	38	33.9	29.7	28.3	23.7	23.6	24.4	22.3	19.4	17.3	14.9

Study Area 59B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	3	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	1	2.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	1	1.0	2.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	4	1.0	1.0	2.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9
6	0	4.1	1.0	1.0	3.0	0.0	1.0	1.0	1.1	0.8	1.0
7	0	0.0	4.1	1.0	1.0	3.0	0.0	1.0	1.0	1.1	0.8
8	4	0.0	0.0	3.8	1.0	0.9	2.8	0.0	0.9	0.9	1.0
9	1	4.3	0.0	0.0	4.1	1.0	1.0	3.0	0.0	1.0	1.0
10	1	1.0	4.2	0.0	0.0	4.0	1.0	1.0	2.9	0.0	1.0
11	2	1.0	1.0	4.1	0.0	0.0	3.9	1.0	1.0	2.9	0.0
12	1	1.9	1.0	0.9	4.0	0.0	0.0	3.8	1.0	1.0	2.8
K-5	10	6.9	7.0	6.8	4.8	5.8	5.7	5.8	5.5	5.7	5.4
6-8	4	4.1	5.1	5.8	5.0	3.9	3.8	2.0	3.0	2.8	2.8
9-12	5	8.2	6.2	5.0	8.1	5.0	5.9	8.8	4.9	4.9	4.8
K-12	19	19.2	18.3	17.6	17.9	14.7	15.4	16.6	13.4	13.4	13.0

Study Area 60
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	2	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	0	2.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	2	0.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	2	2.0	0.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	3	2.0	2.0	0.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9
6	1	3.1	2.1	2.0	0.0	2.0	1.0	1.0	1.1	0.8	1.0
7	1	1.0	3.1	2.1	2.0	0.0	2.0	1.0	1.0	1.1	0.8
8	1	0.9	0.9	2.8	1.9	1.9	0.0	1.8	0.9	0.9	1.0
9	1	1.1	1.0	1.0	3.1	2.1	2.0	0.0	2.0	1.0	1.0
10	4	1.0	1.0	1.0	1.0	3.0	2.0	2.0	0.0	1.9	1.0
11	4	4.0	1.0	1.0	1.0	1.0	3.0	2.0	2.0	0.0	1.9
12	3	3.9	3.8	0.9	1.0	0.9	0.9	2.9	1.9	1.9	0.0
K-5	10	8.0	7.0	5.8	6.7	5.8	5.7	5.8	5.5	5.7	5.4
6-8	3	5.0	6.1	6.9	3.9	3.9	3.0	3.8	3.0	2.8	2.8
9-12	12	10.0	6.8	3.9	6.1	7.0	7.9	6.9	5.9	4.8	3.9
K-12	25	23.0	19.9	16.6	16.7	16.7	16.6	16.5	14.4	13.3	12.1

Study Area 61
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	4	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.8
2	4	4.0	3.0	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8
3	4	3.9	3.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	7	4.0	3.9	3.8	2.9	2.8	3.2	2.4	2.9	2.8	2.7
5	9	7.1	4.0	3.9	3.9	2.9	2.8	3.2	2.4	2.9	2.8
6	4	9.2	7.2	4.1	4.0	4.0	3.0	2.9	3.3	2.4	2.9
7	7	4.0	9.2	7.2	4.1	4.0	4.0	3.0	2.9	3.3	2.4
8	9	6.5	3.7	8.5	6.7	3.8	3.7	3.7	2.8	2.7	3.0
9	8	9.7	7.0	4.0	9.2	7.2	4.1	4.0	4.0	3.0	2.9
10	4	7.8	9.4	6.8	3.9	8.9	7.0	4.0	3.9	3.9	2.9
11	7	4.0	7.7	9.3	6.8	3.9	8.9	7.0	3.9	3.9	3.8
12	6	6.8	3.8	7.5	9.1	6.5	3.7	8.6	6.7	3.8	3.7
K-5	31	24.9	21.0	19.2	18.3	17.2	17.0	17.1	16.6	17.0	16.7
6-8	20	19.7	20.1	19.8	14.8	11.8	10.7	9.6	9.0	8.4	8.3
9-12	25	28.3	27.9	27.6	29.0	26.5	23.7	23.6	18.5	14.6	13.3
K-12	76	72.9	69.0	66.6	62.1	55.5	51.4	50.3	44.1	40.0	38.3

Study Area 62
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.8
2	2	3.0	3.0	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8
3	5	2.0	2.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	6	5.0	1.9	2.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7
5	5	6.1	5.0	2.0	2.9	2.9	2.8	3.2	2.4	2.9	2.8
6	3	5.1	6.2	5.1	2.0	3.0	3.0	2.9	3.3	2.4	2.9
7	6	3.0	5.1	6.2	5.1	2.0	3.0	3.0	2.9	3.3	2.4
8	2	5.6	2.8	4.7	5.7	4.7	1.9	2.8	2.8	2.7	3.0
9	7	2.2	6.0	3.0	5.1	6.2	5.1	2.0	3.0	3.0	2.9
10	5	6.8	2.1	5.8	2.9	5.0	6.0	5.0	1.9	2.9	2.9
11	6	5.0	6.7	2.1	5.8	2.9	4.9	6.0	4.9	1.9	2.9
12	3	5.8	4.8	6.5	2.0	5.6	2.8	4.8	5.8	4.8	1.9
K-5	24	22.0	19.0	16.4	17.3	17.2	17.0	17.1	16.6	17.0	16.7
6-8	11	13.7	14.1	16.0	12.8	9.7	7.9	8.7	9.0	8.4	8.3
9-12	21	19.8	19.6	17.4	15.8	19.7	18.8	17.8	15.6	12.6	10.6
K-12	56	55.5	52.7	49.8	45.9	46.6	43.7	43.6	41.2	38.0	35.6

Study Area 63
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	5	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.8
2	5	5.0	3.0	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8
3	8	4.9	4.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	8	7.9	4.9	4.8	2.9	2.8	3.2	2.4	2.9	2.8	2.7
5	6	8.1	8.0	4.9	4.9	2.9	2.8	3.2	2.4	2.9	2.8
6	6	6.1	8.2	8.2	5.0	4.9	3.0	2.9	3.3	2.4	2.9
7	10	6.0	6.1	8.2	8.2	5.0	4.9	3.0	2.9	3.3	2.4
8	5	9.3	5.6	5.7	7.7	7.6	4.6	4.6	2.8	2.7	3.0
9	3	5.4	10.0	6.0	6.1	8.3	8.2	5.0	5.0	3.0	2.9
10	13	2.9	5.2	9.7	5.8	6.0	8.0	7.9	4.9	4.8	2.9
11	2	12.9	2.9	5.2	9.6	5.8	5.9	7.9	7.9	4.8	4.8
12	2	1.9	12.5	2.8	5.0	9.4	5.6	5.7	7.7	7.6	4.7
K-5	35	31.8	27.0	21.2	19.3	17.2	17.0	17.1	16.6	17.0	16.7
6-8	21	21.4	19.9	22.1	20.9	17.5	12.5	10.5	9.0	8.4	8.3
9-12	20	23.1	30.6	23.7	26.5	29.5	27.7	26.5	25.5	20.2	15.3
K-12	76	76.3	77.5	67.0	66.7	64.2	57.2	54.1	51.1	45.6	40.3

Study Area 64
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	7	6.7	7.6	5.7	6.9	6.7	6.4	6.7	6.6	6.6	6.6
1	5	6.7	6.4	7.3	5.5	6.6	6.5	6.2	6.4	6.4	6.3
2	7	4.7	6.3	6.0	6.9	5.1	6.2	6.1	5.8	6.0	6.0
3	6	6.7	4.5	6.1	5.8	6.6	4.9	6.0	5.8	5.6	5.8
4	4	6.5	7.3	4.9	6.6	6.3	7.2	5.4	6.5	6.4	6.1
5	13	3.8	6.3	7.0	4.7	6.3	6.1	6.9	5.2	6.2	6.1
6	6	13.1	3.9	6.3	7.1	4.8	6.4	6.1	7.0	5.2	6.3
7	7	5.7	12.5	3.7	6.0	6.7	4.5	6.1	5.8	6.6	5.0
8	3	6.8	5.5	12.1	3.6	5.8	6.5	4.4	5.9	5.6	6.4
9	7	3.2	7.3	5.9	12.9	3.8	6.3	7.0	4.7	6.3	6.0
10	9	6.8	3.1	7.0	5.7	12.6	3.7	6.1	6.8	4.6	6.1
11	8	9.0	6.8	3.1	7.0	5.7	12.6	3.7	6.1	6.8	4.6
12	6	7.6	8.5	6.5	3.0	6.7	5.5	11.9	3.5	5.8	6.5
K-5	42	35.1	38.4	37.0	36.4	37.6	37.3	37.3	36.3	37.2	36.9
6-8	16	25.6	21.9	22.1	16.7	17.3	17.4	16.6	18.7	17.4	17.7
9-12	30	26.6	25.7	22.5	28.6	28.8	28.1	28.7	21.1	23.5	23.2
K-12	88	87.3	86.0	81.6	81.7	83.7	82.8	82.6	76.1	78.1	77.8

Study Area 65
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	6	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7	5.6	5.7
1	5	6.1	5.8	6.6	4.9	6.0	5.8	5.6	5.8	5.7	5.7
2	5	5.0	6.0	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7
3	2	4.9	4.9	5.9	5.6	6.4	4.8	5.8	5.7	5.4	5.6
4	13	2.0	4.9	4.8	5.8	5.6	6.3	4.7	5.7	5.6	5.3
5	6	13.1	2.0	4.9	4.9	5.9	5.6	6.4	4.8	5.8	5.6
6	4	6.1	13.4	2.0	5.0	4.9	6.0	5.7	6.5	4.9	5.9
7	5	4.0	6.1	13.4	2.0	5.0	4.9	6.0	5.7	6.5	4.9
8	9	4.7	3.7	5.7	12.5	1.9	4.6	4.6	5.6	5.3	6.1
9	5	9.7	5.0	4.0	6.1	13.5	2.0	5.0	5.0	6.0	5.8
10	5	4.9	9.4	4.9	3.9	6.0	13.0	2.0	4.9	4.8	5.8
11	4	5.0	4.8	9.3	4.8	3.9	5.9	12.9	2.0	4.8	4.8
12	3	3.9	4.8	4.7	9.1	4.7	3.7	5.7	12.5	1.9	4.7
K-5	37	36.8	30.1	32.8	33.6	34.6	33.9	34.0	33.2	33.8	33.6
6-8	18	14.8	23.2	21.1	19.5	11.8	15.5	16.3	17.8	16.7	16.9
9-12	17	23.5	24.0	22.9	23.9	28.1	24.6	25.6	24.4	17.5	21.1
K-12	72	75.1	77.3	76.8	77.0	74.5	74.0	75.9	75.4	68.0	71.6

Study Area 66
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	1	4.0	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.8	3.8
2	2	1.0	4.0	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8
3	2	2.0	1.0	3.9	3.7	4.3	3.2	3.8	3.8	3.6	3.7
4	4	2.0	1.9	1.0	3.9	3.7	4.2	3.2	3.8	3.7	3.6
5	2	4.0	2.0	2.0	1.0	3.9	3.7	4.3	3.2	3.8	3.8
6	4	2.0	4.1	2.0	2.0	1.0	4.0	3.8	4.3	3.3	3.9
7	2	4.0	2.0	4.1	2.0	2.0	1.0	4.0	3.8	4.3	3.3
8	4	1.9	3.7	1.9	3.8	1.9	1.9	0.9	3.7	3.6	4.0
9	1	4.3	2.0	4.0	2.0	4.1	2.0	2.0	1.0	4.0	3.8
10	4	1.0	4.2	1.9	3.9	2.0	4.0	2.0	1.9	1.0	3.9
11	2	4.0	1.0	4.1	1.9	3.9	2.0	4.0	2.0	1.9	1.0
12	4	1.9	3.8	0.9	4.0	1.9	3.7	1.9	3.9	1.9	1.9
K-5	15	16.8	17.1	18.4	20.1	23.0	22.6	22.6	22.2	22.5	22.5
6-8	10	7.9	9.8	8.0	7.8	4.9	6.9	8.7	11.8	11.2	11.2
9-12	11	11.2	11.0	10.9	11.8	11.9	11.7	9.9	8.8	8.8	10.6
K-12	36	35.9	37.9	37.3	39.7	39.8	41.2	41.2	42.8	42.5	44.3

Study Area 67
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	7	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	6	6.9	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	9	5.9	6.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	5	8.9	5.8	6.7	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	10	5.1	9.0	5.9	6.8	1.0	0.9	1.1	0.8	1.0	0.9
6	6	10.2	5.2	9.2	6.0	6.9	1.0	1.0	1.1	0.8	1.0
7	11	6.0	10.2	5.2	9.2	6.0	6.9	1.0	1.0	1.1	0.8
8	7	10.2	5.6	9.5	4.8	8.5	5.6	6.4	0.9	0.9	1.0
9	4	7.6	11.0	6.0	10.2	5.2	9.2	6.0	7.0	1.0	1.0
10	7	3.9	7.3	10.7	5.8	9.9	5.0	8.9	5.8	6.7	1.0
11	7	6.9	3.8	7.3	10.6	5.8	9.8	5.0	8.9	5.8	6.7
12	3	6.8	6.7	3.7	7.0	10.3	5.6	9.5	4.8	8.6	5.6
K-5	38	28.8	24.7	16.5	11.6	5.8	5.7	5.8	5.5	5.7	5.4
6-8	24	26.4	21.0	23.9	20.0	21.4	13.5	8.4	3.0	2.8	2.8
9-12	21	25.2	28.8	27.7	33.6	31.2	29.6	29.4	26.5	22.1	14.3
K-12	83	80.4	74.5	68.1	65.2	58.4	48.8	43.6	35.0	30.6	22.5

Study Area 68
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	9	8.6	9.8	7.3	8.8	8.6	8.3	8.6	8.5	8.5	8.5
1	4	9.1	8.7	9.9	7.4	8.9	8.7	8.4	8.7	8.6	8.5
2	5	4.0	9.0	8.6	9.8	7.3	8.8	8.6	8.3	8.6	8.5
3	4	4.9	3.9	8.8	8.4	9.6	7.2	8.7	8.5	8.1	8.4
4	1	4.0	4.9	3.8	8.7	8.3	9.5	7.1	8.6	8.4	8.0
5	7	1.0	4.0	4.9	3.9	8.8	8.4	9.6	7.2	8.7	8.5
6	7	7.1	1.0	4.1	5.0	4.0	9.0	8.6	9.8	7.3	8.8
7	10	7.0	7.1	1.0	4.1	5.0	4.0	9.0	8.6	9.8	7.3
8	4	9.3	6.5	6.6	1.0	3.8	4.6	3.7	8.4	8.0	9.1
9	5	4.3	10.0	7.0	7.2	1.0	4.1	5.0	4.0	9.0	8.6
10	7	4.9	4.2	9.7	6.8	7.0	1.0	4.0	4.9	3.9	8.8
11	7	6.9	4.8	4.1	9.6	6.8	6.9	1.0	3.9	4.8	3.8
12	4	6.8	6.7	4.7	4.0	9.4	6.5	6.7	1.0	3.8	4.7
K-5	30	31.6	40.3	43.3	47.0	51.5	50.9	51.0	49.8	50.9	50.4
6-8	21	23.4	14.6	11.7	10.1	12.8	17.6	21.3	26.8	25.1	25.2
9-12	23	22.9	25.7	25.5	27.6	24.2	18.5	16.7	13.8	21.5	25.9
K-12	74	77.9	80.6	80.5	84.7	88.5	87.0	89.0	90.4	97.5	101.5

Study Area 69A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9	1.9
2	2	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9
3	1	2.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	1.0	1.9	2.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8
5	1	2.0	1.0	2.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9
6	3	1.0	2.1	1.0	2.0	3.0	2.0	1.9	2.2	1.6	2.0
7	4	3.0	1.0	2.1	1.0	2.0	3.0	2.0	1.9	2.2	1.6
8	2	3.7	2.8	0.9	1.9	0.9	1.9	2.8	1.9	1.8	2.0
9	5	2.2	4.0	3.0	1.0	2.1	1.0	2.0	3.0	2.0	1.9
10	1	4.9	2.1	3.9	2.9	1.0	2.0	1.0	1.9	2.9	1.9
11	1	1.0	4.8	2.1	3.9	2.9	1.0	2.0	1.0	1.9	2.9
12	1	1.0	1.0	4.7	2.0	3.7	2.8	1.0	1.9	1.0	1.9
K-5	11	11.9	11.9	12.6	12.5	11.5	11.3	11.3	11.0	11.3	11.3
6-8	9	7.7	5.9	4.0	4.9	5.9	6.9	6.7	6.0	5.6	5.6
9-12	8	9.1	11.9	13.7	9.8	9.7	6.8	6.0	7.8	7.8	8.6
K-12	28	28.7	29.7	30.3	27.2	27.1	25.0	24.0	24.8	24.7	25.5

Study Area 69B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	3.0	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	2.0	3.0	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	4	0.0	2.1	3.1	3.0	1.0	0.0	0.0	0.0	0.0	0.0
7	1	4.0	0.0	2.1	3.1	3.0	1.0	0.0	0.0	0.0	0.0
8	2	0.9	3.7	0.0	1.9	2.8	2.8	0.9	0.0	0.0	0.0
9	4	2.2	1.0	4.0	0.0	2.1	3.1	3.0	1.0	0.0	0.0
10	3	3.9	2.1	1.0	3.9	0.0	2.0	3.0	2.9	1.0	0.0
11	1	3.0	3.8	2.1	1.0	3.9	0.0	2.0	3.0	2.9	1.0
12	1	1.0	2.9	3.7	2.0	0.9	3.7	0.0	1.9	2.9	2.8
K-5	9	8.9	6.9	3.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	7	4.9	5.8	5.2	8.0	6.8	3.8	0.9	0.0	0.0	0.0
9-12	9	10.1	9.8	10.8	6.9	6.9	8.8	8.0	8.8	6.8	3.8
K-12	25	23.9	22.5	19.9	15.9	13.7	12.6	8.9	8.8	6.8	3.8

Study Area 70
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	0	1.9	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	3	0.0	1.8	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	4	3.3	0.0	2.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	1	3.8	3.1	0.0	1.9	2.7	2.6	3.0	2.2	2.7	2.6
6	2	1.0	3.9	3.2	0.0	1.9	2.7	2.6	3.0	2.2	2.7
7	2	1.9	1.0	3.7	3.0	0.0	1.8	2.6	2.5	2.8	2.1
8	1	1.9	1.8	0.9	3.6	2.9	0.0	1.8	2.5	2.4	2.7
9	5	1.1	2.1	2.0	1.0	3.8	3.1	0.0	1.9	2.7	2.6
10	1	4.9	1.0	2.0	1.9	1.0	3.7	3.0	0.0	1.8	2.6
11	4	1.0	4.9	1.0	2.0	1.9	1.0	3.7	3.0	0.0	1.8
12	4	3.8	1.0	4.6	1.0	1.9	1.8	0.9	3.5	2.9	0.0
K-5	13	14.8	13.7	12.7	15.3	16.1	16.1	16.0	15.5	15.9	15.8
6-8	5	4.8	6.7	7.8	6.6	4.8	4.5	7.0	8.0	7.4	7.5
9-12	14	10.8	9.0	9.6	5.9	8.6	9.6	7.6	8.4	7.4	7.0
K-12	32	30.4	29.4	30.1	27.8	29.5	30.2	30.6	31.9	30.7	30.3

Study Area 71
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	5	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	5	4.7	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	3	4.8	4.5	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	4	3.3	5.2	4.9	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	3	3.8	3.1	5.0	4.7	3.6	3.5	3.9	3.0	3.6	3.5
6	5	3.0	3.9	3.2	5.1	4.8	3.7	3.5	4.0	3.0	3.6
7	1	4.8	2.9	3.7	3.0	4.8	4.5	3.5	3.3	3.8	2.8
8	2	1.0	4.6	2.8	3.6	2.9	4.7	4.4	3.4	3.2	3.7
9	3	2.1	1.0	4.9	3.0	3.8	3.1	5.0	4.7	3.6	3.4
10	3	2.9	2.1	1.0	4.8	2.9	3.7	3.0	4.9	4.6	3.5
11	3	3.0	2.9	2.1	1.0	4.8	2.9	3.7	3.0	4.9	4.6
12	0	2.8	2.8	2.8	2.0	1.0	4.5	2.8	3.5	2.9	4.6
K-5	24	24.2	24.4	24.3	22.7	21.5	21.3	21.2	20.8	21.2	21.1
6-8	8	8.8	11.4	9.7	11.7	12.5	12.9	11.4	10.7	10.0	10.1
9-12	9	10.8	8.8	10.8	10.8	12.5	14.2	14.5	16.1	16.0	16.1
K-12	41	43.8	44.6	44.8	45.2	46.5	48.4	47.1	47.6	47.2	47.3

Study Area 72
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	7	3.8	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	3	6.7	3.6	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	0	3.3	7.3	3.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	2	0.0	3.1	7.0	3.8	1.8	1.7	2.0	1.5	1.8	1.7
6	2	2.0	0.0	3.2	7.1	3.8	1.8	1.7	2.0	1.5	1.8
7	3	1.9	1.9	0.0	3.0	6.7	3.6	1.7	1.7	1.9	1.4
8	2	2.9	1.8	1.9	0.0	2.9	6.5	3.5	1.7	1.6	1.8
9	5	2.1	3.1	2.0	2.0	0.0	3.1	7.0	3.8	1.8	1.7
10	4	4.9	2.1	3.0	1.9	1.9	0.0	3.0	6.8	3.6	1.8
11	3	4.0	4.9	2.1	3.0	1.9	1.9	0.0	3.0	6.8	3.6
12	3	2.8	3.8	4.6	2.0	2.9	1.8	1.8	0.0	2.9	6.5
K-5	18	17.6	19.8	18.0	13.0	10.8	10.6	10.6	10.5	10.6	10.5
6-8	7	6.8	3.7	5.1	10.1	13.4	11.9	6.9	5.4	5.0	5.0
9-12	15	13.8	13.9	11.7	8.9	6.7	6.8	11.8	13.6	15.1	13.6
K-12	40	38.2	37.4	34.8	32.0	30.9	29.3	29.3	29.5	30.7	29.1

Study Area 73
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	5	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	4	4.7	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	4	3.8	4.5	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	7	4.4	4.2	4.9	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	6	6.7	4.2	4.0	4.7	2.7	2.6	3.0	2.2	2.7	2.6
6	5	6.1	6.8	4.2	4.1	4.8	2.7	2.6	3.0	2.2	2.7
7	3	4.8	5.8	6.4	4.0	3.9	4.5	2.6	2.5	2.8	2.1
8	8	2.9	4.6	5.6	6.3	3.9	3.7	4.4	2.5	2.4	2.7
9	2	8.6	3.1	4.9	6.0	6.7	4.2	4.0	4.7	2.7	2.6
10	3	1.9	8.3	3.0	4.8	5.8	6.5	4.0	3.9	4.6	2.6
11	2	3.0	1.9	8.3	3.0	4.8	5.8	6.5	4.0	3.9	4.6
12	2	1.9	2.8	1.8	7.9	2.9	4.5	5.5	6.2	3.8	3.7
K-5	29	25.4	21.7	19.6	18.1	16.1	16.1	16.0	15.5	15.9	15.8
6-8	16	13.8	17.2	16.2	14.4	12.6	10.9	9.6	8.0	7.4	7.5
9-12	9	15.4	16.1	18.0	21.7	20.2	21.0	20.0	18.8	15.0	13.5
K-12	54	54.6	55.0	53.8	54.2	48.9	48.0	45.6	42.3	38.3	36.8

Study Area 74
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	2	1.9	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	5	1.9	1.8	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	3	5.5	2.1	2.0	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	3	2.9	5.2	2.0	1.9	1.8	1.7	2.0	1.5	1.8	1.7
6	4	3.0	2.9	5.3	2.0	1.9	1.8	1.7	2.0	1.5	1.8
7	4	3.8	2.9	2.8	5.0	1.9	1.8	1.7	1.7	1.9	1.4
8	8	3.9	3.7	2.8	2.7	4.9	1.9	1.8	1.7	1.6	1.8
9	1	8.6	4.2	3.9	3.0	2.9	5.2	2.0	1.9	1.8	1.7
10	4	1.0	8.3	4.0	3.8	2.9	2.8	5.1	1.9	1.8	1.8
11	6	4.0	1.0	8.3	4.0	3.8	2.9	2.8	5.1	1.9	1.8
12	4	5.7	3.8	0.9	7.9	3.8	3.6	2.8	2.6	4.8	1.8
K-5	17	16.0	14.9	11.1	11.1	10.8	10.6	10.6	10.5	10.6	10.5
6-8	16	10.7	9.5	10.9	9.7	8.7	5.5	5.2	5.4	5.0	5.0
9-12	15	19.3	17.3	17.1	18.7	13.4	14.5	12.7	11.5	10.3	7.1
K-12	48	46.0	41.7	39.1	39.5	32.9	30.6	28.5	27.4	25.9	22.6

Study Area 75
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	3.5	4.1	3.7	3.7	3.7	3.6	3.7	3.7	3.7	3.7
1	0	3.4	4.4	4.5	3.5	3.6	3.5	3.5	3.5	3.5	3.5
2	0	1.5	4.3	4.7	4.3	3.3	3.4	3.3	3.3	3.3	3.3
3	4	1.5	2.5	4.7	4.5	4.1	3.2	3.2	3.2	3.1	3.2
4	3	6.1	2.8	3.4	5.1	4.9	4.5	3.5	3.5	3.5	3.4
5	1	4.4	6.9	3.3	3.2	4.9	4.7	4.3	3.3	3.4	3.3
6	2	2.6	5.5	7.6	3.4	3.3	4.9	4.8	4.3	3.4	3.4
7	1	3.7	3.7	6.0	7.2	3.2	3.1	4.7	4.5	4.1	3.2
8	4	2.8	4.9	4.4	5.8	7.0	3.1	3.0	4.6	4.4	4.0
9	2	6.2	4.4	6.0	4.7	6.2	7.5	3.3	3.2	4.9	4.7
10	3	3.7	7.2	4.9	5.8	4.5	6.0	7.3	3.2	3.1	4.7
11	2	4.8	4.9	7.9	4.9	5.8	4.5	6.0	7.3	3.2	3.1
12	3	3.6	5.7	5.4	7.5	4.7	5.6	4.3	5.7	6.9	3.1
K-5	10	20.4	25.0	24.3	24.3	24.5	22.9	21.5	20.5	20.5	20.4
6-8	7	9.1	14.1	18.0	16.4	13.5	11.1	12.5	13.4	11.9	10.6
9-12	10	18.3	22.2	24.2	22.9	21.2	23.6	20.9	19.4	18.1	15.6
K-12	27	47.8	61.3	66.5	63.6	59.2	57.6	54.9	53.3	50.5	46.6

Study Area 76
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	6	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	3	5.6	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	2	2.9	5.4	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	1	2.2	3.1	5.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	4	1.0	2.1	3.0	5.7	1.8	1.7	2.0	1.5	1.8	1.7
6	3	4.0	1.0	2.1	3.0	5.7	1.8	1.7	2.0	1.5	1.8
7	1	2.8	3.8	0.9	2.0	2.9	5.4	1.7	1.7	1.9	1.4
8	1	1.0	2.8	3.7	0.9	1.9	2.8	5.3	1.7	1.6	1.8
9	6	1.1	1.0	3.0	4.0	1.0	2.1	3.0	5.6	1.8	1.7
10	4	5.8	1.0	1.0	2.9	3.9	0.9	2.0	2.9	5.5	1.8
11	1	4.0	5.8	1.0	1.0	2.9	3.9	0.9	2.0	2.9	5.5
12	4	1.0	3.8	5.5	1.0	1.0	2.7	3.7	0.9	1.9	2.8
K-5	18	15.5	16.4	16.0	14.9	10.8	10.6	10.6	10.5	10.6	10.5
6-8	5	7.8	7.6	6.7	5.9	10.5	10.0	8.7	5.4	5.0	5.0
9-12	15	11.9	11.6	10.5	8.9	8.8	9.6	9.6	11.4	12.1	11.8
K-12	38	35.2	35.6	33.2	29.7	30.1	30.2	28.9	27.3	27.7	27.3

Study Area 77
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	6	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	2	5.6	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	2	1.9	5.4	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	6	2.2	2.1	5.9	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	4	5.8	2.1	2.0	5.7	3.6	3.5	3.9	3.0	3.6	3.5
6	2	4.0	5.8	2.1	2.0	5.7	3.7	3.5	4.0	3.0	3.6
7	1	1.9	3.8	5.5	2.0	1.9	5.4	3.5	3.3	3.8	2.8
8	1	1.0	1.8	3.7	5.4	1.9	1.9	5.3	3.4	3.2	3.7
9	2	1.1	1.0	2.0	4.0	5.7	2.1	2.0	5.6	3.6	3.4
10	3	1.9	1.0	1.0	1.9	3.9	5.6	2.0	1.9	5.5	3.5
11	3	3.0	1.9	1.0	1.0	1.9	3.9	5.6	2.0	1.9	5.5
12	3	2.8	2.8	1.8	1.0	1.0	1.8	3.7	5.3	1.9	1.8
K-5	24	23.1	21.2	22.3	23.7	21.5	21.3	21.2	20.8	21.2	21.1
6-8	4	6.9	11.4	11.3	9.4	9.5	11.0	12.3	10.7	10.0	10.1
9-12	11	8.8	6.7	5.8	7.9	12.5	13.4	13.3	14.8	12.9	14.2
K-12	39	38.8	39.3	39.4	41.0	43.5	45.7	46.8	46.3	44.1	45.4

Study Area 78
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3	2.0	1.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	3.0	2.0	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
6	2	0.0	3.1	2.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0
7	5	2.0	0.0	3.1	2.0	2.0	3.0	0.0	0.0	0.0	0.0
8	3	4.7	1.9	0.0	2.9	1.9	1.9	2.8	0.0	0.0	0.0
9	3	3.2	5.0	2.0	0.0	3.1	2.0	2.0	3.0	0.0	0.0
10	2	2.9	3.1	4.9	1.9	0.0	3.0	2.0	1.9	2.9	0.0
11	4	2.0	2.9	3.1	4.8	1.9	0.0	3.0	2.0	1.9	2.9
12	1	3.9	1.9	2.8	3.0	4.7	1.9	0.0	2.9	1.9	1.9
K-5	10	10.0	6.8	4.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	10	6.7	5.0	5.1	6.9	6.9	4.9	2.8	0.0	0.0	0.0
9-12	10	12.0	12.9	12.8	9.7	9.7	6.9	7.0	9.8	6.7	4.8
K-12	30	28.7	24.7	22.8	19.5	16.6	11.8	9.8	9.8	6.7	4.8

Study Area 79
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9	1.9
2	1	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9
3	2	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	2.0	1.0	2.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8
5	2	2.0	2.0	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9
6	4	2.0	2.1	2.0	1.0	3.0	2.0	1.9	2.2	1.6	2.0
7	2	4.0	2.0	2.1	2.0	1.0	3.0	2.0	1.9	2.2	1.6
8	4	1.9	3.7	1.9	1.9	1.9	0.9	2.8	1.9	1.8	2.0
9	5	4.3	2.0	4.0	2.0	2.1	2.0	1.0	3.0	2.0	1.9
10	1	4.9	4.2	1.9	3.9	2.0	2.0	2.0	1.0	2.9	1.9
11	3	1.0	4.8	4.1	1.9	3.9	2.0	2.0	2.0	1.0	2.9
12	3	2.9	1.0	4.7	4.0	1.9	3.7	1.9	1.9	1.9	0.9
K-5	12	11.9	12.0	11.6	12.5	11.5	11.3	11.3	11.0	11.3	11.3
6-8	10	7.9	7.8	6.0	4.9	5.9	5.9	6.7	6.0	5.6	5.6
9-12	12	13.1	12.0	14.7	11.8	9.9	9.7	6.9	7.9	7.8	7.6
K-12	34	32.9	31.8	32.3	29.2	27.3	26.9	24.9	24.9	24.7	24.5

Study Area 80
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	4	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	2	4.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	1	2.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	2	1.0	1.9	3.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	4	2.0	1.0	2.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9
6	2	4.1	2.1	1.0	2.0	4.0	1.0	1.0	1.1	0.8	1.0
7	4	2.0	4.1	2.1	1.0	2.0	4.0	1.0	1.0	1.1	0.8
8	7	3.7	1.9	3.8	1.9	0.9	1.9	3.7	0.9	0.9	1.0
9	7	7.6	4.0	2.0	4.1	2.1	1.0	2.0	4.0	1.0	1.0
10	8	6.8	7.3	3.9	1.9	4.0	2.0	1.0	1.9	3.9	1.0
11	8	7.9	6.7	7.3	3.9	1.9	3.9	2.0	1.0	1.9	3.8
12	5	7.8	7.7	6.5	7.0	3.7	1.9	3.8	1.9	1.0	1.9
K-5	14	11.0	9.9	9.7	8.7	5.8	5.7	5.8	5.5	5.7	5.4
6-8	13	9.8	8.1	6.9	4.9	6.9	6.9	5.7	3.0	2.8	2.8
9-12	28	30.1	25.7	19.7	16.9	11.7	8.8	8.8	8.8	7.8	7.7
K-12	55	50.9	43.7	36.3	30.5	24.4	21.4	20.3	17.3	16.3	15.9

Study Area 81
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	3	3.8	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	0	2.9	3.6	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	6	0.0	3.1	3.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	3	5.8	0.0	3.0	3.8	1.8	1.7	2.0	1.5	1.8	1.7
6	5	3.0	5.8	0.0	3.0	3.8	1.8	1.7	2.0	1.5	1.8
7	5	4.8	2.9	5.5	0.0	2.9	3.6	1.7	1.7	1.9	1.4
8	6	4.9	4.6	2.8	5.4	0.0	2.8	3.5	1.7	1.6	1.8
9	5	6.4	5.2	4.9	3.0	5.7	0.0	3.0	3.8	1.8	1.7
10	3	4.9	6.2	5.0	4.8	2.9	5.6	0.0	2.9	3.6	1.8
11	9	3.0	4.9	6.2	5.0	4.8	2.9	5.6	0.0	2.9	3.6
12	4	8.5	2.8	4.6	5.9	4.8	4.5	2.8	5.3	0.0	2.8
K-5	18	16.3	12.5	14.0	13.0	10.8	10.6	10.6	10.5	10.6	10.5
6-8	16	12.7	13.3	8.3	8.4	6.7	8.2	6.9	5.4	5.0	5.0
9-12	21	22.8	19.1	20.7	18.7	18.2	13.0	11.4	12.0	8.3	9.9
K-12	55	51.8	44.9	43.0	40.1	35.7	31.8	28.9	27.9	23.9	25.4

Study Area 82A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	3	0.9	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	0	2.9	0.9	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	1	0.0	3.1	1.0	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	9	1.0	0.0	3.0	0.9	1.8	1.7	2.0	1.5	1.8	1.7
6	4	9.1	1.0	0.0	3.0	1.0	1.8	1.7	2.0	1.5	1.8
7	4	3.8	8.6	0.9	0.0	2.9	0.9	1.7	1.7	1.9	1.4
8	3	3.9	3.7	8.4	0.9	0.0	2.8	0.9	1.7	1.6	1.8
9	4	3.2	4.2	3.9	9.0	1.0	0.0	3.0	0.9	1.8	1.7
10	4	3.9	3.1	4.0	3.8	8.7	0.9	0.0	2.9	0.9	1.8
11	4	4.0	3.9	3.1	4.0	3.8	8.7	0.9	0.0	2.9	0.9
12	4	3.8	3.8	3.7	3.0	3.8	3.6	8.3	0.9	0.0	2.8
K-5	16	8.6	9.8	11.1	10.1	10.8	10.6	10.6	10.5	10.6	10.5
6-8	11	16.8	13.3	9.3	3.9	3.9	5.5	4.3	5.4	5.0	5.0
9-12	16	14.9	15.0	14.7	19.8	17.3	13.2	12.2	4.7	5.6	7.2
K-12	43	40.3	38.1	35.1	33.8	32.0	29.3	27.1	20.6	21.2	22.7

Study Area 82B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	1.8	9.6	17.3	20.7	20.3	21.5	22.2	21.3	21.3	21.3
1	1	1.7	10.0	20.4	25.1	23.4	22.2	22.6	21.3	20.4	20.4
2	0	2.6	9.7	20.4	27.5	27.0	24.7	22.8	21.2	20.0	19.2
3	1	1.7	10.8	20.6	28.0	29.9	28.6	25.6	21.9	20.4	19.2
4	1	3.0	11.3	24.5	32.0	34.5	35.7	33.5	28.0	23.9	22.2
5	1	2.7	11.2	22.1	32.0	34.2	35.9	36.2	32.1	26.8	22.9
6	3	2.8	11.4	23.1	31.2	36.0	37.4	38.3	36.6	32.4	27.1
7	1	4.8	12.3	23.9	31.8	33.5	37.3	38.0	36.4	34.8	30.8
8	1	3.0	14.5	25.3	33.3	34.8	35.6	38.6	36.8	35.3	33.7
9	1	3.2	13.4	29.4	37.5	39.7	40.6	40.7	41.3	39.4	37.8
10	2	2.9	12.3	25.5	37.9	40.1	41.6	41.6	39.4	40.1	38.2
11	1	3.9	12.4	25.2	35.3	41.8	43.2	43.9	41.6	39.4	40.1
12	2	2.8	12.8	24.1	33.2	37.2	42.6	43.3	41.7	39.5	37.5
K-5	4	13.5	62.6	125.3	165.3	169.3	168.6	162.9	145.8	132.8	125.2
6-8	5	10.6	38.2	72.3	96.3	104.3	110.3	114.9	109.8	102.5	91.6
9-12	6	12.8	50.9	104.2	143.9	158.8	168.0	169.5	164.0	158.4	153.6
K-12	15	36.9	151.7	301.8	405.5	432.4	446.9	447.3	419.6	393.7	370.4

Study Area 82C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	1	2.1	2.0	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	2	2.1	2.0	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 83
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	0	0.0	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	0	0.0	0.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	0	0.0	0.0	0.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9	0.9
6	0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.8	0.9	0.7
8	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.9
9	0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
10	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
11	1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	1	2.0	2.9	3.6	4.5	5.3	5.3	5.5	5.0	5.3	5.3
6-8	1	0.0	0.0	0.0	0.0	0.0	0.9	1.8	2.6	2.4	2.5
9-12	1	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.9	1.8
K-12	3	4.1	3.9	4.6	5.5	5.3	6.2	7.3	7.6	8.6	9.6

Study Area 84
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	3	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	4	2.8	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	3	3.8	2.7	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	4	3.3	4.2	3.0	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	4	3.8	3.1	4.0	2.8	3.6	3.5	3.9	3.0	3.6	3.5
6	3	4.0	3.9	3.2	4.1	2.9	3.7	3.5	4.0	3.0	3.6
7	2	2.8	3.8	3.7	3.0	3.9	2.7	3.5	3.3	3.8	2.8
8	3	1.9	2.8	3.7	3.6	2.9	3.7	2.6	3.4	3.2	3.7
9	4	3.2	2.1	3.0	4.0	3.8	3.1	4.0	2.8	3.6	3.4
10	4	3.9	3.1	2.0	2.9	3.9	3.7	3.0	3.9	2.7	3.5
11	7	4.0	3.9	3.1	2.0	2.9	3.9	3.7	3.0	3.9	2.7
12	6	6.7	3.8	3.7	3.0	1.9	2.7	3.7	3.5	2.9	3.7
K-5	22	21.3	21.6	21.4	20.8	21.5	21.3	21.2	20.8	21.2	21.1
6-8	8	8.7	10.5	10.6	10.7	9.7	10.1	9.6	10.7	10.0	10.1
9-12	21	17.8	12.9	11.8	11.9	12.5	13.4	14.4	13.2	13.1	13.3
K-12	51	47.8	45.0	43.8	43.4	43.7	44.8	45.2	44.7	44.3	44.5

Study Area 85A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	3	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	2	2.8	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	4	1.9	2.7	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	1	4.4	2.1	3.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	4	1.0	4.2	2.0	2.8	0.9	0.9	1.0	0.7	0.9	0.9
6	5	4.0	1.0	4.2	2.0	2.9	0.9	0.9	1.0	0.7	0.9
7	5	4.8	3.8	0.9	4.0	1.9	2.7	0.9	0.8	0.9	0.7
8	3	4.9	4.6	3.7	0.9	3.9	1.9	2.6	0.8	0.8	0.9
9	5	3.2	5.2	4.9	4.0	1.0	4.2	2.0	2.8	0.9	0.9
10	5	4.9	3.1	5.0	4.8	3.9	0.9	4.0	1.9	2.7	0.9
11	4	5.0	4.9	3.1	5.0	4.8	3.9	0.9	4.0	1.9	2.7
12	1	3.8	4.8	4.6	3.0	4.8	4.5	3.7	0.9	3.8	1.8
K-5	15	12.1	11.9	8.6	7.3	5.3	5.3	5.5	5.0	5.3	5.3
6-8	13	13.7	9.4	8.8	6.9	8.7	5.5	4.4	2.6	2.4	2.5
9-12	15	16.9	18.0	17.6	16.8	14.5	13.5	10.6	9.6	9.3	6.3
K-12	43	42.7	39.3	35.0	31.0	28.5	24.3	20.5	17.2	17.0	14.1

Study Area 85B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	0	0.9	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	0	0.0	0.9	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	1	0.0	0.0	1.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	3	1.0	0.0	0.0	0.9	2.7	2.6	3.0	2.2	2.7	2.6
6	2	3.0	1.0	0.0	0.0	1.0	2.7	2.6	3.0	2.2	2.7
7	2	1.9	2.9	0.9	0.0	0.0	0.9	2.6	2.5	2.8	2.1
8	8	1.9	1.8	2.8	0.9	0.0	0.0	0.9	2.5	2.4	2.7
9	4	8.6	2.1	2.0	3.0	1.0	0.0	0.0	0.9	2.7	2.6
10	0	3.9	8.3	2.0	1.9	2.9	0.9	0.0	0.0	0.9	2.6
11	4	0.0	3.9	8.3	2.0	1.9	2.9	0.9	0.0	0.0	0.9
12	1	3.8	0.0	3.7	7.9	1.9	1.8	2.8	0.9	0.0	0.0
K-5	8	7.7	9.7	11.7	14.3	16.1	16.1	16.0	15.5	15.9	15.8
6-8	12	6.8	5.7	3.7	0.9	1.0	3.6	6.1	8.0	7.4	7.5
9-12	9	16.3	14.3	16.0	14.8	7.7	5.6	3.7	1.8	3.6	6.1
K-12	29	30.8	29.7	31.4	30.0	24.8	25.3	25.8	25.3	26.9	29.4

Study Area 86A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	1.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	1.0	1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	1.0	1.1	1.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0
6	1	1.0	1.1	1.1	1.1	3.1	0.0	0.0	0.0	0.0	0.0
7	3	1.0	1.0	1.0	1.1	1.1	3.1	0.0	0.0	0.0	0.0
8	3	3.0	1.0	1.0	1.0	1.0	1.1	3.1	0.0	0.0	0.0
9	8	3.2	3.1	1.0	1.1	1.1	1.1	1.1	3.2	0.0	0.0
10	4	7.8	3.1	3.1	1.0	1.0	1.1	1.1	1.1	3.2	0.0
11	3	3.7	7.3	2.9	2.9	0.9	1.0	1.0	1.0	1.0	2.9
12	4	3.1	3.8	7.4	3.0	2.9	1.0	1.0	1.0	1.0	1.1
K-5	7	5.8	5.0	4.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0
6-8	7	5.0	3.1	3.1	3.2	5.2	4.2	3.1	0.0	0.0	0.0
9-12	19	17.8	17.3	14.4	8.0	5.9	4.2	4.2	6.3	5.2	4.0
K-12	33	28.6	25.4	21.6	14.3	11.1	8.4	7.3	6.3	5.2	4.0

Study Area 86B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	0	0.0	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	0	0.0	0.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	4	0.0	0.0	0.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	1	3.8	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9	0.9
6	1	1.0	3.9	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9
7	2	1.0	1.0	3.7	0.0	0.0	0.0	0.9	0.8	0.9	0.7
8	1	1.9	0.9	0.9	3.6	0.0	0.0	0.0	0.8	0.8	0.9
9	3	1.1	2.1	1.0	1.0	3.8	0.0	0.0	0.0	0.9	0.9
10	4	2.9	1.0	2.0	1.0	1.0	3.7	0.0	0.0	0.0	0.9
11	1	4.0	2.9	1.0	2.0	1.0	1.0	3.7	0.0	0.0	0.0
12	1	1.0	3.8	2.8	1.0	1.9	0.9	0.9	3.5	0.0	0.0
K-5	6	5.8	2.9	3.6	4.5	5.3	5.3	5.5	5.0	5.3	5.3
6-8	4	3.9	5.8	4.6	3.6	0.0	0.9	1.8	2.6	2.4	2.5
9-12	9	9.0	9.8	6.8	5.0	7.7	5.6	4.6	3.5	0.9	1.8
K-12	19	18.7	18.5	15.0	13.1	13.0	11.8	11.9	11.1	8.6	9.6

Study Area 86C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	2	1.9	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	1	1.9	1.8	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	4	1.1	2.1	2.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	1	3.8	1.0	2.0	1.9	2.7	2.6	3.0	2.2	2.7	2.6
6	1	1.0	3.9	1.1	2.0	1.9	2.7	2.6	3.0	2.2	2.7
7	3	1.0	1.0	3.7	1.0	1.9	1.8	2.6	2.5	2.8	2.1
8	5	2.9	0.9	0.9	3.6	1.0	1.9	1.8	2.5	2.4	2.7
9	2	5.4	3.1	1.0	1.0	3.8	1.0	2.0	1.9	2.7	2.6
10	2	1.9	5.2	3.0	1.0	1.0	3.7	1.0	1.9	1.8	2.6
11	5	2.0	1.9	5.2	3.0	1.0	1.0	3.7	1.0	1.9	1.8
12	1	4.8	1.9	1.8	4.9	2.9	0.9	0.9	3.5	1.0	1.8
K-5	13	14.5	13.7	14.7	15.3	16.1	16.1	16.0	15.5	15.9	15.8
6-8	9	4.9	5.8	5.7	6.6	4.8	6.4	7.0	8.0	7.4	7.5
9-12	10	14.1	12.1	11.0	9.9	8.7	6.6	7.6	8.3	7.4	8.8
K-12	32	33.5	31.6	31.4	31.8	29.6	29.1	30.6	31.8	30.7	32.1

Study Area 86D
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	3.8	9.2	14.5	19.1	23.7	29.8	25.2	25.2	25.2	25.2
1	1	3.8	11.2	18.2	23.5	28.2	34.5	30.4	25.7	25.7	25.7
2	1	4.5	10.5	18.8	25.4	30.5	36.4	32.7	28.9	24.4	24.4
3	0	4.9	12.0	19.4	27.9	34.6	41.4	37.1	33.4	29.5	24.9
4	3	3.8	12.3	20.9	28.6	37.2	45.6	42.2	37.9	34.1	30.1
5	3	7.0	11.4	21.5	30.4	38.3	48.7	47.0	43.5	39.0	35.1
6	2	7.0	14.6	20.5	31.0	40.1	49.8	50.2	48.4	44.8	40.2
7	0	6.5	15.5	24.6	30.4	40.7	51.4	48.8	49.1	47.4	43.9
8	1	4.6	15.2	25.7	34.7	40.5	52.5	50.9	48.3	48.7	47.0
9	3	5.6	13.6	26.4	37.6	47.2	55.1	55.6	54.0	51.2	51.6
10	1	7.2	13.6	22.9	35.5	46.5	57.5	54.0	54.5	52.9	50.2
11	0	4.9	14.3	21.7	30.4	42.1	53.9	53.5	50.3	50.7	49.2
12	2	4.4	13.4	24.6	32.1	41.0	54.7	55.0	54.6	51.3	51.7
K-5	8	27.8	66.6	113.3	154.9	192.5	236.4	214.6	194.6	177.9	165.4
6-8	3	18.1	45.3	70.8	96.1	121.3	153.7	149.9	145.8	140.9	131.1
9-12	6	22.1	54.9	95.6	135.6	176.8	221.2	218.1	213.4	206.1	202.7
K-12	17	68.0	166.8	279.7	386.6	490.6	611.3	582.6	553.8	524.9	499.2

Study Area 87
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
12	1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	1	0.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
K-12	2	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0

Housing Profile

Sherwood School District Boundary

Prepared using SchoolSite by DDP

Population		Households	
2010 Total Population	24,524	2022 Median Household Income	$118,131
2020 Total Population	27,241	2027 Median Household Income	$134,255
2022 Total Population	27,338	2022-2027 Annual Rate	2.59%
2027 Total Population	27,695		
2022-2027 Annual Rate	0.26%		

	Census 2010		2022		2027	
Housing Units by Occupancy Status and Tenure	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Housing Units	8,450	100.0%	9,155	100.0%	9,325	100.0%
Occupied	8,083	95.7%	8,846	96.6%	8,955	96.0%
Owner	6,134	72.6%	6,861	74.9%	7,002	75.1%
Renter	1,949	23.1%	1,985	21.7%	1,953	20.9%
Vacant	367	4.3%	308	3.4%	370	4.0%

	2022		2027	
Owner Occupied Housing Units by Value	**Number**	**Percent**	**Number**	**Percent**
Total	6,861	100.0%	7,003	100.0%
<$50,000	22	0.3%	0	0.0%
$50,000-$99,999	4	0.1%	0	0.0%
$100,000-$149,999	3	0.0%	0	0.0%
$150,000-$199,999	3	0.0%	0	0.0%
$200,000-$249,999	41	0.6%	0	0.0%
$250,000-$299,999	71	1.0%	7	0.1%
$300,000-$399,999	893	13.0%	416	5.9%
$400,000-$499,999	1,890	27.5%	1,703	24.3%
$500,000-$749,999	2,627	38.3%	3,336	47.6%
$750,000-$999,999	1,068	15.6%	1,192	17.0%
$1,000,000-$1,499,999	145	2.1%	211	3.0%
$1,500,000-$1,999,999	54	0.8%	104	1.5%
$2,000,000+	40	0.6%	34	0.5%
Median Value	$547,916		$603,080	
Average Value	$602,780		$651,739	

Census 2010 Housing Units	**Number**	**Percent**
Total	8,450	100.0%
In Urbanized Areas	7,146	84.6%
In Urban Clusters	0	0.0%
Rural Housing Units	1,304	15.4%

Data Note: Persons of Hispanic Origin may be of any race.
Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

April 19, 2023

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Census 2010 Owner Occupied Housing Units by Mortgage Status	Number	Percent
Total	6,134	100.0%
Owned with a Mortgage/Loan	5,207	84.9%
Owned Free and Clear	927	15.1%

Census 2010 Vacant Housing Units by Status	Number	Percent
Total	368	100.0%
For Rent	104	28.3%
Rented- Not Occupied	7	1.9%
For Sale Only	107	29.1%
Sold - Not Occupied	25	6.8%
Seasonal/Recreational/Occasional Use	37	10.1%
For Migrant Workers	0	0.0%
Other Vacant	88	23.9%

Census 2010 Occupied Housing Units by Age of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,084	6,135	75.9%
15-24	164	43	26.2%
25-34	1,167	734	62.9%
35-44	2,242	1,744	77.8%
45-54	1,845	1,536	83.3%
55-64	1,339	1,102	82.3%
65-74	723	606	83.8%
75-84	391	282	72.1%
85+	213	88	41.3%

Census 2010 Occupied Housing Units by Race/Ethnicity of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,082	6,134	75.9%
White Alone	7,451	5,687	76.3%
Black/African American Alone	58	37	63.8%
American Indian/Alaska Native	38	23	60.5%
Asian Alone	224	183	81.7%
Pacific Islander Alone	15	7	46.7%
Other Race Alone	152	100	65.8%
Two or More Races	144	97	67.4%
Hispanic Origin	368	244	66.3%

Census 2010 Occupied Housing Units by Size and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,081	6,134	75.9%
1-Person	1,577	905	57.4%
2-Person	2,463	1,969	79.9%
3-Person	1,427	1,098	76.9%
4-Person	1,646	1,383	84.0%
5-Person	643	527	82.0%
6-Person	221	172	77.8%
7+ Person	104	80	76.9%

2022 Housing Affordability	
Housing Affordability Index	96
Percent of Income for Mortgage	24.4%

Data Note: Persons of Hispanic Origin may be of any race.
Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

April 19, 2023

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Demographic and Income Profile

Sherwood School District Boundary

Prepared using SchoolSite by DDP

Summary	Census 2010	Census 2020	2022	2027
Population	24,524	27,241	27,338	27,695
Households	8,083	8,801	8,847	8,955
Families	6,149	-	6,564	6,622
Average Household Size	2.89	2.94	2.94	2.94
Owner Occupied Housing Units	6,134	-	6,861	7,002
Renter Occupied Housing Units	1,949	-	1,985	1,953
Median Age	36.0	-	37.6	38.1

Trends: 2022-2027 Annual Rate	Area	State	National
Population	0.26%	0.31%	0.25%
Households	0.24%	0.29%	0.31%
Families	0.18%	0.18%	0.28%
Owner HHs	0.41%	0.47%	0.53%
Median Household Income	2.59%	3.75%	3.12%

	2022		2027	
Households by Income	Number	Percent	Number	Percent
<$15,000	265	3.0%	151	1.7%
$15,000 - $24,999	212	2.4%	104	1.2%
$25,000 - $34,999	301	3.4%	141	1.6%
$35,000 - $49,999	449	5.1%	240	2.7%
$50,000 - $74,999	1,172	13.2%	945	10.6%
$75,000 - $99,999	1,011	11.4%	1,047	11.7%
$100,000 - $149,999	2,144	24.2%	2,396	26.8%
$150,000 - $199,999	1,635	18.5%	2,097	23.4%
$200,000+	1,656	18.7%	1,834	20.5%
Median Household Income	$118,131		$134,255	
Average Household Income	$150,180		$170,934	
Per Capita Income	$49,782		$56,619	

	Census 2010		2022		2027	
Population by Age	Number	Percent	Number	Percent	Number	Percent
0 - 4	1,740	7.1%	1,708	6.2%	1,698	6.1%
5 - 9	2,167	8.8%	2,058	7.5%	1,983	7.2%
10 - 14	2,187	8.9%	2,127	7.8%	2,131	7.7%
15 - 19	1,570	6.4%	1,848	6.8%	1,739	6.3%
20 - 24	997	4.1%	1,452	5.3%	1,328	4.8%
25 - 34	3,121	12.7%	3,370	12.3%	3,627	13.1%
35 - 44	4,629	18.9%	4,309	15.8%	4,269	15.4%
45 - 54	3,585	14.6%	4,041	14.8%	3,828	13.8%
55 - 64	2,438	9.9%	3,164	11.6%	3,276	11.8%
65 - 74	1,214	5.0%	2,110	7.7%	2,327	8.4%
75 - 84	586	2.4%	860	3.1%	1,163	4.2%
85+	288	1.2%	293	1.1%	326	1.2%

	Census 2010		Census 2020		2022		2027	
Race and Ethnicity	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White Alone	21,845	89.1%	21,927	80.5%	21,882	80.0%	21,695	78.3%
Black Alone	273	1.1%	244	0.9%	244	0.9%	259	0.9%
American Indian Alone	149	0.6%	278	1.0%	279	1.0%	288	1.0%
Asian Alone	748	3.1%	1,145	4.2%	1,164	4.3%	1,273	4.6%
Pacific Islander Alone	71	0.3%	104	0.4%	104	0.4%	111	0.4%
Some Other Race Alone	625	2.5%	961	3.5%	974	3.6%	1,025	3.7%
Two or More Races	813	3.3%	2,583	9.5%	2,691	9.8%	3,043	11.0%
Hispanic Origin (Any Race)	1,656	6.8%	2,620	9.6%	2,654	9.7%	2,727	9.8%

Data Note: Income is expressed in current dollars.

Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

April 19, 2023

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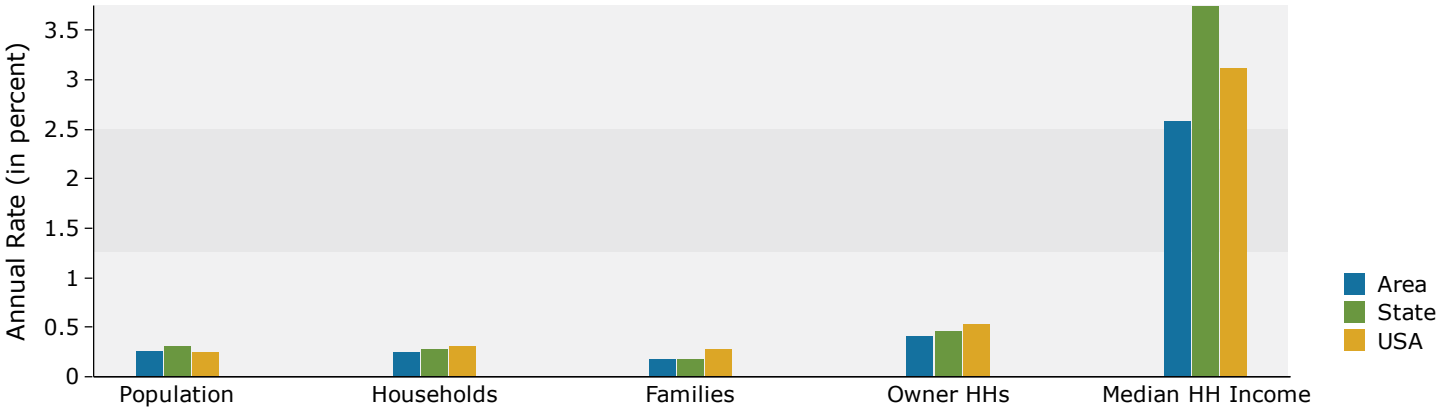
Demographic and Income Profile

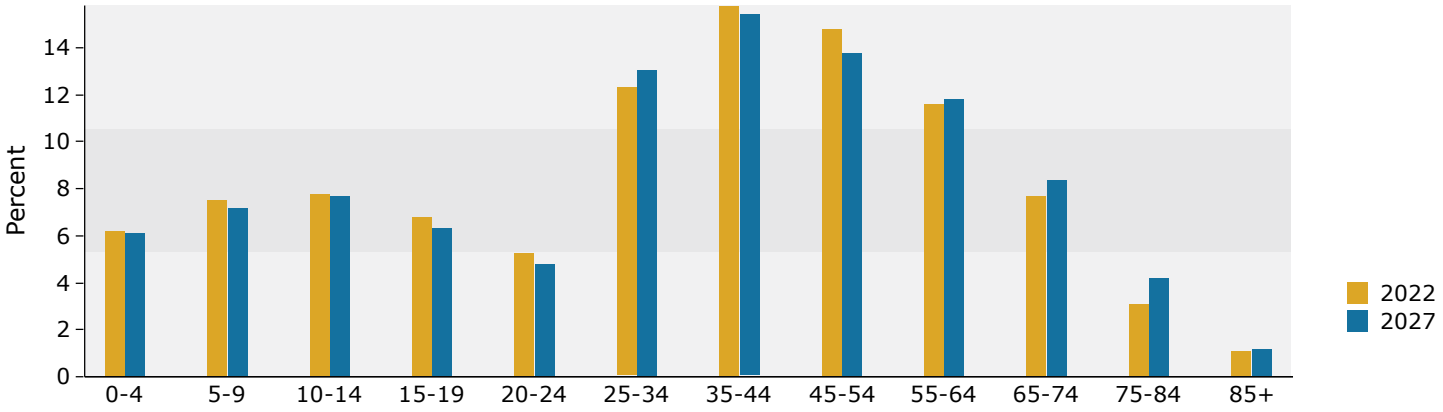
Sherwood School District Boundary

Prepared using SchoolSite by DDP

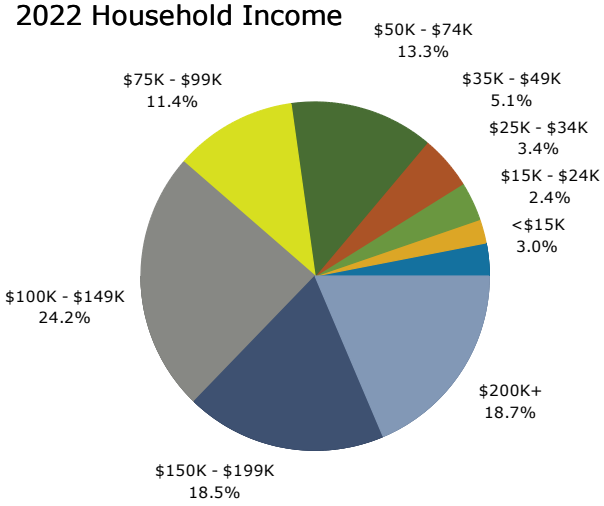
Trends 2022-2027



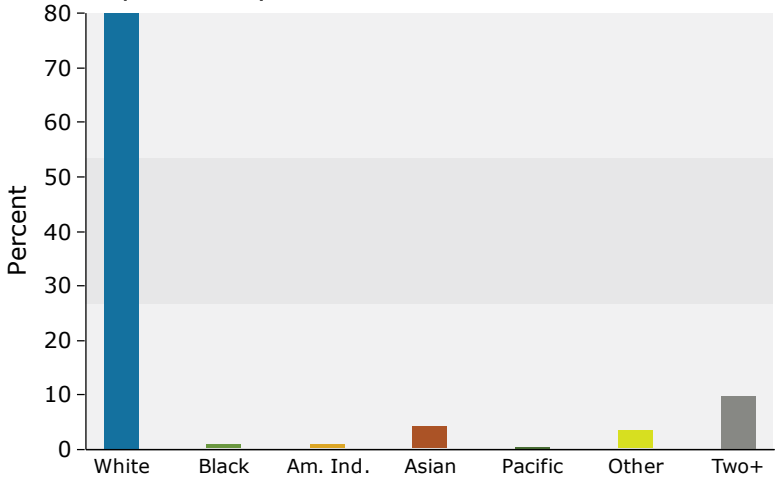
Population by Age



2022 Household Income



2022 Population by Race



2022 Percent Hispanic Origin:9.7%

Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

April 19, 2023

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Sherwood School District

Sherwood, Oregon

10-Year Student Forecast

By Residence

Fall 2023-2032

(Based on Fall 2022 Data)

April 25, 2023

Prepared by

DAVIS DEMOGRAPHICS | MGT

11801 Pierce Street, Suite 125
Riverside, California 92505
Phone: (951)-270-5211
www.DavisDemographics.com

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*The Third Party Demographic Reports are prepared using ESRI's Business Analyst Online (BAO). Reports are created by overlaying the Sherwood School District boundary onto the ESRI BAO data. These reports are for informational purposes only; DD is not responsible for the accuracy of the data.

INTRODUCTION

The Sherwood School District has contracted with Davis Demographics & Planning, Inc. (DD) to develop and analyze demographic data relevant to the District's facility planning efforts. The scope of contracted work includes mapping the District, address matching the current student file, developing, and researching pertinent demographic data, identifying future residential development plans, and developing a ten-year student population forecast. DD will then assist the District in developing solutions for housing future student population. Additionally, this study was prepared to assist the District's efforts in evaluating future site requirements and attendance area changes.

The purpose of this report is to identify and inform the District of current trends occurring in the community; how these trends may affect future student population; and to assist in illustrating facility adjustments that may be necessary to accommodate the potential student population shifts. The District can then use this information to better plan for the need, location and timing of facility or boundary adjustments.

The **Sources of Data** section details where the two sources of data, geographic and non-geographic, are collected and how each data item is used in the ten-year student population forecast model.

The **Ten Year Forecast Methodology** section discusses in detail how the factors used in the study were calculated and why they were used. These factors include the calculation of incoming kindergarten classes, additional students from new housing (referred to as student yield), the effects of student mobility, and a detailed review of planned residential development within the District.

While reading this report, it is important to remember that this is a snapshot of current (October 2022), and potential student population based upon data gathered in Fall 2022. DD uses known residential housing projects that have been filed with the City or County and estimates future annual phasing of only these projects. DD does not estimate any additional units beyond the "known" filed projects and therefore it is possible that more units could be built during this ten-year timeframe. Population demographics, development plans, funding opportunities and district priorities can all change, and therefore, new forecasts and adjustments to the overall Master Plan will continue to be necessary in the future.

On February 12, 2020, the Sherwood SD Board of Directors approved new elementary school boundaries that went into effect in time for the 2020/21 SY and a series of changes took place. The new location for Sherwood HS is located in the western portion of the District. The former Sherwood HS site became the new district-wide middle school. Four main elementary schools still exist, but the old Hopkins ES site became the new District Office, and the former Sherwood MS site is now called Hawks View ES. The former Laurel Ridge MS site was combined with its former Edy Ridge ES site to become a larger campus called Ridges ES. The 10-year forecasted figures in this report will focus on these new boundaries.

EXECUTIVE SUMMARY

Davis Demographics & Planning, Inc. is assisting the Sherwood School District in planning for future student population changes. By factoring current and historical student data with demographic data and planned residential development, DD calculated a ten-year student population forecast. This forecast is based upon the residence of the students and is designed to alert the District as to when and where student population shifts will occur.

On February 12, 2020, the Sherwood SD Board of Directors approved new elementary school boundaries that went into effect in time for the 2020/21 SY and a series of changes took place. A new location for Sherwood HS was located in the western portion of the District. The former Sherwood HS site became the new district-wide middle school. Four main elementary schools are still in existence, but the old Hopkins ES site is now the new District Office and the former Sherwood MS is now called Hawks View ES. The former Laurel Ridge MS site combined with its neighboring Edy Ridge ES to become a larger campus called Ridges ES. The 10-year forecasted figures in this report will focus on these new boundaries.

The Sherwood School District experienced growth in resident student population from 2012 to 2017 but has seen some declines over the last few years, especially in 2020. The District experienced a big jump in its K-12 Student population from fall 2014 to fall 2015, but in 2016 the growth was minimal, and that slow growth trend continued in 2017. Between 2018 and 2019 the Sherwood SD declined by 83 K-12 students and in 2020 that drop was more dramatic; the District lost 400 K-12 students in 2020. Most of the decline in 2020 occurred in the elementary school grades (K-5). The K-5 loss was 18% or 324 students, while the middle school grades 6-8 lost 5.5% (67 6-8 students) and the high school grades lost only 9 total students. The main reason for the loss in 2020 was due to the impact of COVID and the parents pulling their students out of public school (mostly at the Kindergarten level). Over the last few years, the Sherwood SD student population gained back some students, but not many. As of 2022, the District contained 4,674 K-12 students, only 56 more than in 2020; not really gaining back much from that initial 400 student loss.

According to the forecast, the Sherwood School District should see one more year of slight declines in 2023 and then start to see its K-12 student population over the next five years as some of the larger new development begins to start construction. In 2022, the K-12 student population is at 4,674 and that is projected to grow by almost 246 more students over the next five years (to 4,920 K-12 by 2028). It is possible that more students will return to the District over the next few years, but the current trends show otherwise. Now that we are a few years out from the worst of the pandemic, it might be safe to say that the "numbers are the numbers" and that the current forecast might be the most accurate looking forward than in recent years. The lower sized grade classes currently within the elementary school grades eventually reach the District's middle and high school grades and therefore produce a set of declining forecasts for most of the next ten years, despite the growth in new

housing. Most of the District is "aging out" with less students transitioning from grade to grade as well as the birth rate figures continuing to lower.

The progress of the large specific plans, including the beginning of the Autumn Sunrise projects (within the Basalt Creek Planning Area) and the Middlebrook Subdivision (within the Brookman Road Concept plan) all play a large role in whether there is going to be additional student growth within the District boundary. The start-up of these two large projects is included in the 10-year forecast, but the long-delayed Sherwood West units are not. The Autumn Sunrise units began in 2022 and will have their first occupants in 2023 and build for about 5-6 years. The Brookman Road Concept Plan units are currently underway (Middlebrook) and go through 2028. If any changes to these large projects occur (a ramp up or a decline) then they will have an impact on the forecast. Further delays could even cause declines to continue. On the other hand, the ramping-up of the unit construction could generate even more students than forecasted in this report. The progress of this future development will need to be closely monitored by the District.

According to the forecast contained in this report, the K-5 resident student population is expected to see very little growth over the next ten years. The K-5 student count for 2020 dropped down to 1,801 and only regained some of those lost students by 2022 when it reached 1,850. The forecast shows that the K-5 student population may bottom out at around 1,778 by 2023 and then start to see annual increases as it climbs back over 1,800 students by 2024 and then peaks at 1,948 by 2028 (5.2% net growth). The Kindergarten class size took a dramatic hit in 2020 (only 232 K in 2020 compared to 301 in 2019, 332 in 2018 and 331 in 2017). COVID was the main reason for the decline in 2020, but the K class size has only slightly recovered in 2022 with a count of 256 K. These lower Kindergarten class size, causes a ripple effect in future K and other grades as those students matriculate through the grades. The projected increase in new housing over the next 10 years will contribute to net growth in certain areas of the District. However, if the larger Kindergarten class sizes do not get restored, then even the new residential development may not even be enough to help the District's enrollment.

Middle school grades are expected to decline for most of the next ten years as smaller incoming 6th grade classes enter from the declining elementary schools. As of fall 2020, the District had a middle school population of 1,209 students. Now in 2022, the 6th grade class size is even lower at 1,135. If current trends continue, then the middle school counts could peak at 1,155 6-8 by 2025 and then see it drop down to 1,053 by 2032 (a net loss of 82 6-8 students or a net decline of 7.3%).

The current forecast shows a reversal of what was expected for the District's high school compared to previous reports. There is expected to be growth at the high school level but it might peak at around 1,838 9-12 students by 2027. By 2028, the high school population could start to see annual declines as smaller 9th grade classes start to enter the District. Currently (2022), the District has 1,689 9-12 students and

the forecast shows that the District's 9-12 student population could drop down to 1,610 by 2032 (a net loss of 79 9-12 students, a drop of nearly 5%).

SOURCES OF DATA

Geographic Map Data

Five geographic data layers were created for use in the ten-year student population forecasts:

1. Street Centerline Database
2. Study Areas
3. Schools
4. Students – Historical and Current
5. Planned Residential Development

1) Street Centerline Data

The street database has associated attributes that contains but are not limited to, the following fields: full street name, address range and street classification.

The main function of the streets is in the geo-coding process of the student data. Each student is address-matched to the streets by their given address. The geo-coding process places a point on the map for every student in the exact location that student resides. This enables DD to analyze the student data in a geographic manner.

Another vital utilization of the digital street database is in the construction of study areas. Freeways, major streets, and neighborhood streets are used as boundaries for the study areas.

2) Study Areas

Study areas are small geographic areas and the building blocks of a school district; they are similar to neighborhoods. Study areas are geographically defined following logical boundaries of the neighborhood, such as freeways, streets, railroad tracks, rivers, etc. Each study area is then coded with the elementary, middle, and high school that area is assigned to attend. By gathering information about the District at the study area level, you can closely monitor growth and demographic trends in particular regions and spot potential need for boundary changes or new facilities. There are 109 study areas created for the Sherwood SD.

3) Schools

The District provided school detailed information to DD for mapping the District facilities.

4) Student Data

a. Historical Student Data - Historical enrollment is used to compare past student population growth and trends as well as the effects of mobility (move in, move out from existing housing) throughout the District. DD utilized the last three

years (2019, 2020, and 2021) of student enrollment data for each October from fall 2019 through fall 2021.

b. Current Student Data - A student data file representing October 2022 (received by DD as a computer data file from the School District) summarized by grade level and by study area is used as a base for student forecasts. Existing students were categorized by study area through the address-matching process that locates each student within a particular area based upon their given address. The forecasts run each of the next ten years from fall 2022 through fall 2032.

The Student Accounting Summary (Table 1) indicates the total student enrollment as of October 1, 2022 and the number of students used in the ten year student population forecasts. The forecast model is based upon student residence and excludes students residing outside of the District's boundary, students with Grades = 13, Special Education students, independent study students, prekindergarten students and students in which DD was unable to match. Special Education students were excluded from the forecasts (due to different classroom loading standards and not all of the District's elementary schools housed Special Education Students).

Table 1– Student Accounting Summary

Fall 2022 Actual Enrollment (Representing October 1, 2022)

Total Students Provided by the District to DD	4,730
Students Living outside of District boundary	-155
Students with Grades = 13 (excluded from study)	-14
Students with a grade = -1 (excluded from study)	-44
STUDENTS USED IN FORECAST (K-12)	**4,517**

5) Planned Residential Development - This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries, and planning officials from the cities of Sherwood and Tualatin. Data includes, when available, development name, developer/owner, location, housing type, total number of units, and projected move-in dates (phasing estimates). Phasing for planned housing is factored into the ten-year forecast. (See Section Two for a detailed listing of the planned residential development). In the student population forecast, DD includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the forecast timeframe. The planned residential development information and phasing estimates show a snapshot of the District at the time of this study. Any of the residential development information contained within this report may change and should therefore, be updated at least annually.

Non-Geographic Data

Two basic sets of non-geographic data were compiled and reviewed for use in the ten-year student population forecasts by residence:

1. Births by Zip Code
2. Mobility Factors

1) Births by Zip Code Data - Birth data by postal zip code was obtained from the Oregon State Center for Health Statistics, for the years 2004-2019 and roughly correlated to the Sherwood School District's boundary. Past changes in historical birthrates are used to estimate incoming kindergarten student population from existing housing.

2) Mobility Factors - Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). Mobility, similar to a cohort, is applied as a percentage of increase/decrease among each grade for every year of the forecasts. The Mobility Factors help account for apartment movement, housing resales, and dropout rates at the high school level.

TEN YEAR "RESIDENCE" FORECAST METHODOLOGY

The forecast methodology used in this study combines historical student population figures, and past and present demographic characteristics to forecast future student population at the study area level. District-wide forecasts are summarized from the individual study area forecasts. **These forecasts are based upon where the students reside and where they should be attending school. DD uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate estimate of where future school facilities should be located.** The best way to plan for future student population shifts is to know where the next group of students will be residing. The following details the methodology used in preparing the student population forecasts by residence.

Ten-Year Forecasts

Forecasts are calculated ten years from the date of forecast for several reasons. The planning horizon for any type of facility is typically no less than five years, often longer. Ten years is sufficient to adequately plan for any facility. It is a short to mid-term solution for planning needs. Forecasts beyond ten years are based upon speculation due to the lack of reliable information on birthrates, new home construction, economic conditions etc.

Why Forecasts are Calculated by Residence

Typically, school district forecasts are based on enrollment by school. However, this method is inadequate when used to locate future school facility needs because the location of the students is not taken into consideration. A school's enrollment can fluctuate due to variables in the curriculum, program changes, school administration, and open enrollment policies. These variables can skew the apparent need for new or additional facilities in an area.

The method used by DD is unique because it modifies a standard cohort forecast with demographic factors and actual student location. **DD bases its forecasts on the belief that school facility planning is more accurate when facilities are located where the greatest number of students reside.**

The best way to plan for future schools is to know where the next group of students will be coming from. The following details the methodology used in preparing the student population forecasts.

1) Progression - Each year of the forecasts, 12th grade students graduate, and continuing students' progress through to the next grade level. This normal progression of students is modified by the following factors.

2) Incoming Kindergarten – Live birth data is reported to the Oregon State Center for Health Statistics, by the resident postal zip code of the mother. DD uses birth data

by zip code so, if need be, a different birth factor can be applied to various areas of the District.

Incoming kindergarten classes, for existing homes, are estimated by comparing changes in past births and birthrates. Table 2 shows the total births for the two main zip codes in the Sherwood School District area from 2004 to 2021. Incoming kindergarten classes are determined by multiplying the existing kindergarten class (2022) by the percent increase/decrease in the birthrate for the year the kindergarten class was born (2017). Assuming that the fall 2022 kindergarten class was born in 2017, DD compared the total births in 2017 to the total births in 2018, to determine a factor for next year's kindergarten class (Fall 2023). Similarly, 2017 was compared to 2019 (Fall 2023 K class), 2017 to 2020 (Fall 2025 K class) and 2017 to 2021 (Fall 2026 K class). 2022 live birth data was not yet available at the time of this report.

Table 2– Birth Data by Zip Code

Births by Zip Code					Birth Rate		
Birth Year	Kinder Year	97140 (Washington)	97140 (Clackamas)	Total	% Change*	Birthrate Used in Forecast	School Year
2004	2009	299	7	306	137.8%		2009/10
2005	2010	316	0	316	142.3%		2010/11
2006	2011	351	0	351	158.1%		2011/12
2007	2012	318	2	320	144.1%		2012/13
2008	2013	311	14	325	146.4%		2013/14
2009	2014	269	13	282	127.0%		2014/15
2010	2015	266	11	277	124.8%		2015/16
2011	2016	231	10	241	108.6%		2016/17
2012	2017	255	9	264	118.9%		2017/18
2013	2018	240	11	251	113.1%		2018/19
2014	2019	225	7	232	104.5%		2019/20
2015	2020	220	10	230	103.6%		2020/21
2016	2021	234	10	244	109.9%		2021/22
2017	2022	211	11	222	Base Year		2022/23
2018	2023	205	7	212	95.5%	0.955	2023/24
2019	2024	231	10	241	108.6%	1.086	2024/25
2020	2025	176	5	181	81.5%	0.815	2025/26
2021	2026	210	8	218	98.2%	0.982	2026/27
2022	2027	Birth Data was not available at the time of study.			96.1%	0.961	2027/28
2023	2028				91.9%	0.919	2028/29
2024	2029				95.4%	0.954	2029/30
2025	2030				94.5%	0.945	2030/31
2026	2031				93.9%	0.939	2031/32
2027	2032				94.6%	0.946	2032/33

** % Change refers to the change in total births for each year compared to the base year.*

Source: Oregon Department of Health Statistics

= Peak year in births

According to Table 2, the birth data for zip code 97140 (the District's predominant zip code) shows that there was a decrease of births from 2006 to 2011. Births had been relatively unstable with average births from 2003 to 2010 around 312. There was a peak in births in 2006 of 351 live births and then annual declines occurred through 2011 (down to 231). A slight resurgence occurred in 2012 (2017 K) and 2013 (2018 K) and then the births count started to drop again. The future birth rates show that future kindergarten classes should be declining in 2023 then see a spike

for 2024 before returning to more declines in 2025-2026. Birth factors for 2027-2032 are an average of the previous three years and are conducted in this manner because the birth data is not available, or the children have not yet been born. DD elects to follow this common practice because it does not want to over or under project incoming future kindergarteners.

3) Student Mobility Factors - Student mobility factors further refine the ten-year student population forecasts. Mobility refers to the increase/decrease in the migration of students within the District boundary (move-in/move-out of students from existing housing). This factor considers the apartment movement within the District, as well as housing resales and dropout rates at the high school level. Mobility, similar to a cohort, is applied as a percentage of increase/decrease to each grade for every year of the forecasts. DD used the District's historical student data (representing data taken from the fall timeframe) for calculating these factors. The sampling used for the Mobility Factors are taken from the District's established neighborhoods without any recent new housing construction. The idea is to capture the trends of the students where and when they enter the District and apply those similar rates to future grade classes.

A net increase or decrease of zero students over time is represented by a factor of 100%. A net student loss is represented by a factor less than 100% and a net gain by a factor greater than 100% (see the example below).

Example: 100 K grade students in the Archer Glen ES area for fall 2022
X 101.0% (the K-1 Archer Glen ES area Mobility Factor)
101.0 1st grade students in fall 2023 for that area in Archer Glen

The sampling used was taken over a four-year period (student data from 2019 through 2022) and three yearly groupings were calculated. For example, a comparison was made for the fall 2019 K student population to the fall 2020 1st grade students. This comparison was also conducted for the fall 2020 & fall 2021 and fall 2021 & Fall 2022 groupings. Table 3, below, shows the Mobility Factors that were used for this year's report.

Table 3-Mobility Factors

Attendance Area	K to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12
Archer Glen ES	1.01	0.99	0.98	0.99	1.01	1.02	1.00	0.93	1.08	0.97	0.99	0.97
Hawks View ES	0.96	0.94	0.96	1.09	0.96	1.01	0.95	0.97	1.07	0.97	1.00	0.95
Middleton ES	1.03	0.98	0.98	1.04	0.95	1.00	0.97	1.04	1.03	0.95	0.99	0.98
Ridges ES	1.02	0.95	1.02	1.02	1.03	1.03	0.98	0.99	1.06	0.98	0.93	1.02
District-wide Average:	1.01	0.97	0.99	1.04	0.99	1.02	0.98	0.98	1.06	0.97	0.98	0.98

Using Fall 2019 through 2022 Student Data (3 Years of Change) by Elementary Attendance Area

Ridges ES's K to 1 Mobility Factor is 102.0%. That means that for Ridges' area, as students transition from Kindergarten to 1st grade (K to 1st) there is an average student increase of 2%. Since kindergarten is not a required grade, many parents choose to keep their children in daycare facilities through kindergarten and then

bring them into 1st grade at the public school. Hawks View ES area is the only one that sees a net loss from K to 1 (-4%). Most of the Districts mobility factors (56%) are red (less than 1.00). This means that, for the most part, parents are choosing to move out of the Sherwood School District. Most of the losses (red) seen above are some very slight high school dropout rates (in the 2-3% range). The Grade 8 to 9 transition is also typically high (green), and this is due to student entering the District from private or parochial K-8 schools and enrolling in the District's high schools. Slight but typical drop-out rates (red cells) occur in the later high school grades; however, Sherwood SD's figures show a high retention rate of students at that particular level.

4) Student Yield Factors (SYF'S) – Ten-Year Forecasts **-** The Student Yield Factors, when applied to planned residential development units, determine how many additional students will be generated from new housing construction within the District (see **Section Two** for details on planned residential development schedules). Student Yield Factors are sometimes referred to as Student Generation Rates (SGR's). For the 2018-19 study, Davis Demographics conducted a survey of 358 Single-Family Detached (SFD) units built over the last 20 years (1998-2017) and included the results in the table below. However, due to a lack of a large enough sample size for multi-family units, Davis Demographics still used Student Yield Factors from neighboring West Linn-Wilsonville SD (see below). It was not part of Davis Demographics' scope of work this year to update the SYF's, therefore, the same yield factors that were used in last year' study were applied in the 2020 report.

Table 4- Student Yield Factors

Student Yield Factors used in the Sherwood SD 2022/23 Study

Grade	Single Family Detached		Multi-Family (MF) Units	
	358 Units*		605 Units**	
	Students	Factor	Students	Factor
K-6	172	0.480	68	0.112
7-8	60	0.168	19	0.031
9-12	112	0.313	37	0.061
K-12	344	0.961	124	0.205

* = Units constructed within the Sherwood SD area from 1998 - 2018 (20 year period)

Condos, townhomes and apartments, etc.

** = Unit sample from neighboring West Linn-Wilsonville SD (units built between 2007-2013)

Before the SYF's can be applied to the current housing units, the year of construction for each housing type must be analyzed. In general, new housing attracts young families with elementary school aged children. Over the next 12 to 15 years, the children grow older and pass through the grades. This cycle is then repeated throughout the life of the home. Analyzing the year of construction for new housing units can help estimate the number of facilities needed to accommodate new students.

5) <u>Planned Residential Development and Student Yield Factors</u> **-** Closely related to the Student Yield Factors (SYF) are planned residential development units. Planned residential development data is collected to determine the number of new residential units that will be built over the ten-year period of the student population forecasts. The units built within the next ten years will have the appropriate SYF applied to it to determine the number of new students the planned residential development will yield.

This residential development data was obtained through the District, developers that have current or future projects within District boundaries and planning officials from the cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. (see **Section Two** for details on planned residential development occupancy).

In the resident student forecasts, DD includes all Approved and Tentative tract maps in addition to any planned or proposed development that possibly will occur within the forecast timeframe. The planned residential development information and phasing estimates is a snapshot of the District at the time of this study. The residential development information changes quite often and should be updated at least on an annual basis.

APPLYING THE VARIABLES TO GENERATE THE FORECASTS

The following paragraphs summarize how DD uses the factors to determine the student population forecasts. Remember that these forecasts are based on residence.

The Sherwood School District has been broken up into 109 study areas and each are coded for each of the District's elementary, middle, and high school, depending upon what attendance area they fall in. The residential forecasts are calculated at the study area level. This means that DD conducts 109 individual forecasts that are based upon the number of students residing in each study area.

The first step in running these forecasts involves listing the number of students that live in a particular study area by each individual grade (Kindergarten through 12th grade). The current student base (Fall 2022) is then passed onto the next year's grade (2022's K become 2023's 1st graders, 2022's 1st graders become 2023's 2nd graders, and so on). After the natural progressions of students through the grades are applied, Birth Factors are then multiplied to the current Kindergarten class to generate a base for the following year's Kindergarten class (*Section One*).

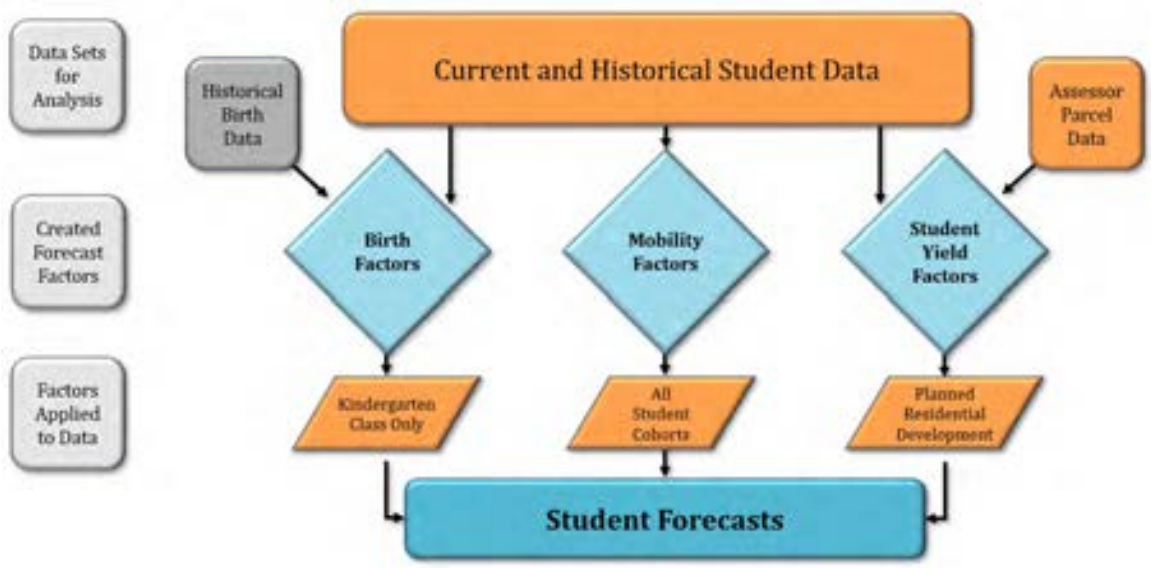
Next, a Mobility Factor is applied to all grades. Again, these factors consider the natural in/out migration of students throughout the District. A specific Mobility Factor was calculated for each grade transition (K to 1st, 1st to 2nd, etc.) within each elementary attendance area and is applied to the appropriate grade (and school area) to estimate the next year's progressed students.

The last essential layer applied to the forecasts deals with additional students from planned residential development (*Section Two*). This is a simple calculation, again conducted at the study area level, where the estimated number of new housing units for a particular year is multiplied by the appropriate Student Yield Factors. For example, if 100 single-family detached (SFD) units are to be built in a specific study area in a given year, then you would multiply this number (100 units, for example) by the SFD K-6 Student Yield Factor (.480) and the resulting number (48 K-6 students) is divided evenly among the six grades (*Section One*).

To finish generating the forecasts by residence, the same process is conducted for each of the 109 study areas. Once the forecasts have been run at the study area level, then it is simple addition to determine forecasts for each of the District's attendance areas or for a district-wide summary. For example, the residential forecasts for Archer Glen Elementary School are simply the summary of all of the study areas that make up this specific attendance area (see *Section Five* for the forecasts of each elementary attendance area). The District Summary for the "residence" forecasts (*Section Four)* is a total summary of all 109 study areas, which excludes all of the students that attend a district school and live outside of the District's boundaries and students unable to be mapped. Then out-of-district students are factored back into the forecasts by simply adding the existing totals in

at the bottom of the forecasts (please see the Attendance Matrices in *Section Three* for a breakdown of the out-of-district students by school). DD adds the current total out-of-district to each year of the forecasts because there is no accurate way to forecast these students in the future.

Davis Demographics' Forecast Methodology Flowchart



PLANNED RESIDENTIAL DEVELOPMENT

This data was obtained through discussions with District staff, developers that have current or future projects within District boundaries and planning officials from the Cities of Sherwood and Tualatin. A database and map of the planned residential development was created, including, when available, project name, location, housing type, total number of units and estimated move in dates (phasing schedule). Projected phasing is based upon occupancy of the unit and is used to help time the arrival of students from these new developments. Please see the next page (page 12) for a map of the known residential projects in the Sherwood School District area. Following the map (on page 13) is a breakdown of the estimated occupancy date for new housing units over the next ten years (from Fall 2023 through Fall 2032) by Study Area and by the three main housing types (single family detached – SFD – units; multi-family attached – MFA – units; and apartments – APT – units). This document is referred to as the District-Wide Residential Development Summary. In addition, DD has included a Residential Development List (page 13), which is sorted by Study Area and is an inventory of all known residential projects that are expected to be active over the next ten years.

DD estimates that as many as 1,552 Single-Family Detached units, 454 multi-family units, and 67 Apartment units could be built within the Sherwood District boundary over the next ten years (a grand total of 2,073 mixed units). This number of units is definitely possible and is not unprecedented. Most of these units are estimated to be constructed within a six-year period (fall 2022 through fall 2028 school years) with an estimated average of 301 units to be built each year during that time span.

Please note that all phasing schedules are based on occupancy, all Approved and Tentative maps plus proposed and potential development are included on these lists, the Summary only includes units that may be occupied in the ten year timeframe of the forecasts and are based upon data gathered during October to December of 2022 and may not reflect recent changes.

Sherwood School District

Known Active and Future
Residential Development Projects
Over the Next 10 Years

Sherwood
SCHOOL DISTRICT

London Estates
20 SFD Units (active)

Sherwood West
Mostly SFD Units
Not Included in Ten Year Projection

Denali Summit / Denali Meadows
48 SFD Units together (active)

rest of Basalt Creek Planning Area
134 SFD Units
67 APT Units
374 MFA Units

Brookman Road Concept Plan
362 SFD Units

Middlebrook Subdivision
145 SFD units (active)

Brookman Road Concept Plan
577 SFD Units

Autumn Sunrise by Lennar
(part of Basalt Creek Planning Area)
320 SFD and 80 MFA Units
(active)

Study Areas
New Housing Development
Streets
Study Areas

N

0 0.5 1 Miles

Map Prepared by
DAVIS MGT
April 25, 2023

Total SFD = 1,552 Total MFA = 454 Total APT = 67 Total Units = 2,073

Based on new boundaries approved 2/12/2020

Study Area	10/1/2022 - 9/30/2023			10/1/2023 - 9/30/2024			10/1/2024 - 9/30/2025			10/1/2025 - 9/30/2026			10/1/2026 - 9/30/2027			10/1/2027 - 9/30/2028			10/1/2028 - 9/30/2029			10/1/2029 - 9/30/2030			10/1/2030 - 9/30/2031			10/1/2031 - 9/30/2032			Total Units	Study Area	Elementary School Area	Middle School Area	High School Area
	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT	SFD	MFA	APT					
42	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	**42**	Middleton ES	Sherwood MS	Sherwood HS
46C	0	0	0	0	0	0	25	0	0	35	0	0	35	0	0	35	0	0	35	0	0	35	0	0	162	0	0	0	0	0	362	**46C**	Middleton ES	Sherwood MS	Sherwood HS
75	23	0	0	16	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	**75**	Hawks View ES	Sherwood MS	Sherwood HS
82B	20	25	0	100	80	33	139	100	34	105	100	0	30	100	0	30	49	0	30	0	0	0	0	0	0	0	0	0	0	0	975	**82B**	Hawks View ES	Sherwood MS	Sherwood HS
86D	55	0	0	105	0	0	125	0	0	125	0	0	125	0	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	682	**86D**	Ridges ES	Sherwood MS	Sherwood HS
Totals:	104	25	0	221	80	33	298	100	34	265	100	0	190	100	0	212	49	0	65	0	0	35	0	0	162	0	0	0	0	0	2,073	**Total**			
	Total 22 / 23 = 129			**Total 23 / 24 = 334**			**Total 24 / 25 = 432**			**Total 25 / 26 = 365**			**Total 26 / 27 = 290**			**Total 27 / 28 = 261**			**Total 28 / 29 = 65**			**Total 29 / 30 = 35**			**Total 30 / 31 = 162**			**Total 31 / 32 = 0**							

SFD - Single Family Detached MFA - Multiple Family Attached APT - Apartments

Contact/Owner Developer	Project/Area	Study Area	Total Units	Type of Units	Left to Build	Comments
City of Sherwood	Sherwood West	4	4,400	SFD	All	A ways off, still at least 10 years out before occupants arrive. NOT PART OF ABOVE 10-YEAR FORECAST.
Unknown	London Estates	42	20	SFD	6	Project underway and 1st 14 units of 20 are completed / last 6 units are under construction
City of Sherwood	Brookman Road Concept Plan	46C	362	SFD	All	Annexed by City in April 2017...There are a few pre-applications, per City, but probably 2-3 years from first occupants.
JT Roth, Inc.	Denali Summit / Denali Meadows	75	48	SFD	All	First occupants in 2023. Two products from the same developer.
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	320	SFD	All	Per City - Lennar has now come in to build new community ("Autumn Sunrise") - 2 types of housing / Lennar may build out the rest?
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	80	MFA	All	
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	134	SFD	All	Lennar may build the rest of these units???
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	374	MFA	All	
City of Tualitan/Lennar	Autumn Sunrise (Basalt Creek Planning Area)	82B	67	APT	All	
City of Sherwood	Middlebrook Subdivision	86D	145	SFD	105	1st of the Brookman Road Concept Plan units to be built. This part is now referred to as the "Middlebrook Subdivision". First occupants were in 2022.
City of Sherwood	Brookman Road Concept Plan	86D	577	SFD	All	Assumed to begin once Middlebrook Subdivision is a few years underway. Still needs to be more defined by City planning.

= Projects in progress SFD - Single Family Detached MFA - Multiple Family Attached APT - Apartments

THE K-5 ATTENDANCE MATRIX

An Elementary (K-5) Attendance Matrix has been included to provide a better understanding of where students reside and where they attend school. This matrix helps to see a "snapshot" of the District's current Open Enrollment patterns. DD has also created a Middle and High Attendance Matrix on the following pages. The following three matrices are based upon the new boundaries, approved by the Board on 2/12/2020; which just took effect this year, in time for the 2020/21 SY.

The attendance matrix acts as a checks and balance for student accounting. It shows where the students reside (what is their School of Residence) based upon our address matching capabilities and what school they attend (School of Attendance) based upon data in the student file supplied by the District. The inclusion of this matrix is essential to showing how the students used in the forecasts match up to the District's records of enrollment for each school. The best way to plan for future facilities is to know where the next group of students will be coming from, not necessarily which school they are currently attending.

Remember, DD's forecasts are based upon where the students reside, not where they attend school. DD uses the actual location of where the students reside, as opposed to their school of enrollment, in order to provide the most accurate depiction of where future facilities (if necessary) should be located. Therefore, since the forecasts are based upon where the students reside, the figures DD uses as a base for each school's resident forecast may be slightly higher or lower than the actual reported enrollment for each school.

READING THE MATRIX

Looking at the K-5 Elementary School Attendance Matrix on page 16, let us begin with Archer Glen ES as an example. Following down the second column with the "Archer Glen ES (#1334)" heading, on the first row you see that there are 316 K-5 grade students attending Archer Glen ES and residing in the Archer Glen ES attendance area. Continuing downward, 7 students attended Archer Glen ES, but resided in the Hawks View ES attendance area. Next, it shows that no students attend Archer Glen ES and reside in the Middleton ES attendance area, and two students attended Archer Glen ES in October 2022, but lived within the Ridges ES boundary.

The row entitled "Pre Kindergarten" shows the number of PK students attending Archer Glen ES in October 2022; there were no PK students attending Archer Glen ES. The row named "Special Education" refers to all elementary level Special Day Class students attending the District. Eleven special education students attended Archer Glen ES in 2022. The row entitled "Out-of-District" refers to students living completely outside of Sherwood School District but attending one of the District's schools. There are six Out-of-District students attending Archer Glen ES. The "K-5 Totals" row shows the total number of K-5 students attending a school regardless of where they reside; this should reflect the District's enrollment counts for each school as of October 1st, 2022. There were 331 students attending Archer Glen ES as

of October 2022. At the bottom of the matrix, DD lists the District's "Open Enrollment Percentage," a figure that lists the total number of students attending the particular school but live outside of the designated boundary. There were 15 out-of-zone students attending Archer Glen ES in October 2022; a percentage of 4.6% of Archer Glen ES's students came from outside of its current boundary.

The next step is to read across the matrix, beginning with the Archer Glen ES attendance area row. It is now understood that the 316 represent the total number of K-5 grade students that reside in the Archer Glen ES attendance area and attend Archer Glen ES. The next column, titled "Hawks View ES (#1191)", lists the number of K-5 grade students that reside in the Archer Glen ES attendance area, but attend Hawks View ES. Eight K-5 students reside in the Archer Glen ES attendance area but attend Hawks View ES as of October 2022, and so on.

The K-5 Students column in the beginning represents the total number of students living in that particular attendance area. There are 3302 K-5 students residing in the Archer Glen ES attendance area. Reading down the Totals column, you will find the number of K-5 students used in the fall 2022 forecasts - - 1,795 K-5 students (excluding Special Education and Out-of-District students). A total of 1,894 PK-5 students attended a District school as of October 1, 2022 (with a District-wide "Transfer-In" rate of 5.4%).

The Middle School 6-8 Matrix (on page 17) and the High School 9-12 Matrix (on page 18) is read in the same manner as the Elementary School Matrix.

Fall 2022/2023 K-5 (Elementary School) Attendance Matrix

"Open Enrollment" Patterns

BASED ON NEW BOUNDARIES THAT WENT INTO EFFECT FOR THE 2020/21 SY

SCHOOL OF RESIDENCE (BASED ON "NEW" CURRENT ATTENDANCE AREAS)		SCHOOL OF ENROLLMENT				
Attendance Area	Count of K-5 Students Living in Attendance Area	Archer Glen ES (#1334)	Hawks View ES (#1191)	Middleton ES (#3322)	Ridges ES (#4730)	Transfer Out Rates
Archer Glen ES (#1334)	330	316	8	5	1	4.2%
Hawks View ES (#1191)	441	7	431	2	1	2.3%
Middleton ES (#3322)	359	0	8	349	2	2.8%
Ridges ES (#4730)	665	2	13	4	646	2.9%
Resident K-5 Sub-Totals:	1,795	325	460	360	650	
Pre Kindergarten:	44	0	16	12	16	
Special Education:	11	0	1	10	0	
Out of District Students:	44	6	7	29	2	
K-5 Totals:	1,894	331	484	411	668	
# Enrolled, But Not Living in Attendance Area:	97	15	36	40	6	
Open Enrollment % ("Transfer In" %):	5.4%	4.6%	7.8%	11.1%	0.9%	
	District-wide					

The data above represents enrollment counts as of October 1st, 2022

Fall 2022/2023 6-8 (Middle School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS) — Attendance Area	Count of 6-8 Students Living in Attendance Area	SCHOOL OF ENROLLMENT: Sherwood MS (#1192)
Sherwood MS (#1192)	**1,099**	**1,099**
Special Education:	5	5
Out of District:	31	31
6-8 Totals:	**1,135**	**1,135**
# Enrolled, But Not Living in Attendance Area:	**31**	**31**
Open Enrollment % ("Transfer In" %):	**2.8%**	**2.8%**
	District-wide	

The data above represents enrollment counts as of October 1st, 2022

BASED ON NEW BOUNDARIES THAT WENT INTO EFFECT FOR THE 2020/21 SY

Fall 2022/2023 9-12 (High School) Attendance Matrix

"Open Enrollment" Patterns

SCHOOL OF RESIDENCE (BASED ON CURRENT ATTENDANCE AREAS) — Attendance Area	9-12 Students	SCHOOL OF ENROLLMENT: Sherwood HS (#1193)
Sherwood HS (#1193)	**1,603**	**1,603**
Special Education:	6	6
Out of District:	80	80
Grade 13 Students:	14	14
9-12 Totals:	**1,703**	**1,703**
# Enrolled, But Not Living in Attendance Area:	**80**	**80**
Open Enrollment % ("Transfer In" %):	**4.7%**	**4.7%**
	District-wide	

The data above represents enrollment counts as of October 1st, 2022

DISTRICT-WIDE STUDENT FORECASTS (BY "RESIDENCE")

The student population is projected out ten years for each of the study areas and for the entire Sherwood School District. The District-Wide Summary enables the District to see a broad overview of future growth and what impact this growth will have on existing facilities. The study area listings enable the District to monitor student population growth or decline in smaller geographic areas within the District (please see *Appendix A* for the individual 109 Study Area forecasts).

At any point in time, study areas and their projected resident students can be shifted between schools to assist in balancing enrollment growth. Together, these forecast summaries present the means for identifying the timing of additional student arrival and overall facility requirements and location to accommodate the District's expected growth.

The following page shows the District-Wide Forecasts by "Residence" using the fall 2022 (early-October) student data as the base; the fall 2019 through fall 2021student listings are there for reference. Ten consecutive years are then projected from fall 2023 through fall 2032 with the Out-of-District students separated from the sub-totals. The Out-of-District are added back into the 10-year forecast using the same fall 2022 figures. At the bottom of the District-Wide Forecast, a projected annual change is listed.

For an exact breakdown of how many Out-of-District, Special Education and Unmatched students there were for each elementary school as of fall 2022, please see the K-5 Attendance Matrix on page 16, the 6-8 Middle School Matrix on page 17, and the 9-12 High School Matrix on page 18.

District-Wide 10-Year Forecast

Projection Date: 10/1/2022

	Historical Studennt Information			"Current"	Forecasted Resident Student Counts									
	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032
K	301	232	297	256	252.0	299.0	244.4	296.5	296.6	294.5	300.8	298.8	307.3	304.0
1	342	270	269	302	264.4	269.5	322.0	264.4	311.7	312.7	299.6	303.9	310.9	308.3
2	350	297	278	274	297.3	269.7	279.7	327.2	267.0	313.1	303.7	289.3	302.0	298.2
3	336	316	318	284	278.8	311.3	289.0	296.1	338.2	279.5	314.4	303.1	297.2	298.7
4	373	326	346	333	302.0	306.6	346.5	321.4	323.5	367.7	295.5	329.3	326.5	308.9
5	396	341	342	356	339.0	316.3	326.8	363.4	333.2	336.2	369.1	295.4	337.1	323.4
6	429	389	365	349	369.6	362.4	344.8	352.7	384.8	354.7	346.7	378.1	311.7	342.9
7	408	406	383	371	349.0	379.5	379.6	358.4	360.1	392.4	350.0	339.7	380.7	302.9
8	425	398	396	384	373.9	363.5	399.8	396.3	369.9	372.8	392.4	347.8	349.0	375.9
9	396	443	419	429	416.3	416.5	412.2	447.5	437.7	410.5	400.5	418.4	381.6	369.4
10	389	374	447	402	424.1	422.7	428.6	421.7	450.1	441.9	403.3	391.5	418.1	370.1
11	391	380	362	427	398.6	429.0	433.1	437.0	423.7	453.1	432.1	393.2	391.1	404.4
12	416	379	385	350	429.7	410.9	448.2	449.4	446.8	435.4	451.0	429.2	400.0	385.8

Sub Total of Resident Students:	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032	Sub Total of Resident Students:
K-5	2,098	1,782	1,850	1,805	1,733.5	1,772.4	1,808.4	1,869.0	1,870.2	1,903.7	1,883.1	1,819.8	1,881.0	1,841.5	
6-8	1,262	1,193	1,144	1,104	1,092.5	1,105.4	1,124.2	1,107.4	1,114.8	1,119.9	1,089.1	1,065.6	1,041.4	1,021.7	
9-12	1,592	1,576	1,613	1,608	1,668.7	1,679.1	1,722.1	1,755.6	1,758.3	1,740.9	1,686.9	1,632.3	1,590.8	1,529.7	
K-12	4,952	4,551	4,607	4,517	4,494.7	4,556.9	4,654.7	4,732.0	4,743.3	4,764.5	4,659.1	4,517.7	4,513.2	4,392.9	

Out-of-District Students:	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032	Out-of-District Students:
K-5	27	19	11	44	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	
6-8	14	16	15	31	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	
9-12	25	32	60	80	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
K-12	66	67	86	155	155.0	155.0	155.0	155.0	155.0	155.0	155.0	155.0	155.0	155.0	

Totals:	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Fall 2025	Fall 2026	Fall 2027	Fall 2028	Fall 2029	Fall 2030	Fall 2031	Fall 2032	Change from 2022-2032 #	Change from 2022-2032 %
K-5	2,125	1,801	1,861	1,850	1,777.5	1,816.4	1,852.4	1,913.0	1,914.2	1,947.7	1,927.1	1,863.8	1,925.0	1,885.5	35.5	1.9%
6-8	1,276	1,209	1,159	1,135	1,123.5	1,136.4	1,155.2	1,138.4	1,145.8	1,150.9	1,120.1	1,096.6	1,072.4	1,052.7	-82.3	-7.3%
9-12	1,617	1,608	1,673	1,689	1,748.7	1,759.1	1,802.1	1,835.6	1,838.3	1,820.9	1,766.9	1,712.3	1,670.8	1,609.7	-79.3	-4.7%
K-12	5,018	4,618	4,693	4,674	4,649.7	4,711.9	4,809.7	4,887.0	4,898.3	4,919.5	4,814.1	4,672.7	4,668.2	4,547.9	-126.1	-2.7%

% Change:	'19 to '20	'20 to '21	'21 to '22	'22 to '23	'23 to '24	'24 to '25	'25 to '26	'26 to '27	'27 to '28	'28 to '29	'29 to '30	'30 to '31	'31 to '32	% Change:
	-18.0%	3.2%	-0.6%	-4.1%	2.1%	1.9%	3.2%	0.1%	1.7%	-1.1%	-3.4%	3.2%	-2.1%	
	-5.5%	-4.3%	-2.1%	-1.0%	1.1%	1.6%	-1.5%	0.6%	0.4%	-2.7%	-2.1%	-2.3%	-1.9%	
	-0.6%	3.9%	0.9%	3.4%	0.6%	2.4%	1.8%	0.1%	-1.0%	-3.1%	-3.2%	-2.5%	-3.8%	
	-8.7%	1.6%	-0.4%	-0.5%	1.3%	2.0%	1.6%	0.2%	0.4%	-2.2%	-3.0%	-0.1%	-2.6%	

# of Students Change:	From '19 to '20	From '20 to '21	From '21 to '22	From '22 to '23	From '23 to '24	From '24 to '25	From '25 to '26	From '26 to '27	From '27 to '28	From '28 to '29	From '29 to '30	From '30 to '31	From '31 to '32	# of Students Change:
	-324	60	-11	-72.5	38.9	36.0	60.6	1.2	33.5	-20.6	-63.3	61.2	-39.5	
	-67	-50	-24	-11.5	12.9	18.8	-16.8	7.4	5.1	-30.8	-23.5	-24.2	-19.7	
	-9	65	16	59.7	10.4	43.0	33.5	2.7	-17.4	-54.0	-54.6	-41.5	-61.1	
	-400	75	-19	-24.3	62.2	97.8	77.3	11.3	21.2	-105.4	-141.4	-4.5	-120.3	

The above projections are based upon a student data file provided to Davis Demographics by the Sherwood School District representing October 1, 2022.

Forty four (44) students with a grade = -1 were given to Davis Demographics in the original student data file and were excluded from the above projections.
Fourteen (14) students with a grade = 13 were given to Davis Demographics in the original student data file and were excluded from the above projections.

District Wide Student Population Forecast Trends ("Residence" Method)

The Sherwood School District experienced growth in resident student population from 2012 to 2017 but has seen some declines the last few years, especially in 2020. The District experienced a big jump in its K-12 Student population from fall 2014 to fall 2015, but in 2016 the growth was minimal, and that slow growth trend continued in 2017. Between 2018 and 2019 the Sherwood SD declined by 83 K-12 students and in 2020 that drop was more dramatic; the District lost 400 K-12 students in 2020. Most of the decline in 2020 occurred in the elementary school grades (K-5). The K-5 loss was 18% or 324 students, while the middle school grades 6-8 lost 5.5% (67 6-8 students) and the high school grades lost only 9 total students. The main reason for the loss in 2020 was due to the impact of COVID and the parents pulling their students out of public school (mostly at the Kindergarten level). Over the last few years, the Sherwood SD student population gained back some students, but not many. As of 2022, the District contained 4,674 K-12 students, only 56 more than in 2020; not really gaining back much from that initial 400 student loss.

According to the forecast, the Sherwood School District should see one more year of slight declines in 2023 and then start to see its K-12 student population over the next five years as some of the larger new development begins to start construction. In 2022, the K-12 student population is at 4,674 and that is projected to grow by almost 246 more students over the next five years (to 4,920 K-12 by 2028). It is possible that more students will return to the District over the next few years, but the current trends show otherwise. Now that we are a few years out from the worst of the pandemic, it might be safe to say that the "numbers are the numbers" and that the current forecast might be the most accurate looking forward than in recent years. The lower sized grade classes currently within the elementary school grades eventually reach the District's middle and high school grades and therefore produce a set of declining forecasts for most of the next ten years, despite the growth in new housing. Most of the District is "aging out" with less students transitioning from grade to grade as well as the birth rate figures continuing to lower.

The progress of the large specific plans, including the beginning of the Autumn Sunrise projects (within the Basalt Creek Planning Area) and the Middlebrook Subdivision (within the Brookman Road Concept plan) all play a large role in whether there is going to be additional student growth within the District boundary. The start-up of these two large projects is included in the 10-year forecast, but the long-delayed Sherwood West units are not. The Autumn Sunrise units began in 2022 and will have their first occupants in 2023 and build for about 5-6 years. The Brookman Road Concept Plan units are currently underway (Middlebrook) and go through 2028. If any changes to these large projects occur (a ramp up or a decline) then they will have an impact on the forecast. Further delays could even cause declines to continue. On the other hand, the ramping-up of the unit construction could generate even more students than forecasted in this report. The progress of this future development will need to be closely monitored by the District.

According to the forecast contained in this report, the K-5 resident student population is expected to see very little growth over the next ten years. The K-5 student count for 2020 dropped down to 1,801 and only regained some of those lost students by 2022 when it reached 1,850. The forecast shows that the K-5 student population may bottom out at around 1,778 by 2023 and then start to see annual increases as it climbs back over 1,800 students by 2024 and then peaks at 1,948 by 2028 (5.2% net growth). The Kindergarten class size took a dramatic hit in 2020 (only 232 K in 2020 compared to 301 in 2019, 332 in 2018 and 331 in 2017). COVID was the main reason for the decline in 2020, but the K class size has only slightly recovered in 2022 with a count of 256 K. These lower Kindergarten class size, causes a ripple effect in future K and other grades as those students matriculate through the grades. The projected increase in new housing over the next 10 years will contribute to net growth in certain areas of the District. However, if the larger Kindergarten class sizes do not get restored, then even the new residential development may not even be enough to help the District's enrollment.

The middle school grades are expected to decline for most of the next ten years as smaller incoming 6th grade classes enter from the declining elementary schools. As of fall 2020, the District had a middle school population of 1,209 students. Now in 2022, the 6th grade class size is even lower at 1,135. If current trends continue, then the middle school counts could peak at 1,155 6-8 by 2025 and then see it drop down to 1,053 by 2032 (a net loss of 82 6-8 students or a net decline of 7.3%).

The current forecast shows a reversal of what was expected for the District's high school compared to previous reports. There is expected to be growth at the high school level but it might peak at around 1,838 9-12 students by 2027. By 2028, the high school population could start to see annual declines as smaller 9th grade classes start to enter the District. Currently (2022), the District has 1,689 9-12 students and the forecast shows that the District's 9-12 student population could drop down to 1,610 by 2032 (a net loss of 79 9-12 students, a drop of nearly 5%).

Sherwood
SCHOOL DISTRICT

NOTE: Current counts are based on 2022/23 SY resident K-5 counts. The 2025, 2027 and 2032 projected resident counts are based on K-5 counts for the new boundaries. All counts EXCLUDE out-of-District students (see Matrix).

Sherwood School District

New Elementary School Attendance Boundaries with Current and Projected K-5 Resident Student Counts

The elementary school boundaries shown on the map are the new boundaries approved by the Sherwood Schools Board of Directors on February 12, 2020. These new boundaries took effect for the beginning of the 2020/21 school year.

Ridges ES
K-5 Resident Forecast
Current Year: 668
2025: 694
2027: 734
2032: 694

Hawks View ES
K-5 Resident Forecast
Current Year: 442
2025: 535
2027: 571
2032: 514

Middleton ES
K-5 Resident Forecast
Current Year: 364
2025: 320
2027: 324
2032: 397

Archer Glen ES
K-5 Resident Forecast
Current Year: 331
2025: 260
2027: 241
2032: 235

Elementary Schools
Streets
Layer
Current Elementary School Boundaries
Archer Glen ES
Hawks View ES
Middleton ES
Ridges ES

N

Map Prepared by
DAVIS MGT
April 25, 2023

0 0.75 1.5 Miles

Sherwood
SCHOOL DISTRICT

Sherwood School District

Elementary School
Net K-5 Resident Changes
2022 through 2032 by Study Area

Elementary Schools
Streets
ES Boundaries
K-5 Forecasted Changes
2022 to 2032
-33 - -16.5
-16.5 - -1
No Change
78.5 - 1
157 - 78.5

ZOOMED-IN VIEW OF CENTER OF DISTRICT

Ridges ES
Hawks View ES
Middleton ES
Archer Glen ES

N

Map Prepared by
DAVIS MGT
April 25, 2023

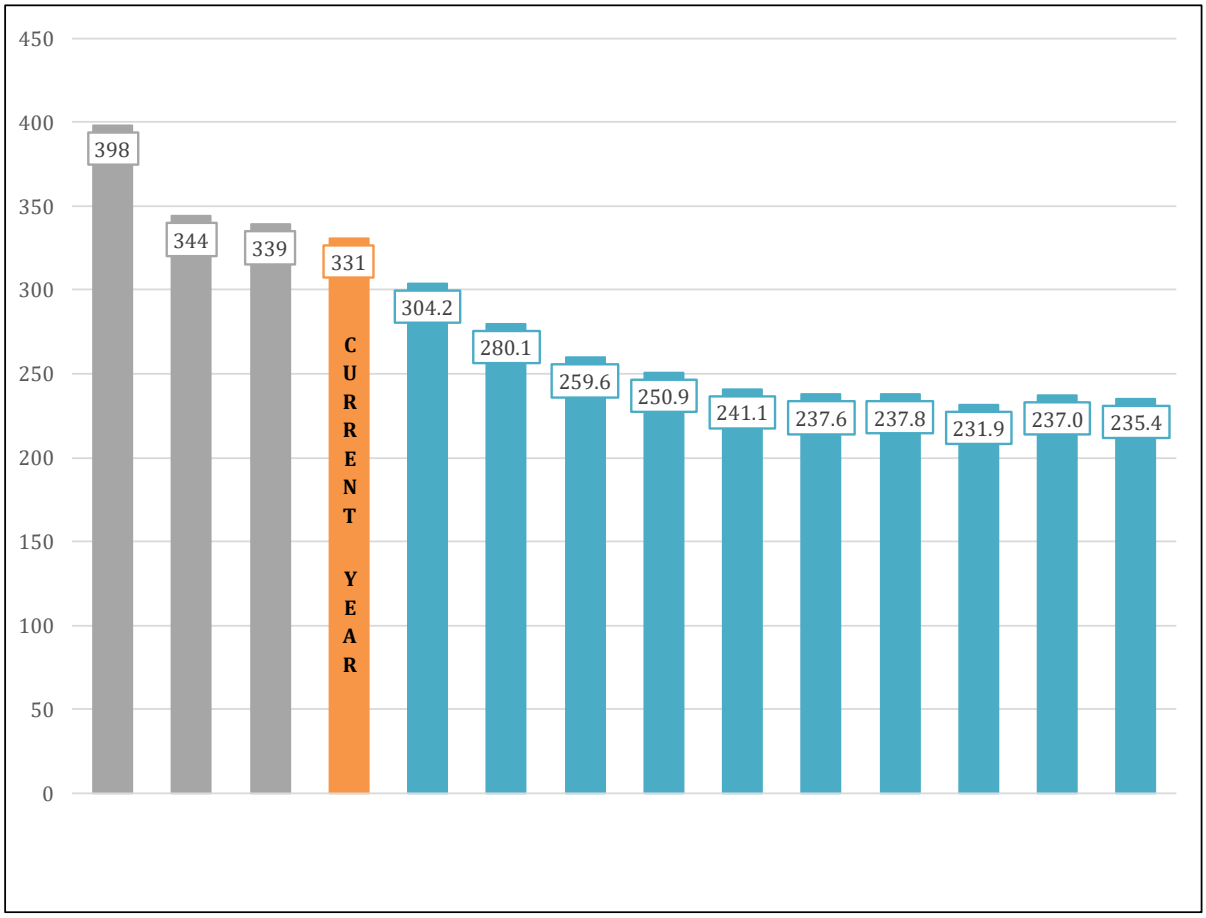
0 0.75 1.5 Miles

Elementary School Attendance Area Forecasts (by "Residence")

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Archer Glen ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	56	41	51	42	40.1	45.6	34.2	41.2	40.4	38.6	40.1	39.7	39.4	39.7	K
1	70	53	45	51	42.4	40.5	46.1	34.6	41.7	40.8	39.0	40.5	40.1	39.8	1
2	74	65	52	50	50.5	42.0	40.1	45.6	34.2	41.2	40.4	38.6	40.1	39.7	2
3	53	67	66	54	49.0	49.5	41.2	39.3	44.7	33.5	40.4	39.6	37.8	39.3	3
4	76	50	66	68	53.5	48.5	49.0	40.7	38.9	44.2	33.2	40.0	39.2	37.4	4
5	69	68	59	66	68.7	54.0	49.0	49.5	41.2	39.3	44.7	33.5	40.4	39.5	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	398	344	339	331	304.2	280.1	259.6	250.9	241.1	237.6	237.8	231.9	237.0	235.4	Total K-5

Annual Change	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
	-54.0	-5.0	-8.0	-26.8	-24.1	-20.5	-8.7	-9.8	-3.5	0.2	-5.9	5.1	-1.6
	-13.6%	-1.5%	-2.4%	-8.1%	-7.9%	-7.3%	-3.4%	-3.9%	-1.5%	0.1%	-2.5%	2.2%	-0.7%



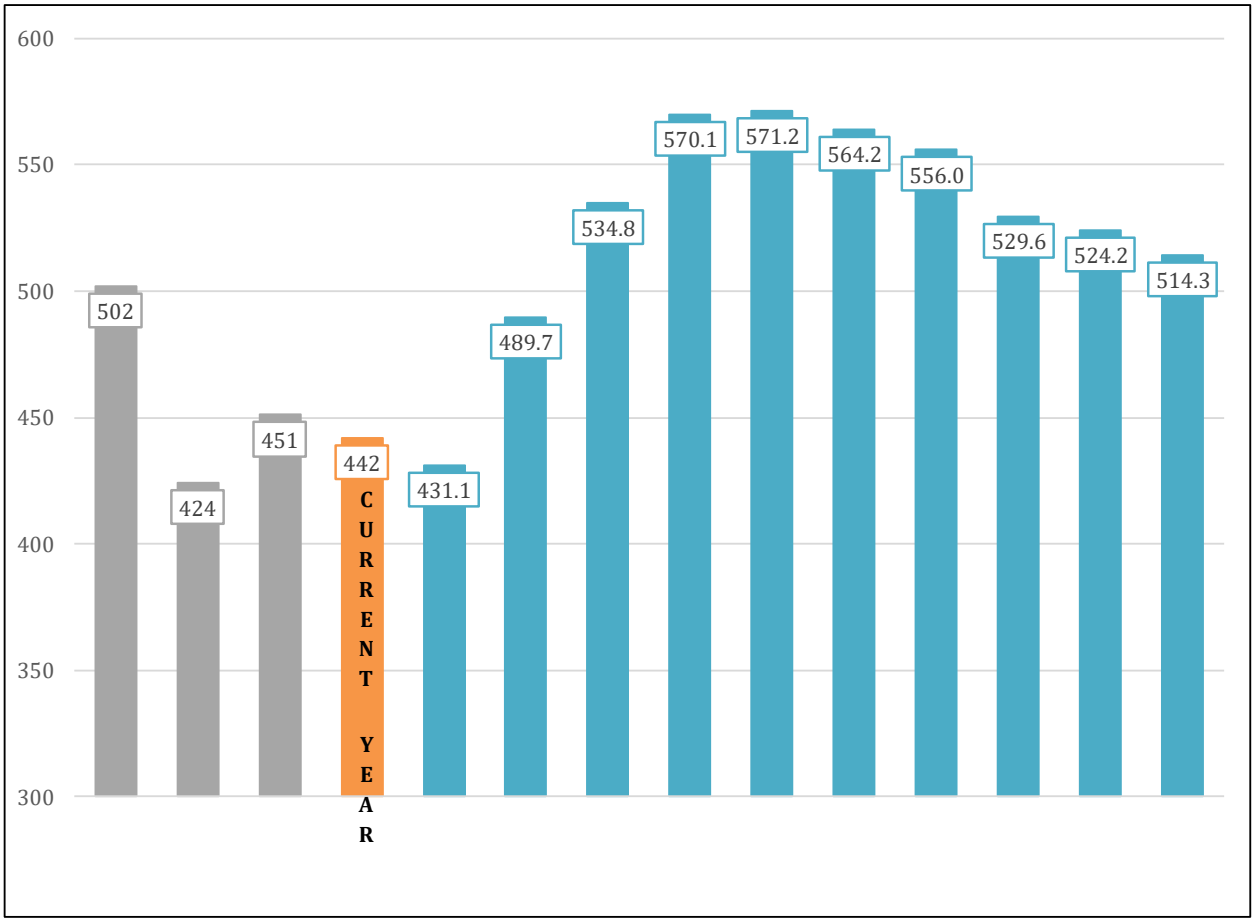
Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Elementary School Attendance Area Forecasts (by "Residence") continued

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Hawks View ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	72	66	76	72	72.1	89.8	78.0	93.2	91.3	89.4	92.7	91.1	90.6	91.1	K
1	78	62	74	69	72.3	78.6	98.0	83.4	93.0	90.3	87.8	89.0	87.4	87.0	1
2	86	66	69	67	68.0	77.2	85.4	100.4	81.8	90.1	86.9	82.5	83.6	82.2	2
3	74	75	68	69	67.5	74.7	85.9	90.5	99.9	81.3	88.4	83.4	79.2	80.3	3
4	90	74	92	72	78.9	84.3	94.8	103.2	102.6	111.9	90.8	96.4	90.9	86.4	4
5	102	81	72	93	72.3	85.1	92.7	99.4	102.6	101.2	109.4	87.2	92.5	87.3	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	502	424	451	442	431.1	489.7	534.8	570.1	571.2	564.2	556.0	529.6	524.2	514.3	Total K-5

	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
Annual Change	-78.0	27.0	-9.0	-10.9	58.6	45.1	35.3	1.1	-7.0	-8.2	-26.4	-5.4	-9.9
	-15.5%	6.4%	-2.0%	-2.5%	13.6%	9.2%	6.6%	0.2%	-1.2%	-1.5%	-4.7%	-1.0%	-1.9%



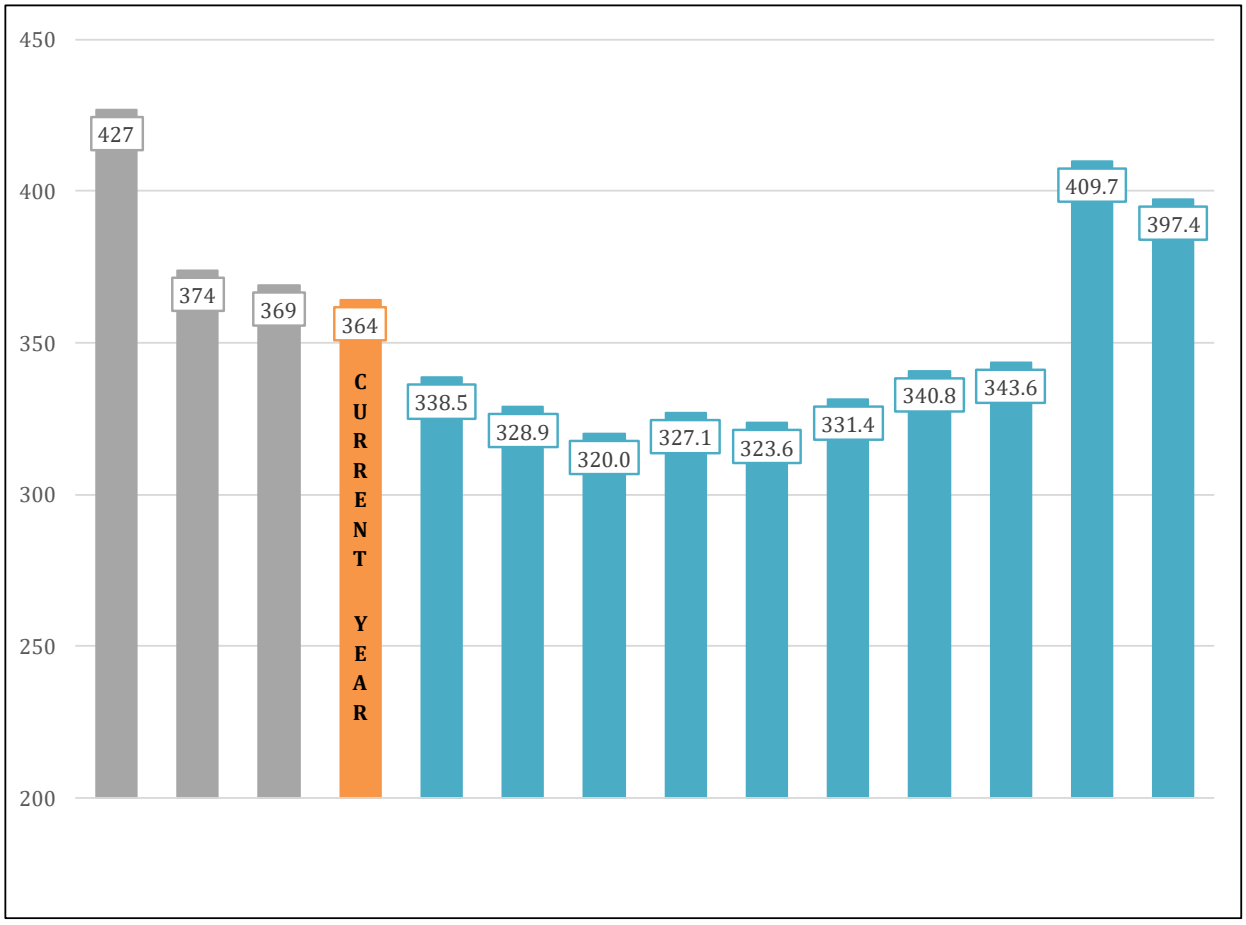
Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Elementary School Attendance Area Forecasts (by "Residence") continued

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Middleton ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	67	42	60	49	47.2	53.4	41.9	51.7	51.9	51.2	54.2	55.0	64.7	59.9	K
1	71	61	48	65	50.9	48.6	56.8	45.6	55.7	56.0	55.2	58.3	68.1	66.7	1
2	69	63	58	54	64.1	49.9	49.3	58.0	47.0	56.9	57.2	56.4	68.0	66.7	2
3	73	64	64	59	53.3	62.8	50.6	50.7	59.2	48.5	58.1	58.4	66.2	66.6	3
4	79	73	71	64	61.8	55.5	67.1	55.1	55.2	64.1	52.9	63.0	72.3	68.8	4
5	68	71	68	73	61.2	58.7	54.3	66.0	54.6	54.7	63.2	52.5	70.4	68.7	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	427	374	369	364	338.5	328.9	320.0	327.1	323.6	331.4	340.8	343.6	409.7	397.4	Total K-5

Annual Change	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
	-53.0	-5.0	-5.0	-25.5	-9.6	-8.9	7.1	-3.5	7.8	9.4	2.8	66.1	-12.3
	-12.4%	-1.3%	-1.4%	-7.0%	-2.8%	-2.7%	2.2%	-1.1%	2.4%	2.8%	0.8%	19.2%	-3.0%



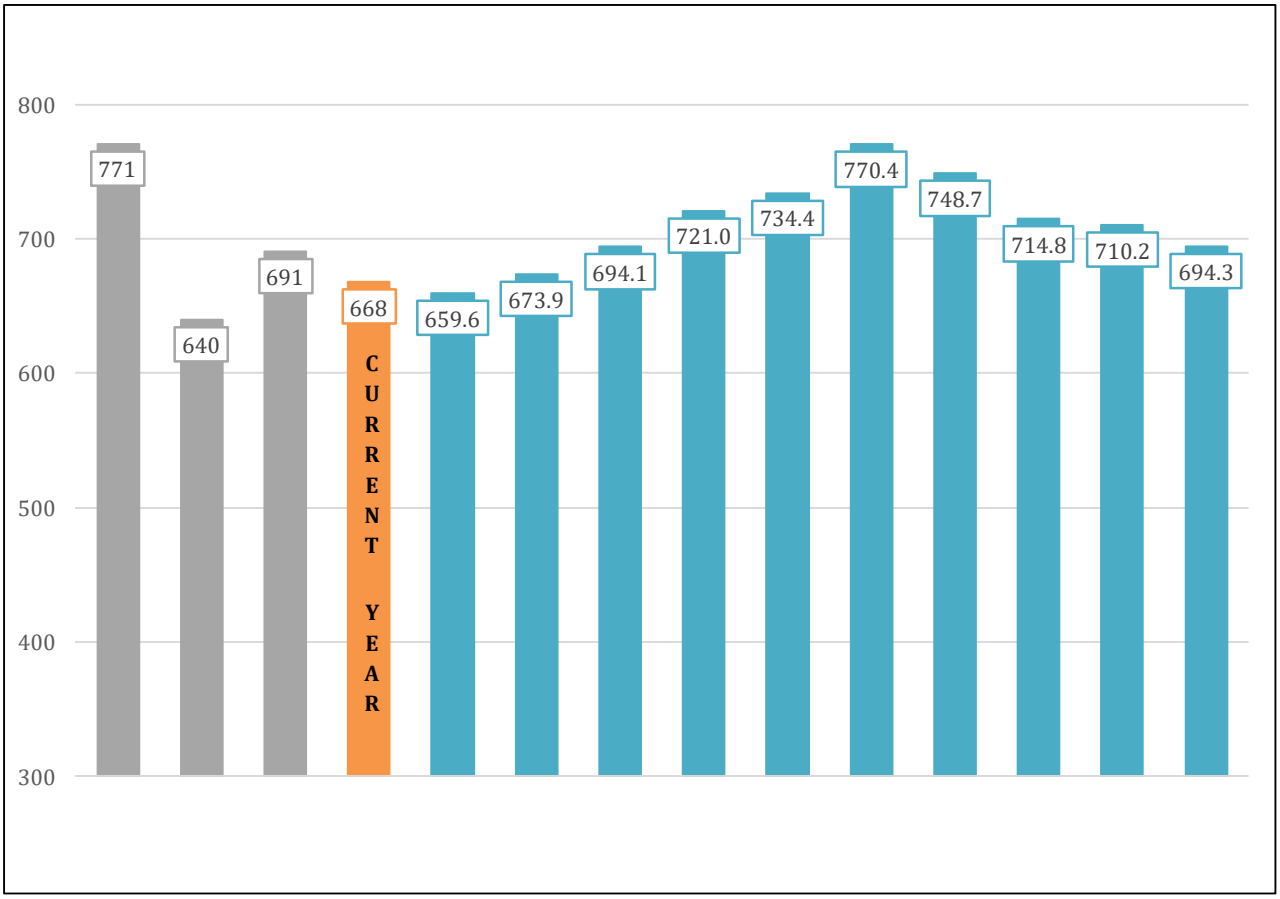
Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Elementary School Attendance Area Forecasts (by "Residence") continued

(Based on the new boundaries approved by the Board of Directors on 2/12/2020)

Ridges ES															
Grade	Historic Resident Students			Current	Forecasted Resident Students										Grade
	SY 2019	SY 2020	SY 2021	SY 2022	SY 2023	SY 2024	SY 2025	SY 2026	SY 2027	SY 2028	SY 2029	SY 2030	SY 2031	SY 2032	
K	106	83	110	93	92.6	110.2	90.3	110.4	113.1	115.3	113.9	113.1	112.5	113.2	K
1	123	94	102	117	98.7	101.8	121.2	100.8	121.4	125.6	117.6	116.2	115.3	114.8	1
2	121	103	99	103	114.7	100.6	104.8	123.3	103.9	124.9	119.3	111.7	110.4	109.6	2
3	136	110	120	102	108.9	124.4	111.4	115.7	134.5	116.3	127.4	121.7	114.0	112.6	3
4	128	129	117	129	107.9	118.4	135.6	122.3	126.7	147.4	118.6	129.9	124.2	116.2	4
5	157	121	143	124	136.8	118.5	130.8	148.5	134.8	140.9	151.9	122.2	133.8	127.9	5
Actual Resident Students					Forecasted Resident Students										
Total K-5	771	640	691	668	659.6	673.9	694.1	721.0	734.4	770.4	748.7	714.8	710.2	694.3	Total K-5

Annual Change	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026	2026 to 2027	2027 to 2028	2028 to 2029	2029 to 2030	2030 to 2031	2031 to 2032
	-131.0	51.0	-23.0	-8.4	14.3	20.2	26.9	13.4	36.0	-21.7	-33.9	-4.6	-15.9
	-17.0%	8.0%	-3.3%	-1.3%	2.2%	3.0%	3.9%	1.9%	4.9%	-2.8%	-4.5%	-0.6%	-2.2%



Above forecasts EXCLUDE Out-of-District and PreK students. Please see the Elementary School K-5 Attendance Matrix for a detailed breakdown of these student groups.

Forecast Trends for the District's Elementary School (K-5) Attendance Areas ("Residence" Forecasts)

On February 12, 2020, the Sherwood SD Board of Directors approved new elementary school boundaries that went into effect in time for the 2020/21 SY and a series of changes took place. A new location for Sherwood HS is now located in the western portion of the District. The former Sherwood HS site has become the new district-wide middle school. The four main elementary schools will still be in place, but the old Hopkins ES site will become the new District Office and the former Sherwood MS will be the "new" Hawks View ES. The former Laurel Ridge MS site will be combined with its neighboring Edy Ridge ES to become a larger campus now called Ridges ES. The 10-year forecasted figures in this report will focus on these new boundaries.

In the current set of forecasts, the Sherwood School District is now projected to experience minimal growth in its resident student population among the elementary grades over the next ten years. Since 2019, the District has lost 275 K-5 students, mostly due the impact of COVID (starting in 2020), but over the following two years the District did not fully recover the number of "missing" students (2,125 K-5 in 2019 and 1,850 K-5 in 2022). The incoming residence Kindergarten class in 2020 was much lower than anticipated. The Kindergarten class sizes the previous four years were 301 K in 2019, 332 K in 2018, 331 K in 2017 and 292 in 2016. In 2020, the resident K class size was 232 (obviously low due to parents holding back their Kindergarteners). In 2021, the K class size did climb back up to 297, but in 2022 it dropped back down to 256 which does impact this years' forecast. In this year's report, the District is expected to see its resident K-5 student population bottom out around 1,734 in 2023 and then see increases each year through 2028, reaching 1,903 and then slowing dropping off until it settles around 1,842 in 2032.

The new Archer Glen attendance area is the only one of the four elementary boundaries that is expected to see a net decline over the next 10 years. The areas with the largest projected resident K-5 gains over the next ten years are, in order (1) Hawks View ES (+72 K-5), (2) Middleton ES (+33 K-5) and (3) Ridges ES (+26 K-5). Archer Glen's new boundary could lose 96 K-5 students. The new Hawks View area could have 1,023 new housing units built over the next 10 years, the new Ridges ES area has the potential for 682 new housing units and the Middleton boundary area does have a potential for 368 new housing units over the next ten years. Archer Glen's new area does not have any new planned development at this time. Overall, the student forecasts in this report are lower than those prior to the pandemic.

INDIVIDUAL ELEMENTARY SCHOOL ATTENDANCE AREA ANALYSIS

The **Archer Glen Elementary School** attendance area is the only region among the District's four elementary zones that is expected to decline over the next ten years. After the boundary changes a few years ago, the Archer Glen ES boundary is now the District's smallest elementary school both in terms of its geography as well as its

resident population. In addition, as of now there are no new housing units planned for this region. As of fall 2022, the Archer Glen ES attendance area contained 331 resident K-5 students living within its boundaries, after having as many as 398 as recently as 2019. Obviously, a lot of this decline was due to COVID, but the counts in the region did not rebound after 2020. Based on the current set of forecasts, the Archer Glen boundary is expected to lose another 96 K-5 students by 2032. The capacity for the Archer Glen ES is 390. Therefore, it appears that the new Archer Glen ES should be able to handle its projected resident count for the next ten years. Archer Glen ES should have the capacity to help out some of its neighboring schools.

For the 2020/21 school year, the **Ridges Elementary School** campus expanded with the incorporation of the previous Edy Ridge campus plus the former Laurel Ridge MS site. The new capacity for Ridges ES is at around 955. Therefore, it made sense to expand the Ridges' boundary when exploring new adjustments. The new Ridges ES attendance area is forecasted to experience growth over the next ten years. As of fall 2019, there were 771 resident K-5 students living within the new Ridges new attendance area and that figure dropped to 640 K-5 students in 2020 (a net loss of 131 K-5 students in one year). There was a slight rebound in 2021 when the Ridges ES had 691 resident K-5 students, but then dropped down again in 2022 to 668 residents. The impact of COVID hit this area the most and it affected its forecast as well; not as high a count of students is expected in this report compared to those previous to 2020. Over the next year, the Ridges area could actually drop a bit more (660 K-5 residents in 2023), but it should then start to see annual increases through 2028 as the residential development picks up (770 K-5 residents by 2028). At that point, the resident K-5 counts for the Ridges area could slowly drop down to around 694 students by 2032. The majority of the Brookman Road Concept Plan is now located within the Ridges boundary and its portion contains just 722 new SFD units. These new housing units are the biggest contributor to the projected increase in students for the Ridges area. The first of the Brookman projects is the Middlebrook Subdivision, which contains 145 units and its first occupants were expected in late 2022/early 2023. In previous reports it was looking like the Ridges ES may exceed its design capacity due to this development, but with the reduction of students due to COVID, it does not appear likely over the next 10 years. However, the District will need to closely monitor the progress of the new housing units and if it grows faster than expected, then interim measures may need to be made to house additional students, such as diverting some students to other sites or adding temporary portables.

Starting the 2020/21 school year, **Hawks View Elementary School** is now permanently located at the former Sherwood MS site. The Hawks View ES attendance area shows 16% growth over the next ten years. In 2019, the Hawks View ES area contained 502 K-5 students and in 2020, that figure has dropped to 442 in 2022. The forecast in this year's report shows that the Hawks View area could drop a bit more down to 431 in 2023 and then see its resident counts rise up to 570 by 2026. In 2027, slow declines could occur and then the Hawks View ES area could settle down to around 514 resident K-5 students by 2032: still a net

growth of 72 K-5 students. During the boundary process an ideal capacity figure of 506 was used for the Hawks View ES site (however, as Sherwood MS that site regularly housed student counts around 700 students). The Hawks View ES boundary does contain the District's portion of the Autumn Sunrise projects (aka Basalt Creek Planning Area), which consists of 454 single-family homes, 454 condos/townhomes and 67 apartment units. The Autumn Sunrise projects should see its first occupants this year (2023) and continuing for at least the next seven years. These new units are the largest contributor to the Hawks View area growth. It appears that the Hawks View ES site should be able to house these additional students from this new housing. However, the progress of this development will need to be followed closely by the District and temporary portables may be necessary if the growth is larger than expected.

The new **Middleton Elementary School** boundary could see a small net growth of another 33 K-5 students over the next 10 years. In fall 2019, the new Middleton ES attendance area contained 427 K-5 students, but the 2020 K-5 dropped by 53 K-5 students (374 K-5). Since then, the resident K-5 counts for the Middleton ES area have dropped a bit more, to 369 in 2021 and 364 in 2022. The Kindergarten class size alone went from 65 in 2019 to 42 in 2020, back up to 60 in 2021 and then down to 49 in 2022. The lower K class size in 2022 alone caused this year's forecast to be lower than in the past. COVID was the main contributor for the sudden decline in Middleton residents in 2020 but many of those "missing" students really didn't return. Therefore, this set of forecasts for the Middleton area has the resident K-5 counts bottom out at 320 in 2025 and then climb back up to 410 K-5 students by 2031. A piece of the Brookman Road Concept Plan (362 SFD units) is still located within the Middleton ES boundary and could start to see new occupants as soon as 2024 or 2025. The goal capacity used for Middleton ES was 470 during the boundary adjustments a few years back; therefore, Middleton ES should be fine if this forecast is correct. Middleton ES has had enrollment in the range of 544 (2019) to 621 (2015) K-5 students. The purpose of the boundary adjustments was to have Middleton ES have a more reasonable total enrollment, but it appears that it could hold up to 600 K-5 students, if necessary. Like the Ridges ES area, the District will need to closely monitor the residential development within the Middleton area and may need to take additional measures to properly house the additional students if it rebounds and resembles higher counts from previous forecasts.

ELEMENTARY SCHOOL CONCLUSIONS

Adjustments to all four of the District's current elementary school boundaries were approved by the Board of Directors on February 12, 2020. Two of the main site changes included the expansion of Edy Ridge ES site (combining with the former Laurel Ridge MS site) to form the new Ridges ES campus and Hawks View ES taking over the former Sherwood MS site. In the forecast contained within this report shows that the Sherwood SD is expected to only grow by 35 more K-5 students through 2032, much lower than forecasts prior to COVID. The areas with the largest projected resident K-5 gains over the next ten years are, in order (1) Ridges ES (+73 K-5), (2) Hawks View ES (+38 K-5), and (3) Middleton ES (+13 K-5). Archer Glen's new boundary could lose 88 K-5 students. With the now larger Ridges and Hawks View sites, the District should be able to accommodate the new growth in their areas over the next ten years. The exact start dates of some of the larger planned residential developments such as the Brookman Road Concept Plan and the Autumn Sunrise projects (within the Basalt Creek Planning Area), need to be closely monitored by the District. The Autumn Sunrise and Middlebrook Subdivision already has occupants arriving this upcoming school year. Units from these projects are included in the ten-year forecasts in this report. If any of these projects are sped up or delayed, then the forecasts included in this report could change. Temporary actions, such as using portables, may be needed in order to properly house some of the future students. However, it does appear that based on previous enrollment counts at these existing sites the District should be able to accommodate the projected K-5 growth over the next 10 years.

Sherwood
SCHOOL DISTRICT

Sherwood School District

Middle School
Attendance Boundaries
with Current and Projected
6-8 Resident Student Counts

Sherwood MS
6-8 Resident Forecast
Current Year: 1,104
2025: 1,124
2027: 1,115
2032: 1,022

Sherwood MS

N

Map Prepared by
DAVIS MGT

0 0.75 1.5 Miles

April 25, 2023

Middle School
Middle School Boundary
Streets

Sherwood SCHOOL DISTRICT

Sherwood School District

Middle School
Net 6-8 Resident Changes
2022 through 2032 by Study Area

Schools
Streets
6-8 Resident Changes
2022 to 2032
-23 - -11.5
-11.5 - -1
No Change
64 - 1
128 - 64

ZOOMED-IN VIEW OF CENTER OF DISTRICT

Map Prepared by
DAVIS MGT
April 25, 2023

0 0.75 1.5 Miles

Middle School Forecasts (by "Residence")

Sherwood Middle School Forecast Date
Attendance Area 11/1/2022

	HISTORICAL			CURRENT	FORECASTED RESIDENT STUDENTS									
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
K	301	232	297	256	252.0	299.0	244.4	296.5	296.6	294.5	300.8	298.8	307.3	304.0
1	342	270	269	302	264.4	269.5	322.0	264.4	311.7	312.7	299.6	303.9	310.9	308.3
2	350	297	278	274	297.3	269.7	279.7	327.2	267.0	313.1	303.7	289.3	302.0	298.2
3	336	316	318	284	278.8	311.3	289.0	296.1	338.2	279.5	314.4	303.1	297.2	298.7
4	373	326	346	333	302.0	306.6	346.5	321.4	323.5	367.7	295.5	329.3	326.5	308.9
5	396	341	342	356	339.0	316.3	326.8	363.4	333.2	336.2	369.1	295.4	337.1	323.4
6	429	389	365	349	369.6	362.4	344.8	352.7	384.8	354.7	346.7	378.1	311.7	342.9
7	408	406	383	371	349.0	379.5	379.6	358.4	360.1	392.4	350.0	339.7	380.7	302.9
8	425	398	396	384	373.9	363.5	399.8	396.3	369.9	372.8	392.4	347.8	349.0	375.9
6-8	1,262	1,193	1,144	1,104	1,092.5	1,105.4	1,124.2	1,107.4	1,114.8	1,119.9	1,089.1	1,065.6	1,041.4	1,021.7

NOTE: On February 12, 2020, the Sherwood SD Board of Directors approved new boundaries for the school district that will take effect in time for the 2020/21 school year. One of those changes was to open a new high school site (on the west side of the District) and repurpose the "old" Sherwood HS site to be a district-wide middle school. The old Sherwood MS opened as the new Hopkins ES (the old Hopkins site is going to be the new District Office) and the old Laurel Ridge MS site was combined with its neighboring Edy Ridge ES to form Ridges ES, which now has a much larger capacity. Therefore, there will no longer be multiple middle school boundary zones. The new Sherwood Middle School (the former Sherwood HS) has district-wide boundaries.

Above forecasts EXCLUDE Out-of-District students.
Please see the Middle School 6-8 Attendance Matrix for a detailed breakdown of this student group.

Forecast Trends for the District's Middle School (6-8) Attendance Areas ("Residence" Forecasts)

Starting in the current 2020/21 SY, the Sherwood SD went from a two middle school District to a one middle school district. The former Sherwood HS site was converted into the new Sherwood MS, which now can house even more 6-8 students than in its previous design.

MIDDLE SCHOOL CONCLUSIONS

The District's middle school population had been growing about 40-50 students a year up until 2019. In 2020, the 6-8 student population declined by 67 students, which was most likely due to COVID, but still lost another 74 7-8 students between 2020 and 2022. As a result, the 10-year forecast has the 6-8 student population dropping by 82 students through 2032 (a 7.2% decline). It is possible that some of the decline was due to parents pulling their students out of the public school system as a result of COVID, but it is now looking unlikely at this point that those "missing" students are actually going to return to the District. Currently, the District contains 1,135 6-8 students and it drop down to 1,053 6-8 students by 2032. New housing developments are included in this estimate, but those new units and students do not make up enough growth to counter the smaller grade classes entering the system plus the lower birth counts (it is starting to "age out" over most of the District territory). Overall, it appears that the District's middle school should have no problems accommodating the forecasted 6-8 student population contained within this report.

The District will need to closely monitor the progress of the two specific plans, in addition to the delayed Sherwood West units, especially if these developments start sooner than expected and generate more students than forecasted.

Sherwood
SCHOOL DISTRICT

Sherwood School District

High School Attendance Boundaries with Current and Projected 9-12 Resident Student Counts

Sherwood HS
9-12 Resident Forecast
Current Year: 1,608
2025: 1,722
2027: 1,758
2032: 1,530

Sherwood HS

N

Map Prepared by
DAVIS MGT

0 0.75 1.5 Miles

April 25, 2023

Sherwood HS
High School
Streets

Sherwood
SCHOOL DISTRICT

Sherwood School District

High School
Net 9-12 Resident Changes
2022 through 2032 by Study Area

High School
Streets
2022 to 2032
-20 - -13
-12 - -1
NO CHANGE
1 - 8
9 - 197

ZOOMED-IN VIEW OF CENTER OF DISTRICT

Sherwood HS

Map Prepared by
DAVIS MGT

April 25, 2023

0 0.75 1.5 Miles

High School Attendance Area Forecasts (by "Residence")

Sherwood High School Forecast Date
Attendance Area 11/1/2022

	HISTORICAL			CURRENT	FORECASTED RESIDENT STUDENTS									
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
K	301	232	297	256	252.0	299.0	244.4	296.5	296.6	294.5	300.8	298.8	307.3	304.0
1	342	270	269	302	264.4	269.5	322.0	264.4	311.7	312.7	299.6	303.9	310.9	308.3
2	350	297	278	274	297.3	269.7	279.7	327.2	267.0	313.1	303.7	289.3	302.0	298.2
3	336	316	318	284	278.8	311.3	289.0	296.1	338.2	279.5	314.4	303.1	297.2	298.7
4	373	326	346	333	302.0	306.6	346.5	321.4	323.5	367.7	295.5	329.3	326.5	308.9
5	396	341	342	356	339.0	316.3	326.8	363.4	333.2	336.2	369.1	295.4	337.1	323.4
6	429	389	365	349	369.6	362.4	344.8	352.7	384.8	354.7	346.7	378.1	311.7	342.9
7	408	406	383	371	349.0	379.5	379.6	358.4	360.1	392.4	350.0	339.7	380.7	302.9
8	425	398	396	384	373.9	363.5	399.8	396.3	369.9	372.8	392.4	347.8	349.0	375.9
9	396	443	419	429	416.3	416.5	412.2	447.5	437.7	410.5	400.5	418.4	381.6	369.4
10	389	374	447	402	424.1	422.7	428.6	421.7	450.1	441.9	403.3	391.5	418.1	370.1
11	391	380	362	427	398.6	429.0	433.1	437.0	423.7	453.1	432.1	393.2	391.1	404.4
12	416	379	385	350	429.7	410.9	448.2	449.4	446.8	435.4	451.0	429.2	400.0	385.8
9-12	1,592	1,576	1,613	1,608	1,668.7	1,679.1	1,722.1	1,755.6	1,758.3	1,740.9	1,686.9	1,632.3	1,590.8	1,529.7

NOTE: On February 12, 2020, the Sherwood SD Board of Directors approved new boundaries for the school district that took effect in time for the 2020/21 school year. One of those changes was to open a new high school site (on the west side of the District) and repurpose the "old" Sherwood HS site to be a district-wide middle school. The old Sherwood MS site opened as the new Hopkins ES (the old Hopkins site is the new District Office) and the old Laurel Ridge MS site combined with its neighboring Edy Ridge ES to form Ridges ES, which has a much larger capacity. Therefore, there will no longer be multiple middle school boundary zones. The new middle school (the former Sherwood HS) will have district-wide boundaries. The above forecasts for the new Sherwood High School forecasts remain the same, except for the actual location of the "new" Sherwood HS.

Above forecasts EXCLUDE 80 9-12 Out-of-District students
and 14 students with a grade designation of 13.

Forecast Trends for the District's High School (9-12) Attendance Area ("Residence" Forecasts)

The Sherwood School District has one high school, Sherwood HS. The high school has experienced growth within the 9-12 resident student population from 2012 to 2017, but then saw slight declines starting in 2018 and has continued through 2020. An uptick in the 9-12 student population happened in 2021 and 2022, but most of that was due to increasing number of high school students from outside the District (32 9-12 out-of-District students in 2020, up to 60 in 2021 and then up to 80 for 2022). A net decline of 79 9-12 students is expected over the next ten years as smaller 9th grade classes begin to enter the District's high schools. Therefore, based on this current set of forecasts, the District's new high school should have no problems accommodating its resident population though 2032.

Overall, the District will need to closely monitor the progress of the large specific plans (especially the delayed Sherwood West units) within the District boundary since those developments may potentially start sooner than expected and could generate more students than forecasted.

School Codes and School Assignments by Study Area

The Sherwood School District has assigned each school a code and DD has incorporated these same codes in the databases and data layers that they have created/maintained for the district. Each study area is then coded with the elementary, middle, and high school that the area is assigned to attend.

ELEMENTARY SCHOOLS (K-5)

Only Schools with assigned attendance areas are listed. The below boundaries are based upon those approved by the Sherwood School District Board of Directors on February 12th, 2020.

School Code	Elementary School Name	Study Areas for Each Attendance Area
1334	Archer Glen ES **16 Study Areas**	58, 59A, 59B, 60, 61, 62, 63, 65, 66, 67, 68, 69A, 69B, 78, 79, 80
4730	Ridges ES **37 Study Areas**	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 20, 21, 22, 33A, 33B, 34, 35, 36, 37A, 45, 45D, 86A, 86D, 87
1191	Hawks View ES **33 Study Areas**	23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 64, 70, 71, 72, 73, 74, 75, 76, 77, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86B, 86C
3222	Middleton ES **23 Study Areas**	37B, 38, 39, 40, 41, 42, 43, 44, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54A, 54B, 55, 56, 57
	4 Elementary Schools	**109 Study Areas**

School Codes and School Assignments by Study Area (continued)

MIDDLE SCHOOLS (6-8) and HIGH SCHOOLS (9-12)

Only Schools with assigned attendance areas are listed. The below boundaries are based upon those approved by the Sherwood School District Board of Directors on February 12th, 2020.

Middle School Name	Study Areas for Each Attendance Area
Sherwood MS (109 Study Areas)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 20, 21, 22, 23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37A, 37B, 38, 39, 40, 41, 42, 43, 44, 45, 45D, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54A, 54B, 55, 56, 57, 58, 59A, 59B, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69A, 69B, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
1 Middle School	**109 Study Areas**

High School Name	Study Areas for Each Attendance Area
Sherwood HS (109 Study Areas)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11A, 11B, 12, 13, 14, 15, 16, 17A, 17B, 18A, 18B, 18C, 19, 20, 21, 22, 23A, 23B, 24A, 24B, 25A, 25B, 25C, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37A, 37B, 38, 39, 40, 41, 42, 43, 44, 45, 45D, 46A, 46B, 46C, 47, 48, 49, 50, 51, 52, 53, 54A, 54B, 55, 56, 57, 58, 59A, 59B, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69A, 69B, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82A, 82B, 82C, 83, 84, 85A, 85B, 86A, 86B, 86C, 86D, 87
1 High School	**109 Study Areas**

On February 12th, 2020, the Sherwood School District Board of Directors approved new boundaries that went into effect starting at the beginning of the 2020/21 school year. Among the changes in the boundaries included consolidating the 2 middle schools into now one District-wide boundary to be housed at the former "old" Sherwood HS site. The boundaries for the District's high schools did not change. The HS boundaries are still district-wide, but now are housed at a new Sherwood HS site (located on the west side of the District).

Sherwood
SCHOOL DISTRICT

Sherwood School District

Elementary School (Est. 2020-21 SY)
Attendance Boundaries with
Study Areas and Study Area Numbers

Ridges ES
Hawks View ES
Middleton ES
Archer Glen ES

Elementary Schools
Streets
Study Areas

ES Boundaries (Est. 2020-21 SY)
- Archer Glen ES
- Hawks View ES
- Middleton ES
- Ridges ES

Map Prepared by
DAVIS MGT
April 25, 2023

N
0 0.75 1.5 Miles

Individual
Study Area Forecasts

Please see page 43 of this report for a map depicting the District's 109 study areas

Pages 45 – 99
(Double Sided on Print-out)

Study Area 1
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	3	1.0	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	4	3.1	1.0	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	3	4.1	3.1	1.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	5	3.1	4.2	3.2	1.0	3.1	3.0	3.4	2.5	3.1	3.0
6	6	5.2	3.2	4.3	3.3	1.0	3.2	3.1	3.5	2.6	3.2
7	2	5.9	5.0	3.1	4.2	3.2	1.0	3.1	3.0	3.4	2.6
8	5	2.0	5.8	5.0	3.1	4.2	3.2	1.0	3.1	3.0	3.4
9	5	5.3	2.1	6.2	5.3	3.3	4.5	3.4	1.1	3.3	3.2
10	3	4.9	5.2	2.1	6.0	5.2	3.2	4.4	3.3	1.1	3.2
11	3	2.8	4.6	4.8	1.9	5.6	4.8	3.0	4.1	3.1	1.0
12	2	3.1	2.8	4.6	4.9	2.0	5.7	4.9	3.0	4.1	3.2
K-5	19	17.3	17.4	15.7	15.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	13	13.1	14.0	12.4	10.6	8.4	7.4	7.2	9.6	9.0	9.2
9-12	13	16.1	14.7	17.7	18.1	16.1	18.2	15.7	11.5	11.6	10.6
K-12	45	46.5	46.1	45.8	44.1	42.0	42.9	40.2	37.8	37.8	36.8

Study Area 2
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	5.1	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	4.1	5.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5	2.1	4.2	5.4	5.1	0.0	0.0	0.0	0.0	0.0	0.0
6	2	5.2	2.1	4.3	5.5	5.2	0.0	0.0	0.0	0.0	0.0
7	9	2.0	5.0	2.1	4.2	5.4	5.1	0.0	0.0	0.0	0.0
8	8	8.9	1.9	5.0	2.1	4.2	5.4	5.1	0.0	0.0	0.0
9	7	8.5	9.4	2.1	5.3	2.2	4.5	5.7	5.4	0.0	0.0
10	3	6.9	8.3	9.3	2.0	5.2	2.1	4.4	5.6	5.3	0.0
11	7	2.8	6.4	7.7	8.6	1.9	4.8	2.0	4.1	5.2	4.9
12	11	7.1	2.8	6.5	7.9	8.8	1.9	4.9	2.0	4.1	5.3
K-5	21	16.1	14.2	10.3	5.1	0.0	0.0	0.0	0.0	0.0	0.0
6-8	19	16.1	9.0	11.4	11.8	14.8	10.5	5.1	0.0	0.0	0.0
9-12	28	25.3	26.9	25.6	23.8	18.1	13.3	17.0	17.1	14.6	10.2
K-12	68	57.5	50.1	47.3	40.7	32.9	23.8	22.1	17.1	14.6	10.2

Study Area 3
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	6	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7	5.6	5.7
1	0	6.1	5.8	6.6	5.0	6.0	5.9	5.6	5.8	5.8	5.7
2	4	0.0	5.8	5.6	6.3	4.7	5.7	5.6	5.3	5.5	5.5
3	5	4.1	0.0	5.9	5.7	6.4	4.8	5.8	5.7	5.4	5.7
4	6	5.1	4.2	0.0	6.0	5.8	6.6	4.9	5.9	5.8	5.6
5	3	6.2	5.3	4.3	0.0	6.2	5.9	6.8	5.1	6.1	6.0
6	6	3.1	6.4	5.4	4.4	0.0	6.4	6.1	7.0	5.2	6.3
7	6	5.9	3.0	6.2	5.3	4.3	0.0	6.3	6.0	6.8	5.1
8	8	5.9	5.8	3.0	6.2	5.2	4.3	0.0	6.2	5.9	6.8
9	10	8.5	6.3	6.2	3.2	6.5	5.6	4.5	0.0	6.6	6.3
10	6	9.8	8.3	6.2	6.0	3.1	6.4	5.5	4.4	0.0	6.5
11	10	5.6	9.1	7.7	5.7	5.6	2.9	6.0	5.1	4.1	0.0
12	5	10.2	5.7	9.3	7.9	5.9	5.7	3.0	6.1	5.2	4.2
K-5	24	27.2	27.6	27.3	28.9	34.9	34.4	34.4	33.5	34.2	34.2
6-8	20	14.9	15.2	14.6	15.9	9.5	10.7	12.4	19.2	17.9	18.2
9-12	31	34.1	29.4	29.4	22.8	21.1	20.6	19.0	15.6	15.9	17.0
K-12	75	76.2	72.2	71.3	67.6	65.5	65.7	65.8	68.3	68.0	69.4

Study Area 4
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	3	1.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	1	3.1	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	1.0	3.1	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	3	2.1	1.1	3.2	2.0	2.1	2.0	2.3	1.7	2.0	2.0
6	4	3.1	2.1	1.1	3.3	2.1	2.1	2.0	2.3	1.7	2.1
7	1	3.9	3.0	2.1	1.1	3.2	2.1	2.1	2.0	2.3	1.7
8	2	1.0	3.9	3.0	2.1	1.0	3.2	2.0	2.1	2.0	2.3
9	3	2.1	1.0	4.1	3.2	2.2	1.1	3.4	2.2	2.2	2.1
10	1	2.9	2.1	1.0	4.0	3.1	2.1	1.1	3.3	2.1	2.2
11	6	0.9	2.7	1.9	1.0	3.7	2.9	2.0	1.0	3.1	2.0
12	1	6.1	0.9	2.8	2.0	1.0	3.8	3.0	2.0	1.0	3.2
K-5	13	12.0	12.1	12.9	11.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	7	8.0	9.0	6.2	6.5	6.3	7.4	6.1	6.4	6.0	6.1
9-12	11	12.0	6.7	9.8	10.2	10.0	9.9	9.5	8.5	8.4	9.5
K-12	31	32.0	27.8	28.9	28.4	27.9	28.8	27.1	26.1	25.7	27.0

Study Area 5
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	2	1.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	4	2.0	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	6	4.1	2.1	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	4	6.2	4.2	2.1	2.0	2.1	2.0	2.3	1.7	2.0	2.0
6	5	4.1	6.4	4.3	2.2	2.1	2.1	2.0	2.3	1.7	2.1
7	6	4.9	4.0	6.2	4.2	2.2	2.1	2.1	2.0	2.3	1.7
8	8	5.9	4.9	4.0	6.2	4.2	2.1	2.0	2.1	2.0	2.3
9	6	8.5	6.3	5.1	4.2	6.5	4.5	2.3	2.2	2.2	2.1
10	4	5.9	8.3	6.2	5.0	4.2	6.4	4.4	2.2	2.1	2.2
11	5	3.7	5.5	7.7	5.7	4.7	3.9	6.0	4.1	2.1	2.0
12	5	5.1	3.8	5.6	7.9	5.9	4.8	3.9	6.1	4.1	2.1
K-5	20	18.1	14.2	11.8	11.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	19	14.9	15.3	14.5	12.6	8.5	6.3	6.1	6.4	6.0	6.1
9-12	20	23.2	23.9	24.6	22.8	21.3	19.6	16.6	14.6	10.5	8.4
K-12	59	56.2	53.4	50.9	47.1	41.4	37.4	34.2	32.2	27.8	25.9

Study Area 6
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	5	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	3	4.8	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	5	3.1	4.8	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	2	5.1	3.1	4.9	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	7	2.1	5.3	3.2	5.1	4.2	4.0	4.5	3.4	4.1	4.0
6	2	7.2	2.1	5.4	3.3	5.2	4.3	4.1	4.6	3.5	4.2
7	4	2.0	7.1	2.1	5.3	3.2	5.1	4.2	4.0	4.6	3.4
8	6	4.0	1.9	7.0	2.1	5.2	3.2	5.1	4.2	4.0	4.5
9	4	6.4	4.2	2.1	7.4	2.2	5.6	3.4	5.4	4.4	4.2
10	7	3.9	6.2	4.1	2.0	7.3	2.1	5.5	3.3	5.3	4.3
11	7	6.5	3.6	5.8	3.8	1.9	6.8	2.0	5.1	3.1	4.9
12	7	7.1	6.6	3.7	5.9	3.9	1.9	6.9	2.0	5.2	3.2
K-5	26	23.0	25.3	23.5	24.3	23.4	23.0	22.9	22.5	23.0	22.8
6-8	12	13.2	11.1	14.5	10.7	13.6	12.6	13.4	12.8	12.1	12.1
9-12	25	23.9	20.6	15.7	19.1	15.3	16.4	17.8	15.8	18.0	16.6
K-12	63	60.1	57.0	53.7	54.1	52.3	52.0	54.1	51.1	53.1	51.5

Study Area 7
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	0	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	2	0.0	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	0	2.0	0.0	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	5	0.0	2.1	0.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	7	5.2	0.0	2.1	0.0	3.1	3.0	3.4	2.5	3.1	3.0
6	9	7.2	5.3	0.0	2.2	0.0	3.2	3.1	3.5	2.6	3.2
7	4	8.8	7.1	5.2	0.0	2.2	0.0	3.1	3.0	3.4	2.6
8	3	4.0	8.7	7.0	5.1	0.0	2.1	0.0	3.1	3.0	3.4
9	4	3.2	4.2	9.3	7.4	5.5	0.0	2.3	0.0	3.3	3.2
10	5	3.9	3.1	4.1	9.1	7.3	5.3	0.0	2.2	0.0	3.2
11	3	4.7	3.6	2.9	3.8	8.4	6.8	5.0	0.0	2.1	0.0
12	6	3.1	4.7	3.7	3.0	3.9	8.6	6.9	5.1	0.0	2.1
K-5	17	13.2	11.2	13.6	14.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	16	20.0	21.1	12.2	7.3	2.2	5.3	6.2	9.6	9.0	9.2
9-12	18	14.9	15.6	20.0	23.3	25.1	20.7	14.2	7.3	5.4	8.5
K-12	51	48.1	47.9	45.8	45.0	44.8	43.3	37.7	33.6	31.6	34.7

Study Area 8
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	8	7.6	8.7	6.5	7.9	7.7	7.4	7.6	7.6	7.5	7.6
1	14	8.2	7.8	8.9	6.7	8.0	7.8	7.5	7.8	7.7	7.7
2	14	13.3	7.8	7.4	8.4	6.3	7.6	7.4	7.1	7.4	7.3
3	9	14.3	13.6	7.9	7.6	8.6	6.4	7.8	7.6	7.3	7.5
4	15	9.2	14.6	13.8	8.1	7.7	8.8	6.6	7.9	7.8	7.4
5	13	15.5	9.5	15.0	14.3	8.3	7.9	9.0	6.8	8.2	8.0
6	15	13.4	15.9	9.7	15.5	14.7	8.6	8.2	9.3	7.0	8.4
7	18	14.7	13.1	15.6	9.5	15.1	14.4	8.4	8.0	9.1	6.8
8	14	17.8	14.6	13.0	15.4	9.4	15.0	14.2	8.3	7.9	9.0
9	9	14.8	18.9	15.4	13.8	16.4	10.0	15.9	15.1	8.8	8.4
10	14	8.8	14.5	18.5	15.1	13.5	16.0	9.8	15.6	14.8	8.6
11	13	13.0	8.2	13.5	17.2	14.1	12.6	14.9	9.1	14.5	13.8
12	8	13.3	13.3	8.4	13.8	17.6	14.3	12.8	15.2	9.3	14.8
K-5	73	68.1	62.0	59.5	53.0	46.6	45.9	45.9	44.8	45.9	45.5
6-8	47	45.9	43.6	38.3	40.4	39.2	38.0	30.8	25.6	24.0	24.2
9-12	44	49.9	54.9	55.8	59.9	61.6	52.9	53.4	55.0	47.4	45.6
K-12	164	163.9	160.5	153.6	153.3	147.4	136.8	130.1	125.4	117.3	115.3

Study Area 9
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	13	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	6	12.4	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	8	6.1	12.6	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	13	8.2	6.2	12.8	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	7	13.4	8.4	6.4	13.2	4.2	4.0	4.5	3.4	4.1	4.0
6	11	7.2	13.8	8.7	6.6	13.6	4.3	4.1	4.6	3.5	4.2
7	6	10.8	7.1	13.5	8.5	6.5	13.4	4.2	4.0	4.6	3.4
8	14	5.9	10.7	7.0	13.4	8.4	6.4	13.2	4.2	4.0	4.5
9	13	14.8	6.3	11.3	7.4	14.2	8.9	6.8	14.0	4.4	4.2
10	7	12.7	14.5	6.2	11.1	7.3	13.9	8.7	6.7	13.7	4.3
11	6	6.5	11.8	13.5	5.7	10.3	6.8	12.9	8.1	6.2	12.8
12	12	6.1	6.6	12.1	13.8	5.9	10.5	6.9	13.2	8.3	6.3
K-5	51	48.0	39.3	34.6	32.4	23.4	23.0	22.9	22.5	23.0	22.8
6-8	31	23.9	31.6	29.2	28.5	28.5	24.1	21.5	12.8	12.1	12.1
9-12	38	40.1	39.2	43.1	38.0	37.7	40.1	35.3	42.0	32.6	27.6
K-12	120	112.0	110.1	106.9	98.9	89.6	87.2	79.7	77.3	67.7	62.5

Study Area 10
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	7	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	7	6.7	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	4	7.1	6.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	8	4.1	7.3	6.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	8.2	4.2	7.5	7.1	2.1	2.0	2.3	1.7	2.0	2.0
6	7	2.1	8.5	4.3	7.7	7.3	2.1	2.0	2.3	1.7	2.1
7	9	6.9	2.0	8.3	4.2	7.6	7.2	2.1	2.0	2.3	1.7
8	7	8.9	6.8	2.0	8.2	4.2	7.5	7.1	2.1	2.0	2.3
9	8	7.4	9.4	7.2	2.1	8.7	4.5	7.9	7.5	2.2	2.1
10	5	7.8	7.3	9.3	7.1	2.1	8.6	4.4	7.8	7.4	2.2
11	8	4.7	7.3	6.8	8.6	6.6	1.9	8.0	4.1	7.2	6.9
12	5	8.2	4.7	7.4	6.9	8.8	6.7	2.0	8.1	4.1	7.4
K-5	30	30.0	24.3	22.1	16.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	23	17.9	17.3	14.6	20.1	19.1	16.8	11.2	6.4	6.0	6.1
9-12	26	28.1	28.7	30.7	24.7	26.2	21.7	22.3	27.5	20.9	18.6
K-12	79	76.0	70.3	67.4	61.6	56.9	50.0	45.0	45.1	38.2	36.1

Study Area 11A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	7	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	1	6.7	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	3	1.0	6.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	3	3.1	1.0	6.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	3.1	3.2	1.1	7.1	2.1	2.0	2.3	1.7	2.0	2.0
6	4	2.1	3.2	3.2	1.1	7.3	2.1	2.0	2.3	1.7	2.1
7	6	3.9	2.0	3.1	3.2	1.1	7.2	2.1	2.0	2.3	1.7
8	4	5.9	3.9	2.0	3.1	3.1	1.1	7.1	2.1	2.0	2.3
9	8	4.2	6.3	4.1	2.1	3.3	3.3	1.1	7.5	2.2	2.1
10	5	7.8	4.2	6.2	4.0	2.1	3.2	3.3	1.1	7.4	2.2
11	10	4.7	7.3	3.9	5.7	3.7	1.9	3.0	3.0	1.0	6.9
12	2	10.2	4.7	7.4	3.9	5.9	3.8	2.0	3.0	3.1	1.1
K-5	18	17.8	17.0	15.7	16.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	14	11.9	9.1	8.3	7.4	11.5	10.4	11.2	6.4	6.0	6.1
9-12	25	26.9	22.5	21.6	15.7	15.0	12.2	9.4	14.6	13.7	12.3
K-12	57	56.6	48.6	45.6	39.9	38.1	34.1	32.1	32.2	31.0	29.8

Study Area 11B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	2	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	1	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	1	1.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	2	1.0	1.0	2.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	0	2.1	1.1	1.1	2.0	1.0	1.0	1.1	0.8	1.0	1.0
6	1	0.0	2.1	1.1	1.1	2.1	1.1	1.0	1.2	0.9	1.1
7	1	1.0	0.0	2.1	1.1	1.1	2.1	1.0	1.0	1.1	0.9
8	0	1.0	1.0	0.0	2.1	1.0	1.1	2.0	1.0	1.0	1.1
9	3	0.0	1.0	1.0	0.0	2.2	1.1	1.1	2.2	1.1	1.1
10	1	2.9	0.0	1.0	1.0	0.0	2.1	1.1	1.1	2.1	1.1
11	3	0.9	2.7	0.0	1.0	0.9	0.0	2.0	1.0	1.0	2.0
12	4	3.1	0.9	2.8	0.0	1.0	1.0	0.0	2.0	1.0	1.1
K-5	7	8.0	7.1	6.9	6.8	5.9	5.8	5.7	5.5	5.7	5.6
6-8	2	2.0	3.1	3.2	4.3	4.2	4.3	4.0	3.2	3.0	3.1
9-12	11	6.9	4.6	4.8	2.0	4.1	4.2	4.2	6.3	5.2	5.3
K-12	20	16.9	14.8	14.9	13.1	14.2	14.3	13.9	15.0	13.9	14.0

Study Area 12
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	1	2.8	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	2	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	3	2.0	1.0	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	3.1	2.1	1.1	3.1	2.1	2.0	2.3	1.7	2.0	2.0
6	2	2.1	3.2	2.2	1.1	3.1	2.1	2.0	2.3	1.7	2.1
7	1	2.0	2.0	3.1	2.1	1.1	3.1	2.1	2.0	2.3	1.7
8	5	1.0	1.9	2.0	3.1	2.1	1.1	3.1	2.1	2.0	2.3
9	6	5.3	1.0	2.1	2.1	3.3	2.2	1.1	3.2	2.2	2.1
10	5	5.9	5.2	1.0	2.0	2.1	3.2	2.2	1.1	3.2	2.2
11	4	4.7	5.5	4.8	1.0	1.9	1.9	3.0	2.0	1.0	2.9
12	2	4.1	4.7	5.6	4.9	1.0	1.9	2.0	3.0	2.1	1.1
K-5	13	12.8	12.0	11.8	12.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	8	5.1	7.1	7.3	6.3	6.3	6.3	7.2	6.4	6.0	6.1
9-12	17	20.0	16.4	13.5	10.0	8.3	9.2	8.3	9.3	8.5	8.3
K-12	38	37.9	35.5	32.6	29.1	26.2	27.0	27.0	26.9	25.8	25.8

Study Area 13
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	4.1	3.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	1.0	4.2	3.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	5	2.1	1.1	4.3	3.3	1.0	0.0	0.0	0.0	0.0	0.0
7	4	4.9	2.0	1.0	4.2	3.2	1.0	0.0	0.0	0.0	0.0
8	1	4.0	4.9	2.0	1.0	4.2	3.2	1.0	0.0	0.0	0.0
9	2	1.1	4.2	5.1	2.1	1.1	4.5	3.4	1.1	0.0	0.0
10	2	2.0	1.0	4.1	5.0	2.1	1.1	4.4	3.3	1.1	0.0
11	5	1.9	1.8	1.0	3.8	4.7	1.9	1.0	4.1	3.1	1.0
12	1	5.1	1.9	1.9	1.0	3.9	4.8	2.0	1.0	4.1	3.2
K-5	11	9.2	8.3	4.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	10	11.0	8.0	7.3	8.5	8.4	4.2	1.0	0.0	0.0	0.0
9-12	10	10.1	8.9	12.1	11.9	11.8	12.3	10.8	9.5	8.3	4.2
K-12	31	30.3	25.2	23.6	21.4	20.2	16.5	11.8	9.5	8.3	4.2

Study Area 14
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	1	2.8	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	3	1.0	2.9	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	4	3.1	1.0	3.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	5	4.1	3.2	1.1	3.1	3.1	3.0	3.4	2.5	3.1	3.0
6	4	5.2	4.2	3.2	1.1	3.1	3.2	3.1	3.5	2.6	3.2
7	4	3.9	5.0	4.2	3.2	1.1	3.1	3.1	3.0	3.4	2.6
8	7	4.0	3.9	5.0	4.1	3.1	1.1	3.1	3.1	3.0	3.4
9	3	7.4	4.2	4.1	5.3	4.4	3.3	1.1	3.2	3.3	3.2
10	2	2.9	7.3	4.1	4.0	5.2	4.3	3.3	1.1	3.2	3.2
11	9	1.9	2.7	6.8	3.8	3.7	4.8	4.0	3.0	1.0	2.9
12	2	9.2	1.9	2.8	6.9	3.9	3.8	4.9	4.1	3.1	1.1
K-5	19	17.0	16.2	15.6	17.5	17.5	17.3	17.3	16.7	17.2	17.0
6-8	15	13.1	13.1	12.4	8.4	7.3	7.4	9.3	9.6	9.0	9.2
9-12	16	21.4	16.1	17.8	20.0	17.2	16.2	13.3	11.4	10.6	10.4
K-12	50	51.5	45.4	45.8	45.9	42.0	40.9	39.9	37.7	36.8	36.6

Study Area 15
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	0	1.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	4	0.0	1.9	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	1	4.1	0.0	2.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	2	1.0	4.2	0.0	2.0	3.1	3.0	3.4	2.5	3.1	3.0
6	1	2.1	1.1	4.3	0.0	2.1	3.2	3.1	3.5	2.6	3.2
7	4	1.0	2.0	1.0	4.2	0.0	2.1	3.1	3.0	3.4	2.6
8	6	4.0	1.0	2.0	1.0	4.2	0.0	2.0	3.1	3.0	3.4
9	1	6.4	4.2	1.0	2.1	1.1	4.5	0.0	2.2	3.3	3.2
10	3	1.0	6.2	4.1	1.0	2.1	1.1	4.4	0.0	2.1	3.2
11	3	2.8	0.9	5.8	3.8	0.9	1.9	1.0	4.1	0.0	2.0
12	0	3.1	2.8	0.9	5.9	3.9	1.0	2.0	1.0	4.1	0.0
K-5	12	13.0	15.2	13.5	16.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	11	7.1	4.1	7.3	5.2	6.3	5.3	8.2	9.6	9.0	9.2
9-12	7	13.3	14.1	11.8	12.8	8.0	8.5	7.4	7.3	9.5	8.4
K-12	30	33.4	33.4	32.6	34.4	31.8	31.1	32.9	33.6	35.7	34.6

Study Area 16
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	6	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	4	5.7	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	4	4.1	5.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	7	4.1	4.2	5.9	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	3	7.2	4.2	4.3	6.1	1.0	1.0	1.1	0.8	1.0	1.0
6	4	3.1	7.4	4.3	4.4	6.3	1.1	1.0	1.2	0.9	1.1
7	5	3.9	3.0	7.3	4.2	4.3	6.2	1.0	1.0	1.1	0.9
8	2	5.0	3.9	3.0	7.2	4.2	4.3	6.1	1.0	1.0	1.1
9	8	2.1	5.2	4.1	3.2	7.6	4.5	4.5	6.5	1.1	1.1
10	3	7.8	2.1	5.1	4.0	3.1	7.5	4.4	4.4	6.3	1.1
11	9	2.8	7.3	1.9	4.8	3.7	2.9	7.0	4.1	4.1	5.9
12	9	9.2	2.8	7.4	2.0	4.9	3.8	3.0	7.1	4.1	4.2
K-5	25	23.1	17.3	14.0	10.9	5.9	5.8	5.7	5.5	5.7	5.6
6-8	11	12.0	14.3	14.6	15.8	14.8	11.6	8.1	3.2	3.0	3.1
9-12	29	21.9	17.4	18.5	14.0	19.3	18.7	18.9	22.1	15.6	12.3
K-12	65	57.0	49.0	47.1	40.7	40.0	36.1	32.7	30.8	24.3	21.0

Study Area 17A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	6	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7	5.6	5.7
1	1	6.1	5.8	6.6	5.0	6.0	5.9	5.6	5.8	5.8	5.7
2	0	1.0	5.8	5.6	6.3	4.7	5.7	5.6	5.3	5.5	5.5
3	1	0.0	1.0	5.9	5.7	6.4	4.8	5.8	5.7	5.4	5.7
4	1	1.0	0.0	1.0	6.0	5.8	6.6	4.9	5.9	5.8	5.6
5	2	1.0	1.1	0.0	1.0	6.2	5.9	6.8	5.1	6.1	6.0
6	2	2.1	1.1	1.1	0.0	1.0	6.4	6.1	7.0	5.2	6.3
7	1	2.0	2.0	1.0	1.1	0.0	1.0	6.3	6.0	6.8	5.1
8	1	1.0	1.9	2.0	1.0	1.0	0.0	1.0	6.2	5.9	6.8
9	3	1.1	1.0	2.1	2.1	1.1	1.1	0.0	1.1	6.6	6.3
10	3	2.9	1.0	1.0	2.0	2.1	1.1	1.1	0.0	1.1	6.5
11	1	2.8	2.7	1.0	1.0	1.9	1.9	1.0	1.0	0.0	1.0
12	1	1.0	2.8	2.8	1.0	1.0	1.9	2.0	1.0	1.0	0.0
K-5	11	14.8	20.2	24.0	29.9	34.9	34.4	34.4	33.5	34.2	34.2
6-8	4	5.1	5.0	4.1	2.1	2.0	7.4	13.4	19.2	17.9	18.2
9-12	8	7.8	7.5	6.9	6.1	6.1	6.0	4.1	3.1	8.7	13.8
K-12	23	27.7	32.7	35.0	38.1	43.0	47.8	51.9	55.8	60.8	66.2

Study Area 17B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	2	3.1	1.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
7	2	2.0	3.0	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
8	7	2.0	1.9	3.0	1.0	0.0	1.1	0.0	0.0	0.0	0.0
9	4	7.4	2.1	2.1	3.2	1.1	0.0	1.1	0.0	0.0	0.0
10	9	3.9	7.3	2.1	2.0	3.1	1.1	0.0	1.1	0.0	0.0
11	3	8.4	3.6	6.8	1.9	1.9	2.9	1.0	0.0	1.0	0.0
12	3	3.1	8.5	3.7	6.9	2.0	1.9	3.0	1.0	0.0	1.1
K-5	5	2.0	1.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	11	7.1	6.0	4.0	2.1	1.1	1.1	0.0	0.0	0.0	0.0
9-12	19	22.8	21.5	14.7	14.0	8.1	5.9	5.1	2.1	1.0	1.1
K-12	35	31.9	28.5	19.8	16.1	9.2	7.0	5.1	2.1	1.0	1.1

Study Area 18A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	0	1.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	5	0.0	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	5.1	0.0	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	4	1.0	5.3	0.0	2.0	2.1	2.0	2.3	1.7	2.0	2.0
6	5	4.1	1.1	5.4	0.0	2.1	2.1	2.0	2.3	1.7	2.1
7	3	4.9	4.0	1.0	5.3	0.0	2.1	2.1	2.0	2.3	1.7
8	2	3.0	4.9	4.0	1.0	5.2	0.0	2.0	2.1	2.0	2.3
9	2	2.1	3.1	5.1	4.2	1.1	5.6	0.0	2.2	2.2	2.1
10	3	2.0	2.1	3.1	5.0	4.2	1.1	5.5	0.0	2.1	2.2
11	1	2.8	1.8	1.9	2.9	4.7	3.9	1.0	5.1	0.0	2.0
12	2	1.0	2.8	1.9	2.0	2.9	4.8	3.9	1.0	5.2	0.0
K-5	14	11.9	13.2	9.7	11.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	10	12.0	10.0	10.4	6.3	7.3	4.2	6.1	6.4	6.0	6.1
9-12	8	7.9	9.8	12.0	14.1	12.9	15.4	10.4	8.3	9.5	6.3
K-12	32	31.8	33.0	32.1	32.1	31.8	31.1	28.0	25.9	26.8	23.8

Study Area 18B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	5	3.8	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	4	5.1	3.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	4.1	5.2	4.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	3	1.0	4.2	5.4	4.1	2.1	2.0	2.3	1.7	2.0	2.0
6	4	3.1	1.1	4.3	5.5	4.2	2.1	2.0	2.3	1.7	2.1
7	3	3.9	3.0	1.0	4.2	5.4	4.1	2.1	2.0	2.3	1.7
8	5	3.0	3.9	3.0	1.0	4.2	5.4	4.1	2.1	2.0	2.3
9	3	5.3	3.1	4.1	3.2	1.1	4.5	5.7	4.3	2.2	2.1
10	1	2.9	5.2	3.1	4.0	3.1	1.1	4.4	5.6	4.2	2.2
11	8	0.9	2.7	4.8	2.9	3.7	2.9	1.0	4.1	5.2	3.9
12	2	8.2	0.9	2.8	4.9	2.9	3.8	3.0	1.0	4.1	5.3
K-5	19	17.9	19.3	17.1	13.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	12	10.0	8.0	8.3	10.7	13.8	11.6	8.2	6.4	6.0	6.1
9-12	14	17.3	11.9	14.8	15.0	10.8	12.3	14.1	15.0	15.7	13.5
K-12	45	45.2	39.2	40.2	39.5	36.2	35.4	33.8	32.6	33.0	31.0

Study Area 18C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	0	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	2	0.0	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	1	2.0	0.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	1.0	2.1	0.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	1.0	1.1	2.1	0.0	2.1	2.0	2.3	1.7	2.0	2.0
6	3	2.1	1.1	1.1	2.2	0.0	2.1	2.0	2.3	1.7	2.1
7	1	2.9	2.0	1.0	1.1	2.2	0.0	2.1	2.0	2.3	1.7
8	2	1.0	2.9	2.0	1.0	1.0	2.1	0.0	2.1	2.0	2.3
9	3	2.1	1.0	3.1	2.1	1.1	1.1	2.3	0.0	2.2	2.1
10	1	2.9	2.1	1.0	3.0	2.1	1.1	1.1	2.2	0.0	2.2
11	0	0.9	2.7	1.9	1.0	2.8	1.9	1.0	1.0	2.1	0.0
12	1	0.0	0.9	2.8	2.0	1.0	2.9	2.0	1.0	1.0	2.1
K-5	8	7.9	9.2	9.8	9.7	11.6	11.5	11.5	11.2	11.3	11.4
6-8	6	6.0	6.0	4.1	4.3	3.2	4.2	4.1	6.4	6.0	6.1
9-12	5	5.9	6.7	8.8	8.1	7.0	7.0	6.4	4.2	5.3	6.4
K-12	19	19.8	21.9	22.7	22.1	21.8	22.7	22.0	21.8	22.6	23.9

Study Area 19
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	3	1.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	3	3.1	1.9	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	5	3.1	3.1	2.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	6	5.2	3.2	3.2	2.0	3.1	3.0	3.4	2.5	3.1	3.0
6	4	6.2	5.3	3.2	3.3	2.1	3.2	3.1	3.5	2.6	3.2
7	1	3.9	6.1	5.2	3.2	3.2	2.1	3.1	3.0	3.4	2.6
8	8	1.0	3.9	6.0	5.1	3.1	3.2	2.0	3.1	3.0	3.4
9	3	8.5	1.0	4.1	6.4	5.5	3.3	3.4	2.2	3.3	3.2
10	4	2.9	8.3	1.0	4.0	6.2	5.3	3.3	3.3	2.1	3.2
11	2	3.7	2.7	7.7	1.0	3.7	5.8	5.0	3.0	3.1	2.0
12	5	2.0	3.8	2.8	7.9	1.0	3.8	5.9	5.1	3.1	3.2
K-5	22	19.3	17.3	16.7	16.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	13	11.1	15.3	14.4	11.6	8.4	8.5	8.2	9.6	9.0	9.2
9-12	14	17.1	15.8	15.6	19.3	16.4	18.2	17.6	13.6	11.6	11.6
K-12	49	47.5	48.4	46.7	47.3	42.3	44.0	43.1	39.9	37.8	37.8

Study Area 20
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	5	5.1	4.9	5.5	4.2	5.0	4.9	4.7	4.9	4.8	4.8
2	4	4.8	4.8	4.6	5.3	3.9	4.8	4.7	4.5	4.6	4.6
3	0	4.1	4.8	4.9	4.7	5.4	4.0	4.9	4.7	4.5	4.7
4	6	0.0	4.2	4.9	5.0	4.8	5.5	4.1	5.0	4.8	4.6
5	4	6.2	0.0	4.3	5.1	5.2	5.0	5.6	4.2	5.1	5.0
6	1	4.1	6.4	0.0	4.4	5.2	5.3	5.1	5.8	4.4	5.3
7	4	1.0	4.0	6.2	0.0	4.3	5.1	5.2	5.0	5.7	4.3
8	5	4.0	1.0	4.0	6.2	0.0	4.3	5.1	5.2	5.0	5.6
9	2	5.3	4.2	1.0	4.2	6.5	0.0	4.5	5.4	5.5	5.3
10	6	2.0	5.2	4.1	1.0	4.2	6.4	0.0	4.4	5.3	5.4
11	7	5.6	1.8	4.8	3.8	0.9	3.9	6.0	0.0	4.1	4.9
12	2	7.1	5.7	1.9	4.9	3.9	1.0	3.9	6.1	0.0	4.2
K-5	24	25.0	24.1	28.3	29.2	29.1	28.8	28.8	28.0	28.5	28.4
6-8	10	9.1	11.4	10.2	10.6	9.5	14.7	15.4	16.0	15.1	15.2
9-12	17	20.0	16.9	11.8	13.9	15.5	11.3	14.4	15.9	14.9	19.8
K-12	51	54.1	52.4	50.3	53.7	54.1	54.8	58.6	59.9	58.5	63.4

Study Area 21
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	6	5.1	4.9	5.5	4.2	5.0	4.9	4.7	4.9	4.8	4.8
2	5	5.7	4.8	4.6	5.3	3.9	4.8	4.7	4.5	4.6	4.6
3	3	5.1	5.8	4.9	4.7	5.4	4.0	4.9	4.7	4.5	4.7
4	9	3.1	5.2	5.9	5.0	4.8	5.5	4.1	5.0	4.8	4.6
5	4	9.3	3.2	5.4	6.1	5.2	5.0	5.6	4.2	5.1	5.0
6	3	4.1	9.5	3.2	5.5	6.3	5.3	5.1	5.8	4.4	5.3
7	5	2.9	4.0	9.4	3.2	5.4	6.2	5.2	5.0	5.7	4.3
8	6	5.0	2.9	4.0	9.3	3.1	5.4	6.1	5.2	5.0	5.6
9	6	6.4	5.2	3.1	4.2	9.8	3.3	5.7	6.5	5.5	5.3
10	5	5.9	6.2	5.1	3.0	4.2	9.6	3.3	5.6	6.3	5.4
11	4	4.7	5.5	5.8	4.8	2.8	3.9	8.9	3.0	5.2	5.9
12	2	4.1	4.7	5.6	5.9	4.9	2.9	3.9	9.1	3.1	5.3
K-5	32	33.1	29.3	30.4	30.2	29.1	28.8	28.8	28.0	28.5	28.4
6-8	14	12.0	16.4	16.6	18.0	14.8	16.9	16.4	16.0	15.1	15.2
9-12	17	21.1	21.6	19.6	17.9	21.7	19.7	21.8	24.2	20.1	21.9
K-12	63	66.2	67.3	66.6	66.1	65.6	65.4	67.0	68.2	63.7	65.5

Study Area 22
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	3	2.8	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	0	3.1	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	0.0	3.1	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	1	1.0	0.0	3.2	3.1	2.1	2.0	2.3	1.7	2.0	2.0
6	5	1.0	1.1	0.0	3.3	3.1	2.1	2.0	2.3	1.7	2.1
7	2	4.9	1.0	1.0	0.0	3.2	3.1	2.1	2.0	2.3	1.7
8	3	2.0	4.9	1.0	1.0	0.0	3.2	3.1	2.1	2.0	2.3
9	3	3.2	2.1	5.1	1.1	1.1	0.0	3.4	3.2	2.2	2.1
10	3	2.9	3.1	2.1	5.0	1.0	1.1	0.0	3.3	3.2	2.2
11	3	2.8	2.7	2.9	1.9	4.7	1.0	1.0	0.0	3.1	2.9
12	2	3.1	2.8	2.8	3.0	2.0	4.8	1.0	1.0	0.0	3.2
K-5	10	10.8	12.0	13.9	12.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	10	7.9	7.0	2.0	4.3	6.3	8.4	7.2	6.4	6.0	6.1
9-12	11	12.0	10.7	12.9	11.0	8.8	6.9	5.4	7.5	8.5	10.4
K-12	31	30.7	29.7	28.8	28.1	26.7	26.8	24.1	25.1	25.8	27.9

Study Area 23A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	0	0.0	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	0	0.0	0.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	0	0.0	0.0	0.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9	0.9
6	0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.8	0.9	0.7
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.9
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
10	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
11	2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	1	2.0	2.9	3.6	4.5	5.3	5.3	5.5	5.0	5.3	5.3
6-8	0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	2.6	2.4	2.5
9-12	3	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8
K-12	4	4.9	3.9	3.6	4.5	5.3	6.2	7.3	7.6	8.6	9.6

Study Area 23B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
8	1	0.0	0.9	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
9	0	1.1	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
10	1	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
11	0	1.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
12	0	0.0	1.0	0.0	1.0	0.0	0.9	0.0	0.0	1.0	0.0
K-5	1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	2	1.0	0.9	1.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0
9-12	1	2.1	2.0	2.0	2.0	1.0	1.9	1.0	1.0	1.0	0.0
K-12	4	4.2	3.9	3.1	3.0	2.0	1.9	1.0	1.0	1.0	0.0

Study Area 24A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 24B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 25A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	1	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	2	0.9	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	1	1.9	0.9	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	0	1.1	2.1	1.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	2	0.0	1.0	2.0	0.9	0.9	0.9	1.0	0.7	0.9	0.9
6	0	2.0	0.0	1.1	2.0	1.0	0.9	0.9	1.0	0.7	0.9
7	4	0.0	1.9	0.0	1.0	1.9	0.9	0.9	0.8	0.9	0.7
8	5	3.9	0.0	1.9	0.0	1.0	1.9	0.9	0.8	0.8	0.9
9	2	5.4	4.2	0.0	2.0	0.0	1.0	2.0	0.9	0.9	0.9
10	2	1.9	5.2	4.0	0.0	1.9	0.0	1.0	1.9	0.9	0.9
11	3	2.0	1.9	5.2	4.0	0.0	1.9	0.0	1.0	1.9	0.9
12	3	2.8	1.9	1.8	4.9	3.8	0.0	1.8	0.0	1.0	1.8
K-5	7	5.9	6.9	6.6	5.4	5.3	5.3	5.5	5.0	5.3	5.3
6-8	9	5.9	1.9	3.0	3.0	3.9	3.7	2.7	2.6	2.4	2.5
9-12	10	12.1	13.2	11.0	10.9	5.7	2.9	4.8	3.8	4.7	4.5
K-12	26	23.9	22.0	20.6	19.3	14.9	11.9	13.0	11.4	12.4	12.3

Study Area 25B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	1	0.9	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	4	1.0	0.9	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	1	4.4	1.0	1.0	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	1	1.0	4.2	1.0	0.9	1.8	1.7	2.0	1.5	1.8	1.7
6	0	1.0	1.0	4.2	1.0	1.0	1.8	1.7	2.0	1.5	1.8
7	2	0.0	1.0	0.9	4.0	1.0	0.9	1.7	1.7	1.9	1.4
8	1	1.9	0.0	0.9	0.9	3.9	0.9	0.9	1.7	1.6	1.8
9	1	1.1	2.1	0.0	1.0	1.0	4.2	1.0	0.9	1.8	1.7
10	2	1.0	1.0	2.0	0.0	1.0	0.9	4.0	1.0	0.9	1.8
11	1	2.0	1.0	1.0	2.0	0.0	1.0	0.9	4.0	1.0	0.9
12	4	1.0	1.9	0.9	1.0	1.9	0.0	0.9	0.9	3.8	0.9
K-5	10	11.1	11.9	9.1	10.1	10.8	10.6	10.6	10.5	10.6	10.5
6-8	3	2.9	2.0	6.0	5.9	5.9	3.6	4.3	5.4	5.0	5.0
9-12	8	5.1	6.0	3.9	4.0	3.9	6.1	6.8	6.8	7.5	5.3
K-12	21	19.1	19.9	19.0	20.0	20.6	20.3	21.7	22.7	23.1	20.8

Study Area 25C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	3	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	1	2.8	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	3	1.0	2.7	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	1	3.3	1.0	3.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	3	1.0	3.1	1.0	2.8	0.9	0.9	1.0	0.7	0.9	0.9
6	1	3.0	1.0	3.2	1.0	2.9	0.9	0.9	1.0	0.7	0.9
7	7	1.0	2.9	0.9	3.0	1.0	2.7	0.9	0.8	0.9	0.7
8	2	6.8	0.9	2.8	0.9	2.9	0.9	2.6	0.8	0.8	0.9
9	2	2.1	7.3	1.0	3.0	1.0	3.1	1.0	2.8	0.9	0.9
10	3	1.9	2.1	7.0	1.0	2.9	0.9	3.0	1.0	2.7	0.9
11	0	3.0	1.9	2.1	7.0	1.0	2.9	0.9	3.0	1.0	2.7
12	3	0.0	2.8	1.8	2.0	6.7	0.9	2.8	0.9	2.9	0.9
K-5	12	10.1	9.7	7.6	7.3	5.3	5.3	5.5	5.0	5.3	5.3
6-8	10	10.8	4.8	6.9	4.9	6.8	4.5	4.4	2.6	2.4	2.5
9-12	8	7.0	14.1	11.9	13.0	11.6	7.8	7.7	7.7	7.5	5.4
K-12	30	27.9	28.6	26.4	25.2	23.7	17.6	17.6	15.3	15.2	13.2

Study Area 26
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 27
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	2	3.8	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	4	1.9	3.6	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	7	4.4	2.1	3.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	1	6.7	4.2	2.0	3.8	1.8	1.7	2.0	1.5	1.8	1.7
6	4	1.0	6.8	4.2	2.0	3.8	1.8	1.7	2.0	1.5	1.8
7	1	3.8	1.0	6.4	4.0	1.9	3.6	1.7	1.7	1.9	1.4
8	4	1.0	3.7	0.9	6.3	3.9	1.9	3.5	1.7	1.6	1.8
9	1	4.3	1.0	3.9	1.0	6.7	4.2	2.0	3.8	1.8	1.7
10	5	1.0	4.2	1.0	3.8	1.0	6.5	4.0	1.9	3.6	1.8
11	7	5.0	1.0	4.2	1.0	3.8	1.0	6.5	4.0	1.9	3.6
12	3	6.7	4.8	0.9	3.9	1.0	3.6	0.9	6.2	3.8	1.8
K-5	20	20.6	15.7	13.0	13.0	10.8	10.6	10.6	10.5	10.6	10.5
6-8	9	5.8	11.5	11.5	12.3	9.6	7.3	6.9	5.4	5.0	5.0
9-12	16	17.0	11.0	10.0	9.7	12.5	15.3	13.4	15.9	11.1	8.9
K-12	45	43.4	38.2	34.5	35.0	32.9	33.2	30.9	31.8	26.7	24.4

Study Area 28
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	2	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	4	1.9	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	0	3.8	1.8	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	2	0.0	4.2	2.0	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	4	1.9	0.0	4.0	1.9	3.6	3.5	3.9	3.0	3.6	3.5
6	2	4.0	1.9	0.0	4.1	1.9	3.7	3.5	4.0	3.0	3.6
7	6	1.9	3.8	1.8	0.0	3.9	1.8	3.5	3.3	3.8	2.8
8	1	5.8	1.8	3.7	1.8	0.0	3.7	1.8	3.4	3.2	3.7
9	2	1.1	6.2	2.0	4.0	1.9	0.0	4.0	1.9	3.6	3.4
10	4	1.9	1.0	6.0	1.9	3.9	1.9	0.0	3.9	1.8	3.5
11	6	4.0	1.9	1.0	6.0	1.9	3.9	1.9	0.0	3.9	1.8
12	3	5.7	3.8	1.8	1.0	5.7	1.8	3.7	1.8	0.0	3.7
K-5	16	15.2	17.6	20.4	19.9	21.5	21.3	21.2	20.8	21.2	21.1
6-8	9	11.7	7.5	5.5	5.9	5.8	9.2	8.8	10.7	10.0	10.1
9-12	15	12.7	12.9	10.8	12.9	13.4	7.6	9.6	7.6	9.3	12.4
K-12	40	39.6	38.0	36.7	38.7	40.7	38.1	39.6	39.1	40.5	43.6

Study Area 29
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS								
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	0	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	3	0.0	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	3	2.9	0.0	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	2	3.3	3.1	0.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	9	1.9	3.1	3.0	0.0	2.7	2.6	3.0	2.2	2.7	2.6
6	4	9.1	1.9	3.2	3.0	0.0	2.7	2.6	3.0	2.2	2.7
7	3	3.8	8.6	1.8	3.0	2.9	0.0	2.6	2.5	2.8	2.1
8	2	2.9	3.7	8.4	1.8	2.9	2.8	0.0	2.5	2.4	2.7
9	4	2.1	3.1	3.9	9.0	1.9	3.1	3.0	0.0	2.7	2.6
10	6	3.9	2.1	3.0	3.8	8.7	1.9	3.0	2.9	0.0	2.6
11	3	6.0	3.9	2.1	3.0	3.8	8.7	1.9	3.0	2.9	0.0
12	4	2.8	5.7	3.7	2.0	2.9	3.6	8.3	1.8	2.9	2.8
K-5	20	13.9	15.0	13.7	13.4	16.1	16.1	16.0	15.5	15.9	15.8
6-8	9	15.8	14.2	13.4	7.8	5.8	5.5	5.2	8.0	7.4	7.5
9-12	17	14.8	14.8	12.7	17.8	17.3	17.3	16.2	7.7	8.5	8.0
K-12	46	44.5	44.0	39.8	39.0	39.2	38.9	37.4	31.2	31.8	31.3

Study Area 30
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS								
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	3.3	2.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3	0.0	3.1	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6	1	3.0	0.0	3.2	2.0	1.0	0.0	0.0	0.0	0.0	0.0
7	4	1.0	2.9	0.0	3.0	1.9	0.9	0.0	0.0	0.0	0.0
8	0	3.9	0.9	2.8	0.0	2.9	1.9	0.9	0.0	0.0	0.0
9	5	0.0	4.2	1.0	3.0	0.0	3.1	2.0	0.9	0.0	0.0
10	2	4.9	0.0	4.0	1.0	2.9	0.0	3.0	1.9	0.9	0.0
11	7	2.0	4.9	0.0	4.0	1.0	2.9	0.0	3.0	1.9	0.9
12	5	6.7	1.9	4.6	0.0	3.8	0.9	2.8	0.0	2.9	1.8
K-5	9	6.1	6.1	3.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	5	7.9	3.8	6.0	5.0	5.8	2.8	0.9	0.0	0.0	0.0
9-12	19	13.6	11.0	9.6	8.0	7.7	6.9	7.8	5.8	5.7	2.7
K-12	33	27.6	20.9	18.6	13.9	13.5	9.7	8.7	5.8	5.7	2.7

Study Area 31
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	3	4.8	4.6	5.2	3.9	4.7	4.6	4.4	4.6	4.5	4.5
2	6	2.8	4.5	4.3	4.9	3.7	4.4	4.3	4.1	4.3	4.3
3	2	5.8	2.7	4.3	4.1	4.7	3.5	4.3	4.2	4.0	4.1
4	3	2.2	6.3	3.0	4.7	4.5	5.1	3.8	4.6	4.5	4.3
5	2	2.9	2.1	6.0	2.8	4.5	4.3	4.9	3.7	4.5	4.4
6	2	2.0	2.9	2.1	6.1	2.9	4.6	4.4	5.0	3.7	4.5
7	2	1.9	1.9	2.8	2.0	5.8	2.7	4.3	4.2	4.7	3.5
8	2	1.9	1.8	1.9	2.7	1.9	5.6	2.6	4.2	4.0	4.6
9	6	2.1	2.1	2.0	2.0	2.9	2.1	6.0	2.8	4.5	4.3
10	4	5.8	2.1	2.0	1.9	1.9	2.8	2.0	5.8	2.7	4.4
11	4	4.0	5.8	2.1	2.0	1.9	1.9	2.8	2.0	5.8	2.7
12	7	3.8	3.8	5.5	2.0	1.9	1.8	1.8	2.6	1.9	5.5
K-5	21	23.3	25.6	26.9	25.3	26.9	26.5	26.5	25.9	26.5	26.3
6-8	6	5.8	6.6	6.8	10.8	10.6	12.9	11.3	13.4	12.4	12.6
9-12	21	15.7	13.8	11.6	7.9	8.6	8.6	12.6	13.2	14.9	16.9
K-12	48	44.8	46.0	45.3	44.0	46.1	48.0	50.4	52.5	53.8	55.8

Study Area 32
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	7	6.7	7.6	5.7	6.9	6.7	6.4	6.7	6.6	6.6	6.6
1	4	6.7	6.4	7.3	5.5	6.6	6.5	6.2	6.4	6.4	6.3
2	2	3.8	6.3	6.0	6.9	5.1	6.2	6.1	5.8	6.0	6.0
3	7	1.9	3.6	6.1	5.8	6.6	4.9	6.0	5.8	5.6	5.8
4	2	7.6	2.1	3.9	6.6	6.3	7.2	5.4	6.5	6.4	6.1
5	5	1.9	7.3	2.0	3.8	6.3	6.1	6.9	5.2	6.2	6.1
6	9	5.1	1.9	7.4	2.0	3.8	6.4	6.1	7.0	5.2	6.3
7	5	8.5	4.8	1.8	7.0	1.9	3.6	6.1	5.8	6.6	5.0
8	4	4.9	8.3	4.7	1.8	6.8	1.9	3.5	5.9	5.6	6.4
9	6	4.3	5.2	8.9	5.0	1.9	7.3	2.0	3.8	6.3	6.0
10	14	5.8	4.2	5.0	8.6	4.8	1.9	7.1	1.9	3.6	6.1
11	5	14.0	5.8	4.2	5.0	8.6	4.8	1.9	7.1	1.9	3.6
12	5	4.8	13.3	5.5	3.9	4.8	8.2	4.6	1.8	6.7	1.8
K-5	27	28.6	33.3	31.0	35.5	37.6	37.3	37.3	36.3	37.2	36.9
6-8	18	18.5	15.0	13.9	10.8	12.5	11.9	15.7	18.7	17.4	17.7
9-12	30	28.9	28.5	23.6	22.5	20.1	22.2	15.6	14.6	18.5	17.5
K-12	75	76.0	76.8	68.5	68.8	70.2	71.4	68.6	69.6	73.1	72.1

Study Area 33A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	3.1	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.9
2	3	1.0	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8	2.7
3	2	3.1	1.0	3.0	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	2	2.0	3.1	1.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8
5	5	2.1	2.1	3.2	1.0	3.1	3.0	3.4	2.5	3.1	3.0
6	1	5.2	2.1	2.2	3.3	1.0	3.2	3.1	3.5	2.6	3.2
7	5	1.0	5.0	2.1	2.1	3.2	1.0	3.1	3.0	3.4	2.6
8	4	5.0	1.0	5.0	2.1	2.1	3.2	1.0	3.1	3.0	3.4
9	6	4.2	5.2	1.0	5.3	2.2	2.2	3.4	1.1	3.3	3.2
10	4	5.9	4.2	5.1	1.0	5.2	2.1	2.2	3.3	1.1	3.2
11	2	3.7	5.5	3.9	4.8	0.9	4.8	2.0	2.0	3.1	1.0
12	7	2.0	3.8	5.6	3.9	4.9	1.0	4.9	2.0	2.1	3.2
K-5	16	14.2	15.3	15.7	15.4	17.5	17.3	17.3	16.7	17.2	17.0
6-8	10	11.2	8.1	9.3	7.5	6.3	7.4	7.2	9.6	9.0	9.2
9-12	19	15.8	18.7	15.6	15.0	13.2	10.1	12.5	8.4	9.6	10.6
K-12	45	41.2	42.1	40.6	37.9	37.0	34.8	37.0	34.7	35.8	36.8

Study Area 33B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	1.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	0.0	1.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	1.0	0.0	1.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0
7	1	0.0	1.0	0.0	1.1	2.2	0.0	0.0	0.0	0.0	0.0
8	1	1.0	0.0	1.0	0.0	1.0	2.1	0.0	0.0	0.0	0.0
9	4	1.1	1.0	0.0	1.1	0.0	1.1	2.3	0.0	0.0	0.0
10	0	3.9	1.0	1.0	0.0	1.0	0.0	1.1	2.2	0.0	0.0
11	5	0.0	3.6	1.0	1.0	0.0	1.0	0.0	1.0	2.1	0.0
12	1	5.1	0.0	3.7	1.0	1.0	0.0	1.0	0.0	1.0	2.1
K-5	4	3.0	3.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	2	2.0	1.0	2.1	3.3	3.2	2.1	0.0	0.0	0.0	0.0
9-12	10	10.1	5.6	5.7	3.1	2.0	2.1	4.4	3.2	3.1	2.1
K-12	16	15.1	9.8	9.9	6.4	5.2	4.2	4.4	3.2	3.1	2.1

Study Area 34
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	1	5.1	4.9	5.5	4.2	5.0	4.9	4.7	4.9	4.8	4.8
2	4	1.0	4.8	4.6	5.3	3.9	4.8	4.7	4.5	4.6	4.6
3	4	4.1	1.0	4.9	4.7	5.4	4.0	4.9	4.7	4.5	4.7
4	2	4.1	4.2	1.0	5.0	4.8	5.5	4.1	5.0	4.8	4.6
5	2	2.1	4.2	4.3	1.0	5.2	5.0	5.6	4.2	5.1	5.0
6	7	2.1	2.1	4.3	4.4	1.0	5.3	5.1	5.8	4.4	5.3
7	2	6.9	2.0	2.1	4.2	4.3	1.0	5.2	5.0	5.7	4.3
8	3	2.0	6.8	2.0	2.1	4.2	4.3	1.0	5.2	5.0	5.6
9	2	3.2	2.1	7.2	2.1	2.2	4.5	4.5	1.1	5.5	5.3
10	7	2.0	3.1	2.1	7.1	2.1	2.1	4.4	4.4	1.1	5.4
11	4	6.5	1.8	2.9	1.9	6.6	1.9	2.0	4.1	4.1	1.0
12	5	4.1	6.6	1.9	3.0	2.0	6.7	2.0	2.0	4.1	4.2
K-5	18	21.2	24.5	24.4	25.1	29.1	28.8	28.8	28.0	28.5	28.4
6-8	12	11.0	10.9	8.4	10.7	9.5	10.6	11.3	16.0	15.1	15.2
9-12	18	15.8	13.6	14.1	14.1	12.9	15.2	12.9	11.6	14.8	15.9
K-12	48	48.0	49.0	46.9	49.9	51.5	54.6	53.0	55.6	58.4	59.5

Study Area 35
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	6	2.0	1.9	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9
2	1	5.7	1.9	1.9	2.1	1.6	1.9	1.9	1.8	1.8	1.8
3	3	1.0	5.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	4	3.1	1.0	5.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9
5	2	4.1	3.2	1.1	6.1	2.1	2.0	2.3	1.7	2.0	2.0
6	4	2.1	4.2	3.2	1.1	6.3	2.1	2.0	2.3	1.7	2.1
7	3	3.9	2.0	4.2	3.2	1.1	6.2	2.1	2.0	2.3	1.7
8	2	3.0	3.9	2.0	4.1	3.1	1.1	6.1	2.1	2.0	2.3
9	4	2.1	3.1	4.1	2.1	4.4	3.3	1.1	6.5	2.2	2.1
10	2	3.9	2.1	3.1	4.0	2.1	4.3	3.3	1.1	6.3	2.2
11	5	1.9	3.6	1.9	2.9	3.7	1.9	4.0	3.0	1.0	5.9
12	2	5.1	1.9	3.7	2.0	2.9	3.8	2.0	4.1	3.1	1.1
K-5	18	17.8	16.0	14.7	15.8	11.6	11.5	11.5	11.2	11.3	11.4
6-8	9	9.0	10.1	9.4	8.4	10.5	9.4	10.2	6.4	6.0	6.1
9-12	13	13.0	10.7	12.8	11.0	13.1	13.3	10.4	14.7	12.6	11.3
K-12	40	39.8	36.8	36.9	35.2	35.2	34.2	32.1	32.3	29.9	28.8

Study Area 36
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	1	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	0	1.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	2	0.0	1.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	1	2.0	0.0	1.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	2	1.0	2.1	0.0	1.0	1.0	1.0	1.1	0.8	1.0	1.0
6	1	2.1	1.1	2.2	0.0	1.0	1.1	1.0	1.2	0.9	1.1
7	1	1.0	2.0	1.0	2.1	0.0	1.0	1.0	1.0	1.1	0.9
8	0	1.0	1.0	2.0	1.0	2.1	0.0	1.0	1.0	1.0	1.1
9	0	0.0	1.0	1.0	2.1	1.1	2.2	0.0	1.1	1.1	1.1
10	1	0.0	0.0	1.0	1.0	2.1	1.1	2.2	0.0	1.1	1.1
11	2	0.9	0.0	0.0	1.0	0.9	1.9	1.0	2.0	0.0	1.0
12	2	2.0	0.9	0.0	0.0	1.0	1.0	2.0	1.0	2.1	0.0
K-5	7	6.0	6.2	4.8	5.8	5.9	5.8	5.7	5.5	5.7	5.6
6-8	2	4.1	4.1	5.2	3.1	3.1	2.1	3.0	3.2	3.0	3.1
9-12	5	2.9	1.9	2.0	4.1	5.1	6.2	5.2	4.1	4.3	3.2
K-12	14	13.0	12.2	12.0	13.0	14.1	14.1	13.9	12.8	13.0	11.9

Study Area 37A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	6	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	2	5.7	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	2	2.0	5.8	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	3	2.0	2.1	5.9	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	1	3.1	2.1	2.1	6.1	4.2	4.0	4.5	3.4	4.1	4.0
6	4	1.0	3.2	2.2	2.2	6.3	4.3	4.1	4.6	3.5	4.2
7	6	3.9	1.0	3.1	2.1	2.2	6.2	4.2	4.0	4.6	3.4
8	3	5.9	3.9	1.0	3.1	2.1	2.1	6.1	4.2	4.0	4.5
9	3	3.2	6.3	4.1	1.1	3.3	2.2	2.3	6.5	4.4	4.2
10	6	2.9	3.1	6.2	4.0	1.0	3.2	2.2	2.2	6.3	4.3
11	3	5.6	2.7	2.9	5.7	3.7	1.0	3.0	2.0	2.1	5.9
12	1	3.1	5.7	2.8	3.0	5.9	3.8	1.0	3.0	2.1	2.1
K-5	18	20.7	22.1	23.4	25.3	23.4	23.0	22.9	22.5	23.0	22.8
6-8	13	10.8	8.1	6.3	7.4	10.6	12.6	14.4	12.8	12.1	12.1
9-12	13	14.8	17.8	16.0	13.8	13.9	10.2	8.5	13.7	14.9	16.5
K-12	44	46.3	48.0	45.7	46.5	47.9	45.8	45.8	49.0	50.0	51.4

Study Area 37B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6	2	1.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
7	0	1.9	1.0	0.9	0.0	0.0	0.9	0.0	0.0	0.0	0.0
8	0	0.0	2.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
9	1	0.0	0.0	2.1	1.0	1.0	0.0	0.0	1.0	0.0	0.0
10	1	1.0	0.0	0.0	2.0	1.0	0.9	0.0	0.0	0.9	0.0
11	5	1.0	0.9	0.0	0.0	2.0	1.0	0.9	0.0	0.0	0.9
12	1	4.9	1.0	0.9	0.0	0.0	1.9	1.0	0.9	0.0	0.0
K-5	3	2.0	1.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	2	2.9	4.0	1.9	1.0	0.9	0.9	1.0	0.0	0.0	0.0
9-12	8	6.9	1.9	3.0	3.0	4.0	3.8	1.9	1.9	0.9	0.9
K-12	13	11.8	6.9	5.9	4.9	4.9	4.7	2.9	1.9	0.9	0.9

Study Area 38
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	7	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	3	6.9	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0
3	4	2.9	6.7	1.0	0.9	1.1	0.8	1.0	1.0	0.9	0.9
4	6	4.2	3.1	7.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	7	5.7	4.0	2.9	6.6	1.0	0.9	1.1	0.8	1.0	0.9
6	3	7.0	5.7	4.0	2.9	6.6	1.0	0.9	1.1	0.8	1.0
7	5	2.9	6.8	5.5	3.8	2.8	6.4	0.9	0.9	1.0	0.8
8	4	5.2	3.0	7.1	5.8	4.0	2.9	6.7	1.0	0.9	1.1
9	12	4.1	5.4	3.1	7.3	5.9	4.1	3.0	6.9	1.0	1.0
10	3	11.4	3.9	5.1	3.0	6.9	5.6	3.9	2.9	6.6	1.0
11	5	3.0	11.3	3.9	5.0	2.9	6.8	5.6	3.9	2.8	6.5
12	7	4.9	2.9	11.1	3.8	4.9	2.9	6.7	5.5	3.8	2.8
K-5	28	21.7	16.9	13.8	11.4	5.9	5.7	5.8	5.6	5.8	5.6
6-8	12	15.1	15.5	16.6	12.5	13.4	10.3	8.5	3.0	2.7	2.9
9-12	27	23.4	23.5	23.2	19.1	20.6	19.4	19.2	19.2	14.2	11.3
K-12	67	60.2	55.9	53.6	43.0	39.9	35.4	33.5	27.8	22.7	19.8

Study Area 39
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	6	5.2	4.9	5.6	4.2	5.1	4.9	4.7	4.9	4.9	4.8
2	4	5.9	5.0	4.8	5.5	4.1	5.0	4.9	4.6	4.8	4.8
3	5	3.9	5.8	4.9	4.7	5.4	4.0	4.9	4.8	4.5	4.7
4	7	5.2	4.1	6.0	5.1	4.9	5.6	4.2	5.1	4.9	4.7
5	4	6.7	4.9	3.9	5.7	4.9	4.7	5.3	4.0	4.8	4.7
6	3	4.0	6.7	4.9	3.9	5.7	4.9	4.7	5.3	4.0	4.8
7	8	2.9	3.9	6.5	4.8	3.8	5.5	4.7	4.5	5.1	3.9
8	7	8.3	3.0	4.0	6.7	5.0	3.9	5.7	4.9	4.7	5.4
9	12	7.2	8.6	3.1	4.2	6.9	5.1	4.0	5.9	5.1	4.8
10	5	11.4	6.8	8.1	3.0	3.9	6.6	4.9	3.8	5.6	4.8
11	9	5.0	11.3	6.8	8.1	2.9	3.9	6.5	4.8	3.8	5.6
12	5	8.8	4.9	11.1	6.6	7.9	2.9	3.8	6.4	4.7	3.7
K-5	31	31.7	30.1	29.3	30.1	29.2	28.8	28.8	28.1	28.6	28.4
6-8	18	15.2	13.6	15.4	15.4	14.5	14.3	15.1	14.7	13.8	14.1
9-12	31	32.4	31.6	29.1	21.9	21.6	18.5	19.2	20.9	19.2	18.9
K-12	80	79.3	75.3	73.8	67.4	65.3	61.6	63.1	63.7	61.6	61.4

Study Area 40
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	5	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	0	4.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	1	0.0	4.8	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	2	1.0	0.0	5.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	3	1.9	1.0	0.0	4.7	2.9	2.8	3.2	2.4	2.9	2.8
6	2	3.0	1.9	1.0	0.0	4.7	2.9	2.8	3.2	2.4	2.9
7	0	1.9	2.9	1.8	1.0	0.0	4.6	2.8	2.7	3.1	2.3
8	1	0.0	2.0	3.0	1.9	1.0	0.0	4.8	3.0	2.8	3.2
9	4	1.0	0.0	2.1	3.1	2.0	1.0	0.0	4.9	3.0	2.9
10	4	3.8	1.0	0.0	2.0	3.0	1.9	1.0	0.0	4.7	2.9
11	1	4.0	3.8	1.0	0.0	2.0	2.9	1.9	1.0	0.0	4.6
12	4	1.0	3.9	3.7	0.9	0.0	1.9	2.9	1.8	0.9	0.0
K-5	14	13.8	15.1	16.7	19.3	17.4	17.4	17.2	16.8	17.2	17.0
6-8	3	4.9	6.8	5.8	2.9	5.7	7.5	10.4	8.9	8.3	8.4
9-12	13	9.8	8.7	6.8	6.0	7.0	7.7	5.8	7.7	8.6	10.4
K-12	30	28.5	30.6	29.3	28.2	30.1	32.6	33.4	33.4	34.1	35.8

Study Area 41
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	3	2.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	4	2.9	2.9	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	1	4.2	3.1	3.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	9	1.0	4.0	2.9	2.8	2.9	2.8	3.2	2.4	2.9	2.8
6	3	9.0	1.0	4.0	2.9	2.8	2.9	2.8	3.2	2.4	2.9
7	2	2.9	8.7	0.9	3.8	2.8	2.8	2.8	2.7	3.1	2.3
8	3	2.1	3.0	9.1	1.0	4.0	2.9	2.9	3.0	2.8	3.2
9	5	3.1	2.1	3.1	9.4	1.0	4.1	3.0	3.0	3.0	2.9
10	6	4.8	2.9	2.0	3.0	8.9	0.9	3.9	2.9	2.8	2.9
11	3	5.9	4.7	2.9	2.0	2.9	8.8	0.9	3.9	2.8	2.8
12	5	2.9	5.8	4.6	2.8	2.0	2.9	8.6	0.9	3.8	2.8
K-5	23	17.0	19.3	17.6	17.4	17.4	17.4	17.2	16.8	17.2	17.0
6-8	8	14.0	12.7	14.0	7.7	9.6	8.6	8.5	8.9	8.3	8.4
9-12	19	16.7	15.5	12.6	17.2	14.8	16.7	16.4	10.7	12.4	11.4
K-12	50	47.7	47.5	44.2	42.3	41.8	42.7	42.1	36.4	37.9	36.8

Study Area 42
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	4.2	4.6	3.5	4.1	4.1	3.9	4.0	4.0	4.0	4.0
1	2	4.5	4.4	4.7	3.6	4.3	4.2	4.0	4.2	4.1	4.1
2	4	2.4	4.5	4.3	4.6	3.5	4.2	4.1	3.9	4.1	4.0
3	4	4.3	2.3	4.4	4.2	4.5	3.4	4.1	4.0	3.9	4.0
4	3	4.6	4.5	2.4	4.5	4.4	4.7	3.6	4.3	4.2	4.0
5	6	3.2	4.4	4.3	2.3	4.3	4.1	4.5	3.4	4.1	4.0
6	4	6.4	3.2	4.4	4.3	2.3	4.3	4.1	4.5	3.4	4.1
7	4	4.4	6.2	3.1	4.2	4.1	2.2	4.2	4.0	4.3	3.3
8	5	4.7	4.5	6.5	3.3	4.4	4.3	2.3	4.3	4.2	4.5
9	6	5.6	4.8	4.7	6.7	3.4	4.5	4.4	2.4	4.5	4.3
10	6	6.1	5.4	4.6	4.4	6.3	3.2	4.3	4.2	2.3	4.3
11	5	6.4	6.1	5.3	4.5	4.4	6.3	3.2	4.3	4.2	2.2
12	4	5.4	6.3	6.0	5.2	4.4	4.3	6.1	3.1	4.2	4.1
K-5	23	23.2	24.7	23.6	23.3	25.1	24.5	24.3	23.8	24.4	24.1
6-8	13	15.5	13.9	14.0	11.8	10.8	10.8	10.6	12.8	11.9	11.9
9-12	21	23.5	22.6	20.6	20.8	18.5	18.3	18.0	14.0	15.2	14.9
K-12	57	62.2	61.2	58.2	55.9	54.4	53.6	52.9	50.6	51.5	50.9

Study Area 43
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	3	2.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	4	2.9	1.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	4	4.2	3.1	2.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	2	3.8	4.0	2.9	1.9	2.0	1.9	2.1	1.6	1.9	1.9
6	2	2.0	3.8	4.0	2.9	1.9	2.0	1.9	2.1	1.6	1.9
7	3	1.9	1.9	3.7	3.8	2.8	1.8	1.9	1.8	2.1	1.5
8	8	3.1	2.0	2.0	3.8	4.0	2.9	1.9	2.0	1.9	2.1
9	4	8.2	3.2	2.1	2.1	3.9	4.1	3.0	2.0	2.0	1.9
10	3	3.8	7.8	3.1	2.0	2.0	3.8	3.9	2.9	1.9	1.9
11	2	3.0	3.8	7.7	3.0	2.0	2.0	3.7	3.9	2.8	1.9
12	4	2.0	2.9	3.7	7.6	3.0	1.9	1.9	3.6	3.8	2.8
K-5	17	16.9	15.2	12.6	11.8	11.6	11.5	11.4	11.3	11.4	11.4
6-8	13	7.0	7.7	9.7	10.5	8.7	6.7	5.7	5.9	5.6	5.5
9-12	13	17.0	17.7	16.6	14.7	10.9	11.8	12.5	12.4	10.5	8.5
K-12	43	40.9	40.6	38.9	37.0	31.2	30.0	29.6	29.6	27.5	25.4

Study Area 44
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	0	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	3	0.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	2	2.9	0.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	2.1	3.1	0.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	3	1.9	2.0	2.9	0.0	2.0	1.9	2.1	1.6	1.9	1.9
6	2	3.0	1.9	2.0	2.9	0.0	2.0	1.9	2.1	1.6	1.9
7	4	1.9	2.9	1.8	1.9	2.8	0.0	1.9	1.8	2.1	1.5
8	1	4.2	2.0	3.0	1.9	2.0	2.9	0.0	2.0	1.9	2.1
9	3	1.0	4.3	2.1	3.1	2.0	2.1	3.0	0.0	2.0	1.9
10	3	2.8	1.0	4.1	2.0	3.0	1.9	2.0	2.9	0.0	1.9
11	2	3.0	2.8	1.0	4.0	2.0	2.9	1.9	1.9	2.8	0.0
12	2	2.0	2.9	2.8	0.9	3.9	1.9	2.9	1.8	1.9	2.8
K-5	12	10.9	11.3	10.6	9.9	11.6	11.5	11.4	11.3	11.4	11.4
6-8	7	9.1	6.8	6.8	6.7	4.8	4.9	3.8	5.9	5.6	5.5
9-12	10	8.8	11.0	10.0	10.0	10.9	8.8	9.8	6.6	6.7	6.6
K-12	29	28.8	29.1	27.4	26.6	27.3	25.2	25.0	23.8	23.7	23.5

Study Area 45
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	2	4.1	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.9	3.8
2	6	1.9	3.9	3.7	4.2	3.2	3.8	3.7	3.6	3.7	3.7
3	2	6.1	1.9	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	4	2.0	6.2	2.0	4.0	3.9	4.4	3.3	4.0	3.9	3.7
5	4	4.1	2.1	6.4	2.0	4.2	4.0	4.5	3.4	4.1	4.0
6	4	4.1	4.2	2.2	6.6	2.1	4.3	4.1	4.6	3.5	4.2
7	4	3.9	4.0	4.2	2.1	6.5	2.1	4.2	4.0	4.6	3.4
8	8	4.0	3.9	4.0	4.1	2.1	6.4	2.0	4.2	4.0	4.5
9	10	8.5	4.2	4.1	4.2	4.4	2.2	6.8	2.2	4.4	4.2
10	4	9.8	8.3	4.1	4.0	4.2	4.3	2.2	6.7	2.1	4.3
11	5	3.7	9.1	7.7	3.8	3.7	3.9	4.0	2.0	6.2	2.0
12	3	5.1	3.8	9.3	7.9	3.9	3.8	3.9	4.1	2.1	6.3
K-5	22	22.0	22.3	23.8	21.2	23.4	23.0	22.9	22.5	23.0	22.8
6-8	16	12.0	12.1	10.4	12.8	10.7	12.8	10.3	12.8	12.1	12.1
9-12	22	27.1	25.4	25.2	19.9	16.2	14.2	16.9	15.0	14.8	16.8
K-12	60	61.1	59.8	59.4	53.9	50.3	50.0	50.1	50.3	49.9	51.7

Study Area 45D
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	0	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9	0.9
3	3	0.0	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	0	3.1	0.0	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	2	0.0	3.2	0.0	0.0	1.0	1.0	1.1	0.8	1.0	1.0
6	1	2.1	0.0	3.2	0.0	0.0	1.1	1.0	1.2	0.9	1.1
7	1	1.0	2.0	0.0	3.2	0.0	0.0	1.0	1.0	1.1	0.9
8	2	1.0	1.0	2.0	0.0	3.1	0.0	0.0	1.0	1.0	1.1
9	0	2.1	1.0	1.0	2.1	0.0	3.3	0.0	0.0	1.1	1.1
10	3	0.0	2.1	1.0	1.0	2.1	0.0	3.3	0.0	0.0	1.1
11	0	2.8	0.0	1.9	1.0	0.9	1.9	0.0	3.0	0.0	0.0
12	0	0.0	2.8	0.0	2.0	1.0	1.0	2.0	0.0	3.1	0.0
K-5	6	5.1	6.3	3.8	4.8	5.9	5.8	5.7	5.5	5.7	5.6
6-8	4	4.1	3.0	5.2	3.2	3.1	1.1	2.0	3.2	3.0	3.1
9-12	3	4.9	5.9	3.9	6.1	4.0	6.2	5.3	3.0	4.2	2.2
K-12	13	14.1	15.2	12.9	14.1	13.0	13.1	13.0	11.7	12.9	10.9

Study Area 46A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	1.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	1.9	1.0	1.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0
6	5	2.0	1.9	1.0	1.9	2.8	0.0	0.0	0.0	0.0	0.0
7	5	4.9	1.9	1.8	1.0	1.9	2.8	0.0	0.0	0.0	0.0
8	3	5.2	5.0	2.0	1.9	1.0	2.0	2.9	0.0	0.0	0.0
9	3	3.1	5.4	5.2	2.1	2.0	1.0	2.0	3.0	0.0	0.0
10	6	2.8	2.9	5.1	4.9	2.0	1.9	1.0	1.9	2.8	0.0
11	5	5.9	2.8	2.9	5.0	4.9	2.0	1.9	1.0	1.9	2.8
12	3	4.9	5.8	2.8	2.8	4.9	4.8	1.9	1.8	0.9	1.9
K-5	10	7.8	5.9	4.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0
6-8	13	12.1	8.8	4.8	4.8	5.7	4.8	2.9	0.0	0.0	0.0
9-12	17	16.7	16.9	16.0	14.8	13.8	9.7	6.8	7.7	5.6	4.7
K-12	40	36.6	31.6	25.7	22.4	19.5	14.5	9.7	7.7	5.6	4.7

Study Area 46B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	0	1.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	2	0.0	1.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	1	2.1	0.0	1.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	1	1.0	2.0	0.0	0.9	2.0	1.9	2.1	1.6	1.9	1.9
6	3	1.0	1.0	2.0	0.0	0.9	2.0	1.9	2.1	1.6	1.9
7	1	2.9	1.0	0.9	1.9	0.0	0.9	1.9	1.8	2.1	1.5
8	4	1.0	3.0	1.0	1.0	2.0	0.0	1.0	2.0	1.9	2.1
9	5	4.1	1.1	3.1	1.0	1.0	2.1	0.0	1.0	2.0	1.9
10	2	4.8	3.9	1.0	3.0	1.0	0.9	2.0	0.0	0.9	1.9
11	2	2.0	4.7	3.9	1.0	2.9	1.0	0.9	1.9	0.0	0.9
12	2	2.0	1.9	4.6	3.8	1.0	2.9	1.0	0.9	1.9	0.0
K-5	7	8.1	9.2	8.7	10.8	11.6	11.5	11.4	11.3	11.4	11.4
6-8	8	4.9	5.0	3.9	2.9	2.9	2.9	4.8	5.9	5.6	5.5
9-12	11	12.9	11.6	12.6	8.8	5.9	6.9	3.9	3.8	4.8	4.7
K-12	26	25.9	25.8	25.2	22.5	20.4	21.3	20.1	21.0	21.8	21.6

Study Area 46C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	2.5	4.3	5.6	6.8	8.2	9.4	19.4	14.3
1	3	1.0	1.0	2.9	5.1	6.9	8.2	9.5	10.9	21.2	20.0
2	0	2.9	1.0	2.6	5.2	7.3	9.1	10.4	11.7	21.5	20.7
3	1	0.0	2.9	2.7	4.9	7.4	9.5	11.3	12.5	22.3	21.1
4	0	1.0	0.0	4.8	5.3	7.6	10.2	12.4	14.2	24.6	23.2
5	3	0.0	1.0	1.6	6.8	7.3	9.5	12.0	14.1	24.1	23.4
6	2	3.0	0.0	2.7	4.0	9.2	9.7	11.9	14.4	25.2	24.1
7	0	1.9	2.9	2.0	5.5	6.8	11.8	12.2	14.4	27.2	24.4
8	1	0.0	2.0	5.2	5.2	8.7	10.1	15.3	15.8	29.2	28.2
9	1	1.0	0.0	4.1	8.2	8.2	11.8	13.2	18.6	29.3	30.0
10	1	1.0	1.0	1.9	6.5	10.4	10.3	13.8	15.2	29.7	27.9
11	2	1.0	0.9	2.9	4.6	9.1	13.0	13.0	16.4	27.6	29.4
12	1	2.0	1.0	2.8	5.5	7.1	11.6	15.4	15.4	28.5	27.0
K-5	8	5.9	7.0	17.1	31.6	42.1	53.3	63.8	72.8	133.1	122.7
6-8	3	4.9	4.9	9.9	14.7	24.7	31.6	39.4	44.6	81.6	76.7
9-12	5	5.0	2.9	11.7	24.8	34.8	46.7	55.4	65.6	115.1	114.3
K-12	16	15.8	14.8	38.7	71.1	101.6	131.6	158.6	183.0	329.8	313.7

Study Area 47
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	1	2.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	4	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	3	4.2	1.0	3.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	2	2.8	4.0	1.0	2.8	2.0	1.9	2.1	1.6	1.9	1.9
6	2	2.0	2.8	4.0	1.0	2.8	2.0	1.9	2.1	1.6	1.9
7	3	1.9	1.9	2.8	3.8	0.9	2.8	1.9	1.8	2.1	1.5
8	7	3.1	2.0	2.0	2.9	4.0	1.0	2.9	2.0	1.9	2.1
9	5	7.2	3.2	2.1	2.1	3.0	4.1	1.0	3.0	2.0	1.9
10	6	4.8	6.8	3.1	2.0	2.0	2.8	3.9	1.0	2.8	1.9
11	6	5.9	4.7	6.8	3.0	2.0	2.0	2.8	3.9	0.9	2.8
12	3	5.9	5.8	4.6	6.6	3.0	1.9	1.9	2.7	3.8	0.9
K-5	15	14.9	14.1	11.7	12.7	11.6	11.5	11.4	11.3	11.4	11.4
6-8	12	7.0	6.7	8.8	7.7	7.7	5.8	6.7	5.9	5.6	5.5
9-12	20	23.8	20.5	16.6	13.7	10.0	10.8	9.6	10.6	9.5	7.5
K-12	47	45.7	41.3	37.1	34.1	29.3	28.1	27.7	27.8	26.5	24.4

Study Area 48
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	1.0
2	2	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0
3	3	2.0	0.0	1.0	0.9	1.1	0.8	1.0	1.0	0.9	0.9
4	1	3.1	2.0	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9
5	3	1.0	3.0	1.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9
6	5	3.0	1.0	3.0	1.9	0.0	1.0	0.9	1.1	0.8	1.0
7	3	4.9	2.9	0.9	2.9	1.9	0.0	0.9	0.9	1.0	0.8
8	4	3.1	5.0	3.0	1.0	3.0	2.0	0.0	1.0	0.9	1.1
9	6	4.1	3.2	5.2	3.1	1.0	3.1	2.0	0.0	1.0	1.0
10	6	5.7	3.9	3.1	4.9	3.0	0.9	2.9	1.9	0.0	1.0
11	4	5.9	5.6	3.9	3.0	4.9	2.9	0.9	2.9	1.9	0.0
12	6	3.9	5.8	5.5	3.8	3.0	4.8	2.9	0.9	2.8	1.9
K-5	10	8.1	8.1	5.8	4.8	5.9	5.7	5.8	5.6	5.8	5.6
6-8	12	11.0	8.9	6.9	5.8	4.9	3.0	1.8	3.0	2.7	2.9
9-12	22	19.6	18.5	17.7	14.8	11.9	11.7	8.7	5.7	5.7	3.9
K-12	44	38.7	35.5	30.4	25.4	22.7	20.4	16.3	14.3	14.2	12.4

Study Area 49
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	5	2.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	3	4.9	2.9	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	4	3.1	5.1	3.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	7	3.8	3.0	4.8	2.8	2.9	2.8	3.2	2.4	2.9	2.8
6	8	7.0	3.8	3.0	4.8	2.8	2.9	2.8	3.2	2.4	2.9
7	5	7.8	6.8	3.7	2.9	4.7	2.8	2.8	2.7	3.1	2.3
8	3	5.2	8.1	7.1	3.8	3.0	4.9	2.9	3.0	2.8	3.2
9	4	3.1	5.4	8.3	7.3	3.9	3.1	5.0	3.0	3.0	2.9
10	3	3.8	2.9	5.1	7.9	6.9	3.8	2.9	4.8	2.8	2.9
11	7	3.0	3.8	2.9	5.0	7.8	6.8	3.7	2.9	4.7	2.8
12	4	6.9	2.9	3.7	2.8	4.9	7.7	6.7	3.6	2.8	4.6
K-5	25	20.7	20.3	19.5	17.4	17.4	17.4	17.2	16.8	17.2	17.0
6-8	16	20.0	18.7	13.8	11.5	10.5	10.6	8.5	8.9	8.3	8.4
9-12	18	16.8	15.0	20.0	23.0	23.5	21.4	18.3	14.3	13.3	13.2
K-12	59	57.5	54.0	53.3	51.9	51.4	49.4	44.0	40.0	38.8	38.6

Study Area 50
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	2.9	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	1.0	3.1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	1.0	1.0	2.9	4.7	0.0	0.0	0.0	0.0	0.0	0.0
6	2	2.0	1.0	1.0	2.9	4.7	0.0	0.0	0.0	0.0	0.0
7	3	1.9	1.9	0.9	1.0	2.8	4.6	0.0	0.0	0.0	0.0
8	1	3.1	2.0	2.0	1.0	1.0	2.9	4.8	0.0	0.0	0.0
9	2	1.0	3.2	2.1	2.1	1.0	1.0	3.0	4.9	0.0	0.0
10	3	1.9	1.0	3.1	2.0	2.0	0.9	1.0	2.9	4.7	0.0
11	1	3.0	1.9	1.0	3.0	2.0	2.0	0.9	1.0	2.8	4.6
12	2	1.0	2.9	1.8	0.9	3.0	1.9	1.9	0.9	0.9	2.8
K-5	12	9.8	8.9	7.9	4.7	0.0	0.0	0.0	0.0	0.0	0.0
6-8	6	7.0	4.9	3.9	4.9	8.5	7.5	4.8	0.0	0.0	0.0
9-12	8	6.9	9.0	8.0	8.0	8.0	5.8	6.8	9.7	8.4	7.4
K-12	26	23.7	22.8	19.8	17.6	16.5	13.3	11.6	9.7	8.4	7.4

Study Area 51
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	3	3.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	5	2.9	3.8	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	5.2	3.1	4.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	1	1.9	4.9	2.9	3.8	2.0	1.9	2.1	1.6	1.9	1.9
6	3	1.0	1.9	4.9	2.9	3.8	2.0	1.9	2.1	1.6	1.9
7	7	2.9	1.0	1.8	4.8	2.8	3.7	1.9	1.8	2.1	1.5
8	5	7.3	3.0	1.0	1.9	5.0	2.9	3.8	2.0	1.9	2.1
9	4	5.2	7.5	3.1	1.0	2.0	5.1	3.0	3.9	2.0	1.9
10	5	3.8	4.9	7.1	3.0	1.0	1.9	4.9	2.9	3.7	1.9
11	3	5.0	3.8	4.8	7.1	2.9	1.0	1.9	4.8	2.8	3.7
12	7	2.9	4.9	3.7	4.7	6.9	2.9	1.0	1.8	4.7	2.8
K-5	17	17.9	18.0	14.6	13.7	11.6	11.5	11.4	11.3	11.4	11.4
6-8	15	11.2	5.9	7.7	9.6	11.6	8.6	7.6	5.9	5.6	5.5
9-12	19	16.9	21.1	18.7	15.8	12.8	10.9	10.8	13.4	13.2	10.3
K-12	51	46.0	45.0	41.0	39.1	36.0	31.0	29.8	30.6	30.2	27.2

Study Area 52
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	3	1.0	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	0	2.9	1.0	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	4	0.0	3.1	1.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	1	3.8	0.0	2.9	0.9	2.9	2.8	3.2	2.4	2.9	2.8
6	1	1.0	3.8	0.0	2.9	0.9	2.9	2.8	3.2	2.4	2.9
7	1	1.0	1.0	3.7	0.0	2.8	0.9	2.8	2.7	3.1	2.3
8	1	1.0	1.0	1.0	3.8	0.0	2.9	1.0	3.0	2.8	3.2
9	0	1.0	1.1	1.0	1.0	3.9	0.0	3.0	1.0	3.0	2.9
10	0	0.0	1.0	1.0	1.0	1.0	3.8	0.0	2.9	0.9	2.9
11	1	0.0	0.0	1.0	1.0	1.0	1.0	3.7	0.0	2.8	0.9
12	0	1.0	0.0	0.0	0.9	1.0	1.0	1.0	3.6	0.0	2.8
K-5	12	13.7	13.4	15.6	15.5	17.4	17.4	17.2	16.8	17.2	17.0
6-8	3	3.0	5.8	4.7	6.7	3.7	6.7	6.6	8.9	8.3	8.4
9-12	1	2.0	2.1	3.0	3.9	6.9	5.8	7.7	7.5	6.7	9.5
K-12	16	18.7	21.3	23.3	26.1	28.0	29.9	31.5	33.2	32.2	34.9

Study Area 53
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	6	4.1	3.9	4.5	3.4	4.0	4.0	3.8	3.9	3.9	3.9
2	2	5.9	4.0	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.8
3	1	2.0	5.8	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	2	1.0	2.0	6.0	4.1	3.9	4.5	3.4	4.0	4.0	3.8
5	3	1.9	1.0	1.9	5.7	3.9	3.7	4.2	3.2	3.8	3.8
6	4	3.0	1.9	1.0	1.9	5.7	3.9	3.7	4.2	3.2	3.8
7	5	3.9	2.9	1.8	1.0	1.9	5.5	3.8	3.6	4.1	3.1
8	1	5.2	4.0	3.0	1.9	1.0	2.0	5.7	3.9	3.8	4.3
9	7	1.0	5.4	4.2	3.1	2.0	1.0	2.0	5.9	4.1	3.9
10	5	6.7	1.0	5.1	3.9	3.0	1.9	1.0	1.9	5.6	3.9
11	5	5.0	6.6	1.0	5.0	3.9	2.9	1.9	1.0	1.9	5.6
12	9	4.9	4.9	6.5	0.9	4.9	3.8	2.9	1.8	0.9	1.9
K-5	18	18.7	21.0	23.6	25.3	23.2	23.1	23.0	22.4	23.0	22.9
6-8	10	12.1	8.8	5.8	4.8	8.6	11.4	13.2	11.7	11.1	11.2
9-12	26	17.6	17.9	16.8	12.9	13.8	9.6	7.8	10.6	12.5	15.3
K-12	54	48.4	47.7	46.2	43.0	45.6	44.1	44.0	44.7	46.6	49.4

Study Area 54A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0
7	3	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0
8	0	3.1	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0
9	0	0.0	3.2	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
10	0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	1.0	0.9	0.0
11	0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.9	0.9
12	1	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.9
K-5	2	2.0	2.0	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	3	3.1	0.0	0.0	1.0	1.8	1.9	1.0	0.0	0.0	0.0
9-12	1	0.0	3.2	3.1	3.0	3.0	0.0	1.0	2.0	1.8	1.8
K-12	6	5.1	5.2	5.1	4.9	4.8	1.9	2.0	2.0	1.8	1.8

Study Area 54B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	4	2.9	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	7	3.9	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	4	7.3	4.1	3.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	3	3.8	6.9	3.9	2.8	2.0	1.9	2.1	1.6	1.9	1.9
6	3	3.0	3.8	6.9	3.9	2.8	2.0	1.9	2.1	1.6	1.9
7	0	2.9	2.9	3.7	6.7	3.8	2.8	1.9	1.8	2.1	1.5
8	3	0.0	3.0	3.0	3.8	7.0	3.9	2.9	2.0	1.9	2.1
9	5	3.1	0.0	3.1	3.1	3.9	7.2	4.0	3.0	2.0	1.9
10	5	4.8	2.9	0.0	3.0	3.0	3.8	6.8	3.8	2.8	1.9
11	1	5.0	4.7	2.9	0.0	2.9	2.9	3.7	6.8	3.8	2.8
12	7	1.0	4.9	4.6	2.8	0.0	2.9	2.9	3.6	6.6	3.7
K-5	23	21.9	20.1	14.6	12.7	11.6	11.5	11.4	11.3	11.4	11.4
6-8	6	5.9	9.7	13.6	14.4	13.6	8.7	6.7	5.9	5.6	5.5
9-12	18	13.9	12.5	10.6	8.9	9.8	16.8	17.4	17.2	15.2	10.3
K-12	47	41.7	42.3	38.8	36.0	35.0	37.0	35.5	34.4	32.2	27.2

Study Area 55
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	2.1	2.0	2.2	1.7	2.0	2.0	1.9	2.0	1.9	1.9
2	1	1.0	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9
3	3	1.0	1.0	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	3.1	1.0	1.0	2.1	2.0	2.2	1.7	2.0	2.0	1.9
5	3	1.9	3.0	1.0	0.9	2.0	1.9	2.1	1.6	1.9	1.9
6	4	3.0	1.9	3.0	1.0	0.9	2.0	1.9	2.1	1.6	1.9
7	3	3.9	2.9	1.8	2.9	0.9	0.9	1.9	1.8	2.1	1.5
8	1	3.1	4.0	3.0	1.9	3.0	1.0	1.0	2.0	1.9	2.1
9	5	1.0	3.2	4.2	3.1	2.0	3.1	1.0	1.0	2.0	1.9
10	1	4.8	1.0	3.1	3.9	3.0	1.9	2.9	1.0	0.9	1.9
11	5	1.0	4.7	1.0	3.0	3.9	2.9	1.9	2.9	0.9	0.9
12	3	4.9	1.0	4.6	0.9	3.0	3.8	2.9	1.8	2.8	0.9
K-5	12	11.0	11.2	9.7	10.8	11.6	11.5	11.4	11.3	11.4	11.4
6-8	8	10.0	8.8	7.8	5.8	4.8	3.9	4.8	5.9	5.6	5.5
9-12	14	11.7	9.9	12.9	10.9	11.9	11.7	8.7	6.7	6.6	5.6
K-12	34	32.7	29.9	30.4	27.5	28.3	27.1	24.9	23.9	23.6	22.5

Study Area 56
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	4	3.1	3.0	3.4	2.5	3.0	3.0	2.8	2.9	2.9	2.9
2	5	3.9	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9
3	2	4.9	3.8	3.0	2.8	3.2	2.4	2.9	2.9	2.7	2.8
4	9	2.1	5.1	4.0	3.1	2.9	3.4	2.5	3.0	3.0	2.8
5	5	8.5	2.0	4.8	3.8	2.9	2.8	3.2	2.4	2.9	2.8
6	3	5.0	8.5	2.0	4.8	3.8	2.9	2.8	3.2	2.4	2.9
7	8	2.9	4.9	8.3	1.9	4.7	3.7	2.8	2.7	3.1	2.3
8	4	8.3	3.0	5.0	8.6	2.0	4.9	3.8	3.0	2.8	3.2
9	5	4.1	8.6	3.1	5.2	8.9	2.1	5.0	3.9	3.0	2.9
10	11	4.8	3.9	8.1	3.0	4.9	8.4	2.0	4.8	3.7	2.9
11	3	10.9	4.7	3.9	8.1	2.9	4.9	8.4	1.9	4.7	3.7
12	7	2.9	10.7	4.6	3.8	7.9	2.9	4.8	8.2	1.9	4.6
K-5	28	25.4	20.2	20.5	18.4	17.4	17.4	17.2	16.8	17.2	17.0
6-8	15	16.2	16.4	15.3	15.3	10.5	11.5	9.4	8.9	8.3	8.4
9-12	26	22.7	27.9	19.7	20.1	24.6	18.3	20.2	18.8	13.3	14.1
K-12	69	64.3	64.5	55.5	53.8	52.5	47.2	46.8	44.5	38.8	39.5

Study Area 57
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	1	4.1	3.9	4.5	3.4	4.0	4.0	3.8	3.9	3.9	3.9
2	2	1.0	4.0	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.8
3	2	2.0	1.0	4.0	3.8	4.3	3.2	3.9	3.8	3.6	3.8
4	3	2.1	2.0	1.0	4.1	3.9	4.5	3.4	4.0	4.0	3.8
5	2	2.8	2.0	1.9	0.9	3.9	3.7	4.2	3.2	3.8	3.8
6	2	2.0	2.8	2.0	1.9	0.9	3.9	3.7	4.2	3.2	3.8
7	3	1.9	1.9	2.8	1.9	1.9	0.9	3.8	3.6	4.1	3.1
8	0	3.1	2.0	2.0	2.9	2.0	2.0	1.0	3.9	3.8	4.3
9	3	0.0	3.2	2.1	2.1	3.0	2.1	2.0	1.0	4.1	3.9
10	2	2.8	0.0	3.1	2.0	2.0	2.8	2.0	1.9	0.9	3.9
11	5	2.0	2.8	0.0	3.0	2.0	2.0	2.8	1.9	1.9	0.9
12	1	4.9	1.9	2.8	0.0	3.0	1.9	1.9	2.7	1.9	1.9
K-5	14	15.8	17.2	18.6	20.5	23.2	23.1	23.0	22.4	23.0	22.9
6-8	5	7.0	6.7	6.8	6.7	4.8	6.8	8.5	11.7	11.1	11.2
9-12	11	9.7	7.9	8.0	7.1	10.0	8.8	8.7	7.5	8.8	10.6
K-12	30	32.5	31.8	33.4	34.3	38.0	38.7	40.2	41.6	42.9	44.7

Study Area 58
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	5	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7	4.7	4.7
1	2	5.1	4.8	5.5	4.1	5.0	4.9	4.6	4.8	4.8	4.7
2	7	2.0	5.0	4.8	5.4	4.1	4.9	4.8	4.6	4.8	4.7
3	5	6.9	1.9	4.9	4.7	5.3	4.0	4.8	4.7	4.5	4.7
4	7	5.0	6.8	1.9	4.9	4.6	5.3	4.0	4.8	4.7	4.5
5	3	7.1	5.0	6.9	1.9	4.9	4.7	5.3	4.0	4.8	4.7
6	7	3.1	7.2	5.1	7.0	2.0	5.0	4.8	5.4	4.1	4.9
7	7	7.0	3.1	7.2	5.1	7.0	2.0	5.0	4.8	5.4	4.1
8	3	6.5	6.5	2.8	6.7	4.7	6.5	1.8	4.6	4.4	5.0
9	2	3.2	7.0	7.0	3.1	7.2	5.1	7.0	2.0	5.0	4.8
10	3	1.9	3.1	6.8	6.8	3.0	7.0	5.0	6.8	1.9	4.9
11	7	3.0	1.9	3.1	6.8	6.8	3.0	7.0	4.9	6.7	1.9
12	1	6.8	2.9	1.9	3.0	6.5	6.5	2.9	6.7	4.8	6.5
K-5	29	30.9	28.9	28.1	25.9	28.7	28.4	28.3	27.6	28.3	28.0
6-8	17	16.6	16.8	15.1	18.8	13.7	13.5	11.6	14.8	13.9	14.0
9-12	13	14.9	14.9	18.8	19.7	23.5	21.6	21.9	20.4	18.4	18.1
K-12	59	62.4	60.6	62.0	64.4	65.9	63.5	61.8	62.8	60.6	60.1

Study Area 59A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	4	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	1	4.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	3	1.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	3	3.0	1.0	3.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	4	3.0	3.0	1.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9
6	3	4.1	3.1	3.1	1.0	4.0	1.0	1.0	1.1	0.8	1.0
7	0	3.0	4.1	3.1	3.1	1.0	4.0	1.0	1.0	1.1	0.8
8	1	0.0	2.8	3.8	2.9	2.8	0.9	3.7	0.9	0.9	1.0
9	6	1.1	0.0	3.0	4.1	3.1	3.1	1.0	4.0	1.0	1.0
10	2	5.8	1.0	0.0	2.9	4.0	3.0	3.0	1.0	3.9	1.0
11	5	2.0	5.8	1.0	0.0	2.9	3.9	3.0	3.0	1.0	3.8
12	5	4.9	1.9	5.6	1.0	0.0	2.8	3.8	2.9	2.9	0.9
K-5	16	13.0	11.0	8.7	8.7	5.8	5.7	5.8	5.5	5.7	5.4
6-8	4	7.1	10.0	10.0	7.0	7.8	5.9	5.7	3.0	2.8	2.8
9-12	18	13.8	8.7	9.6	8.0	10.0	12.8	10.8	10.9	8.8	6.7
K-12	38	33.9	29.7	28.3	23.7	23.6	24.4	22.3	19.4	17.3	14.9

Study Area 59B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	3	0.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	1	2.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	1	1.0	2.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	4	1.0	1.0	2.9	0.0	1.0	0.9	1.1	0.8	1.0	0.9
6	0	4.1	1.0	1.0	3.0	0.0	1.0	1.0	1.1	0.8	1.0
7	0	0.0	4.1	1.0	1.0	3.0	0.0	1.0	1.0	1.1	0.8
8	4	0.0	0.0	3.8	1.0	0.9	2.8	0.0	0.9	0.9	1.0
9	1	4.3	0.0	0.0	4.1	1.0	1.0	3.0	0.0	1.0	1.0
10	1	1.0	4.2	0.0	0.0	4.0	1.0	1.0	2.9	0.0	1.0
11	2	1.0	1.0	4.1	0.0	0.0	3.9	1.0	1.0	2.9	0.0
12	1	1.9	1.0	0.9	4.0	0.0	0.0	3.8	1.0	1.0	2.8
K-5	10	6.9	7.0	6.8	4.8	5.8	5.7	5.8	5.5	5.7	5.4
6-8	4	4.1	5.1	5.8	5.0	3.9	3.8	2.0	3.0	2.8	2.8
9-12	5	8.2	6.2	5.0	8.1	5.0	5.9	8.8	4.9	4.9	4.8
K-12	19	19.2	18.3	17.6	17.9	14.7	15.4	16.6	13.4	13.4	13.0

Study Area 60
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	2	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	0	2.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	2	0.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	2	2.0	0.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	3	2.0	2.0	0.0	1.9	1.0	0.9	1.1	0.8	1.0	0.9
6	1	3.1	2.1	2.0	0.0	2.0	1.0	1.0	1.1	0.8	1.0
7	1	1.0	3.1	2.1	2.0	0.0	2.0	1.0	1.0	1.1	0.8
8	1	0.9	0.9	2.8	1.9	1.9	0.0	1.8	0.9	0.9	1.0
9	1	1.1	1.0	1.0	3.1	2.1	2.0	0.0	2.0	1.0	1.0
10	4	1.0	1.0	1.0	1.0	3.0	2.0	2.0	0.0	1.9	1.0
11	4	4.0	1.0	1.0	1.0	1.0	3.0	2.0	2.0	0.0	1.9
12	3	3.9	3.8	0.9	1.0	0.9	0.9	2.9	1.9	1.9	0.0
K-5	10	8.0	7.0	5.8	6.7	5.8	5.7	5.8	5.5	5.7	5.4
6-8	3	5.0	6.1	6.9	3.9	3.9	3.0	3.8	3.0	2.8	2.8
9-12	12	10.0	6.8	3.9	6.1	7.0	7.9	6.9	5.9	4.8	3.9
K-12	25	23.0	19.9	16.6	16.7	16.7	16.6	16.5	14.4	13.3	12.1

Study Area 61
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	4	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.8
2	4	4.0	3.0	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8
3	4	3.9	3.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	7	4.0	3.9	3.8	2.9	2.8	3.2	2.4	2.9	2.8	2.7
5	9	7.1	4.0	3.9	3.9	2.9	2.8	3.2	2.4	2.9	2.8
6	4	9.2	7.2	4.1	4.0	4.0	3.0	2.9	3.3	2.4	2.9
7	7	4.0	9.2	7.2	4.1	4.0	4.0	3.0	2.9	3.3	2.4
8	9	6.5	3.7	8.5	6.7	3.8	3.7	3.7	2.8	2.7	3.0
9	8	9.7	7.0	4.0	9.2	7.2	4.1	4.0	4.0	3.0	2.9
10	4	7.8	9.4	6.8	3.9	8.9	7.0	4.0	3.9	3.9	2.9
11	7	4.0	7.7	9.3	6.8	3.9	8.9	7.0	3.9	3.9	3.8
12	6	6.8	3.8	7.5	9.1	6.5	3.7	8.6	6.7	3.8	3.7
K-5	31	24.9	21.0	19.2	18.3	17.2	17.0	17.1	16.6	17.0	16.7
6-8	20	19.7	20.1	19.8	14.8	11.8	10.7	9.6	9.0	8.4	8.3
9-12	25	28.3	27.9	27.6	29.0	26.5	23.7	23.6	18.5	14.6	13.3
K-12	76	72.9	69.0	66.6	62.1	55.5	51.4	50.3	44.1	40.0	38.3

Study Area 62
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	3	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.8
2	2	3.0	3.0	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8
3	5	2.0	2.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	6	5.0	1.9	2.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7
5	5	6.1	5.0	2.0	2.9	2.9	2.8	3.2	2.4	2.9	2.8
6	3	5.1	6.2	5.1	2.0	3.0	3.0	2.9	3.3	2.4	2.9
7	6	3.0	5.1	6.2	5.1	2.0	3.0	3.0	2.9	3.3	2.4
8	2	5.6	2.8	4.7	5.7	4.7	1.9	2.8	2.8	2.7	3.0
9	7	2.2	6.0	3.0	5.1	6.2	5.1	2.0	3.0	3.0	2.9
10	5	6.8	2.1	5.8	2.9	5.0	6.0	5.0	1.9	2.9	2.9
11	6	5.0	6.7	2.1	5.8	2.9	4.9	6.0	4.9	1.9	2.9
12	3	5.8	4.8	6.5	2.0	5.6	2.8	4.8	5.8	4.8	1.9
K-5	24	22.0	19.0	16.4	17.3	17.2	17.0	17.1	16.6	17.0	16.7
6-8	11	13.7	14.1	16.0	12.8	9.7	7.9	8.7	9.0	8.4	8.3
9-12	21	19.8	19.6	17.4	15.8	19.7	18.8	17.8	15.6	12.6	10.6
K-12	56	55.5	52.7	49.8	45.9	46.6	43.7	43.6	41.2	38.0	35.6

Study Area 63
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	5	3.0	2.9	3.3	2.5	3.0	2.9	2.8	2.9	2.9	2.8
2	5	5.0	3.0	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8
3	8	4.9	4.9	2.9	2.8	3.2	2.4	2.9	2.8	2.7	2.8
4	8	7.9	4.9	4.8	2.9	2.8	3.2	2.4	2.9	2.8	2.7
5	6	8.1	8.0	4.9	4.9	2.9	2.8	3.2	2.4	2.9	2.8
6	6	6.1	8.2	8.2	5.0	4.9	3.0	2.9	3.3	2.4	2.9
7	10	6.0	6.1	8.2	8.2	5.0	4.9	3.0	2.9	3.3	2.4
8	5	9.3	5.6	5.7	7.7	7.6	4.6	4.6	2.8	2.7	3.0
9	3	5.4	10.0	6.0	6.1	8.3	8.2	5.0	5.0	3.0	2.9
10	13	2.9	5.2	9.7	5.8	6.0	8.0	7.9	4.9	4.8	2.9
11	2	12.9	2.9	5.2	9.6	5.8	5.9	7.9	7.9	4.8	4.8
12	2	1.9	12.5	2.8	5.0	9.4	5.6	5.7	7.7	7.6	4.7
K-5	35	31.8	27.0	21.2	19.3	17.2	17.0	17.1	16.6	17.0	16.7
6-8	21	21.4	19.9	22.1	20.9	17.5	12.5	10.5	9.0	8.4	8.3
9-12	20	23.1	30.6	23.7	26.5	29.5	27.7	26.5	25.5	20.2	15.3
K-12	76	76.3	77.5	67.0	66.7	64.2	57.2	54.1	51.1	45.6	40.3

Study Area 64
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	7	6.7	7.6	5.7	6.9	6.7	6.4	6.7	6.6	6.6	6.6
1	5	6.7	6.4	7.3	5.5	6.6	6.5	6.2	6.4	6.4	6.3
2	7	4.7	6.3	6.0	6.9	5.1	6.2	6.1	5.8	6.0	6.0
3	6	6.7	4.5	6.1	5.8	6.6	4.9	6.0	5.8	5.6	5.8
4	4	6.5	7.3	4.9	6.6	6.3	7.2	5.4	6.5	6.4	6.1
5	13	3.8	6.3	7.0	4.7	6.3	6.1	6.9	5.2	6.2	6.1
6	6	13.1	3.9	6.3	7.1	4.8	6.4	6.1	7.0	5.2	6.3
7	7	5.7	12.5	3.7	6.0	6.7	4.5	6.1	5.8	6.6	5.0
8	3	6.8	5.5	12.1	3.6	5.8	6.5	4.4	5.9	5.6	6.4
9	7	3.2	7.3	5.9	12.9	3.8	6.3	7.0	4.7	6.3	6.0
10	9	6.8	3.1	7.0	5.7	12.6	3.7	6.1	6.8	4.6	6.1
11	8	9.0	6.8	3.1	7.0	5.7	12.6	3.7	6.1	6.8	4.6
12	6	7.6	8.5	6.5	3.0	6.7	5.5	11.9	3.5	5.8	6.5
K-5	42	35.1	38.4	37.0	36.4	37.6	37.3	37.3	36.3	37.2	36.9
6-8	16	25.6	21.9	22.1	16.7	17.3	17.4	16.6	18.7	17.4	17.7
9-12	30	26.6	25.7	22.5	28.6	28.8	28.1	28.7	21.1	23.5	23.2
K-12	88	87.3	86.0	81.6	81.7	83.7	82.8	82.6	76.1	78.1	77.8

Study Area 65
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	6	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7	5.6	5.7
1	5	6.1	5.8	6.6	4.9	6.0	5.8	5.6	5.8	5.7	5.7
2	5	5.0	6.0	5.7	6.5	4.9	5.9	5.8	5.5	5.7	5.7
3	2	4.9	4.9	5.9	5.6	6.4	4.8	5.8	5.7	5.4	5.6
4	13	2.0	4.9	4.8	5.8	5.6	6.3	4.7	5.7	5.6	5.3
5	6	13.1	2.0	4.9	4.9	5.9	5.6	6.4	4.8	5.8	5.6
6	4	6.1	13.4	2.0	5.0	4.9	6.0	5.7	6.5	4.9	5.9
7	5	4.0	6.1	13.4	2.0	5.0	4.9	6.0	5.7	6.5	4.9
8	9	4.7	3.7	5.7	12.5	1.9	4.6	4.6	5.6	5.3	6.1
9	5	9.7	5.0	4.0	6.1	13.5	2.0	5.0	5.0	6.0	5.8
10	5	4.9	9.4	4.9	3.9	6.0	13.0	2.0	4.9	4.8	5.8
11	4	5.0	4.8	9.3	4.8	3.9	5.9	12.9	2.0	4.8	4.8
12	3	3.9	4.8	4.7	9.1	4.7	3.7	5.7	12.5	1.9	4.7
K-5	37	36.8	30.1	32.8	33.6	34.6	33.9	34.0	33.2	33.8	33.6
6-8	18	14.8	23.2	21.1	19.5	11.8	15.5	16.3	17.8	16.7	16.9
9-12	17	23.5	24.0	22.9	23.9	28.1	24.6	25.6	24.4	17.5	21.1
K-12	72	75.1	77.3	76.8	77.0	74.5	74.0	75.9	75.4	68.0	71.6

Study Area 66
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	1	4.0	3.9	4.4	3.3	4.0	3.9	3.7	3.9	3.8	3.8
2	2	1.0	4.0	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8
3	2	2.0	1.0	3.9	3.7	4.3	3.2	3.8	3.8	3.6	3.7
4	4	2.0	1.9	1.0	3.9	3.7	4.2	3.2	3.8	3.7	3.6
5	2	4.0	2.0	2.0	1.0	3.9	3.7	4.3	3.2	3.8	3.8
6	4	2.0	4.1	2.0	2.0	1.0	4.0	3.8	4.3	3.3	3.9
7	2	4.0	2.0	4.1	2.0	2.0	1.0	4.0	3.8	4.3	3.3
8	4	1.9	3.7	1.9	3.8	1.9	1.9	0.9	3.7	3.6	4.0
9	1	4.3	2.0	4.0	2.0	4.1	2.0	2.0	1.0	4.0	3.8
10	4	1.0	4.2	1.9	3.9	2.0	4.0	2.0	1.9	1.0	3.9
11	2	4.0	1.0	4.1	1.9	3.9	2.0	4.0	2.0	1.9	1.0
12	4	1.9	3.8	0.9	4.0	1.9	3.7	1.9	3.9	1.9	1.9
K-5	15	16.8	17.1	18.4	20.1	23.0	22.6	22.6	22.2	22.5	22.5
6-8	10	7.9	9.8	8.0	7.8	4.9	6.9	8.7	11.8	11.2	11.2
9-12	11	11.2	11.0	10.9	11.8	11.9	11.7	9.9	8.8	8.8	10.6
K-12	36	35.9	37.9	37.3	39.7	39.8	41.2	41.2	42.8	42.5	44.3

Study Area 67
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	7	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	6	6.9	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	9	5.9	6.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	5	8.9	5.8	6.7	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	10	5.1	9.0	5.9	6.8	1.0	0.9	1.1	0.8	1.0	0.9
6	6	10.2	5.2	9.2	6.0	6.9	1.0	1.0	1.1	0.8	1.0
7	11	6.0	10.2	5.2	9.2	6.0	6.9	1.0	1.0	1.1	0.8
8	7	10.2	5.6	9.5	4.8	8.5	5.6	6.4	0.9	0.9	1.0
9	4	7.6	11.0	6.0	10.2	5.2	9.2	6.0	7.0	1.0	1.0
10	7	3.9	7.3	10.7	5.8	9.9	5.0	8.9	5.8	6.7	1.0
11	7	6.9	3.8	7.3	10.6	5.8	9.8	5.0	8.9	5.8	6.7
12	3	6.8	6.7	3.7	7.0	10.3	5.6	9.5	4.8	8.6	5.6
K-5	38	28.8	24.7	16.5	11.6	5.8	5.7	5.8	5.5	5.7	5.4
6-8	24	26.4	21.0	23.9	20.0	21.4	13.5	8.4	3.0	2.8	2.8
9-12	21	25.2	28.8	27.7	33.6	31.2	29.6	29.4	26.5	22.1	14.3
K-12	83	80.4	74.5	68.1	65.2	58.4	48.8	43.6	35.0	30.6	22.5

Study Area 68
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	9	8.6	9.8	7.3	8.8	8.6	8.3	8.6	8.5	8.5	8.5
1	4	9.1	8.7	9.9	7.4	8.9	8.7	8.4	8.7	8.6	8.5
2	5	4.0	9.0	8.6	9.8	7.3	8.8	8.6	8.3	8.6	8.5
3	4	4.9	3.9	8.8	8.4	9.6	7.2	8.7	8.5	8.1	8.4
4	1	4.0	4.9	3.8	8.7	8.3	9.5	7.1	8.6	8.4	8.0
5	7	1.0	4.0	4.9	3.9	8.8	8.4	9.6	7.2	8.7	8.5
6	7	7.1	1.0	4.1	5.0	4.0	9.0	8.6	9.8	7.3	8.8
7	10	7.0	7.1	1.0	4.1	5.0	4.0	9.0	8.6	9.8	7.3
8	4	9.3	6.5	6.6	1.0	3.8	4.6	3.7	8.4	8.0	9.1
9	5	4.3	10.0	7.0	7.2	1.0	4.1	5.0	4.0	9.0	8.6
10	7	4.9	4.2	9.7	6.8	7.0	1.0	4.0	4.9	3.9	8.8
11	7	6.9	4.8	4.1	9.6	6.8	6.9	1.0	3.9	4.8	3.8
12	4	6.8	6.7	4.7	4.0	9.4	6.5	6.7	1.0	3.8	4.7
K-5	30	31.6	40.3	43.3	47.0	51.5	50.9	51.0	49.8	50.9	50.4
6-8	21	23.4	14.6	11.7	10.1	12.8	17.6	21.3	26.8	25.1	25.2
9-12	23	22.9	25.7	25.5	27.6	24.2	18.5	16.7	13.8	21.5	25.9
K-12	74	77.9	80.6	80.5	84.7	88.5	87.0	89.0	90.4	97.5	101.5

Study Area 69A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9	1.9
2	2	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9
3	1	2.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	1.0	1.9	2.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8
5	1	2.0	1.0	2.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9
6	3	1.0	2.1	1.0	2.0	3.0	2.0	1.9	2.2	1.6	2.0
7	4	3.0	1.0	2.1	1.0	2.0	3.0	2.0	1.9	2.2	1.6
8	2	3.7	2.8	0.9	1.9	0.9	1.9	2.8	1.9	1.8	2.0
9	5	2.2	4.0	3.0	1.0	2.1	1.0	2.0	3.0	2.0	1.9
10	1	4.9	2.1	3.9	2.9	1.0	2.0	1.0	1.9	2.9	1.9
11	1	1.0	4.8	2.1	3.9	2.9	1.0	2.0	1.0	1.9	2.9
12	1	1.0	1.0	4.7	2.0	3.7	2.8	1.0	1.9	1.0	1.9
K-5	11	11.9	11.9	12.6	12.5	11.5	11.3	11.3	11.0	11.3	11.3
6-8	9	7.7	5.9	4.0	4.9	5.9	6.9	6.7	6.0	5.6	5.6
9-12	8	9.1	11.9	13.7	9.8	9.7	6.8	6.0	7.8	7.8	8.6
K-12	28	28.7	29.7	30.3	27.2	27.1	25.0	24.0	24.8	24.7	25.5

Study Area 69B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	3.0	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	2.0	3.0	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	4	0.0	2.1	3.1	3.0	1.0	0.0	0.0	0.0	0.0	0.0
7	1	4.0	0.0	2.1	3.1	3.0	1.0	0.0	0.0	0.0	0.0
8	2	0.9	3.7	0.0	1.9	2.8	2.8	0.9	0.0	0.0	0.0
9	4	2.2	1.0	4.0	0.0	2.1	3.1	3.0	1.0	0.0	0.0
10	3	3.9	2.1	1.0	3.9	0.0	2.0	3.0	2.9	1.0	0.0
11	1	3.0	3.8	2.1	1.0	3.9	0.0	2.0	3.0	2.9	1.0
12	1	1.0	2.9	3.7	2.0	0.9	3.7	0.0	1.9	2.9	2.8
K-5	9	8.9	6.9	3.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	7	4.9	5.8	5.2	8.0	6.8	3.8	0.9	0.0	0.0	0.0
9-12	9	10.1	9.8	10.8	6.9	6.9	8.8	8.0	8.8	6.8	3.8
K-12	25	23.9	22.5	19.9	15.9	13.7	12.6	8.9	8.8	6.8	3.8

Study Area 70
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	0	1.9	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	3	0.0	1.8	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	4	3.3	0.0	2.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	1	3.8	3.1	0.0	1.9	2.7	2.6	3.0	2.2	2.7	2.6
6	2	1.0	3.9	3.2	0.0	1.9	2.7	2.6	3.0	2.2	2.7
7	2	1.9	1.0	3.7	3.0	0.0	1.8	2.6	2.5	2.8	2.1
8	1	1.9	1.8	0.9	3.6	2.9	0.0	1.8	2.5	2.4	2.7
9	5	1.1	2.1	2.0	1.0	3.8	3.1	0.0	1.9	2.7	2.6
10	1	4.9	1.0	2.0	1.9	1.0	3.7	3.0	0.0	1.8	2.6
11	4	1.0	4.9	1.0	2.0	1.9	1.0	3.7	3.0	0.0	1.8
12	4	3.8	1.0	4.6	1.0	1.9	1.8	0.9	3.5	2.9	0.0
K-5	13	14.8	13.7	12.7	15.3	16.1	16.1	16.0	15.5	15.9	15.8
6-8	5	4.8	6.7	7.8	6.6	4.8	4.5	7.0	8.0	7.4	7.5
9-12	14	10.8	9.0	9.6	5.9	8.6	9.6	7.6	8.4	7.4	7.0
K-12	32	30.4	29.4	30.1	27.8	29.5	30.2	30.6	31.9	30.7	30.3

Study Area 71
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	5	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	5	4.7	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	3	4.8	4.5	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	4	3.3	5.2	4.9	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	3	3.8	3.1	5.0	4.7	3.6	3.5	3.9	3.0	3.6	3.5
6	5	3.0	3.9	3.2	5.1	4.8	3.7	3.5	4.0	3.0	3.6
7	1	4.8	2.9	3.7	3.0	4.8	4.5	3.5	3.3	3.8	2.8
8	2	1.0	4.6	2.8	3.6	2.9	4.7	4.4	3.4	3.2	3.7
9	3	2.1	1.0	4.9	3.0	3.8	3.1	5.0	4.7	3.6	3.4
10	3	2.9	2.1	1.0	4.8	2.9	3.7	3.0	4.9	4.6	3.5
11	3	3.0	2.9	2.1	1.0	4.8	2.9	3.7	3.0	4.9	4.6
12	0	2.8	2.8	2.8	2.0	1.0	4.5	2.8	3.5	2.9	4.6
K-5	24	24.2	24.4	24.3	22.7	21.5	21.3	21.2	20.8	21.2	21.1
6-8	8	8.8	11.4	9.7	11.7	12.5	12.9	11.4	10.7	10.0	10.1
9-12	9	10.8	8.8	10.8	10.8	12.5	14.2	14.5	16.1	16.0	16.1
K-12	41	43.8	44.6	44.8	45.2	46.5	48.4	47.1	47.6	47.2	47.3

Study Area 72
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	7	3.8	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	3	6.7	3.6	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	0	3.3	7.3	3.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	2	0.0	3.1	7.0	3.8	1.8	1.7	2.0	1.5	1.8	1.7
6	2	2.0	0.0	3.2	7.1	3.8	1.8	1.7	2.0	1.5	1.8
7	3	1.9	1.9	0.0	3.0	6.7	3.6	1.7	1.7	1.9	1.4
8	2	2.9	1.8	1.9	0.0	2.9	6.5	3.5	1.7	1.6	1.8
9	5	2.1	3.1	2.0	2.0	0.0	3.1	7.0	3.8	1.8	1.7
10	4	4.9	2.1	3.0	1.9	1.9	0.0	3.0	6.8	3.6	1.8
11	3	4.0	4.9	2.1	3.0	1.9	1.9	0.0	3.0	6.8	3.6
12	3	2.8	3.8	4.6	2.0	2.9	1.8	1.8	0.0	2.9	6.5
K-5	18	17.6	19.8	18.0	13.0	10.8	10.6	10.6	10.5	10.6	10.5
6-8	7	6.8	3.7	5.1	10.1	13.4	11.9	6.9	5.4	5.0	5.0
9-12	15	13.8	13.9	11.7	8.9	6.7	6.8	11.8	13.6	15.1	13.6
K-12	40	38.2	37.4	34.8	32.0	30.9	29.3	29.3	29.5	30.7	29.1

Study Area 73
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	5	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	4	4.7	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	4	3.8	4.5	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	7	4.4	4.2	4.9	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	6	6.7	4.2	4.0	4.7	2.7	2.6	3.0	2.2	2.7	2.6
6	5	6.1	6.8	4.2	4.1	4.8	2.7	2.6	3.0	2.2	2.7
7	3	4.8	5.8	6.4	4.0	3.9	4.5	2.6	2.5	2.8	2.1
8	8	2.9	4.6	5.6	6.3	3.9	3.7	4.4	2.5	2.4	2.7
9	2	8.6	3.1	4.9	6.0	6.7	4.2	4.0	4.7	2.7	2.6
10	3	1.9	8.3	3.0	4.8	5.8	6.5	4.0	3.9	4.6	2.6
11	2	3.0	1.9	8.3	3.0	4.8	5.8	6.5	4.0	3.9	4.6
12	2	1.9	2.8	1.8	7.9	2.9	4.5	5.5	6.2	3.8	3.7
K-5	29	25.4	21.7	19.6	18.1	16.1	16.1	16.0	15.5	15.9	15.8
6-8	16	13.8	17.2	16.2	14.4	12.6	10.9	9.6	8.0	7.4	7.5
9-12	9	15.4	16.1	18.0	21.7	20.2	21.0	20.0	18.8	15.0	13.5
K-12	54	54.6	55.0	53.8	54.2	48.9	48.0	45.6	42.3	38.3	36.8

Study Area 74
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	2	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	2	1.9	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	5	1.9	1.8	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	3	5.5	2.1	2.0	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	3	2.9	5.2	2.0	1.9	1.8	1.7	2.0	1.5	1.8	1.7
6	4	3.0	2.9	5.3	2.0	1.9	1.8	1.7	2.0	1.5	1.8
7	4	3.8	2.9	2.8	5.0	1.9	1.8	1.7	1.7	1.9	1.4
8	8	3.9	3.7	2.8	2.7	4.9	1.9	1.8	1.7	1.6	1.8
9	1	8.6	4.2	3.9	3.0	2.9	5.2	2.0	1.9	1.8	1.7
10	4	1.0	8.3	4.0	3.8	2.9	2.8	5.1	1.9	1.8	1.8
11	6	4.0	1.0	8.3	4.0	3.8	2.9	2.8	5.1	1.9	1.8
12	4	5.7	3.8	0.9	7.9	3.8	3.6	2.8	2.6	4.8	1.8
K-5	17	16.0	14.9	11.1	11.1	10.8	10.6	10.6	10.5	10.6	10.5
6-8	16	10.7	9.5	10.9	9.7	8.7	5.5	5.2	5.4	5.0	5.0
9-12	15	19.3	17.3	17.1	18.7	13.4	14.5	12.7	11.5	10.3	7.1
K-12	48	46.0	41.7	39.1	39.5	32.9	30.6	28.5	27.4	25.9	22.6

Study Area 75
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	3.5	4.1	3.7	3.7	3.7	3.6	3.7	3.7	3.7	3.7
1	0	3.4	4.4	4.5	3.5	3.6	3.5	3.5	3.5	3.5	3.5
2	0	1.5	4.3	4.7	4.3	3.3	3.4	3.3	3.3	3.3	3.3
3	4	1.5	2.5	4.7	4.5	4.1	3.2	3.2	3.2	3.1	3.2
4	3	6.1	2.8	3.4	5.1	4.9	4.5	3.5	3.5	3.5	3.4
5	1	4.4	6.9	3.3	3.2	4.9	4.7	4.3	3.3	3.4	3.3
6	2	2.6	5.5	7.6	3.4	3.3	4.9	4.8	4.3	3.4	3.4
7	1	3.7	3.7	6.0	7.2	3.2	3.1	4.7	4.5	4.1	3.2
8	4	2.8	4.9	4.4	5.8	7.0	3.1	3.0	4.6	4.4	4.0
9	2	6.2	4.4	6.0	4.7	6.2	7.5	3.3	3.2	4.9	4.7
10	3	3.7	7.2	4.9	5.8	4.5	6.0	7.3	3.2	3.1	4.7
11	2	4.8	4.9	7.9	4.9	5.8	4.5	6.0	7.3	3.2	3.1
12	3	3.6	5.7	5.4	7.5	4.7	5.6	4.3	5.7	6.9	3.1
K-5	10	20.4	25.0	24.3	24.3	24.5	22.9	21.5	20.5	20.5	20.4
6-8	7	9.1	14.1	18.0	16.4	13.5	11.1	12.5	13.4	11.9	10.6
9-12	10	18.3	22.2	24.2	22.9	21.2	23.6	20.9	19.4	18.1	15.6
K-12	27	47.8	61.3	66.5	63.6	59.2	57.6	54.9	53.3	50.5	46.6

Study Area 76
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	6	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	3	5.6	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	2	2.9	5.4	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	1	2.2	3.1	5.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	4	1.0	2.1	3.0	5.7	1.8	1.7	2.0	1.5	1.8	1.7
6	3	4.0	1.0	2.1	3.0	5.7	1.8	1.7	2.0	1.5	1.8
7	1	2.8	3.8	0.9	2.0	2.9	5.4	1.7	1.7	1.9	1.4
8	1	1.0	2.8	3.7	0.9	1.9	2.8	5.3	1.7	1.6	1.8
9	6	1.1	1.0	3.0	4.0	1.0	2.1	3.0	5.6	1.8	1.7
10	4	5.8	1.0	1.0	2.9	3.9	0.9	2.0	2.9	5.5	1.8
11	1	4.0	5.8	1.0	1.0	2.9	3.9	0.9	2.0	2.9	5.5
12	4	1.0	3.8	5.5	1.0	1.0	2.7	3.7	0.9	1.9	2.8
K-5	18	15.5	16.4	16.0	14.9	10.8	10.6	10.6	10.5	10.6	10.5
6-8	5	7.8	7.6	6.7	5.9	10.5	10.0	8.7	5.4	5.0	5.0
9-12	15	11.9	11.6	10.5	8.9	8.8	9.6	9.6	11.4	12.1	11.8
K-12	38	35.2	35.6	33.2	29.7	30.1	30.2	28.9	27.3	27.7	27.3

Study Area 77
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	6	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	2	5.6	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	2	1.9	5.4	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	6	2.2	2.1	5.9	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	4	5.8	2.1	2.0	5.7	3.6	3.5	3.9	3.0	3.6	3.5
6	2	4.0	5.8	2.1	2.0	5.7	3.7	3.5	4.0	3.0	3.6
7	1	1.9	3.8	5.5	2.0	1.9	5.4	3.5	3.3	3.8	2.8
8	1	1.0	1.8	3.7	5.4	1.9	1.9	5.3	3.4	3.2	3.7
9	2	1.1	1.0	2.0	4.0	5.7	2.1	2.0	5.6	3.6	3.4
10	3	1.9	1.0	1.0	1.9	3.9	5.6	2.0	1.9	5.5	3.5
11	3	3.0	1.9	1.0	1.0	1.9	3.9	5.6	2.0	1.9	5.5
12	3	2.8	2.8	1.8	1.0	1.0	1.8	3.7	5.3	1.9	1.8
K-5	24	23.1	21.2	22.3	23.7	21.5	21.3	21.2	20.8	21.2	21.1
6-8	4	6.9	11.4	11.3	9.4	9.5	11.0	12.3	10.7	10.0	10.1
9-12	11	8.8	6.7	5.8	7.9	12.5	13.4	13.3	14.8	12.9	14.2
K-12	39	38.8	39.3	39.4	41.0	43.5	45.7	46.8	46.3	44.1	45.4

Study Area 78
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3	2.0	1.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	3.0	2.0	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
6	2	0.0	3.1	2.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0
7	5	2.0	0.0	3.1	2.0	2.0	3.0	0.0	0.0	0.0	0.0
8	3	4.7	1.9	0.0	2.9	1.9	1.9	2.8	0.0	0.0	0.0
9	3	3.2	5.0	2.0	0.0	3.1	2.0	2.0	3.0	0.0	0.0
10	2	2.9	3.1	4.9	1.9	0.0	3.0	2.0	1.9	2.9	0.0
11	4	2.0	2.9	3.1	4.8	1.9	0.0	3.0	2.0	1.9	2.9
12	1	3.9	1.9	2.8	3.0	4.7	1.9	0.0	2.9	1.9	1.9
K-5	10	10.0	6.8	4.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0
6-8	10	6.7	5.0	5.1	6.9	6.9	4.9	2.8	0.0	0.0	0.0
9-12	10	12.0	12.9	12.8	9.7	9.7	6.9	7.0	9.8	6.7	4.8
K-12	30	28.7	24.7	22.8	19.5	16.6	11.8	9.8	9.8	6.7	4.8

Study Area 79
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	3	2.0	1.9	2.2	1.6	2.0	1.9	1.9	1.9	1.9	1.9
2	1	3.0	2.0	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9
3	2	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9	1.8	1.9
4	2	2.0	1.0	2.9	1.9	1.9	2.1	1.6	1.9	1.9	1.8
5	2	2.0	2.0	1.0	2.9	2.0	1.9	2.1	1.6	1.9	1.9
6	4	2.0	2.1	2.0	1.0	3.0	2.0	1.9	2.2	1.6	2.0
7	2	4.0	2.0	2.1	2.0	1.0	3.0	2.0	1.9	2.2	1.6
8	4	1.9	3.7	1.9	1.9	1.9	0.9	2.8	1.9	1.8	2.0
9	5	4.3	2.0	4.0	2.0	2.1	2.0	1.0	3.0	2.0	1.9
10	1	4.9	4.2	1.9	3.9	2.0	2.0	2.0	1.0	2.9	1.9
11	3	1.0	4.8	4.1	1.9	3.9	2.0	2.0	2.0	1.0	2.9
12	3	2.9	1.0	4.7	4.0	1.9	3.7	1.9	1.9	1.9	0.9
K-5	12	11.9	12.0	11.6	12.5	11.5	11.3	11.3	11.0	11.3	11.3
6-8	10	7.9	7.8	6.0	4.9	5.9	5.9	6.7	6.0	5.6	5.6
9-12	12	13.1	12.0	14.7	11.8	9.9	9.7	6.9	7.9	7.8	7.6
K-12	34	32.9	31.8	32.3	29.2	27.3	26.9	24.9	24.9	24.7	24.5

Study Area 80
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	4	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	1.0	0.9
2	2	4.0	1.0	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9
3	1	2.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9	0.9	0.9
4	2	1.0	1.9	3.8	1.0	0.9	1.1	0.8	1.0	0.9	0.9
5	4	2.0	1.0	2.0	3.9	1.0	0.9	1.1	0.8	1.0	0.9
6	2	4.1	2.1	1.0	2.0	4.0	1.0	1.0	1.1	0.8	1.0
7	4	2.0	4.1	2.1	1.0	2.0	4.0	1.0	1.0	1.1	0.8
8	7	3.7	1.9	3.8	1.9	0.9	1.9	3.7	0.9	0.9	1.0
9	7	7.6	4.0	2.0	4.1	2.1	1.0	2.0	4.0	1.0	1.0
10	8	6.8	7.3	3.9	1.9	4.0	2.0	1.0	1.9	3.9	1.0
11	8	7.9	6.7	7.3	3.9	1.9	3.9	2.0	1.0	1.9	3.8
12	5	7.8	7.7	6.5	7.0	3.7	1.9	3.8	1.9	1.0	1.9
K-5	14	11.0	9.9	9.7	8.7	5.8	5.7	5.8	5.5	5.7	5.4
6-8	13	9.8	8.1	6.9	4.9	6.9	6.9	5.7	3.0	2.8	2.8
9-12	28	30.1	25.7	19.7	16.9	11.7	8.8	8.8	8.8	7.8	7.7
K-12	55	50.9	43.7	36.3	30.5	24.4	21.4	20.3	17.3	16.3	15.9

Study Area 81
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	4	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	3	3.8	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	0	2.9	3.6	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	6	0.0	3.1	3.9	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	3	5.8	0.0	3.0	3.8	1.8	1.7	2.0	1.5	1.8	1.7
6	5	3.0	5.8	0.0	3.0	3.8	1.8	1.7	2.0	1.5	1.8
7	5	4.8	2.9	5.5	0.0	2.9	3.6	1.7	1.7	1.9	1.4
8	6	4.9	4.6	2.8	5.4	0.0	2.8	3.5	1.7	1.6	1.8
9	5	6.4	5.2	4.9	3.0	5.7	0.0	3.0	3.8	1.8	1.7
10	3	4.9	6.2	5.0	4.8	2.9	5.6	0.0	2.9	3.6	1.8
11	9	3.0	4.9	6.2	5.0	4.8	2.9	5.6	0.0	2.9	3.6
12	4	8.5	2.8	4.6	5.9	4.8	4.5	2.8	5.3	0.0	2.8
K-5	18	16.3	12.5	14.0	13.0	10.8	10.6	10.6	10.5	10.6	10.5
6-8	16	12.7	13.3	8.3	8.4	6.7	8.2	6.9	5.4	5.0	5.0
9-12	21	22.8	19.1	20.7	18.7	18.2	13.0	11.4	12.0	8.3	9.9
K-12	55	51.8	44.9	43.0	40.1	35.7	31.8	28.9	27.9	23.9	25.4

Study Area 82A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	2	1.9	2.2	1.6	2.0	1.9	1.8	1.9	1.9	1.9	1.9
1	1	1.9	1.8	2.1	1.6	1.9	1.8	1.8	1.8	1.8	1.8
2	3	0.9	1.8	1.7	2.0	1.5	1.8	1.7	1.7	1.7	1.7
3	0	2.9	0.9	1.7	1.7	1.9	1.4	1.7	1.7	1.6	1.7
4	1	0.0	3.1	1.0	1.9	1.8	2.1	1.5	1.9	1.8	1.7
5	9	1.0	0.0	3.0	0.9	1.8	1.7	2.0	1.5	1.8	1.7
6	4	9.1	1.0	0.0	3.0	1.0	1.8	1.7	2.0	1.5	1.8
7	4	3.8	8.6	0.9	0.0	2.9	0.9	1.7	1.7	1.9	1.4
8	3	3.9	3.7	8.4	0.9	0.0	2.8	0.9	1.7	1.6	1.8
9	4	3.2	4.2	3.9	9.0	1.0	0.0	3.0	0.9	1.8	1.7
10	4	3.9	3.1	4.0	3.8	8.7	0.9	0.0	2.9	0.9	1.8
11	4	4.0	3.9	3.1	4.0	3.8	8.7	0.9	0.0	2.9	0.9
12	4	3.8	3.8	3.7	3.0	3.8	3.6	8.3	0.9	0.0	2.8
K-5	16	8.6	9.8	11.1	10.1	10.8	10.6	10.6	10.5	10.6	10.5
6-8	11	16.8	13.3	9.3	3.9	3.9	5.5	4.3	5.4	5.0	5.0
9-12	16	14.9	15.0	14.7	19.8	17.3	13.2	12.2	4.7	5.6	7.2
K-12	43	40.3	38.1	35.1	33.8	32.0	29.3	27.1	20.6	21.2	22.7

Study Area 82B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	1.8	9.6	17.3	20.7	20.3	21.5	22.2	21.3	21.3	21.3
1	1	1.7	10.0	20.4	25.1	23.4	22.2	22.6	21.3	20.4	20.4
2	0	2.6	9.7	20.4	27.5	27.0	24.7	22.8	21.2	20.0	19.2
3	1	1.7	10.8	20.6	28.0	29.9	28.6	25.6	21.9	20.4	19.2
4	1	3.0	11.3	24.5	32.0	34.5	35.7	33.5	28.0	23.9	22.2
5	1	2.7	11.2	22.1	32.0	34.2	35.9	36.2	32.1	26.8	22.9
6	3	2.8	11.4	23.1	31.2	36.0	37.4	38.3	36.6	32.4	27.1
7	1	4.8	12.3	23.9	31.8	33.5	37.3	38.0	36.4	34.8	30.8
8	1	3.0	14.5	25.3	33.3	34.8	35.6	38.6	36.8	35.3	33.7
9	1	3.2	13.4	29.4	37.5	39.7	40.6	40.7	41.3	39.4	37.8
10	2	2.9	12.3	25.5	37.9	40.1	41.6	41.6	39.4	40.1	38.2
11	1	3.9	12.4	25.2	35.3	41.8	43.2	43.9	41.6	39.4	40.1
12	2	2.8	12.8	24.1	33.2	37.2	42.6	43.3	41.7	39.5	37.5
K-5	4	13.5	62.6	125.3	165.3	169.3	168.6	162.9	145.8	132.8	125.2
6-8	5	10.6	38.2	72.3	96.3	104.3	110.3	114.9	109.8	102.5	91.6
9-12	6	12.8	50.9	104.2	143.9	158.8	168.0	169.5	164.0	158.4	153.6
K-12	15	36.9	151.7	301.8	405.5	432.4	446.9	447.3	419.6	393.7	370.4

Study Area 82C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	0.0	0.0	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	1	2.1	2.0	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
K-12	2	2.1	2.0	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0

Study Area 83
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	0	0.0	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	0	0.0	0.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	0	0.0	0.0	0.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9	0.9
6	0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9
7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.8	0.9	0.7
8	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.9
9	0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
10	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
11	1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
K-5	1	2.0	2.9	3.6	4.5	5.3	5.3	5.5	5.0	5.3	5.3
6-8	1	0.0	0.0	0.0	0.0	0.0	0.9	1.8	2.6	2.4	2.5
9-12	1	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.9	1.8
K-12	3	4.1	3.9	4.6	5.5	5.3	6.2	7.3	7.6	8.6	9.6

Study Area 84
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	4	3.8	4.3	3.3	3.9	3.8	3.7	3.8	3.8	3.8	3.8
1	3	3.8	3.7	4.2	3.1	3.8	3.7	3.5	3.7	3.6	3.6
2	4	2.8	3.6	3.4	3.9	2.9	3.5	3.5	3.3	3.4	3.4
3	3	3.8	2.7	3.5	3.3	3.8	2.8	3.4	3.3	3.2	3.3
4	4	3.3	4.2	3.0	3.8	3.6	4.1	3.1	3.7	3.6	3.5
5	4	3.8	3.1	4.0	2.8	3.6	3.5	3.9	3.0	3.6	3.5
6	3	4.0	3.9	3.2	4.1	2.9	3.7	3.5	4.0	3.0	3.6
7	2	2.8	3.8	3.7	3.0	3.9	2.7	3.5	3.3	3.8	2.8
8	3	1.9	2.8	3.7	3.6	2.9	3.7	2.6	3.4	3.2	3.7
9	4	3.2	2.1	3.0	4.0	3.8	3.1	4.0	2.8	3.6	3.4
10	4	3.9	3.1	2.0	2.9	3.9	3.7	3.0	3.9	2.7	3.5
11	7	4.0	3.9	3.1	2.0	2.9	3.9	3.7	3.0	3.9	2.7
12	6	6.7	3.8	3.7	3.0	1.9	2.7	3.7	3.5	2.9	3.7
K-5	22	21.3	21.6	21.4	20.8	21.5	21.3	21.2	20.8	21.2	21.1
6-8	8	8.7	10.5	10.6	10.7	9.7	10.1	9.6	10.7	10.0	10.1
9-12	21	17.8	12.9	11.8	11.9	12.5	13.4	14.4	13.2	13.1	13.3
K-12	51	47.8	45.0	43.8	43.4	43.7	44.8	45.2	44.7	44.3	44.5

Study Area 85A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	3	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	2	2.8	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	4	1.9	2.7	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	1	4.4	2.1	3.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	4	1.0	4.2	2.0	2.8	0.9	0.9	1.0	0.7	0.9	0.9
6	5	4.0	1.0	4.2	2.0	2.9	0.9	0.9	1.0	0.7	0.9
7	5	4.8	3.8	0.9	4.0	1.9	2.7	0.9	0.8	0.9	0.7
8	3	4.9	4.6	3.7	0.9	3.9	1.9	2.6	0.8	0.8	0.9
9	5	3.2	5.2	4.9	4.0	1.0	4.2	2.0	2.8	0.9	0.9
10	5	4.9	3.1	5.0	4.8	3.9	0.9	4.0	1.9	2.7	0.9
11	4	5.0	4.9	3.1	5.0	4.8	3.9	0.9	4.0	1.9	2.7
12	1	3.8	4.8	4.6	3.0	4.8	4.5	3.7	0.9	3.8	1.8
K-5	15	12.1	11.9	8.6	7.3	5.3	5.3	5.5	5.0	5.3	5.3
6-8	13	13.7	9.4	8.8	6.9	8.7	5.5	4.4	2.6	2.4	2.5
9-12	15	16.9	18.0	17.6	16.8	14.5	13.5	10.6	9.6	9.3	6.3
K-12	43	42.7	39.3	35.0	31.0	28.5	24.3	20.5	17.2	17.0	14.1

Study Area 85B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	1	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	0	0.9	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	0	0.0	0.9	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	1	0.0	0.0	1.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	3	1.0	0.0	0.0	0.9	2.7	2.6	3.0	2.2	2.7	2.6
6	2	3.0	1.0	0.0	0.0	1.0	2.7	2.6	3.0	2.2	2.7
7	2	1.9	2.9	0.9	0.0	0.0	0.9	2.6	2.5	2.8	2.1
8	8	1.9	1.8	2.8	0.9	0.0	0.0	0.9	2.5	2.4	2.7
9	4	8.6	2.1	2.0	3.0	1.0	0.0	0.0	0.9	2.7	2.6
10	0	3.9	8.3	2.0	1.9	2.9	0.9	0.0	0.0	0.9	2.6
11	4	0.0	3.9	8.3	2.0	1.9	2.9	0.9	0.0	0.0	0.9
12	1	3.8	0.0	3.7	7.9	1.9	1.8	2.8	0.9	0.0	0.0
K-5	8	7.7	9.7	11.7	14.3	16.1	16.1	16.0	15.5	15.9	15.8
6-8	12	6.8	5.7	3.7	0.9	1.0	3.6	6.1	8.0	7.4	7.5
9-12	9	16.3	14.3	16.0	14.8	7.7	5.6	3.7	1.8	3.6	6.1
K-12	29	30.8	29.7	31.4	30.0	24.8	25.3	25.8	25.3	26.9	29.4

Study Area 86A
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	1.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	1.0	1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	1.0	1.1	1.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0
6	1	1.0	1.1	1.1	1.1	3.1	0.0	0.0	0.0	0.0	0.0
7	3	1.0	1.0	1.0	1.1	1.1	3.1	0.0	0.0	0.0	0.0
8	3	3.0	1.0	1.0	1.0	1.0	1.1	3.1	0.0	0.0	0.0
9	8	3.2	3.1	1.0	1.1	1.1	1.1	1.1	3.2	0.0	0.0
10	4	7.8	3.1	3.1	1.0	1.0	1.1	1.1	1.1	3.2	0.0
11	3	3.7	7.3	2.9	2.9	0.9	1.0	1.0	1.0	1.0	2.9
12	4	3.1	3.8	7.4	3.0	2.9	1.0	1.0	1.0	1.0	1.1
K-5	7	5.8	5.0	4.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0
6-8	7	5.0	3.1	3.1	3.2	5.2	4.2	3.1	0.0	0.0	0.0
9-12	19	17.8	17.3	14.4	8.0	5.9	4.2	4.2	6.3	5.2	4.0
K-12	33	28.6	25.4	21.6	14.3	11.1	8.4	7.3	6.3	5.2	4.0

Study Area 86B
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	1	1.0	1.1	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.9
1	0	1.0	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
2	0	0.0	0.9	0.9	1.0	0.7	0.9	0.9	0.8	0.9	0.9
3	0	0.0	0.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8	0.8
4	4	0.0	0.0	0.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9
5	1	3.8	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9	0.9
6	1	1.0	3.9	0.0	0.0	0.0	0.9	0.9	1.0	0.7	0.9
7	2	1.0	1.0	3.7	0.0	0.0	0.0	0.9	0.8	0.9	0.7
8	1	1.9	0.9	0.9	3.6	0.0	0.0	0.0	0.8	0.8	0.9
9	3	1.1	2.1	1.0	1.0	3.8	0.0	0.0	0.0	0.9	0.9
10	4	2.9	1.0	2.0	1.0	1.0	3.7	0.0	0.0	0.0	0.9
11	1	4.0	2.9	1.0	2.0	1.0	1.0	3.7	0.0	0.0	0.0
12	1	1.0	3.8	2.8	1.0	1.9	0.9	0.9	3.5	0.0	0.0
K-5	6	5.8	2.9	3.6	4.5	5.3	5.3	5.5	5.0	5.3	5.3
6-8	4	3.9	5.8	4.6	3.6	0.0	0.9	1.8	2.6	2.4	2.5
9-12	9	9.0	9.8	6.8	5.0	7.7	5.6	4.6	3.5	0.9	1.8
K-12	19	18.7	18.5	15.0	13.1	13.0	11.8	11.9	11.1	8.6	9.6

Study Area 86C
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	3	2.9	3.3	2.4	2.9	2.9	2.8	2.9	2.8	2.8	2.8
1	2	2.9	2.8	3.1	2.3	2.8	2.8	2.6	2.7	2.7	2.7
2	2	1.9	2.7	2.6	2.9	2.2	2.7	2.6	2.5	2.6	2.6
3	1	1.9	1.8	2.6	2.5	2.8	2.1	2.6	2.5	2.4	2.5
4	4	1.1	2.1	2.0	2.8	2.7	3.1	2.3	2.8	2.7	2.6
5	1	3.8	1.0	2.0	1.9	2.7	2.6	3.0	2.2	2.7	2.6
6	1	1.0	3.9	1.1	2.0	1.9	2.7	2.6	3.0	2.2	2.7
7	3	1.0	1.0	3.7	1.0	1.9	1.8	2.6	2.5	2.8	2.1
8	5	2.9	0.9	0.9	3.6	1.0	1.9	1.8	2.5	2.4	2.7
9	2	5.4	3.1	1.0	1.0	3.8	1.0	2.0	1.9	2.7	2.6
10	2	1.9	5.2	3.0	1.0	1.0	3.7	1.0	1.9	1.8	2.6
11	5	2.0	1.9	5.2	3.0	1.0	1.0	3.7	1.0	1.9	1.8
12	1	4.8	1.9	1.8	4.9	2.9	0.9	0.9	3.5	1.0	1.8
K-5	13	14.5	13.7	14.7	15.3	16.1	16.1	16.0	15.5	15.9	15.8
6-8	9	4.9	5.8	5.7	6.6	4.8	6.4	7.0	8.0	7.4	7.5
9-12	10	14.1	12.1	11.0	9.9	8.7	6.6	7.6	8.3	7.4	8.8
K-12	32	33.5	31.6	31.4	31.8	29.6	29.1	30.6	31.8	30.7	32.1

Study Area 86D
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	3.8	9.2	14.5	19.1	23.7	29.8	25.2	25.2	25.2	25.2
1	1	3.8	11.2	18.2	23.5	28.2	34.5	30.4	25.7	25.7	25.7
2	1	4.5	10.5	18.8	25.4	30.5	36.4	32.7	28.9	24.4	24.4
3	0	4.9	12.0	19.4	27.9	34.6	41.4	37.1	33.4	29.5	24.9
4	3	3.8	12.3	20.9	28.6	37.2	45.6	42.2	37.9	34.1	30.1
5	3	7.0	11.4	21.5	30.4	38.3	48.7	47.0	43.5	39.0	35.1
6	2	7.0	14.6	20.5	31.0	40.1	49.8	50.2	48.4	44.8	40.2
7	0	6.5	15.5	24.6	30.4	40.7	51.4	48.8	49.1	47.4	43.9
8	1	4.6	15.2	25.7	34.7	40.5	52.5	50.9	48.3	48.7	47.0
9	3	5.6	13.6	26.4	37.6	47.2	55.1	55.6	54.0	51.2	51.6
10	1	7.2	13.6	22.9	35.5	46.5	57.5	54.0	54.5	52.9	50.2
11	0	4.9	14.3	21.7	30.4	42.1	53.9	53.5	50.3	50.7	49.2
12	2	4.4	13.4	24.6	32.1	41.0	54.7	55.0	54.6	51.3	51.7
K-5	8	27.8	66.6	113.3	154.9	192.5	236.4	214.6	194.6	177.9	165.4
6-8	3	18.1	45.3	70.8	96.1	121.3	153.7	149.9	145.8	140.9	131.1
9-12	6	22.1	54.9	95.6	135.6	176.8	221.2	218.1	213.4	206.1	202.7
K-12	17	68.0	166.8	279.7	386.6	490.6	611.3	582.6	553.8	524.9	499.2

Study Area 87
Forecast Date 10/1/2022

	CURRENT	FORECASTED RESIDENT STUDENTS									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
K	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
12	1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
K-5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-8	1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	1	0.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
K-12	2	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0

Housing Profile

Sherwood School District Boundary

Prepared using SchoolSite by DDP

Population		Households	
2010 Total Population	24,524	2022 Median Household Income	$118,131
2020 Total Population	27,241	2027 Median Household Income	$134,255
2022 Total Population	27,338	2022-2027 Annual Rate	2.59%
2027 Total Population	27,695		
2022-2027 Annual Rate	0.26%		

	Census 2010		2022		2027	
Housing Units by Occupancy Status and Tenure	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Housing Units	8,450	100.0%	9,155	100.0%	9,325	100.0%
Occupied	8,083	95.7%	8,846	96.6%	8,955	96.0%
Owner	6,134	72.6%	6,861	74.9%	7,002	75.1%
Renter	1,949	23.1%	1,985	21.7%	1,953	20.9%
Vacant	367	4.3%	308	3.4%	370	4.0%

	2022		2027	
Owner Occupied Housing Units by Value	**Number**	**Percent**	**Number**	**Percent**
Total	6,861	100.0%	7,003	100.0%
<$50,000	22	0.3%	0	0.0%
$50,000-$99,999	4	0.1%	0	0.0%
$100,000-$149,999	3	0.0%	0	0.0%
$150,000-$199,999	3	0.0%	0	0.0%
$200,000-$249,999	41	0.6%	0	0.0%
$250,000-$299,999	71	1.0%	7	0.1%
$300,000-$399,999	893	13.0%	416	5.9%
$400,000-$499,999	1,890	27.5%	1,703	24.3%
$500,000-$749,999	2,627	38.3%	3,336	47.6%
$750,000-$999,999	1,068	15.6%	1,192	17.0%
$1,000,000-$1,499,999	145	2.1%	211	3.0%
$1,500,000-$1,999,999	54	0.8%	104	1.5%
$2,000,000+	40	0.6%	34	0.5%
Median Value	$547,916		$603,080	
Average Value	$602,780		$651,739	

Census 2010 Housing Units	**Number**	**Percent**
Total	8,450	100.0%
In Urbanized Areas	7,146	84.6%
In Urban Clusters	0	0.0%
Rural Housing Units	1,304	15.4%

Data Note: Persons of Hispanic Origin may be of any race.
Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

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Census 2010 Owner Occupied Housing Units by Mortgage Status	Number	Percent
Total	6,134	100.0%
Owned with a Mortgage/Loan	5,207	84.9%
Owned Free and Clear	927	15.1%

Census 2010 Vacant Housing Units by Status	Number	Percent
Total	368	100.0%
For Rent	104	28.3%
Rented- Not Occupied	7	1.9%
For Sale Only	107	29.1%
Sold - Not Occupied	25	6.8%
Seasonal/Recreational/Occasional Use	37	10.1%
For Migrant Workers	0	0.0%
Other Vacant	88	23.9%

Census 2010 Occupied Housing Units by Age of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,084	6,135	75.9%
15-24	164	43	26.2%
25-34	1,167	734	62.9%
35-44	2,242	1,744	77.8%
45-54	1,845	1,536	83.3%
55-64	1,339	1,102	82.3%
65-74	723	606	83.8%
75-84	391	282	72.1%
85+	213	88	41.3%

Census 2010 Occupied Housing Units by Race/Ethnicity of Householder and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,082	6,134	75.9%
White Alone	7,451	5,687	76.3%
Black/African American Alone	58	37	63.8%
American Indian/Alaska Native	38	23	60.5%
Asian Alone	224	183	81.7%
Pacific Islander Alone	15	7	46.7%
Other Race Alone	152	100	65.8%
Two or More Races	144	97	67.4%
Hispanic Origin	368	244	66.3%

Census 2010 Occupied Housing Units by Size and Home Ownership		Owner Occupied Units	
	Occupied Units	Number	% of Occupied
Total	8,081	6,134	75.9%
1-Person	1,577	905	57.4%
2-Person	2,463	1,969	79.9%
3-Person	1,427	1,098	76.9%
4-Person	1,646	1,383	84.0%
5-Person	643	527	82.0%
6-Person	221	172	77.8%
7+ Person	104	80	76.9%

2022 Housing Affordability	
Housing Affordability Index	96
Percent of Income for Mortgage	24.4%

Data Note: Persons of Hispanic Origin may be of any race.
Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

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Demographic and Income Profile

Sherwood School District Boundary

Prepared using SchoolSite by DDP

Summary	Census 2010	Census 2020	2022	2027
Population	24,524	27,241	27,338	27,695
Households	8,083	8,801	8,847	8,955
Families	6,149	-	6,564	6,622
Average Household Size	2.89	2.94	2.94	2.94
Owner Occupied Housing Units	6,134	-	6,861	7,002
Renter Occupied Housing Units	1,949	-	1,985	1,953
Median Age	36.0	-	37.6	38.1

Trends: 2022-2027 Annual Rate	Area	State	National
Population	0.26%	0.31%	0.25%
Households	0.24%	0.29%	0.31%
Families	0.18%	0.18%	0.28%
Owner HHs	0.41%	0.47%	0.53%
Median Household Income	2.59%	3.75%	3.12%

	2022		2027	
Households by Income	Number	Percent	Number	Percent
<$15,000	265	3.0%	151	1.7%
$15,000 - $24,999	212	2.4%	104	1.2%
$25,000 - $34,999	301	3.4%	141	1.6%
$35,000 - $49,999	449	5.1%	240	2.7%
$50,000 - $74,999	1,172	13.2%	945	10.6%
$75,000 - $99,999	1,011	11.4%	1,047	11.7%
$100,000 - $149,999	2,144	24.2%	2,396	26.8%
$150,000 - $199,999	1,635	18.5%	2,097	23.4%
$200,000+	1,656	18.7%	1,834	20.5%
Median Household Income	$118,131		$134,255	
Average Household Income	$150,180		$170,934	
Per Capita Income	$49,782		$56,619	

	Census 2010		2022		2027	
Population by Age	Number	Percent	Number	Percent	Number	Percent
0 - 4	1,740	7.1%	1,708	6.2%	1,698	6.1%
5 - 9	2,167	8.8%	2,058	7.5%	1,983	7.2%
10 - 14	2,187	8.9%	2,127	7.8%	2,131	7.7%
15 - 19	1,570	6.4%	1,848	6.8%	1,739	6.3%
20 - 24	997	4.1%	1,452	5.3%	1,328	4.8%
25 - 34	3,121	12.7%	3,370	12.3%	3,627	13.1%
35 - 44	4,629	18.9%	4,309	15.8%	4,269	15.4%
45 - 54	3,585	14.6%	4,041	14.8%	3,828	13.8%
55 - 64	2,438	9.9%	3,164	11.6%	3,276	11.8%
65 - 74	1,214	5.0%	2,110	7.7%	2,327	8.4%
75 - 84	586	2.4%	860	3.1%	1,163	4.2%
85+	288	1.2%	293	1.1%	326	1.2%

	Census 2010		Census 2020		2022		2027	
Race and Ethnicity	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White Alone	21,845	89.1%	21,927	80.5%	21,882	80.0%	21,695	78.3%
Black Alone	273	1.1%	244	0.9%	244	0.9%	259	0.9%
American Indian Alone	149	0.6%	278	1.0%	279	1.0%	288	1.0%
Asian Alone	748	3.1%	1,145	4.2%	1,164	4.3%	1,273	4.6%
Pacific Islander Alone	71	0.3%	104	0.4%	104	0.4%	111	0.4%
Some Other Race Alone	625	2.5%	961	3.5%	974	3.6%	1,025	3.7%
Two or More Races	813	3.3%	2,583	9.5%	2,691	9.8%	3,043	11.0%
Hispanic Origin (Any Race)	1,656	6.8%	2,620	9.6%	2,654	9.7%	2,727	9.8%

Data Note: Income is expressed in current dollars.

Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

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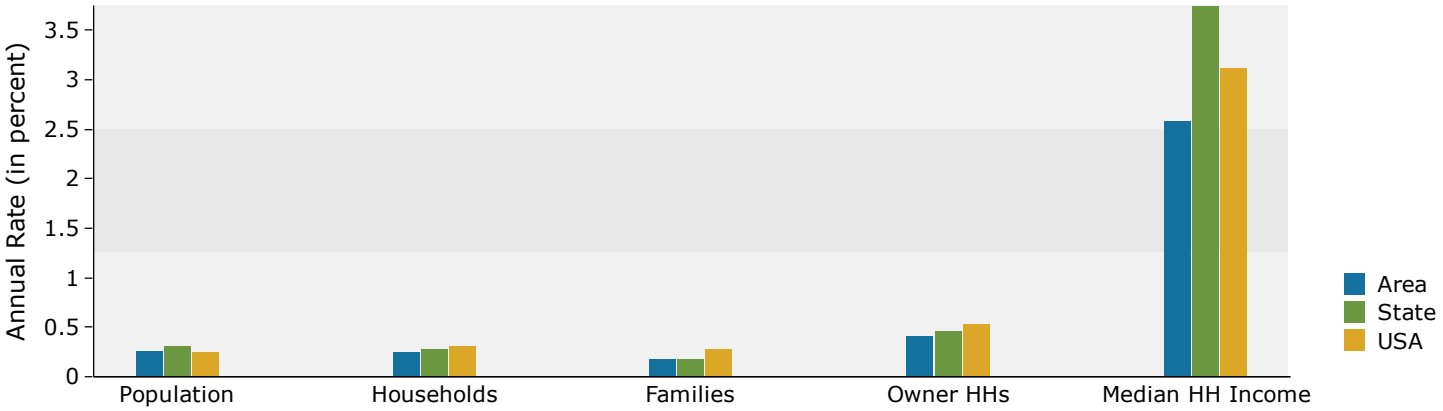
Demographic and Income Profile

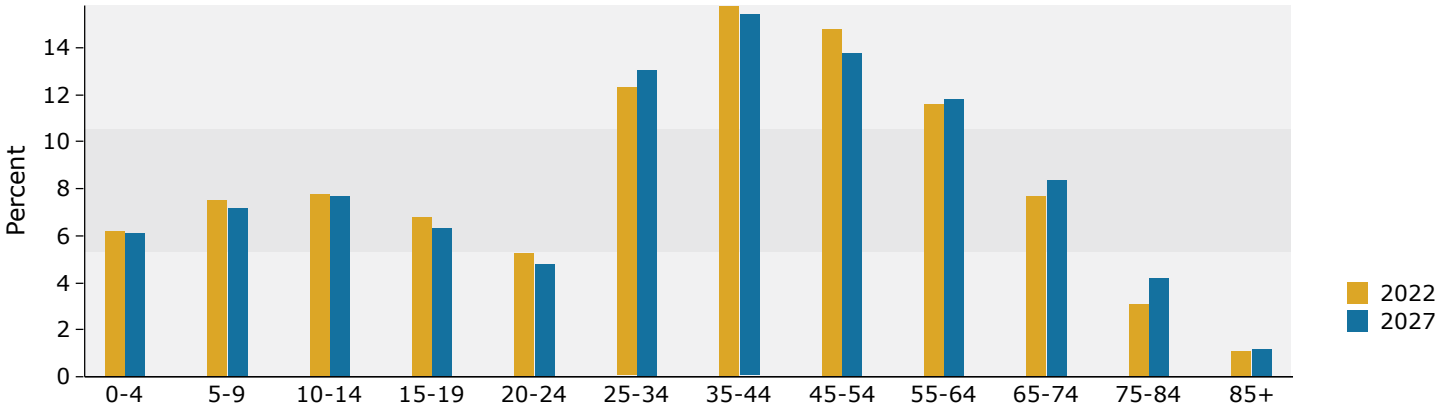
Sherwood School District Boundary

Prepared using SchoolSite by DDP

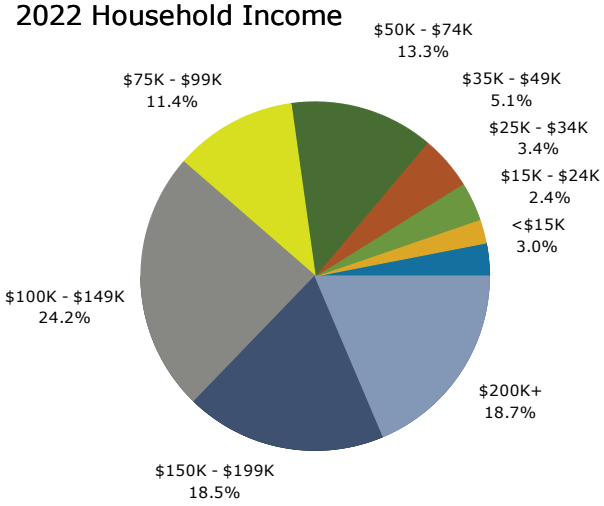
Trends 2022-2027



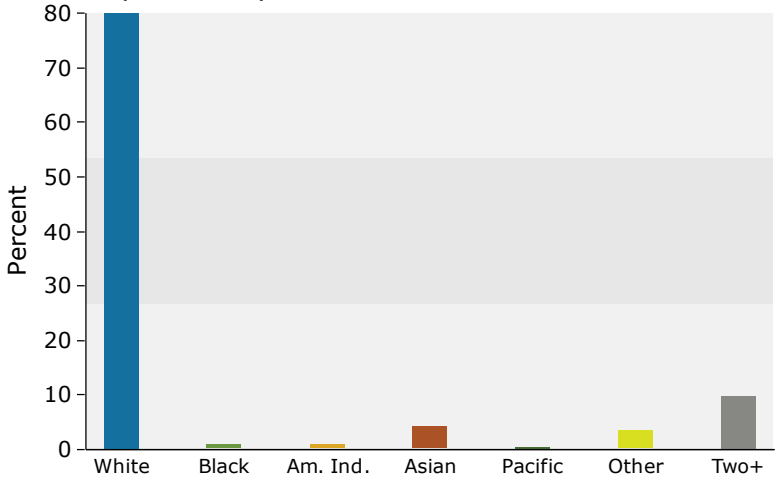
Population by Age



2022 Household Income



2022 Population by Race



2022 Percent Hispanic Origin:9.7%

Source: Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

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Housing Affordability and Development in Hillsboro, OR

Portland State University
Toulan School of Urban Studies and Planning
Community Recovery Fellowship

Diego Murphy-Mendez
Spring 2024
Dr. Megan Horst

Funding for this fellowship was provided by the Institute for Metropolitan Studies at Portland State University. This paper was prepared for Farmland First, a 501(c)(3) nonprofit with a mission to protect farmland and build livable cities in Oregon, now and into the future.

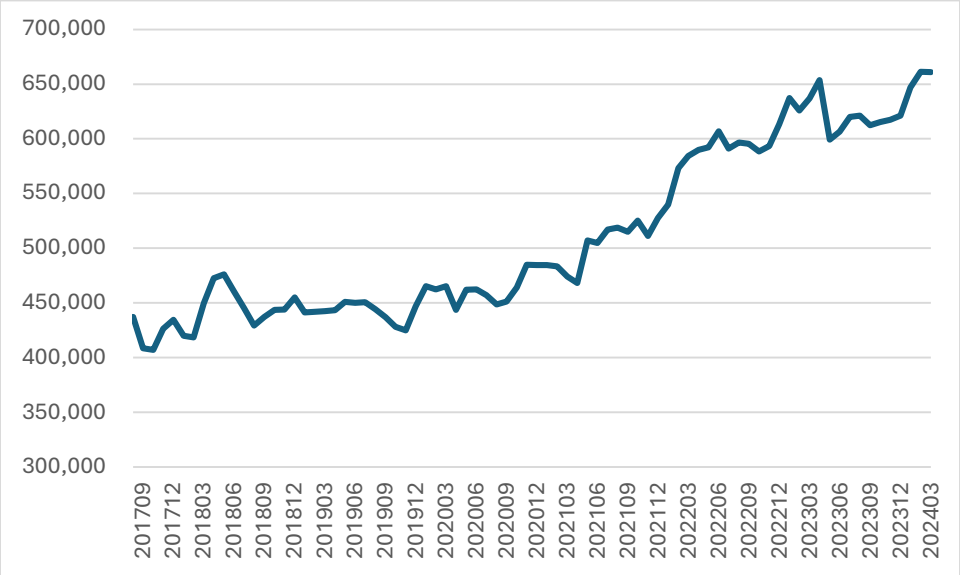
Summary

Housing in Hillsboro has remained unaffordable, and homeownership has become inaccessible to many residents. This is a potential cause for Hillsboro's changing tenure composition. While Hillsboro has historically been a homeowner's community, over the past decade the number of renter-occupied units has grown faster than the number of owner-occupied units to the point where there is now an even split between owners and renters. Rental units are more affordable compared to owner-occupied units in Hillsboro, but rents have remained high. This may pose a strong barrier to entry for outsiders interested in moving to Hillsboro.

Hillsboro has made efforts to address its growing housing need and new housing development in the city has centered on three areas: Amberglen, Orenco Station, and South Hillsboro. Development in Amberglen is defined by the construction of small multi-unit rentals, while development in South Hillsboro is defined by the construction of large single-unit owner-occupied structures. Comparatively, Orenco's development has involved a mix of housing types. Sales prices in South Hillsboro are high, but not necessarily atypical for the city. At the same time, rents in South Hillsboro are extremely high and can often be twice as high as the city's median. South Hillsboro is also the only development that involved expansions to the city's urban growth boundary.

Cost of Homeownership in Hillsboro

Figure 1. Hillsboro Median Home Listing Price 2017-2024



Source: Realtor.com residential data

The median listing price for a home in Hillsboro is currently $661,000. Assuming there is a 15% down payment ($99,150) and a 7.322% interest rate (the going rate in Hillsboro as of March 2024), then a new homeowner would have to pay roughly $3,860 per month, or $46,320 per year. Using the most recent American Community Survey (ACS) data, the cost of a mortgage for the median household in 2022 earning $98,891 per year would be roughly 41.9% of their

income. For a median renter who earns $77,697 per year, the cost of homeownership would take up roughly 59.6% of their income. This does not include payments to homeowners insurance, HOA fees, property taxes, or maintenance costs.

Table 1 breaks down yearly costs over time for Hillsboro, assuming a similar interest rate, and it likewise does not include additional costs in the form of property taxes, HOA fees, homeowners insurance, or maintenance costs. Understanding that these are a basic reality of homeownership, we can safely assume that the real cost is greater than what is listed in Table 1. However, just focusing on the primary costs is enough to get a sense of how expensive housing is in Hillsboro.

Table 1: Median Yearly Mortgage Cost with Ratio to Median Household Income 2017-2022

	2017	2018	2019	2020	2021	2022
Principal + 7% Interest	$35,676	$36,288	$35,520	$36,636	$38,532	$41,460
Down Payment	$76,352	$77,676	$76,039	$78,408	$82,476	$88,750
Ratio of Cost to MHI	39.5%	39.8%	37.7%	37.8%	38.9%	41.9%
Cost / MHI for Owners	31.9%	32.1%	30.7%	30.7%	31.4%	33.7%
Cost / MHI for Renters	52.3%	50.2%	47.0%	46.7%	48.6%	53.4%

Source: Calculated from American Community Survey 2018-2022 and Realtor.com residential data, assuming a 15% down payment on the 30-year fixed mortgage with roughly 7.3% interest.

Table 1 mirrors what we have already seen in Figure 1, that housing costs in Hillsboro have risen over time. However, Table 1 also gives us a more precise look at rising ownership costs in comparison to income and shows that principal and interest costs have not grown significantly as a proportion of median household income, but instead have fluctuated over time. This pattern remains true when distinguishing between owners and renters. For both groups, the cost of ownership has somewhat increased overall but has mostly fluctuated.

The steady proportion of costs to income may signify some level of stability in Hillsboro's housing, but it does not signify affordability. It is common wisdom in real estate to not pay more than 30% of your income on housing and the federal government considers a household "cost-burdened" if it has to pay more than this figure on housing costs ("severely cost-burdened" if a household has to pay more than 50% on housing). This threshold is worth questioning as it is not always an effective gauge for affordability, but in Hillsboro's case it is not important to interrogate the 30% figure as the city's housing costs stretch beyond this threshold anyway.

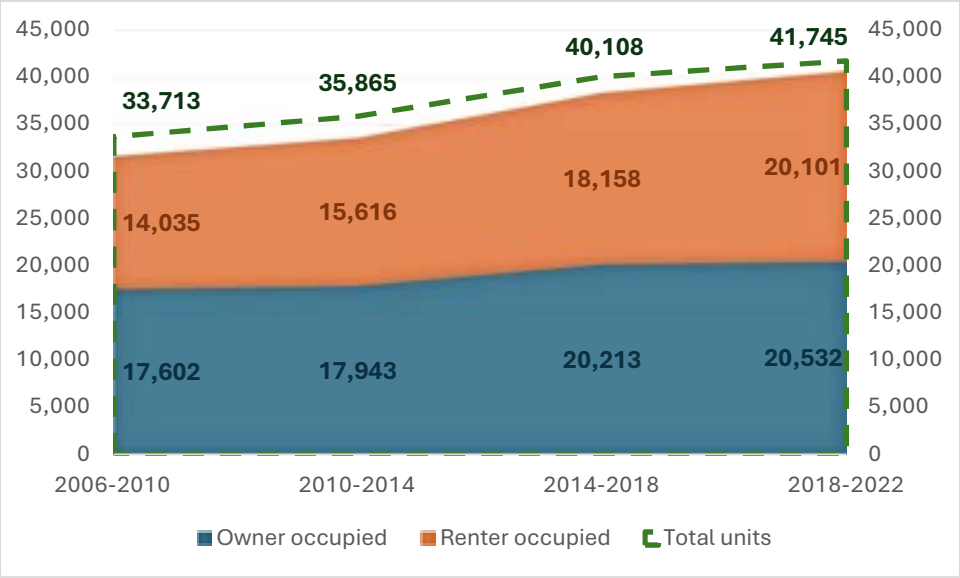
The median homeowner in Hillsboro is putting at least a third of their income towards their mortgage, while the median renter who aspires to homeownership would have to spend more than a year's salary on a down payment and put over half their income towards a mortgage. This means that, in Hillsboro, homeownership is a cost burden on many homeowners and is entirely inaccessible for most renters. Median household income across Oregon and in Portland

is roughly similar to renters in Hillsboro, meaning that homeownership is also inaccessible to many outsiders who may be thinking of moving to Hillsboro.

Growing Rental Community

Over the past decade, Hillsboro has developed a sizeable rental community that now comprises nearly half of the city's residents. While homeowners still outnumber renters by a small proportion, renter-occupied units in the city have grown much faster than owner-occupied ones. Currently, the proportion of renters-to-owners, shown in Figure 2, is about an even split. This indicates that most of the new units constructed in Hillsboro are rented out instead of sold to a homeowner. This also indicates that population in Hillsboro has continued to grow despite inaccessible homeownership costs, and may signify that this inaccessibility is playing a role in the city's changing tenure composition.

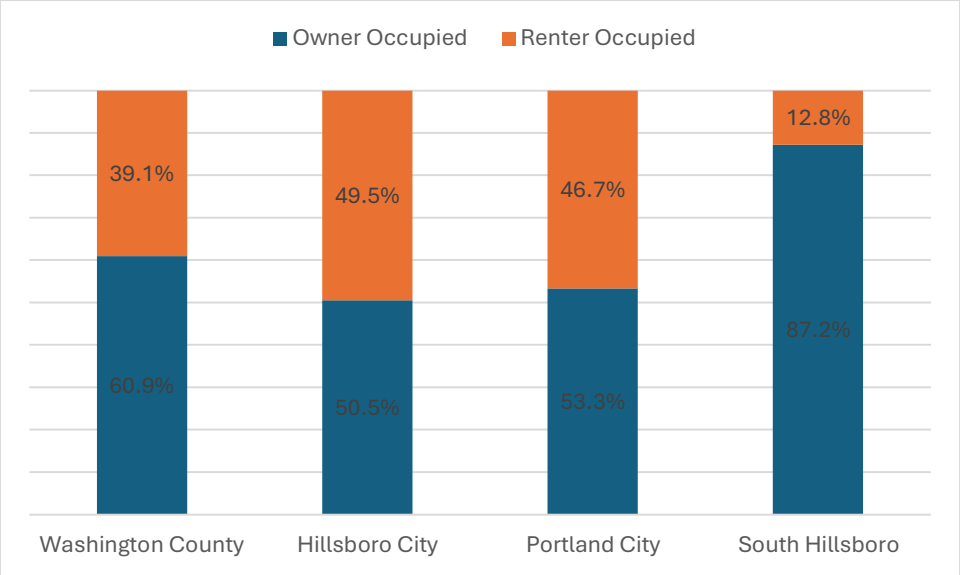
Figure 2. Hillsboro Tenure Type 2006-2022



Source: US Census Bureau (2010, 2014, 2018, 2022). *American Community Survey 5-Year Estimates*

Figure 3 shows the same composition contrasted with Washington County and Portland. One surprising fact shown in this figure is that there is now a greater proportion of homeowners in the city of Portland than there are in Hillsboro. Also included in this figure is the composition of the South Hillsboro census tract. This is one of the three major development areas that Hillsboro has focused on to manage its housing crisis, and it is the only one that involved expansions to Hillsboro's urban growth boundary. Although not enough to reverse the trend, South Hillsboro stands here as a clear counter-example to the rest of the city.

Figure 3. Tenure Composition 2022



Source: US Census Bureau (2022). *American Community Survey 5-Year Estimate*

In contrast to homeownership, renting in Hillsboro is generally more affordable as a proportion of the median renter's household income. Table 2 shows that rent increases in Hillsboro have mostly kept pace with rising incomes among renters. At the same time, rents in Hillsboro have remained high even by the 30% standard. Just like homeownership, rentals have not gotten much more expensive between 2006 and 2022, but they also have not become much more affordable either.

Table 2: Median Gross Rent and Rent as % of Median Household Income 2006-2022

	2006-2010		2010-2014		2014-2018		2018-2022	
	Median Gross Rent	as % of Renter MHI	Median Gross Rent	as % of Renter MHI	Median Gross Rent	as % of Renter MHI	Median Gross Rent	as % of Renter MHI
Washington County	1,193	27.8	1,257	29.5	1,482	29.7	1,695	29.6
Portland City	1,095	33.4	1,171	34.5	1,385	33.4	1,530	31.9
Hillsboro City	1,275	27.5	1,350	28.3	1,686	18.8	1,797	27.8
South Hillsboro							2,226	22.2

Source: Calculated from US Census Bureau (2010, 2014, 2018, 2022). *American Community Survey 5-Year Estimates,* adjusted for 2022 dollars

The story is different for outside renters who are thinking of moving to Hillsboro. Growing rents in Hillsboro may not necessarily make the city out of reach for outsiders, but may still pose a strong barrier to entry. The median renter in Portland would have to spend about 37% of their income to bill a $1,797 per month rental. The median renter across all of Oregon would have to spend about 42% of their income for the same rental.

Housing Development in Hillsboro: Amberglen, Orenco, and South Hillsboro

Housing development in Hillsboro over the last decade has centered around three primary areas, highlighted in Figure 4 for reference. They are Amberglen (the two eastern most geographies) Orenco Station (the three central-eastern geographies), and South Hillsboro (the large southern-most geography). The majority of the new units in Hillsboro since 2010 (somewhere between 54% and 69%) were constructed in one of these three areas. It is worth comparing these examples because of the stark differences in their recent development patterns.

Figure 4.

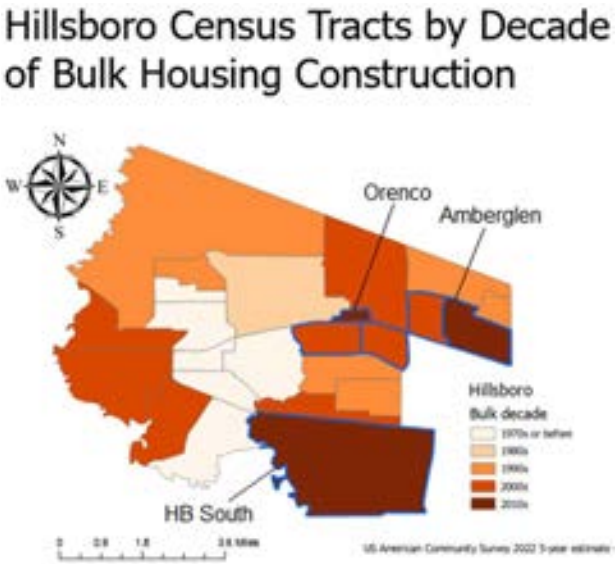


Figure 5. Metro 2040 Growth Concept

Amberglen and Orenco have been areas of interest for Metro as urban centers for the 2040 Growth Concept, shown on Figure 5. Hillsboro has developed these two areas with an explicit motive toward dense transit-oriented construction that could provide greater connection to Portland and to downtown Hillsboro while also efficiently adding to the city's housing supply. Between 2010 and 2022, Amberglen added 1999 units to Hillsboro's housing supply while Orenco added 1332 units.

South Hillsboro's development was pursued to accommodate Hillsboro's current and projected demand for housing. The first development phase was the Witch Hazel expansion, while the second phase is covering the larger part of South Hillsboro and is comprised of Reed's Crossing and Butternut Creek. Much of this second development phase is still underway. Between 2010 and 2022, South Hillsboro has added 994 units to Hillsboro's housing supply.

Table 3. Total Units by Tenure

Census Tracts	Total Units	% owner occupied	% renter occupied
Amberglen	4402	27.5%	71.4%
Orenco	4856	40.6%	54.5%
South Hillsboro	2361	85.1%	12.5%
Median	1701	46.3%	41.4%

Source: US Census Bureau (2022). *American Community Survey 5-Year Estimates*

Table 3 compares total units and tenure for the three development areas with the median for all 25 of Hillsboro's census tracts. Amberglen and Orenco are primarily rental communities, although Orenco still has more of a mixed tenure. South Hillsboro, as was seen earlier in Figure 3, is overwhelmingly an ownership community with a proportion of owner-occupied units that is almost twice the median for Hillsboro. Figures 6 and 7 visualize this owner-renter divide and likewise show a large density of owners in South Hillsboro, a large density of renters in Amberglen, and a mix of tenure in Orenco.

Figure 6.

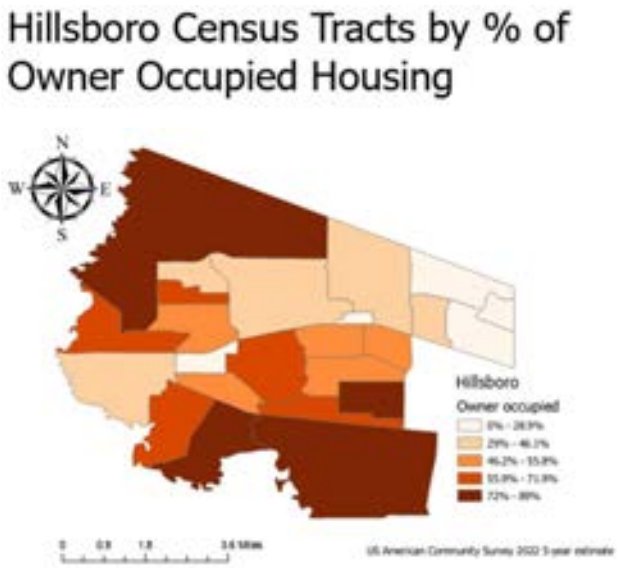


Figure 7.

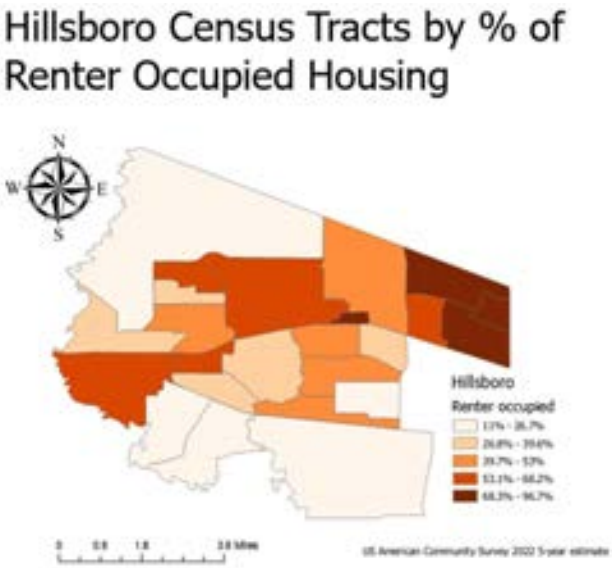


Table 4 shows three related metrics—the proportion of units that are single-unit (versus multi-unit), the proportion of those single-units that are detached, and the average number of bedrooms for all housing units in these areas. Relative to the rest of Hillsboro, Amberglen has a low proportion of single-unit structures. Of the single-unit homes that do exist in Amberglen, a low proportion of them are detached. South Hillsboro again stands in stark contrast to Amberglen. The South Hillsboro development is made up almost entirely of single-unit homes (99.6%!), over two-thirds of which are detached.

Table 4. Housing Unit Data

Census Tracts	% of single units	% of single units that are detached	Average # of bedrooms per unit
Amberglen	31.6%	33.5%	1.62
Orenco	54.1%	81.9%	2.29
South Hillsboro	99.6%	77.8%	3.49
Median	66.7%	82.8%	2.45

Source: US Census Bureau (2022). *American Community Survey 5-Year Estimates*

Another important data set included in Table 4 is the average number of bedrooms per unit. The number of bedrooms is a good way to gauge the average size of a home, and homes with a high number of bedrooms are typically accompanied by a very high listing price. The average number of bedrooms for each census tract follows the pattern, with small structures in Amberglen, typically-sized structures in Orenco, and large structures in South Hillsboro. In fact, South Hillsboro holds the highest average for the entire city, holding roughly one fourth (26%) of all the five-bedroom units in Hillsboro. This proportion is far above both Amberglen and Orenco, which collectively hold only 8% of the five-bedroom units in the city.

Finally, its important to look at differences in income and value. Table 5 outlines the comparison between the three areas and the median for all of Hillsboro's census tracts. Interestingly, it is here where Orenco breaks its previous middle-of-the-road pattern by having a median household income that is even higher than South Hillsboro. Despite this, South Hillsboro's median home value is higher than Orenco's. Amberglen's income is expected of a primarily renter community, but like Orenco their median home value is unexpectedly high. Figures 8 and 9 visualize these categories.

Table 5.

Census Tracts	Median Household Income	Median Home Value
Amberglen	76,100	102,547
Orenco	125,139	134,375
South Hillsboro	122,227	160,341
Hillsboro Median	91,066	108,503

Source: US Census Bureau (2022). *American Community Survey 5-Year Estimate*

Figure 8.

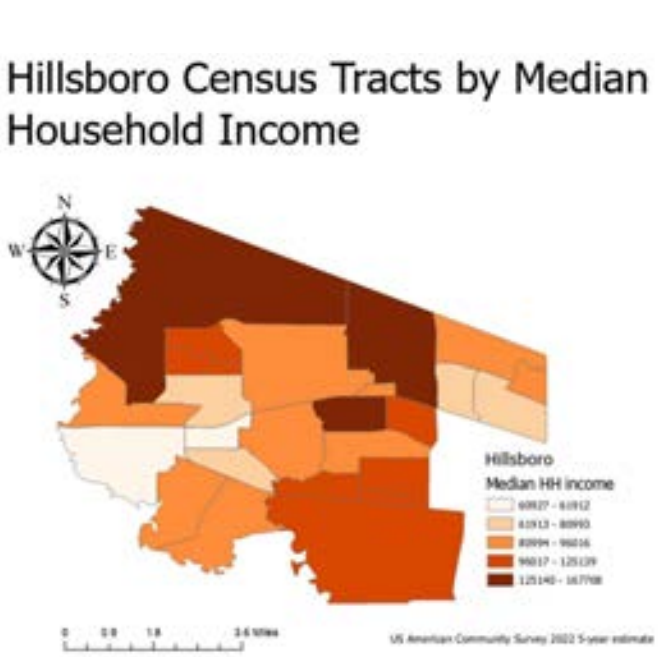
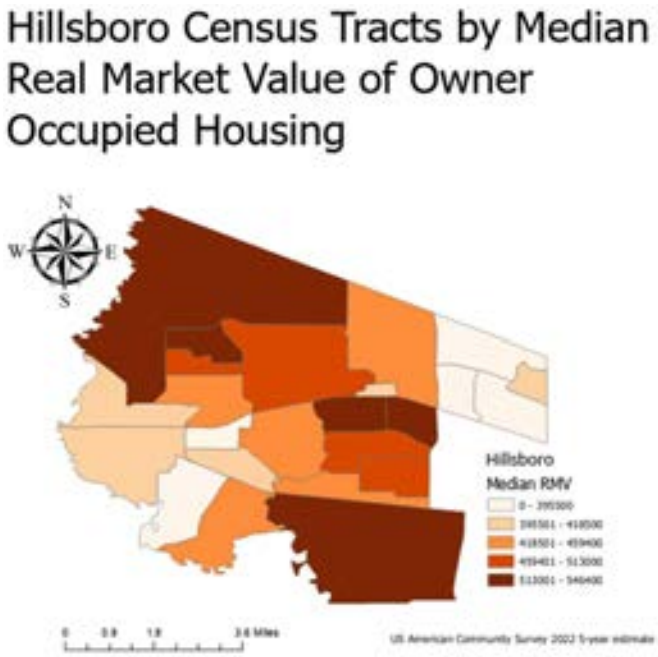


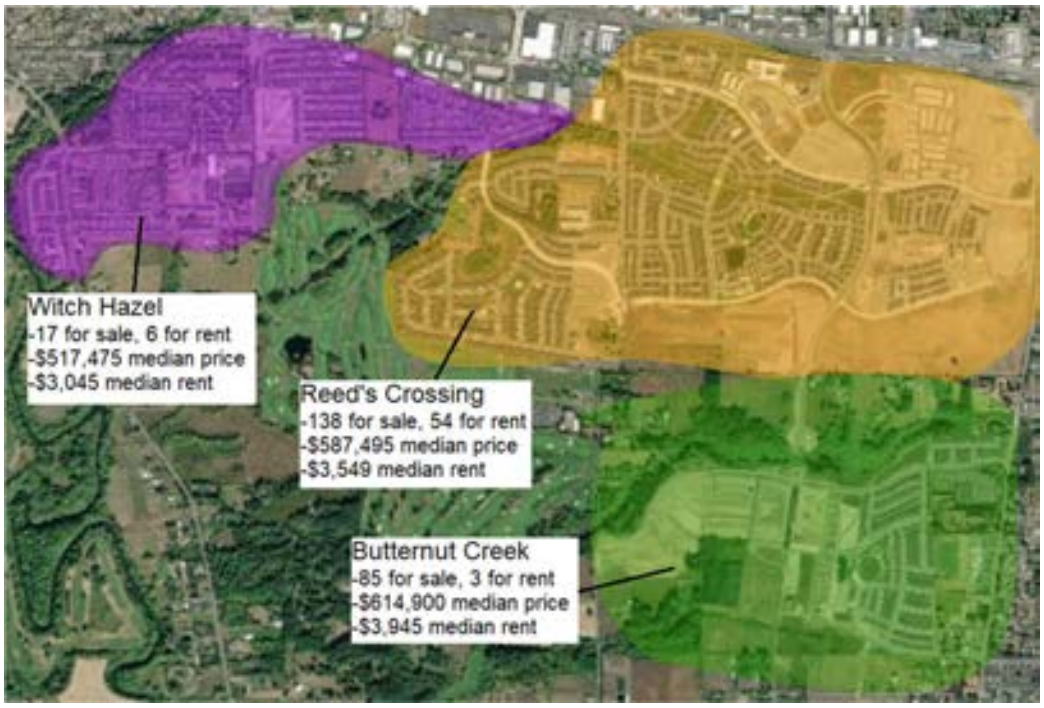
Figure 9.



It is essential to note that real market value (RMV) is often not a precise reflection of what a home will actually cost. For example, Hillsboro's current median listing price is $661,000, which is far above any of the median RMVs of the tracts shown on Figure 9. RMV can be a decent reflection of the wealth of a homeowner, but a more precise metric is needed to determine actual listing prices for smaller geographies.

While more work would need to be done to provide a precise look at housing prices by census tract (or other small geographies), a quick look at Zillow can provide us with an accurate reflection of what the housing market in an area is actually like for prospective residents. To do this, I divided South Hillsboro into three areas reflecting its development phases: Witch Hazel, Reed's Crossing, and Butternut Creek. The three areas and their different Zillow figures can be seen in Figure 10. Notice how Reed's Crossing and Butternut Creek are still in the midst of development and thus still hold large empty lots.

Figure 10: South Hillsboro Phases of Housing Development 2024



Source: Satellite image from Google Maps, housing data accessed through Zillow on May 2nd 2024

On May 2nd 2024, there were 240 units available for sale and 63 units available for rent in South Hillsboro. Prices ranged from $424,990 at the lowest end to $1,300,000 at the highest, with a median price of $579,990. This is fairly below the median listing price for Hillsboro. Interestingly, the median price varies depending on which development area we look at, with lower prices at the first phase of development (Witch Hazel) and higher prices at the two ongoing developments (Reed's Crossing and Butternut Creek). This may either suggest that prices in Witch Hazel have gone down over time, or that new construction in South Hillsboro is continually growing more expensive.

The median rent for South Hillsboro as of May 2nd 2024 is $3,549 per month, with a range of $1,550 at the lowest end to $9,000 at the highest end. This is significantly higher than the median rent for the city ($1,797) and reflects the high costs of South Hillsboro's housing construction as well as its low supply of rental units. Like the listing prices, rents appear to grow higher with each phase of development.

Conclusion

Housing costs in Hillsboro have grown over time, but have remained stable as a proportion of median household income. Homeownership has remained a cost burden for many owners and is largely inaccessible for most renters in the city. Hillsboro is a higher-income area compared to the rest of Oregon, and high housing costs can pose a strong barrier to entry for outsiders who are thinking of moving into the city. Rentership comes with high costs as well, but is relatively more affordable as a proportion of the median renter's income. This may be a driving force behind Hillsboro's fast growing rental community, which is beginning to outpace homeownership in the city,

Hillsboro's efforts to manage the housing crisis have centered on three main areas: Amberglen, Orenco Station, and South Hillsboro. Amberglen represents dense affordable development of small multi-unit rentals, Orenco represents a mix of housing types that tends to reflect the median for Hillsboro, and South Hillsboro represents large single-unit development. Housing development in South Hillsboro is still ongoing and conditions are likely to change as new units are constructed. As it stands right now, ownership prices in South Hillsboro are very expensive but remain below the median for the city, although there is variation between different phases of development. Rents remain far above the median for the city and have a similar variation across the different phases of development.

City Council
Agenda Item Type: Decision

CITY OF GRESHAM

Resolution No. 3560:
2023-2029 Gresham Housing Production Strategy

Agenda Item Number: E-1
Meeting Date: June 6, 2023

Service Area Manager: Ashley Miller
Service Area: Urban Design and Planning

REQUESTED COUNCIL ACTION & SUGGESTED MOTION

Move to approve Resolution No. 3560 adopting the 2023-2029 Gresham Housing Production Strategy, as shown in Exhibit A.

PUBLIC PURPOSE AND COMMUNITY OUTCOME AND STRATEGIC PLAN ALIGNMENT

This Council Agenda Item, the 2023-2029 Gresham Housing Production Strategy (HPS), is the second of two June 6, 2023, agenda items under the Housing Production Strategy Project. On July 20, 2021, City Council initiated the Housing Production Strategy Project to proactively address the housing needs of Gresham's residents.

The HPS is a detailed land use and operations plan, which contains a suite of actions to be evaluated and/or executed by the City over the next 6 years. When combined, these actions advance equitable housing outcomes for all residents of Gresham. The HPS emphasizes improving outcomes for underserved communities, lower-income households, people in state and federal-protected classes, and people experiencing homelessness. The HPS considers issues of Fair Housing and is intended to support access to housing choice for everyone.

One of the primary goals of the Housing Production Strategy Project has been to align the City's housing plans. The three key plans are Gresham's Comprehensive Plan (the City's guiding land use document), the 2023-2029 Gresham Housing Production Strategy (the 6-year housing action plan), and the City's 2022-2025 Strategic Plan. The Strategic Plan guides City Council and the community's shared vision for the future. It focuses City resources on five strategic priorities including the Housing for All Priority. The Housing for All Goal states:

> *Everyone in Gresham can live in a secure and reliable place they call home, and no one experiences housing uncertainty. All Gresham community members can access housing that meets their changing needs and wants.*

To ensure that these plans are closely coordinated, the project team used the

adopted Housing for All Goal and its three housing objectives as the foundation for the HPS and a Gresham Community Development Plan update. The strategic plan's Housing for All Objectives are:

- *To provide resources to those experiencing homelessness or housing insecurity.*
- *To promote and support housing development that is affordable to the Gresham community across all housing types.*
- *To support housing stability.*

The purpose of this agenda item is to review the recommendations of the project team and consider approval of Resolution 3560 to adopt the 2023-2029 Gresham Housing Production Strategy. The proposed Gresham 2023-2029 Housing Production Strategy is attached to the Resolution and includes an Executive Summary.

BACKGROUND

State Legislation

The Housing Production Strategy is required by Oregon as part of House Bill 2003 (HB 2003), adopted by the State Legislature in 2019. HB 2003 was adopted to help communities meet the diverse housing needs of Oregonians and requires cities to develop strategies to encourage production of needed housing. The plan must advance the following outcomes:

- Affordable homeownership,
- Affordable rental housing,
- Housing stability,
- Housing choice for protected classes,
- Location of housing in compact, mixed-use neighborhoods,
- Fair housing, and
- Housing options for people experiencing homelessness.

The City will review its progress toward the plan annually and report progress to the State Department of Land Conservation and Development (DLCD) in three years.

RECOMMENDATION AND ALTERNATIVES

Recommendation:

Staff recommends that City Council move to approve Resolution No. 3560 adopting the Gresham 2023-2029 Housing Production Strategy, as shown in Exhibit A.

Alternative:

The alternatives to the staff recommendation are to:

1. Approve the 2023-2029 Gresham Housing Production Strategy with deletions, additions, or modifications.
2. Delay the approval of Resolution No. 3560. The consultant services for this

project are grant funded, with a deadline of June 30, 2023. If a delay results in additional consultant labor, then the delay would have an unanticipated budgetary impact.

3. Deny Resolution No. 3560, which would result in noncompliance with State regulations.

No action:
Council may choose not to approve Resolution No. 3560, which would result in noncompliance with State regulations.

BUDGET / FINANCIAL IMPACT
The HPS includes a 2023-2029 timeline for evaluating and potentially adopting actions to support the production of needed housing at the discretion of Council. Initial resource assumptions (staffing and budget) were considered in the development of this timeline. However, implementation of the individual actions in the HPS will include further budget analysis for Council's consideration as needed.

PUBLIC INVOLVEMENT
Key public involvement activities included:

- March 11, 2022: Immigrant/Refugee Focus Group
- March 16, 2022: Latinx Focus Group
- March 24, 2022: Subsidized Housing Focus Group
- March 30, 2022: Black Community Focus Group
- April 14, 2022: Advisory Group 1
- June 19, 2022: Juneteenth Community Event
- June 30, 2022: Advisory Group 2
- July 16, 2022: Arts Festival Community Event
- July 22, 2022: Housing Developer and Service Provider Interviews
- July 25, 2022: Planning Commission Work Session
- August 28, 2022: I Heart Rockwood Event
- August 30, 2022: Virtual Open House 1
- October 17, 2022: Advisory Group 3
- January 24, 2023: Virtual Open House 2
- February 27, 2023: Planning Commission Work Session

NEXT STEPS
Post adoption notice including the HPS will be submitted to DLCD for review and acceptance. The individual actions in the HPS will be evaluated and considered by Council according to the timeline in the document.

ATTACHMENTS

A. Resolution No. 3560
    a. Exhibit A. 2023-2029 Gresham Housing Production Strategy

FROM:

Ashley Miller, Interim Urban Design and Planning Director
Mary Phillips, Interim Comprehensive Planning Manager
Terra Wilcoxson, Senior Planner
Sarale Hickson, Planner II

REVIEWED THROUGH:

Eric Schmidt, Assistant City Manager
Sharron Monohon, Budget & Finance Director
Kevin McConnell, City Attorney
City Manager's Office

FOR MORE INFORMATION

Staff Contact: Terra Wilcoxson
Telephone: 503.618.2082
Staff E-Mail: Terra.Wilcoxson@greshamoregon.gov
Website: www.greshamoregon.gov/Housing-Production-Strategy

RESOLUTION NO. 3560

A RESOLUTION ADOPTING THE 2023-2029 GRESHAM HOUSING PRODUCTION STRATEGY RELATED TO 2019 OREGON HOUSE BILL 2003

The City of Gresham Finds:

A. In 2019, the Oregon Legislature passed House Bill 2003, which requires Oregon's cities with a population of over 10,000 people to study the future housing needs of their residents and to develop strategies that encourage the production of needed housing.

B. In 2021 the City of Gresham conducted a Housing Capacity Analysis, which may also be referred to as a Housing Needs Analysis.

C. The City of Gresham acknowledged and adopted the Housing Capacity Analysis as a text amendment to the Gresham Community Development Plan.

E. In 2021, the City of Gresham was awarded a grant by the Department of Land Conservation and Development to produce a Housing Production Strategy consistent with OAR 660- 008 and ORS 197.290(2).

F. The City conducted community engagement to provide input (including an advisory group, focus groups, individual interviews, open houses, and community events).

G. The City of Gresham has prepared a Housing Production Strategy, which is attached as Exhibit A and incorporated by reference.

THE CITY OF GRESHAM RESOLVES:

1. The City of Gresham hereby adopts the Gresham 2023-2029 Housing Production Strategy, which is attached as Exhibit A and incorporated by reference.

2. The Council directs staff to begin the implementation of the 2023-2029 Housing Production Strategy as described in Exhibit A and adopted by this resolution.

3. Nothing in this resolution is or shall be construed as a final decision by the Council that concerns the adoption, amendment or application of statewide planning goals, a Comprehensive Plan provision, or land use regulation.

4. This resolution is effective upon adoption.

Yes: _____

No: _____

Absent: _____

Abstain: _____

Passed by the Gresham City Council and effective on_____.

_____
Nina Vetter
City Manager

_____
Travis Stovall
Mayor

Approved as to Form:

_____
Sherisa Davis-Larry
Senior Assistant City Attorney

Gresham

Housing Production Strategy

Spring 2023

ECO NW CITY OF GRESHAM

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Acknowledgements

ECONorthwest prepared this report for the City of Gresham. ECONorthwest and the City of Gresham thank those who helped develop the Gresham Housing Production Strategy. This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

Housing Advisory Committee

- Eric Paine, Community Development Partners
- Josh Groesz, NAYA Family Center
- Katie Ullrich, Proud Ground
- Hai Nguyen, Rockwood Community Development Corporation
- Jeff Carr, Albertina Kerr (former)
- Stephen Brooks, Pilot Management Resources, LLC
- Jay Fetherston, Schnitzer Properties

Interviews

- Carly Harrison, Edlen and Co.
- Chris Nelson, Capstone Partners
- Eric Paine, Community Development Partners
- Jeff Carr, Albertina Kerr
- Jenny Jenkins, Level NW
- Katie Ullrich, Proud Ground
- Roy Kim, North Bethany
- Ryan Winterberg-Lipp, Human Solutions
- Dan Eddie, Human Solutions

Foundational Documents

This report draws its information and findings from several documents including:

- Gresham Strategic Plan 2022-2025
- Gresham's Council Work Plan (2022)
- Gresham's Housing Capacity Analysis (2021)
- Gresham's Task Force on Housing, Final Report and Recommendations (2019)
- Regional Affordable Housing Bond, Gresham Local Implementation Strategy (2019)
- Middle Housing Code Update (2022)
- Interested parties' engagement from development of the reports and plans above
- The Statewide Regional Housing Capacity Analysis (2021)

- Gresham 2021-2025 Consolidated Plan (2021)

City of Gresham

- Eric Schmidt, Assistant City Manager
- Ashley Miller, Interim Urban Design and Planning Director and Housing Services Manager
- Jim Wheeler, Development Planning Manager
- Mary Phillips, Interim Comprehensive Planning Manager
- Terra Wilcoxson, Senior Planner
- Sarale Hickson, Planner II

Thanks also to Carly Rice (Planner II), Tabitha Boschetti (Planner II), and Andrew Gong (Planner I) for their part in the community conversations during summer outreach and Jessica Harper (Community Services Manager) for help in understanding the City's homelessness services policies and practices.

Department of Land Conservation and Development

- Sean Edging, Housing Staff
- Kelly Reid, Field Representative

ECONorthwest, Consulting team

- Beth Goodman, Project Director
- Emily Picha, Senior Project Manager
- Nicole Underwood, Associate

For more information about this report, contact:

City of Gresham Contact:	**ECONorthwest Contact:**
Terra Wilcoxson, Senior Planner	Beth Goodman, Project Director
City of Gresham	ECONorthwest
503-618-2082	503-222-6060
terra.wilcoxson@greshamoregon.gov	goodman@econw.com

Executive Summary

Recognizing the need for greater City support for housing, the City of Gresham Strategic Plan for 2022-2025 includes the following goal:

> Housing for All: Everyone in Gresham can live in a secure and reliable place they call home, and no one experiences housing uncertainty. All Gresham community members can access housing that meets their changing needs and wants.

Gresham's Housing Production Strategy (HPS) builds on this goal. It is a six-year plan required by the State of Oregon that outlines initiatives and actions that combine to achieve equitable housing outcomes for all residents of Gresham. The HPS emphasizes improving outcomes for underserved communities, lower-income households, people in state and federal-protected classes, and people experiencing homelessness. The HPS considers issues of Fair Housing, which is intended to provide access to housing choice by everyone, free from discrimination. In developing the HPS, the City considered equity as both an outcome and a process.

DLCD requires that the HPS includes an analysis of unmet housing need in Gresham, actions to meet future housing need, and an evaluation of achieving fair and equitable housing outcomes. When Gresham produces its next HPS in 2029, the City will be required to summarize the efficacy of each action included in this HPS.

Housing Conditions in Gresham

As the City weighs potential strategies to encourage the development of housing affordable to community members, the City must understand the needs of its residents. Key local housing conditions and demographics that will drive the City's policies in future years include:

- **Housing produced in recent years is not meeting the needs of all Gresham residents.** Across the Portland region, developers have focused on building a limited number of housing types without public subsidies, including market-rate apartments and single-family detached housing that is affordable to people with higher incomes. The 2018 passage of the Metro Affordable Housing Bond has allowed for the production of more housing (the goal is 3900 units throughout the region) but will not be enough to meet the overall need.
- **Gresham lacks financially attainable housing**: 44% of Gresham households are cost burdened (pay more than 30% of their income for housing).
- **Compared to the Portland region, a greater share of Gresham households makes less than 80% MFI.** In 2022, 70% of Gresham households had an income of 80% or less of the median family income for Multnomah, Washington, and Clackamas counties in contrast to 55% of households in the Portland region.[1]

[1] U.S. Department of HUD, Multnomah, Washington, and Clackamas Counties, 2021. U.S. Census Bureau, 2015-2019 ACS Table 19001.

- **Many low- and middle-income households have unmet housing needs.** Gresham's residents lack options for both ownership and rental units, despite Gresham's relatively low rent levels and home sales prices.
- **The City has a large share of BIPOC households.** About 36% of Gresham's population identifies as Black, Indigenous, and People of Color (BIPOC) and/or Latinx. BIPOC households are more than twice as likely to be extremely low-income (less than 30% of MFI) and almost twice as likely to be very low-income (30-50% of MFI).
- **Future population growth will only increase the need for new housing development.** Gresham is forecast to grow by 6,229 new households between 2021 and 2041.

Building Equity into the HPS

Gresham's goal of producing equitable housing goes beyond affordability. Equitable housing comprises reasonably priced, quality homes to buy or rent that are accessible across all ages, household sizes, abilities, and incomes, and are convenient to everyday needs such as schools, childcare, grocery stores, and parks.

The City applied an equity framework to the HPS that embeds equity considerations into the HPS development process, implementation, and how the City measures the impact of its actions. In moving forward with implementation of the HPS, the City will continue to refine its understanding and engagement of underserved communities, lower-income households, and people in State and federal-protected classes.

HPS Engagement included:

- **Four focus groups** with members of the Latinx, African American, Immigrant, and Refugee communities and those living in subsidized housing.
- **Staff presence** at Juneteenth, I Heart Rockwood, and the Gresham Arts Festival
- **Eight interviews** with service providers and developers
- **Three advisory group meetings**
- **Two virtual open houses**

Meeting the Housing Needs of Gresham Residents

The HPS recognizes that the City needs to use different strategies to meet the housing needs of Gresham households. This section describes housing needs for people at different parts of the income spectrum.[2,3]

[2] Estimates are based on Gresham's current income distributions.

[3] Metro's 2050 Household Distributed Forecast shows that in 2020, the Gresham city limits had 41,195 households. The Metro forecast shows Gresham growing to 49,067 households in 2045, an average annual growth rate of 0.7% for the 25-year period. Using this growth rate, ECONorthwest extrapolated the forecast to 2021 (41,484 households). This forecast is based on Gresham city limits' official household forecast from Metro for the 2020 to 2050 period.

Housing Needs for Extremely Low-Income Households (Less than 50% MFI)

Housing Need	Households Would Benefit From:
Existing Households: 19,523 Estimated New Households: 3,037 (2021-2041)	Income-restricted affordable housing.

Housing Needs for Low-Income Households (50-80% MFI)

Housing Need	Households Would Benefit From:
Existing Households: 8,468 Estimated New Households: 1,317 (2021-2041)	Naturally occurring affordable housing, income-restricted affordable housing, rent assistance, and market-rate housing.

Housing Needs for Middle-Income Households (80-120% MFI)

Housing Need	Households Would Benefit From:
Existing Households: 7,056 Estimated New Households: 1,097 (2021-2041)	A combination of the development of rental housing and lower-cost housing for homeownership.

Housing Needs of People of Color

Housing Need	Households Would Benefit From:
15% of Gresham's population identify as non-Hispanic Black, Asian, American Indian or Alaska Natives, Native Hawaiian or Pacific Islanders, two or more races, or another race. 21% of Gresham's population identify as Latino (any race).	Black, Indigenous, and People of Color are cost burdened more frequently than the average household in Gresham and would benefit from housing that is affordable to their household and available without discrimination.

Housing Needs of People with Disabilities

Housing Need	Households Would Benefit From:
13% of Gresham's population have one or more disability, such as ambulatory, vision, hearing, cognitive, self-care, or independent living disabilities.	Specially designed housing units that are affordable to each household.

Housing Needs of People Experiencing Homelessness

Housing Need	Households Would Benefit From:
An estimated 48 households experienced unsheltered homelessness in Gresham in 2022, according to the 2022 Point-in-Time Count for Multnomah County.[4] 1,106 students in the Gresham-Barlow, Centennial, and Reynolds School Districts experienced homelessness according to the McKinney Vento, Homeless Student Data for 2019-2020.	Actions ranging from emergency assistance to housing with supportive services.

Four Housing Outcomes

The City of Gresham has identified four desired outcomes to address residents' housing needs. The HPS includes strategies that address each of these outcomes:

Outcomes	Income Range Impacted (Median Family Income[5] for a 4-Person Household)
Open Up Affordable Ownership Opportunities	Less than 120% MFI (up to $127,800)
Preserve Existing Low- and Middle-Income Affordable Housing	60%-80% MFI ($63,900 - $85,200)
Reduce Barriers to Producing Low and Middle Income Affordable Rental Housing	60%-80% MFI ($63,900 - $85,200)
Encourage Production of Publicly Subsidized Affordable Housing Units	Up to 60% MFI (under $63,900), sometimes 80% MFI (under $85,200)

Matching Actions to Funding

One of the limitations to implementing the HPS is the availability of funding. The City needs funding not only to build units, preserve affordable housing, and provide access to equitable housing, but also to fund staff time to implement the HPS. The City has direct access to funding for the development of affordable housing, such as the Metro Housing Bond, Community Development Block Grant Program (CDBG), and HOME Investment Partnership Program

[5] Based on 2022 Median Family Income that is defined by the U.S. Department of Housing and Urban Services (HUD) for Multnomah County.

(HOME) funding. However, it is limited or one-time funding. Identifying a set of realistic funding sources is necessary for achieving the vision of housing choice for all in Gresham. The City of Gresham has a lower tax rate than most jurisdictions in the Portland region and is facing financial challenges. Using just the funding from existing resources will have less impact than also adding new funding resources, such as future TIF District(s) and/or a Construction Excise Tax (CET).

Barring additional funding, many of the actions identified in the HPS can only be implemented within an existing or potential TIF District. Therefore, the City has organized the actions in the HPS as follows:

- Actions to be implemented within the existing and potential new TIF districts
- Actions for evaluation exclusively within potential new TIF district(s)
- City-wide action

Housing Actions

The suite of actions below comprises Gresham's Housing Production Strategy for 2023-2029. Based on the project team's evaluation, these actions would increase fair and equitable housing choices. Implemented together and with adequate funding, the actions will achieve more equitable housing outcomes for all residents.

Gresham's Housing Production Strategy Actions (2023-2029)
Within Existing and Potential New TIF District(s)
Explore provision of grants/loans for new development
Explore rehabilitation grants to low-cost, market rate rental property owners in exchange for affordability agreements
Explore partnerships to acquire and stabilize existing low-cost market rate housing
Explore funding and partnerships for housing-related infrastructure development
Exclusively Within Potential New TIF District(s)
Explore land banking, parcel assembly, and public land disposition efforts
City-Wide
Explore and reduce barriers for affordable homeownership models
Reduce zoning barriers for housing development, with a focus on multifamily and townhouse development
Streamline permitting processes for all housing types, with a focus on barriers to townhouse and multifamily housing
Implement a rent assistance pilot program for individuals experiencing homelessness and explore partnerships to address and prevent homelessness
Extend/expand the City's tax abatement agreement with Home Forward

Gresham's Housing Production Strategy Actions (2023-2029)
Explore a reduction and/or waiver of System Development Charges for certain needed housing types
Evaluate the Multiple Unit Property Tax Exemption
Evaluate the Nonprofit Corporate Low-Income Tax Exemption
Explore a Gresham-specific Construction Excise Tax

Monitoring and Reporting

The City will follow DLCD's requirements for monitoring and reporting. The City will review progress annually and create an implementation progress report every three years. Since many of the actions in the HPS entail additional study, the City may include goal setting and evaluation as metrics to track. Then, if the City moves forward with implementation, the City will measure outcomes.

1. Introduction

Housing affordability is a key issue in Gresham and the City has many efforts underway to address housing needs. Most recently, the City made housing a priority in the 2022-2025 Gresham Strategic Plan, completed a Housing Capacity Analysis (HCA) in 2021, and updated its Consolidated Plan for the 2021-2025 period. The City has made progress but there is still work to be done to ensure that Gresham's existing and future housing needs are met.

The Gresham Strategic Plan 2022-2025 includes the following goal:

> Housing for All: Everyone in Gresham can live in a secure and reliable place they call home, and no one experiences housing uncertainty. All Gresham community members can access housing that meets their changing needs and wants.

Gresham's Housing Production Strategy (HPS) is one of the ways Gresham plans to implement this goal. It includes initiatives and strategic actions that combine to achieve equitable housing outcomes for all residents of Gresham, with an emphasis on improving outcomes for underserved communities, lower-income households, and people in state and federal-protected classes. The HPS is also based in Fair Housing, which is intended to provide access to housing choice by everyone, free from discrimination.

The City received a grant from the Department of Land Conservation and Development (DLCD) in 2021 to produce the HPS in accordance with State of Oregon requirements. This HPS is a six-year strategy running through 2029. It provides information about Gresham's housing needs, using the recently completed Housing Capacity Analysis (HCA) as its foundation. It provides an understanding of the unmet housing needs (in Chapter 1), before solutions are proposed (in Chapter 2).

Requirements of the Housing Production Strategy

DLCD requires that the HPS includes the following information.[6] It is noted where this information is included in this report:

- **Unmet Housing Need in Gresham** (Chapter 1, Appendix A, Appendix B, and Appendix C) covers the socio-economic and demographic trends of households in Gresham, the existing policies the City has adopted to meet housing needs, and a summary of engagement the City has had with interested parties about housing needs (especially with Gresham residents in underrepresented groups).

[6] Oregon Administrative Rule (OAR) 660-008 describes the requirements of a HPS in sections 660-008-0050 through 660-008-0070.

- **Actions to Meet Future Housing Need** (Chapter 2 and Appendix D) identifies specific actions, measures, and policies needed to address housing needs identified in Gresham's HCA.
- **Achieving Fair and Equitable Housing Outcomes** (Chapter 3 and Appendix E) evaluates the entire list of strategies to achieve equitable outcomes. The valuation considers factors such as location of housing, Affirmatively Furthering Fair Housing, facilitating housing choice, identifying housing options for residents experiencing homelessness, supporting development of affordable housing, and increasing housing stability.

The City must submit the HPS to DLCD after its adoption by the City Council. Then, the City must monitor progress on implementation of the HPS and the production of housing related to the initiatives and actions in this report (Chapter 3 and Appendix E). Linking housing development directly to implementation of the actions in this report may be challenging and difficult to quantify, but City staff will be able to report changes in building activity that occur before and after implementation of specific actions and will provide qualitative feedback on implementation of actions.

Gresham must submit a report to DLCD three years after the City adopts the HPS, as required. If the City is unable to or chooses not to implement an action within 90 days of the timeline proposed in the HPS, the City must notify DLCD about the action(s) that the City is taking to address this issue. The City may propose an alternative schedule for implementing the action or may identify a different action (or actions) to meet the specific housing need addressed by this action.

Building Equity into the HPS

Gresham's goal of producing equitable housing goes beyond affordability. Equitable housing comprises reasonably priced, quality homes to buy or rent that are accessible across all ages, household sizes, abilities, and incomes and that are convenient to everyday needs such as schools, childcare, grocery stores, and parks. In pursuing equitable housing, Gresham seeks to reduce cost burden and increase access to homeownership, especially for low-income households and vulnerable groups such as seniors, workers with low pay, people with disabilities, and communities of color.

In developing the HPS, the team considered equity as both an outcome and a process. Exhibit 1 provides an equity framework that embeds equity considerations into the HPS process, implementation, and measurement of impact. The actions in the HPS are intended to increase equitable housing outcomes.

Exhibit 1. Gresham Housing Production Strategy Equity Framework

Equity as a process	Equity as an outcome
• The City seeks to understand, question, and disrupt historical and contemporary inequitable systems and structures. • From there, the City will create policies that are based on equitable opportunity and resources. The City will ensure that those most impacted by policies and practices are meaningfully involved in their creation and implementation. • Creating equitable processes will help ensure that diverse and underrepresented communities (including vulnerable and low-income communities) can influence and inform policies and programs.	• Race or other markers of social identity no longer predict one's life outcomes (for instance in health, socioeconomic advantages, educational access, life expectancy, etc.). • Achieving equity remains a challenge because our economic systems were, sometimes unintentionally, designed and built to maintain inequality—and they continue to do so.

Interested Parties Involvement in the HPS

The outreach process for developing the HPS was collaborative. It included housing developers, housing service providers, consumers of needed housing, and individuals belonging to historically underserved communities. The team consulted community members in focus groups, virtual open houses, and in person at community events to learn about their priorities, needs, and challenges related to housing. Gresham City Council, Planning Commission, and the Coalition of Gresham Neighborhood Associations were consulted on the development of this plan.

Takeaways from Gresham residents that attended outreach activities are outlined below and details of the public involvement activities are included in Appendix A:

- Cost is the most important factor when looking for housing and it is the number one barrier to attaining housing appropriate for a household's needs.
- Different communities experience different barriers to housing: some people face language challenges, some find down payment or credit score requirements a challenge, and others have difficulty finding housing with enough bedrooms.
- Different communities have different priorities for housing location: while parks and open spaces are important to some people, others care about being close to family or grocery stores.
- Not all landlords know about fair housing laws and some people stated that they face discrimination in housing.

- The city lacks appropriately sized units, particularly small ownership, or family-sized rental units.
- There is a lack of units accessible to people in disability communities.
- Residents support encouraging neighborhoods with a mix of incomes, places to live, work, and play, and a greater variety of housing types in neighborhoods.
- Lack of privacy can be a challenge in rental units (particularly in subsidized housing).
- Some people want or need assistance in finding housing and with the process of applying for or purchasing it.
- Low-quality construction leading to noise and lack of maintenance is a challenge.
- Some neighborhoods lack diversity and therefore are missing some culturally relevant services and activities.
- Community members want the City to be part of the housing conversation and to help connect people looking for housing with providers, advocates, and non-profits.

Key Terms in the HPS

A common understanding of the variety of terms used in this HPS is important for interpretation.

The following key terms and definitions are used herein and will be incorporated into the Definitions section of OAR 660-008 (if they are not already), per the Department of Land Conservation and Development:

- **Consumers of Needed Housing:** Any person who inhabits or is anticipated to inhabit Needed Housing, as described in the definition of "Needed Housing" in ORS 197.303.
- **Housing Production Strategy Report:** The report cities must adopt within one year of their deadline to complete an updated Housing Capacity Analysis, pursuant to OAR 660-008-0050.
- **Housing Production Strategy:** A specific tool, action, policy, or measure a city will implement to meet the housing needs described in an adopted Housing Capacity Analysis. A Housing Production Strategy is one component of a Housing Production Strategy Report.
- **Needed Housing:** Housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels, including (but not limited to) renter and owner-occupied attached and detached single-family housing, multifamily housing, and manufactured homes.
- **Producers of Needed Housing:** Developers, builders, service providers, or other persons or entities providing materials and funding needed to build housing. Producers of Needed Housing may include non-profit organizations or public entities.

- **Unmet Housing Needed:** Occurs when housing need determined is greater than the housing capacity (i.e., buildable, residential land is insufficient to accommodate demand for housing).

In addition, the terms and definitions below use throughout this report:

- **Cost Burdened:** A household is defined as cost burdened if their housing costs exceed 30% of their gross income.
- **Displacement:** The process of groups or individuals moving out of a neighborhood for economic reasons.
- **Gentrification:** A process of neighborhood change that includes economic change in a historically disinvested neighborhood, by means of real estate investment and new higher-income residents moving in as well as demographic change, not only in terms of income level, but also in terms of changes in the education level or racial make-up of residents.
- **Federally Protected Classes:** Are race, color, national origin, religion, gender, familial status, and disability. Oregon's additional protected classes are marital status, source of income, sexual orientation and gender identity, and status as a domestic violence survivor. Under Fair Housing laws, it is illegal to deny access to housing based on the characteristics of people within these protected classes.
- **Median Family Income (MFI): T**hroughout this report, housing affordability is based on 2022 Median Family Income that is defined by the U.S. Department of Housing and Urban Services (HUD) for Multnomah County for a family of four people ($106,500). The terms used to describe housing affordability by income group are:
    - Extremely Low-Income: Less than 30% MFI or $31,500 or less for a family of four
    - Very Low-Income: 30% to 50% of MFI or $31,500 to $53,250 for a family of four
    - Low-Income: 50% to 80% of MFI or $53,250 to $85,200 for a family of four
    - Middle-Income: 80% to 120% of MFI or $85,200 to $127,800 for a family of four
    - High-Income: 120% of MFI or more $127,800 or more for a family of four
- **Naturally Occurring Affordable Housing:** Naturally occurring affordable housing is housing that is not regulated but is currently affordable to lower income households, often because of its location and condition.
- **Severely Cost Burdened:** A household is defined as severely cost-burdened if its housing costs exceed 50% or more of its gross income.

The data used in this plan comes from a variety of sources, which are dated and referenced. Housing costs and income are very sensitive to changes in the economy and can change quickly over a short period of time. The body of this report generally uses the most up-to-date information about Median Family Income, Housing Sale Prices, and Homelessness. Most data in the appendices use the most up-to-date information that was available at the beginning of the project when the analysis was performed. The rent estimates provided in this report are from:

- **Average Multifamily Asking Rent**, from CoStar at $1,430 per unit. This is the estimate of rent used most frequently because it represents the best available data about rent when the project started.
- **Median Gross Rent**, from the 2015-2019 American Community Survey of $1,178. This estimate of rent was cited in the Housing Capacity Analysis and is included here to illustrate how rents vary across cities within the Portland region.
- **Multnomah County Fair Market Rent** for 2022, from the U.S. Department of Housing and Urban Services of $1,467. This is a standard source of information about rents for a region.

2. Unmet Housing Need in Gresham

The HPS connects unmet housing needs with strategies to address those needs. The City already understands the housing needs of current and future residents of Gresham based on certain demographic and socioeconomic characteristics, such as age and income, from the 2021 Gresham Housing Capacity Analysis (HCA).[7] However, as the City weighed potential strategies to encourage affordable housing, the City sought to develop a deeper understanding of the needs that are specific to Gresham residents. Therefore, this chapter summarizes key information from the HCA and describes additional detailed data about housing needs for other demographic characteristics, such as race, ethnicity, disability status, or housing status (which were not included in the HCA).[8]

Housing Needs Addressed by the Housing Production Strategy[9]

Across the Portland region, developers have been able to build some types of housing without need for public intervention, for example, single-family detached housing that is affordable to people with higher incomes. However, the market has been unable to keep up with the needs for housing affordable to low- and middle-income households. Housing at this part of the income spectrum, and housing that meets the special needs of specific groups, usually requires public intervention and is the focus of the strategies in the HPS.

Gresham has a larger proportion of low-income (less than 80% MFI) households than the Portland region.

Gresham has a higher proportion of extremely low-, very low-, and low-income households than the average for the Portland Region, as shown in Exhibit. Almost half of Gresham's households had incomes of less than 50% of the Median Family Income (MFI) ($53,250)[10] as shown in Exhibit 3. The median rent in Gresham is lower than most surrounding cities and Multnomah County's median gross rent (see Appendix A, Exhibit 47), yet these households

[7] The HCA was produced in June 2021 and adopted into Gresham Community Development Plan as Volume 1, Section 4.800 2021-2041 Housing Capacity Analysis, and Volume 2, Section 10.600 Housing.

[8] This chapter uses standard sources of information from the U.S. Census. It adds information from other sources, such as Oregon's Housing and Community Services Department, the United States Department of Housing and Urban Development, Redfin, Costar, and the City of Gresham. The detailed data underlying the summary information presented in this chapter is in Appendix A.

[9] This section describes Gresham's housing needs based on analysis from the Gresham Housing Capacity Analysis report (June 2021), household income shown in Exhibit 2 and on additional analysis of unmet housing needs for underserved groups (based on analysis in Appendix A).

[10] Throughout this report, housing affordability is discussed based on 2022 Median Family Income (MFI) that is defined by the U.S. Department of Housing and Urban Services (HUD) for Multnomah County for a family of four people ($106,500).

cannot afford a two-bedroom apartment at Multnomah County's Fair Market Rent (FMR) of $1,467 in 2022.

Exhibit 2. Share of Households by Median Family Income (MFI) for Multnomah, Washington, and Clackamas Counties ($106,500), Gresham, 2022

Source: U.S. Department of HUD, Multnomah, Washington, and Clackamas Counties, 2021. U.S. Census Bureau, 2015-2019 ACS Table 19001.

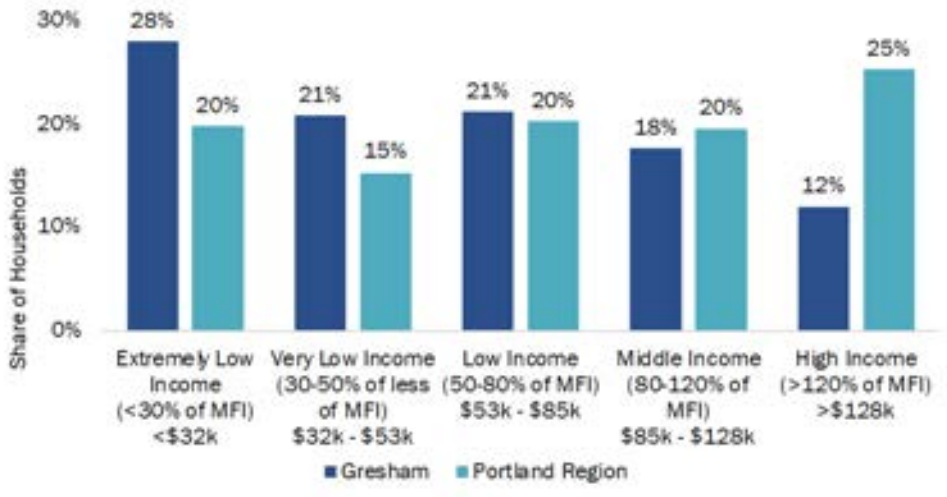


Exhibit 3. Share of Households by Median Family Income (MFI) for Multnomah County ($106,500), Gresham, 2022

Source: U.S. Department of HUD, Multnomah County, 2022. U.S. Census Bureau, 2015-2019 ACS Table 19001.

Median Family Income varies by household size.

The actual income thresholds vary in MFI based on household size. For example, a one-person household with an income of 80% of MFI ($59,680) makes much less than a household of four ($85,200) or a household of six ($98,880). This is shown in Exhibit 4. The housing needs for a single person are also different than those of a household of four people or six people. Throughout the HPS, the income for a household of four is used to illustrate housing needs.

For reference, the median gross rent in Gresham was $1,178 in the 2015-2019 ACS 5-year estimate period (Exhibit 47) and Multnomah County's Fair Market Rent was $1,467 in 2022.

Exhibit 4. Median Family Income and Housing Affordability by Household Size, Multnomah County, 2022

Source: Analysis by ECONorthwest; U.S. Department of HUD, Multnomah County, 2022

	30% MFI	60% MFI	80% MFI	100% MFI	120% MFI
1-person					
Annual Income	$ 22,380	$ 44,760	$ 59,680	$ 74,550	$ 89,460
Affordable Monthly Housing Cost	$ 560	$ 1,119	$ 1,492	$ 1,864	$ 2,237
2-people					
Annual Income	$ 25,560	$ 51,120	$ 68,160	$ 85,200	$ 102,240
Affordable Monthly Housing Cost	$ 639	$ 1,278	$ 1,704	$ 2,130	$ 2,556
4-people					
Annual Income	$ 31,950	$ 63,900	$ 85,200	$ 106,500	$ 127,800
Affordable Monthly Housing Cost	$ 799	$ 1,598	$ 2,130	$ 2,663	$ 3,195
6-people					
Annual Income	$ 37,080	$ 74,160	$ 98,880	$ 123,540	$ 148,248
Affordable Monthly Housing Cost	$ 927	$ 1,854	$ 2,472	$ 3,089	$ 3,706

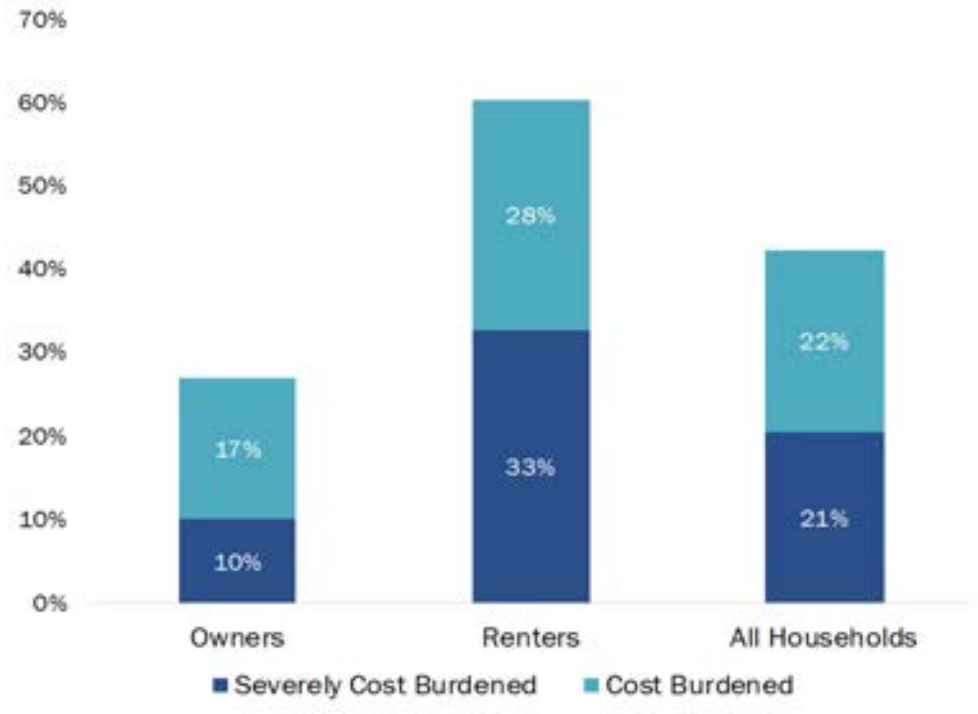
Many households in Gresham pay more than 30% of their income for housing.

The local housing market cannot produce income-restricted, subsidized affordable housing at sufficient levels, and it cannot often produce middle-income housing without subsidy, therefore, nearly half (44%) of households in Gresham are cost burdened (as shown in Exhibit 5 below, and Exhibit 50 through Exhibit 57 in Appendix A). About 61% of Gresham's renters were cost burdened or severely cost burdened, compared to 27% of homeowners.

A household is defined as cost-burdened if their housing costs exceed 30% of their gross income. A household that spends 50% or more of their gross income on housing costs is said to be severely cost-burdened.

Exhibit 5. Housing Cost Burden by Tenure, Gresham, 2015-2019

Source: U.S. Census Bureau, 2015-2019 ACS Tables B25091 and B25070.



Another way to understand the need for affordable housing is through the federal poverty rate. According to Census data, 15% of Gresham's population had income below the poverty level in 2021, compared with 22% of Gresham's population in 2014. The change in poverty rates is consistent with changes in Multnomah County, where the percent of population below the poverty line decreased from 19% in 2014 to 13% in 2021. The change in poverty rates is, at least partially, reflective of changes in the overall economy of the state and nation.[11]

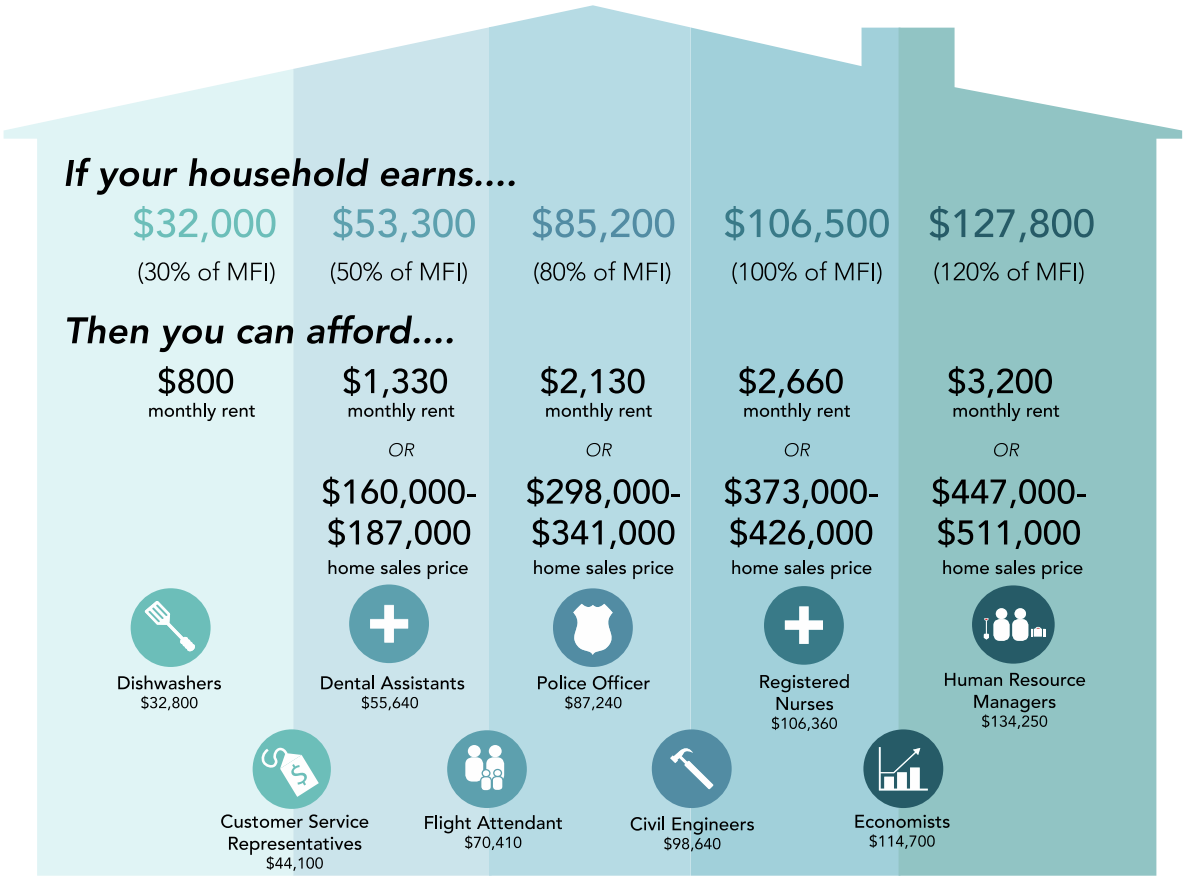
Low-income households have few options for either homeownership or rental units.

Even though Gresham is one of the more affordable communities within the Portland region, housing costs for both rental and ownership units are higher than many residents can afford. Exhibit 6 shows financially attainable housing costs for households across the income spectrum in Multnomah County.

[11] Based on information from the 2009-2014 American Community Survey and 2017-2021 American Community Survey from the U.S. Census.

Exhibit 6. Financially Attainable Housing, by Median Family Income (MFI) for Multnomah County ($106,500), Gresham, 2022

Source: U.S. Department of Housing and Urban Development, Multnomah, 2022. Oregon Employment Department.
Note: The estimates of affordable home sales prices below are rough estimates. The affordable home sales prices will vary for each borrowing household, based on interest rates, loan term, down payment, and similar factors. These sales prices are illustrative estimates and do not make assumptions about interest rates, amount of down payment, whether mortgage insurance will be required, or other factors that are unique to an individual household's mortgage.



In Gresham, a family of four must make 107% of MFI ($114,000) to afford the median sales price of a home ($456,000) and 54% of MFI ($57,000) to afford Gresham's median apartment rent ($1,430 per month).

Gresham is forecast to grow by 6,229 new housing units between 2021 and 2041.

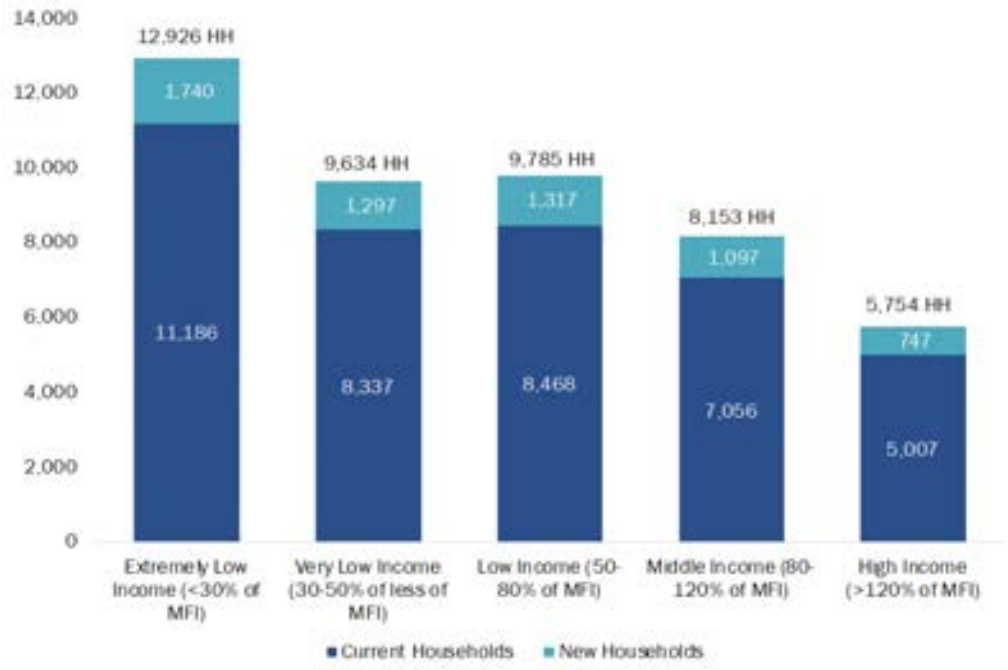
These housing units will need to be available at a variety of income levels.

Exhibit 7 shows Gresham's current and estimated future households by income.[14] While the HPS does not anticipate building new units for all existing households with unmet housing need, the new development and other policies that stabilize housing affordability are likely to benefit existing households with unmet need, as well as new households.

Nearly half of new housing units will need to be for those with very low or extremely low-incomes (below 50% MFI).[12] [13]

Exhibit 7. Gresham's Current and Estimated Future Households by Income, 2021 to 2041

Source: U.S. Census Bureau, 2015-2019 ACS 5-year estimate, Table B19001, U.S. Department of HUD 2022 MFI, and Metro's *2050 Household Distributed Forecast*, 2021 to 2041 as found in Gresham's Housing Capacity Analysis. Note: Median Family Income (MFI) is estimated for a family of 4.



Housing Needs for Various Income Levels

The purpose of the HPS is to identify actions that will benefit Gresham's households with the most significant unmet needs. Exhibit 8 describes the most significant unmet housing needs by

[12] Given the fact that incomes have grown at a relatively slow pace over the last two decades in comparison to housing costs (especially home sales prices) this may be a conservative assumption about the future affordability of housing.

[13] Assuming future Gresham residents have an income distribution that is the same as existing residents. The HPS does not anticipate building new units for all existing households in Gresham that have problems affording housing costs. But the HPS does propose actions to stabilize the housing costs of existing lower income households and may result in development of housing that is more affordable to these households, enabling them to stay in Gresham. Information about lower income households and cost burden for existing households illustrates the existing housing need in Gresham.

[14] Gresham's current housing income levels were used to estimate future household income levels.

income level (extremely low-income, low-income, and middle-income). For each income level, the table includes the number of existing households in Gresham, the number of new households estimated or 2021-2041, affordable monthly rent, and generally what is needed to meet the housing need.

Exhibit 8. Housing Needs by Income Level

Income level	Existing households	Estimated new households (2021-2041)	What can they afford? *Rents (including basic utility costs)*	How to meet the need?
Extremely Low-Income (less than 50% MFI)	19,523	3,037	Rents up to $1,330 per month. *A household would need to earn $57,000 to afford average multifamily rent of $1,430 (about 54% of MFI for a family of four).*	• Preserve existing income-restricted housing • Develop new income-restricted affordable housing; this typically requires extensive subsidy, with funding from state and federal sources, in addition to any support from the City and other partners
Low-Income (50%-80% MFI)	8,468	1,317	Rents between $1,330 to $2,130 per month. *Households with this income range are likely to live in rental housing predominantly.*	• Preserve existing "naturally occurring affordable housing" • Develop new income-restricted housing • Develop new market-rate housing • Provide rent assistance, such as a Housing Choice Voucher • Provide homeownership opportunities related to housing developed by nonprofit organizations (possibly with subsidy, such as through a community land trust). • Provide down payment assistance
Middle-Income (80%-120% MFI)	7,056	1,097	Rents between $2,130 to $3,200 per month. *Households within this income range can afford rents higher than the average multifamily rent ($1,430). Some households can afford the median home sales price in Gresham ($456,000). Households with incomes in the lower part of this income range may need assistance in attaining homeownership.*	• Develop rental housing • Develop lower-cost housing for homeownership. • Provide down payment assistance, or housing developed by nonprofit organizations (possibly with some subsidy, such as land banking or a community land trust).

Housing Needs for Underserved Households: Addressing Equitable Access

As the City applied the HPS Equity Framework, it considered issues of Fair housing and equitable access to housing options. Part of this process has been and will continue to be iterative, a continual refining of the City's understanding and engagement of underserved communities, lower-income households, and people in state and federal-protected classes. This

will be critical to creating policies that are based on equitable opportunity and resources.

Housing Needs of People of Color

Understanding the race and ethnicity characteristics[15] in Gresham is important for understanding housing needs because Black, Indigenous, and People of Color often face discrimination when looking for housing. In addition, comparing household income for Black, Indigenous, and People of Color (BIPOC) households with White non-Hispanic households to shows disparities in income levels, as shown in Exhibit 9 and Appendix A, Exhibits 17-19.

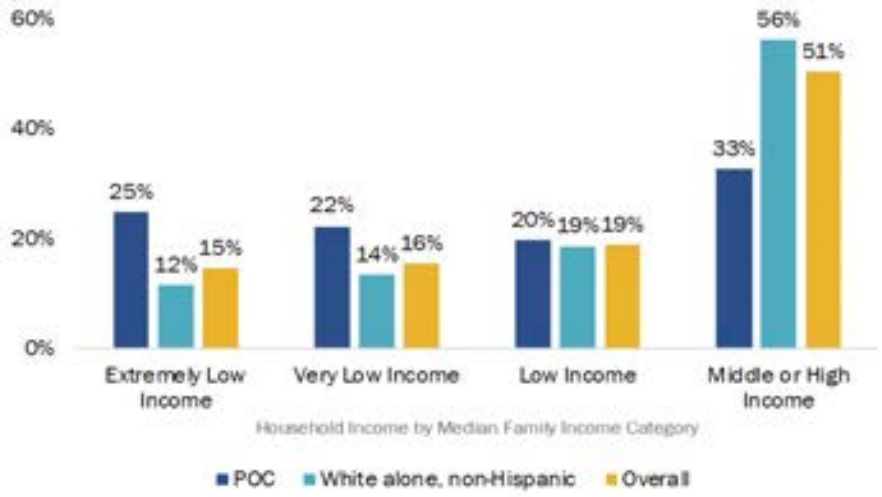
About 33% of BIPOC households were middle- or high-income compared to 56% of White, non-Hispanic households.

Extremely or very low-income households were more likely to be BIPOC.

Exhibit 9. Household Income by BIPOC, White non-Hispanic, and All Households, Gresham, 2014-2018

Source: CHAS, Table 2.

Note: BIPOC includes Hispanic/Latinx households



About **15% of Gresham's population** identify as non-Hispanic Black, Asian, American Indian or Alaska Natives, Native Hawaiian or Pacific Islanders, two or more races, or another race. About 21% of Gresham's population identify as Latino (any race). Black, Latino, American Indian or Alaska Natives, and Native Hawaiian or Pacific Islanders are more likely to rent their homes and to live in multifamily housing than the overall average in Gresham. Black, Indigenous, and People of Color are cost burdened more frequently than the average household in Gresham.[16] 55% of BIPOC households were cost burdened or severely cost burdened compared to 38% of White households and 31% of BIPOC households were severely cost burdened compared to 17% of White households. Addressing the affordability issues, discussed above, as well as ensuring that Black, Indigenous, and People of Color have access to housing without

[15] The U.S. Census Bureau considers race and ethnicity as two distinct concepts. Latino is an ethnicity and not a race, meaning individuals who identify as Latino may be of any race. BIPOC as used in this report does not include individuals who identify as white and Hispanic/Latinx.

[16] Black, Indigenous and People of Color includes Black, Latino, American Indian or Alaska Native, Asian, Native Hawaiian and Pacific Islanders, and people of another or multiple races. These categories were combined due to limited data availability.

discrimination. This will require increasing awareness of Fair Housing rules for property owners and managers, tenants, City decision makers, and City staff. It will also require careful decision making to change policies that have created barriers to accessing housing for Black, Indigenous, and People of Color.

Housing Need of People with Disabilities

The Census reports that about **13% of Gresham's population** have one or more disabilities, such as ambulatory, vision, hearing, cognitive, self-care, or independent living disabilities. Appendix A, Exhibit 20 has more details about this population group in Gresham.

Disabilities include those that are visible, such as ambulatory or vision disabilities, and those that are not readily apparent, such as self-care, independent living, or cognitive disabilities. Other conditions may require special accommodation, such as disabling diseases or mental health conditions.

Addressing the affordability issues discussed above, as well as ensuring that people with disabilities have access to housing that addresses their disability and that they have access to housing without discrimination. This will require increasing awareness of Fair Housing rules for property owners and managers, tenants, City decision makers, and City staff. It will also require approaches that encourage development of housing with specialized design standards to accommodate special needs.

Housing Need of People Experiencing Homelessness

There were approximately **48 households** experiencing unsheltered homelessness in Gresham in 2022.[17] In addition**, 1,106 students** in the Gresham-Barlow, Centennial, and Reynolds School Districts experienced homelessness according to the McKinney Vento, Homeless Student Data. 2019-2020. . The number of people experiencing unsheltered homelessness in Multnomah County was 5,228 in 2022. [18] These numbers may be underestimated, especially because people experiencing homelessness may move between cities in the Portland region. Appendix A, Exhibits 41-44 have more details about this population group in Gresham.

Strategies will range from emergency assistance (including rent and utility assistance), permanent supportive housing (including supportive housing with services), and improved access to affordable units.

[17] 2022 Point-In-Time Count, Count of people experiencing HUD homelessness in Portland/Gresham/Multnomah County, Oregon on January 26, 2022, Joint Office of Homeless Services.

[18] This is the total count of people experiencing homelessness, sheltered, in transitional housing, and unsheltered. It includes those who are experiencing chronic homelessness as well as those experiencing temporary homelessness.

Development of Needed Housing: Opportunities and Barriers

Supporting the development of needed housing is a complex and challenging task. The City of Gresham faces challenges that can be placed into eight broad categories. In order to inform the efficacy of potential strategies, the City has identified barriers and opportunities presented by each challenge.

Exhibit 10. Summary of Gresham's Challenges to the Development of Needed Housing

Challenges	Barriers include…	Opportunities: The City can…
Development Standards. Existing development regulations limit higher-density multifamily housing	Standards (such as open space, landscaping, ground floor uses, building height, and maximum densities), which constrict developers' abilities to provide needed housing at affordable rents; parking minimums that have historically been viewed by developers as a barrier (these standards are changing in response to Climate Friendly and Equitable Communities rulemaking.)	Remove complex or restrictive zoning and make housing, multifamily housing development less difficult, and less costly.
		Identify locations appropriate for increased density and amend the development code can increase financial feasibility of building new multifamily housing in targeted locations.
	Numerous residential and mixed-use zones. The quantity of different zones adds to development complexity.	Evaluate the quantity and complexity of zones that permit residential uses, and potentially consolidating zones or standards can ease developer confusion, time, and cost.
Few Opportunity Sites. Few opportunity sites exist for development of regulated, income-restricted affordable housing in high-opportunity locations.	Developers face challenges finding sites that are affordable, allow multi-unit development, and are in an appropriate location.	Review zoning in specific locations with transportation options and service to ensure appropriate development is allowed.
		Explore the use of TIF Districts to allow the City to engage in land banking. The City can seek to secure land in high opportunity areas, such as those with access to transit, near services (both social services and other services), and near jobs (or with easy access to transit).
	There are concerns that as Climate Friendly and Equitable Communities requirements take place, the removal of required parking minimums may be offset by increased land prices near MAX stations.	Review site and building design standards in conjunction with the changes needed to meet Climate and Equitable Communities requirements to increase financial feasibility in areas with transportation options and services.

Challenges	Barriers include…	Opportunities: The City can…
Development and Redevelopment Risk. Development of key infill and redevelopment opportunity sites in Gresham's centers may be too complex and risky for many developers.	Only some developers will be willing to take on the risk of redeveloping key opportunity sites, given the cost and challenges with redevelopment.	Continue to proactively engage and partner with owners and the development community to provide technical assistance for key opportunity sites for redevelopment to foster community-responsive development. Sites include the Rockwood Triangle, Downtown (Gresham Town Fair, Hogan/Burnside, and Beech Street), and in the Civic Neighborhood District (K-Mart site and properties near the MAX station).
		The City can be mindful of these barriers when taking actions under the State's Climate Friendly and Equitable Communities requirements and changing how these projects can develop.
		Explore expanded/new TIF Districts to allow the City to partner in redevelopment of these areas.
Infrastructure Needs. A portion of Gresham's residential capacity is in Pleasant Valley and Springwater, which have significant infrastructure needs.	The costs of development of this new infrastructure will be considerable.	Review the mechanisms for furthering infrastructure development in Pleasant Valley, and Springwater to accommodate the potential demand for housing in these areas.
		Evaluate the housing component of Pleasant Valley and Springwater's zoning in upcoming planning projects to ensure compatibility with the City's goals and site constraints.
Limited Resources for Development. Limited funding and resources are available to support development of: • income-restricted affordable housing (for incomes below 60% of MFI), and • new housing affordable to middle income households (60% to 120% of MFI).	An increasing need to secure federal, state, and local subsidies to cover the costs of development and operations with restricted rents.	Support housing for these income ranges through direct funding (i.e., monetary contributions for housing), contributions of land, and cost reductions (e.g., tax abatements or waiving fees), when funding and resources are available.
	No continuous, large, locally controlled, dedicated funding sources to develop subsidized affordable housing.	
	Federal and state funding is harder to access for building housing affordable to the 60%-120% MFI income ranges.	Focus on removing zoning barriers and ensuring that infrastructure is available to support housing development.
Limited Staff Capacity. Implementing the actions in the HPS will take considerable City staff capacity.	Limited staff capacity to work on the items in the HPS may slow or halt implementation of the HPS and the development of needed housing.	Designate a portion of one or more staff member's job to implement the HPS to help ensure that actions occur within the required timelines.

Challenges	Barriers include…	Opportunities: The City can…
Local Context. Lack of awareness of housing needs and the community benefits of affordable housing could lead to insufficient support for housing programs and affordable housing development.	Community concern and resistance may hinder the development of affordable housing and limit the City's ability to support housing programs.	Increase community engagement to help the City to understand and gain support for the development of affordable housing. Developers and city staff will need to reach out to neighborhood groups and other stakeholders to gain support for development by providing information about newer housing types and discussing how different housing types can fit into existing neighborhoods.
		Staff should highlight the benefits of diverse housing types including lower climate impacts, preservation of green space, attainability of housing for people who grew up in the community or who are ready to downsize and promoting energy efficiency.
Local Income Levels. Many households in Gresham cannot afford the high cost of new market-rate, multifamily development.	Nearly half of Gresham residents had incomes less than the 50% of MFI for Multnomah County; the lower income in Gresham makes it difficult for many residents to afford market rents.	Create incentives; financial and other support, to help offset high construction costs and lower incomes in Gresham so that developers are able to build multi-unit housing that is both financially feasible for the developer and affordable to average households in Gresham.
	Developers often cannot afford to build market-rate multi-unit rental housing that is affordable to households in Gresham.	

3. Strategies to Meet Future Housing Need

The City of Gresham has identified four outcomes to address its housing needs. Each is associated with potential city-led actions, funding sources, and potential partnerships with other entities that help to achieve an overarching goal by bundling strategies and funding sources. The City acknowledges that several strategies and partnerships are necessary to achieve the City's housing goals.

HPS Outcomes

- Encourage Production of Publicly Subsidized Affordable Housing Units
- Reduce Barriers to Producing Low- and Moderate-Income Affordable Rental Housing
- Open Up Opportunities for Affordable Homeownership
- Preserve Existing Low- and Moderate-Income Affordable Housing

The City will lead and implement each action with the support of its partners. The actions arose as the best opportunities for responding to immediate needs while also establishing a framework for the City to continue its work for the long term.

What actions will the City pursue by 2029?

After evaluating potential actions for inclusion in the HPS, within each initiative, the project team identified actions to include in the HPS. Based on the project team's evaluation, the strategies presented in the HPS would increase fair and equitable housing choices. Using just the funding from existing resources to implement strategies will have less impact than also adding in new funding resources such as a future TIF District(s) and/or a Construction Excise Tax (CET). The table below shows the actions organized by:

1. Actions to be implemented within the existing TIF District
2. Actions for evaluation within potential new TIF District(s)
3. City-wide strategies

These actions, along with the tenure and income level they serve and the potential scale of impact on housing development, are included in Exhibit 11. Exhibit 11 includes exploring three tools that would result in a loss of revenue for the City: a targeted reduction/waiver of Systems Development Charges, the Multiple Unit Property Tax Exemption, and the Nonprofit Corporation Low-Income Tax Exemption (actions 3F, 3G and 3H). Therefore, pursuing any of these three actions would require implementing a CET to backfill the City's foregone revenue. The City will explore balancing these strategies with a potential future CET (action 3I). For more details about the evaluation criteria for all the actions on Exhibit 11, see Appendices D and E.

DRAFT

Exhibit 11. Housing Production Actions

	Action	Anticipated Impacts			
		Tenure		% MFI Targeted	Magnitude of New Units Produced
1	**Within Existing TIF District**				
1A	Explore provision of grants and loans for new development	Own	Rent	0 60 80 120	•••
1B	Explore rehab grants to low-cost market-rate property owners in exchange for affordability agreements	N/A	Rent	0 60 80 120	••
1C	Explore partnerships to acquire and stabilize existing low-cost market rate housing	N/A	Rent	0 60 80 120	••
1D	Explore funding and partnerships for housing-related infrastructure development	Own	Rent	0 60 80 120	•••
2	**Within Potential New TIF District(s)**				
2A	Explore provision of grants and loans for new development	Own	Rent	0 60 80 120	•••
2B	Explore rehab grants to low-cost market-rate property owners in exchange for affordability agreements	N/A	Rent	0 60 80 120	••
2C	Explore partnerships to acquire and stabilize existing low-cost market rate housing	N/A	Rent	0 60 80 120	••
2D	Explore funding and partnerships for housing-related infrastructure development	Own	Rent	0 60 80 120	•••
2E	Explore land banking, parcel assembly, and public land disposition	Own	Rent	0 60 80 20	•••
3	**City-Wide**				
3A	Explore and reduce barriers for affordable homeownership models	Own	N/A	0 60 80 120	••
3B	Reduce zoning barriers for housing development, with a focus on multifamily and townhome development	Own	Rent	0 60 80 120	•
3C	Streamline permitting processes for all housing types, with a focus on barriers to townhouses and multifamily housing	Own	Rent	0 60 80 120	•
3D	Implement Rent Assistance Pilot Program and explore partnerships to address and prevent homelessness	N/A	Rent	0 60 80 120	••
3E	Extension/expansion of tax abatement agreement with Home Forward	N/A	Rent	0 60 80 120	••

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	Action	Anticipated Impacts			
		Tenure		% MFI Targeted	Magnitude of New Units Produced
3F	Explore reduction/waiver of Systems Development Charges for certain needed housing types, including those not being produced by the market	Own	Rent	0 60	•••
3G	Evaluate the Multiple Unit Property Tax Exemption	N/A	Rent	60 80	•••
3H	Evaluate the Nonprofit Corporation Low-Income Tax Exemption	N/A	Rent	0 60	•••
3I	Explore a Gresham-specific Construction Excise Tax	Own	Rent	0 60 80 120	•••

Funding

One of the key limitations to implementing the actions in the HPS is the availability of funding. Funding is needed not only to build units, preserve affordable housing, and provide access to equitable housing, but also for staff time to implement the HPS. Gresham's general fund limitations are a key barrier. Gresham has one of the lowest property tax rates in the state and similar size cities are operating with larger budgets and more staff. Identifying a set of realistic funding sources is necessary for achieving the vision of housing choice for all in Gresham.

A robust set of housing preservation and development programs requires funding sources that are dedicated toward these activities and that are stable and flexible. In addition to existing available funding options, the City will explore new funding sources that can help fund its programs. More information on locally controlled and other sources of funding is summarized below with details in Appendix D.

Locally Controlled Funding

- **Potential New TIF District(s).** Tax increment financing is a flexible tool that can fund many of the key strategies identified in the HPS if they are used within a TIF District. The City could pursue one or more new TIF District(s) with housing goals that complement the neighborhood(s) within the district(s). Extensive public involvement would be needed, as any new TIF District(s) would be voter approved. Upon establishment of a new district(s) some years would be needed to accumulate enough increment to invest in development.
- **Existing Urban Renewal Districts**. In May 2022, Gresham voters approved an extension of the Rockwood-West Gresham Urban Renewal Area until 2029.[19] Over the next six years, the Gresham Redevelopment Commission is forecasted to have approximately $30 million remaining to invest toward new projects, technical assistance such as business grants, debt,

[19] https://greshamoregon.gov/Urban-Renewal/

and agency administration. Some of these projects are likely to include infrastructure investments to support housing, direct project subsidies or low-interest loans for mixed-use or infill housing developments, land acquisition or assembly, and anti-displacement initiatives.

- **Potential Construction Excise Tax (CET).** A CET is a percentage-based fee on new residential and/or commercial construction charged at the time of permitting. Cities may adopt a CET on the value of new construction projects to raise funds for affordable housing projects. The City will explore a potential future CET to back fill loss of revenue, if the City chooses to implement a targeted reduction/waiver of Systems Development Charges, the Multiple Unit Property Tax Exemption and/or the Nonprofit Corporation Low-Income Tax Exemption.

Other Sources of Funding

- **Current and Future Metro General Obligation Bond Funding.** Metro's Affordable Housing Bond has funded production of rental units in Gresham. The City could consider lending bond proceeds to home developers to finance land acquisition and development. The Metro Housing Bond requires a 60-year restrictive covenant on any land on which a low-income housing development is placed. The City can engage with Metro on funding criteria for any future Metro Bond. The City can also leverage funding through the Metro Supportive Services Bond.
- **State funding** through Oregon Housing and Community Services, Oregon Brownfields Program, and Oregon Facilities Bonds, which could create a revolving loan fund for construction costs, for housing projects affordable to households earning 80% to 120% MFI. Funding levels may also increase for a variety of programs and there may be upcoming opportunities to fund the development of affordable rental and ownership units.
- **Funding from nonprofit and foundation partners,** such as Oregon Community Foundation or Meyer Memorial Trust**.**

Implementation Schedule for Actions

The table below presents a draft schedule for implementation of the Housing Production Strategy. The table shows each of the actions below. Each action will go through a period of development and evaluation where staff works with decision makers to develop the specifics of the action, then potential adoption and implementation. The activities for each of these are described below.

- **Further refinement:** The actions will require some level of further refinement prior to adoption, which may range from simple logistics (such as developing materials about an existing program) to complicated coordination between multiple internal and external stakeholders (such as the implementation of a tax abatement). The refinement period will occur before adoption.
- **Adoption or Official Determination:** This occurs when the City takes official action to adopt a strategic action (or uses another official acknowledgment that the City is going to execute the strategic action). The table shows the expected time of adoption, with the expectation that the official action will be taken by the last day of the year specified below.

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- **Implementation:** This occurs when the City officially begins using the strategic action represented by a tan color in the table.

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Exhibit 12 Implementation Schedule

	Action	2023	2024	2025	2026	2027	2028	2029
1	**Within Existing TIF District**							
1A	Explore provision of grants/loans for new development	Explore/refine	Explore/refine	**Adopt**	Implement	Implement	Implement	Implement
1B	Explore rehabilitation grants to low-cost, market rate rental property owners in exchange for affordability agreements	Explore/refine	Explore/refine	**Potential adoption based on Commission approval**				
1C	Explore partnerships to acquire and stabilize existing low-cost market rate housing	Explore/refine	Explore/refine	**Potential adoption based on Commission approval**				
1D	Explore funding and partnerships for housing-related infrastructure development	Explore/refine	Explore/refine	**Potential Adoption based on Commission approval**				
2	**Within Potential New TIF District(s)**							
2A	Explore provision of grants/loans for new housing development	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	**Adopt dependent on Council/ voter approval**	Accruing increment	Accruing increment/ implement based on accumulated funds
2B	Explore rehabilitation grants to low-cost, market rate rental property owners in exchange for affordability agreements	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	**Adopt dependent on Council/ voter approval**	Accruing increment	Accruing increment/ implement based on accumulated funds
2C	Explore partnerships to acquire and stabilize existing low-cost market rate housing	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	**Adopt dependent on Council/ voter approval**	Accruing increment	Accruing increment/ implement based

	Action	2023	2024	2025	2026	2027	2028	2029
								on accumulated funds
2D	Explore funding and partnerships for housing-related infrastructure development	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	**Adopt dependent on Council/ voter approval**	Accruing increment	Accruing increment/ implement based on accumulated funds
2E	Explore land banking, parcel assembly, and public land disposition efforts	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	**Adopt dependent on Council/voter approval**	Accruing increment	Accruing increment/ implement based on accumulated funds
3	**City-Wide**							
3A	Explore and reduce barriers for affordable homeownership models	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	Explore/refine	**Adopt**	Implement
3B	Reduce zoning barriers for housing development, with a focus on multifamily and townhouse development. Two components:							
	Design districts design standards and corridor districts townhouse design standards (DCPU 2 project)	Explore/refine	Explore/refine	Explore/refine	**Adopt**	Implement	Implement	Implement
	Densities and zoning district evaluation/consolidation	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	Explore/refine	**Adopt**	Implement
3C	Streamline permitting processes for all housing types, with a focus on barriers to townhouse and multifamily housing	Explore/refine	Explore/refine	Explore/refine	**Adopt**	Implement	Implement	Implement
3D	Implement a rent assistance pilot program for individuals experiencing homelessness and explore partnerships to address and prevent homelessness	**Adopt**	Implement	Implement	Implement	Implement	Implement	Implement

	Action	2023	2024	2025	2026	2027	2028	2029
3E	Extend/expand the City's tax abatement agreement with Home Forward	**Adopt**	Implement	Implement	Implement	Implement	Implement	Implement
3F	Explore a reduction and/or waiver of System Development Charges for certain needed housing types	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	Explore/refine	Explore/ refine	**Council direction**
3G	Evaluate the Multiple Unit Property Tax Exemption	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	Explore/refine	Explore /refine	**Council direction**
3H	Evaluate the Nonprofit Corporate Low-Income Tax Exemption	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	Explore/refine	Explore/ refine	**Council direction**
3I	Explore a Gresham-specific Construction Excise Tax	Explore/refine	Explore/refine	Explore/refine	Explore/ refine	Explore/refine	Explore/ref ine	**Council direction**

4. Evaluation and Monitoring: Achieving Fair and Equitable Housing Outcomes

Evaluation of the Strategic Actions

The actions included in Gresham's Housing Production Strategy work together to achieve equitable outcomes for all residents of Gresham. An evaluation of the HPS for achieving the following types of outcomes is required[20]:

- Affordable Homeownership,
- Affordable Rental Housing,
- Housing Stability,
- Housing Choice for Protected Classes,
- Location of Housing in Compact, Mixed-Use Neighborhoods,
- Fair Housing, and
- Housing Options for People Experiencing Homelessness.

The evaluation is consolidated in Exhibit 13 below with details in Appendix E. Moving forward, the City has choices in how it structures its programs to emphasize various goals, particularly housing choice, location, and fair housing. Throughout implementation the City will closely evaluate program criteria and application to maximize benefit.

Exhibit 13. Evaluation of Actions in the HPS for Achieving Fair and Equitable Housing Outcomes

	Action	Affordable Rental Housing	Affordable Homeownership	Housing Stability	Housing Choice, Location of Housing, and Fair Housing	Addressing Homelessness
1A, 2A	Explore provision of grants/loans for new development within existing and potential new TIF District(s)	✓	✓		Depends on criteria	Depends on program focus
1B, 2B	Explore rehabilitation grants to low-cost, market rate rental property owners in exchange for affordability agreements within existing and potential new TIF District(s)	✓		✓	Depends on criteria	

[20] This evaluation is required in OAR 660-008.

	Action	Affordable Rental Housing	Affordable Homeownership	Housing Stability	Housing Choice, Location of Housing, and Fair Housing	Addressing Homelessness
1C, 2C	Explore partnerships to acquire and stabilize existing low-cost market rate housing in exchange for affordability agreements within existing and potential new TIF District(s)	✓		✓	Depends on criteria	
1D, 2D	Explore funding and partnerships for housing-related infrastructure development in existing and potential new TIF Districts.	✓	✓		Depends on criteria	Depends on criteria
2E	Explore land banking, parcel assembly, and public land disposition efforts within potential new TIF District(s)	✓	✓	Depends on criteria	Depends on criteria	
3A	Explore and reduce barriers for affordable homeownership models		✓			
3B	Reduce zoning barriers for housing development, with a focus on multifamily and townhouse development	✓				
3C	Streamline permitting processes for all housing types, with a focus on barriers to townhomes and multifamily housing	✓	✓			
3D	Implement Rent Assistance Pilot Program for individuals experiencing homelessness and explore partnerships to address and prevent homelessness					✓
3E	Extend/expand the City's tax abatement agreement with Home Forward	✓			Depends on criteria	
3F	Explore reduction/waiver of Systems Development Charges	✓			Depends on criteria	Depends on program focus
3G	Evaluate the Multiple Unit Property Tax Exemption	✓		✓	Depends on criteria	
3H	Evaluate the Nonprofit Corporation Low-Income Tax Exemption	✓			Depends on criteria	✓
3I	Explore a Gresham-Specific Construction Excise Tax	✓	✓	Depends on criteria	Depends on criteria	Depends on criteria

Assessment of Benefits and Burdens from the Action

Gresham is required to consider the anticipated benefit and burden from each action for the following groups of people who have been historically marginalized: low-income communities, communities of color, people with disabilities, and other state and federal protected classes. This includes potential indirect and/or marginal impacts that result from how the City implements each policy.

Federal protected classes include: race, color, religion, national origin, age, sexual orientation, gender identify, familiar status, and disability. Oregon's protected classes include: race, color, national origin, religion, disability, sex (including pregnancy), sexual orientation, gender identify, age, and marital status.

Exhibit 2. Assessment of Benefit and Burden for Historically Marginalized Communities as a Result of Each Action

	Actions	Benefits	Burdens
1A,2A	Explore provision of grants/loans for new development within existing and potential new TIF District(s)	• Will benefit extremely low-income, very low-income, and low-income households. The groups more likely to have incomes qualifying for this action have a proportionately larger percentage of POC, people with disabilities, and seniors. • The City should continue to identify approaches to displacement of existing residents and to ensure that these grants and loans benefit POC, people with disabilities, and seniors.	• May increase burdens on POC, people with disabilities, and seniors if development displaces existing residents through redevelopment.
1B,2B	Explore rehabilitation grants to low-cost, market rate rental property owners in exchange for affordability agreements within existing and potential new TIF District(s)	• Will benefit low- to middle-income households. The groups more likely to have incomes qualifying for this action have a proportionately larger percentage of POC, people with disabilities, and seniors. • The City may want to incorporate specific criteria into its policies about rehabilitation grants to ensure that the programs benefit people in protected classes.	• Burdens on these communities may increase after required affordability periods expire unless the program builds in a renewal option.
1C,2C	Explore partnerships to acquire and stabilize existing low-cost market rate housing within existing and potential new TIF District(s)	• Will benefit low- to middle-income households. The groups more likely to have incomes qualifying for this action have a proportionately larger percentage of POC, people with disabilities, and seniors. • The City may want to incorporate specific program criteria to ensure that POC, people with disabilities, and seniors benefit from this action.	• Unlikely to increase burdens for these communities.
1D,2D	Explore funding and partnerships for housing-related infrastructure development in existing and potential new TIF Districts.	• Will benefit extremely low-, very low, low- and middle-income households, depending on how the City prioritizes funding. The groups more likely to have incomes qualifying for this action are disproportionately marginalized communities, including POC, people with disabilities, and seniors.	• May increase burdens on POC, people with disabilities, and seniors if the City does not mitigate redevelopment displacement pressures on existing residents.

	Actions	Benefits	Burdens
2E	Explore land banking, parcel assembly, and public land disposition efforts within potential new TIF District(s)	• Depending on the structure, could benefit households at extremely low-income, very low-income, low-income, and limited moderate-income households. The groups more likely to have incomes qualifying for this action are disproportionately marginalized communities, including POC, people with disabilities, and seniors. • Some land trusts specialize in providing services to these communities. To increase benefits to people in state and federal protected classes, the City may want to consider focus on working with land trusts that prioritize working with people in protected classes.	• Unlikely to increase burdens for these communities. • Could have a less positive impact for POC, people with disabilities, or seniors if these communities are not recruited from for participation in the resulting development or if the City does not mitigate potential effects of potential displacement from land assembly.
3A	Explore and reduce barriers for affordable homeownership models	• Will benefit low- to middle-income households. The groups more likely to have incomes qualifying for this action are disproportionately marginalized communities, including POC, people with disabilities, and seniors. • Some land trusts specialize in providing services to these communities. To increase benefits to people in state and federal protected classes, the City may want to consider focus on working with land trusts that prioritize working with people in protected classes.	• Unlikely to increase burdens for these communities unless funding for this action reduces funding for other programs to support low-income housing.
3B	Reduce zoning barriers for housing development, with a focus on multifamily and townhome development	• Depending on the structure, could benefit households at all income levels.	• Unlikely to increase burdens for these communities.
3C	Streamline permitting processes for all housing types, with a focus on barriers to townhomes and multifamily housing	• Depending on the structure, could benefit households at all income levels.	• Unlikely to increase burdens for these communities.
3D	Implement rent assistance pilot program for individuals experiencing homelessness and explore partnerships to address homelessness	• Will benefit extremely low-, and very low-income households and people experiencing homelessness. The groups more likely to have incomes qualifying for this action are disproportionately POC, people with disabilities, and seniors. • The City may want to incorporate specific program criteria to ensure these groups benefit from this action.	• Unlikely to increase burdens for these communities. • Could have less positive impact for POC, people with disabilities, or seniors if these communities are not recruited from for participation in the program.

	Actions	Benefits	Burdens
3E	Extend/expand the City's tax abatement agreement with Home Forward	▪ Will benefit extremely low and very low-income households. The groups more likely to have incomes qualifying for this action are disproportionately POC, people with disabilities, and seniors.	• Unlikely to increase burdens for these communities. • Could have less positive impact for POC, people with disabilities, or seniors if these communities are not recruited from for participation in the resulting development.
3F	Explore reduction/waiver of System Development Charges	• Will benefit extremely low-income, very low-income, and low-income households. The groups more likely to have incomes qualifying for this action are disproportionately POC, people with disabilities, and seniors.	• Unlikely to increase burdens for these communities. • Could have less positive impact for POC, people with disabilities, or seniors if these communities are not recruited from for participation in the resulting development. • If the action results in lower funding for developing infrastructure, this could negatively impact areas of the City with infrastructure deficiencies, which are more likely to be where lower-income households live. POC, people with disabilities, and seniors may be more likely to live in these areas.
3G	Evaluate the Multiple Unit Property Tax Exemption (MUPTE)	• Will benefit low- to middle-income households.	• Unlikely to increase burdens for these communities.
3H	Evaluate the Nonprofit Corporate Low-Income Tax Exemption	• Will benefit extremely low-income, very low-income, and low-income households. The groups more likely to have incomes qualifying for this action are disproportionately POC, people with disabilities, and seniors.	• Unlikely to increase burdens for these communities.
3I	Explore a Gresham-specific Construction Excise Tax	• The CET could benefit extremely low-, very low-, low- and middle-income households, depending on the City's funding priorities. • The City is required to use half of the funds for developer incentives for multifamily housing, but the City could target these incentives to households making less than 80% MFI.	• Developers have indicated that they may pass along some of the costs of the tax to future renters. However, many renters in new market-rate buildings would be middle- to high-income households.

	Actions	Benefits	Burdens
		• Fifteen percent of funds go toward statewide affordable housing programs, which would benefit low- and middle-income households. • Thirty five percent of funds go toward affordable housing programs. The City has full discretion on how to use these funds.	

Monitoring Outcomes of the HPS

Gresham will report progress on implementation of the HPS to DLCD every three years.[21] This report will include:

- **A summary of the actions taken to implement the HPS**. If the City has not implemented the actions scheduled for the first three years of the HPS, the City will explain the barriers to implementation and a plan for addressing the need that the action was intended to address. That plan could include identifying other actions in the HPS that will meet the need, or it could include developing a new action to meet the need.
- **A reflection of the efficacy of the actions the City has implemented**. This reflection will discuss the outcomes the City is observing from the actions they have implemented to date and could include expectations for future outcomes.
- **A reflection of the efficacy of the actions in the context of the outcomes described above.** The report will describe whether the goals and actions implemented have resulted in the expected outcomes described above: affordable homeownership, affordable rental housing, housing stability, housing options for people experiencing homelessness, housing choice, location of housing, and Fair Housing.

The City will notify DLCD if it cannot implement an action within 90 days of the end of the timeline as presented in Chapter 3 (Exhibit 12) and Appendix D. The notice will identify the actions or combinations of actions that the City will take to address the need that the action was intended to address. This could include identification of other actions in the HPS that will meet the identified need, or it could include development of a new action to meet the need.

The City will review its progress toward the plan annually. During the review, the City will document implementation over the previous year and housing development activity. Key questions that the City can consider in its assessment include:

- Are additional actions needed to address new or changing conditions?
- Is staff capacity sufficient to meaningfully advance the strategies?

[21] This report is due to DLCD no later than December 31 three years after Gresham adopts its HPS.

- What benefits has the City seen from its efforts to date? Are the City's residents, and especially its lower-income residents and communities of color, seeing a return on the investments that the City has made?

The City will develop its own metrics for tracking progress toward its desired outcomes. Exhibit 15 provides an overview of potential metrics that the City may track as part of its reviews. Since many of the actions in the HPS entail additional study, the City may include goal setting and evaluation as metrics to track. If the City moves forward with implementation, then the City can measure outcomes. The table below provides a menu of potential metrics.

Exhibit 15. Potential Metrics by Housing Production Strategy Action

	Actions	Evaluation/Exploration Metrics	Metrics that Measure Outcomes (if action is pursued)
1A, 2A	Explore provision of grants/loans for new development within existing and potential new TIF District(s)	• Evaluate funding potential and timeline	• Amount of funding dispersed for new affordable housing development • Number of projects (and units) receiving project subsidies
1B, 2B	Explore rehabilitation grants to low-cost, market rate rental property owners in exchange for affordability agreements within existing and potential new TIF District(s)	• Complete study • Establish a pilot program	• Amount of funding used for rehabilitation • Number of units where funding was given for rehabilitation or preservation • Average amount of funding per unit • Number of additional units under affordability agreements
1C, 2C	Explore partnerships to acquire and stabilize existing low-cost market rate housing within existing and potential new TIF District(s)	• Conduct outreach with local nonprofits • Establish inventory of affordable housing	• Amount of funding dispersed for affordable homeownership • Number of projects (and units) receiving project subsidies • Number of households receiving homeownership assistance • New partnerships established or expanded to support affordable homeownership
1D, 2D	Explore funding and partnerships for housing-related infrastructure development in existing and potential new TIF Districts.	• For new districts, evaluate infrastructure development needs based on district boundaries and goals • For existing districts, evaluate use of funds to support infrastructure development	• Amount of funding dispersed for off-site infrastructure that supports housing development
2E	Explore land banking, parcel assembly, and public land disposition efforts within potential new TIF District(s)	• Develop inventory of City, public, and non-profit owned parcels	• Number of lots/acres dedicated to affordable housing development • Amount of funding used to support land banking

	Actions	Evaluation/Exploration Metrics	Metrics that Measure Outcomes (if action is pursued)
		• Establish and document the City's land banking goals and role in land banking	
3A	Explore and reduce barriers for affordable homeownership models	• Identify barriers for affordable homeownership models	• Amount of funding dispersed for affordable homeownership and/or cooperative housing models • Number of projects (and units) receiving project subsidies • Number of households receiving homeownership assistance • New partnerships established or expanded to support affordable homeownership
3B	Reduce zoning barriers for housing development, with a focus on multifamily and townhome development	• Determine barriers in zoning code	• Number of newly developed regulated and market-rate multifamily and townhouse units • Densities of newly developed multifamily housing
3C	Streamline permitting processes for all housing types, with a focus on barriers to townhomes and multifamily housing	• Determine barriers in the permitting processes	• Number of newly developed multifamily and townhouse units
3D	Implement rent assistance pilot program for individuals experiencing homelessness and explore partnerships to address homelessness	• Establish a rent assistance pilot • Explore partnerships	• New partnerships established or expanded for homelessness services • Amount of funding dedicated to homelessness services • Number of beds/units accessed by people experiencing homelessness • Number and demographics of people who access services
3E	Extend/expand the City's tax abatement agreement with Home Forward	▪ Evaluate pros and cons of extension/expansion ▪ Evaluate potential terms of an expansion or extension	• Number of projects (and units) granted tax exemption
3F	Explore reduction/waiver of System Development Charges	• Evaluate pros and cons of establishing SDC reduction/waivers • Evaluate backfilling foregone revenue	• Number of inquiries about SDC waiver program • Number of projects (and units) granted SDC waiver
3G	Evaluate the Multiple Unit Property Tax Exemption (MUPTE)	• Evaluate pros and cons of establishing MUPTE • Evaluate backfilling foregone revenue	• Number of inquiries about tax exemption • Number of projects (and units) granted tax exemption

	Actions	Evaluation/Exploration Metrics	Metrics that Measure Outcomes (if action is pursued)
3H	Evaluate the Nonprofit Corporate Low-Income Tax Exemption	• Evaluate pros and cons of establishing exemption • Evaluate backfilling foregone revenue	• Number of inquiries about tax exemption • Number of projects (and units) granted tax exemption
3I	Explore a Gresham-specific Construction Excise Tax	• Evaluate pros and cons of CET • Evaluate CET design and potential CET revenue projections	• Amount of funding investments made with CET to support affordable housing • Number of affordable housing projects supported

In addition to the metrics outlined above, the City could monitor current market conditions to help the Council understand the context in which the overall Housing Production Strategy is operating:

- Number and type of new homes produced and total within the City over time (tenure, size, sales price/asking rent, and unit type)
- Share of rent-burdened residents
- Sales prices and rents for existing homes
- Number, location, and expiration date of regulated affordable units with change in units provided over time

When Gresham produces its next HPS in six years (2029), the City will be required to summarize the efficacy of each action included in this HPS. The information resulting from these metrics will help Gresham to summarize the outcomes and efficacy of the actions in this HPS.

5.Recommendations for Future Actions

The following actions are included as recommendations for the City to potentially act on in the 6-year planning period or to re-consider when next developing an HPS. They are important and useful but are not currently included as strategies in the HPS for a variety of reasons. Some of these recommendations are broad, without a clearly defined action at this point for the City. Others are good ideas but less likely to gain support as actions or have a high impact.

Recommendations

1. The City has begun monitoring expiration of existing affordability requirements for income-restricted housing. The City can continue this practice and proactively work with owners to preserve units as affordable housing. Preservation of existing and expiring income-restricted affordable housing is a more cost-effective action than building new affordable housing. Gresham has 994 regulated housing units with Low-Income Housing Tax Credit (LIHTC) funding. This represents a portion of Gresham's regulated affordable housing. Of those, 488 are privately owned. 240 of the privately-owned units have LIHTC that will expire in 2023 and 248 units have LIHTC that will expire in 2028/2029.[22] With nothing in place to protect from loss of these units upon expiration of the LIHTC, these affordable units could lose their guaranteed affordable rates.

   The City can continue to track the expiration of the subsidies for these properties. Recent state legislation established a regulatory framework for expiration of LIHTC multifamily rental housing developments with expiring affordability restrictions across a range of state funding programs. Owners must give notice to local government and the state when affordability restrictions will expire, and owners must provide the opportunity for the state, local government, or designee (such as Home Forward) to make an offer to purchase the property and to match a competing offer.

   For these or other properties in a similar situation (such as HUD and Rural Development properties), the City could work to identify organizations (e.g., nonprofit affordable housing providers) that might be willing and able to acquire the properties if the owners seek to sell or convert them to market rate. The City could also reach out to the property owner before the end of the affordability period to offer technical assistance with preservation options and make them aware of any City programs or incentives available at that time to maintain affordability (e.g., tax exemptions).

[22] HUD National Low-Income Housing Tax Credit (LIHTC) Database provides unit numbers: https://lihtc.huduser.gov/. The Oregon Housing and Community Services Low-Income Housing Tax Credit project provides applicant names: https://www.oregon.gov/ohcs/development/Documents/applicants-recipients/LIHTC-Statewide-List.pdf.

2. The City could update the Comprehensive Plan and other policies to center equity**.** Centering equity in the Comprehensive Plan will help ensure that policies and land use decisions are made in a way that considers the needs of diverse groups. This can help improve housing outcomes for underserved populations. Gresham also currently certifies that it will affirmatively further fair housing via the HUD funding process. However, HUD's fair housing regulations have changed in recent years with changes in national leadership. Gresham, Portland, and Multnomah County have a joint analysis of impediments related to fair housing from approximately 2011. The consortium of Portland, Gresham, and Multnomah County will likely undergo a formal process to create an updated joint fair housing plan in the coming years. Gresham could implement recommendations from the plan. Policies the City should consider adopting are:

    - An Affirmatively Furthering Fair Housing policy
    - Equity goal(s), policies, and action items in the Comprehensive Plan including policies about housing attainability/affordability and mixed-income neighborhoods
    - Updating other goals, policies, and action items in the Comprehensive Plan to support equity and equitable outcomes

3. The City could encourage accessible design to increase the number of accessible units designed to meet Universal Design, Lifelong Housing Certification, and other similar standards. Increasing the number of units that meet accessibility standards will provide more options for people to live independently or in a housing setting of their choice. Examples of universal design features that can help people age in place or assist people with disabilities include ramps, lever door handles, automatic doors, or flat panel light switches. Potential recommendations include:

    - Use the Oregon Lifelong Housing Certification program**,**[23] which lists accessibility at different "levels" of accessible design elements, such as visitor accessible (which is basic accessibility for visitors) and enhanced accessible (which is accessible for a person in a wheelchair for the central living floor).
    - Develop pre-approved plan sets (e.g., single-family detached and attached homes with barrier-free, universal design), within the context of American with Disability Act (ADA) and Federal Housing Administration (FHA) rules.
    - Fund a grant to decrease Building Division charges (plan check fee) by some percentage for pre-approved plans and work to reduce approval times for projects meeting accessible design goals.
    - Consider adoption of code incentives for accessible units such as floor area ratio, building height or density bonuses scaled by number of units.

[23] Information about this certification program can be found at: https://rvcog.org/home/sds-2/lifelong-housing-program/#:~:text=The%20Lifelong%20Housing%20Certification%20Project,call%20541%2D423%2D1383.I

4. Use current and future Metro General Obligation Bond funding to support affordable homeownership. Gresham currently has a request for proposals out for Metro bond funding accepting proposals for ownership. While the Metro Housing Bond permits funds to be used for ownership housing, Metro did not specifically designate any funds for ownership. Metro also requires a 60-year restrictive covenant on any land on which a low-income housing development is placed. The covenant is enforceable so long as bond proceeds are outstanding. A 60-year covenant on land on which affordable "owner-occupied" housing sits severely restricts the options available to build such housing at any scale. The City could consider lending bond proceeds to home developers to finance land acquisition and development. The City could put in place the following, which would support development, although additional subsidy might still be needed:

    - 60-year restrictive covenant on the loan: Development must be managed to preserve affordability.
    - Deed restriction on each home: Price on re-sale of home limited to annualized 1.5% return on investment.

    After home construction is complete, the developer would pay the bond in full. Beginning in year 5 following repayment of bond proceeds, deed restriction is phased out over next 5 years. The developer could re-borrow funds directly from the municipality – no additional bonding required. The capital could be used to develop new affordable for-sale housing. The deed restriction could stipulate that the return on re-sale is limited to 2.5% until 5 years following repayment of development loan.

5. Consider if/how CDBG and Home Dollars could be used more effectively to support affordable housing development. Staff should continue to evaluate how these funds could be used to support programs and actions identified in the HPS.

6. State and regional advocacy/collaboration:

    - Advocacy for preservation uses and other desirable provisions to be included in any upcoming Metro affordable housing bond
    - Advocacy for preservation funding at the state level
    - Advocacy for a statewide capital gains tax exemption for affordable developments losing their tax credits whose affordability will be preserved through the sale of the development
    - Advocate for federal and state legislation that would establish new funding sources for local implementation of housing production strategies and development of affordable housing.
    - Advocate for federal and state legislation aimed at reducing housing cost burden, resources for tenant education related to rights and landlord-tenant law, and protecting low-income owners and renters from predatory practices.

7. In recent years, Gresham has expanded services to include homeless services and a housing resource coordinator position. Some of these positions were funded with one-time funding. Gresham should seek to secure permanent funding for the positions and look for ways to expand the services for community members and the connections to other resources/services in the community.

APPENDIX A: CONTEXTUALIZING GRESHAM'S HOUSING NEEDS

This appendix provides information to contextualize Gresham's housing needs. The data included in this section is from the HPS past housing planning efforts in the City of Gresham including information gathered through the City of Gresham's HPS engagement efforts and past engagement with housing producers and consumers, including underrepresented communities.

As a part of providing context to better understand Gresham's housing needs, this appendix presents information about housing in Gresham for race, ethnicity, age, disability status, and other characteristics of the community to understand disproportionate housing impacts on different groups.

Interested Parties Engagement for the HPS

HPS Advisory Group. City staff and ECONorthwest solicited input from the HPS Advisory Group (AG) to develop the HPS. The AG had seven members composed of people from the development community and service providers. The project relied on the AG to review draft deliverables and provide input at key points. During the development of the HPS, the AG met three times.

Meeting 1: Summary of housing need (April 14, 2022)
Meeting 2: Gaps in actions and strategies to fill gaps (June 30, 2022)
Meeting 3: Draft of selected strategies (October 17, 2022)

Focus Groups. To better understand the housing needs in Gresham, ECONorthwest and the City subcontracted the Community Engagement Liaison Services (CELs) program to hold four 90-minute focus groups in March 2022 with communities that have historically been underserved. The goal of these focus groups was to 1) identify barriers to needed housing and develop an understanding of community housing needs, 2) understand housing preferences including satisfaction with current housing and hopes for the future, and 3) identify strategies the City could pursue to alleviate those challenges. Focus groups included:

- Latino community members, with a strong preference for those with household incomes below $75,000: 6 participants (held in Spanish)
- Black and African American community members, with a strong preference for those with household incomes below $75,000: 3 participants
- People living in subsidized housing: 3 participants
- People from the immigrant/refugee communities: 4 participants

The project team learned:

- Participants in each focus group were concerned about the affordability of housing now and the potential for cost increases.
- Participants in each focus group described that they faced non-cost related barriers to attaining housing. Barriers included social security number requirements, credit or rental history, the amount/complexity of paperwork, and written or spoken language barriers.
- Each focus group discussed lack of availability of housing in terms of affordability or size or both.
- Participants in each focus group, except the focus group for immigrant residents, cited lack of privacy as a challenge. The participants in the focus group for immigrants was least likely to be living in multifamily housing.
- Immigrant, Latinx, and subsidized housing focus group participants stated that they would want/need assistance in finding housing and support through the process of applying for or buying it.
- The quality of housing was mentioned by Latinx and Black focus group participants; they described low quality construction leading to noise and lack of maintenance.
- Black and Latinx focus group participants stated that they faced discrimination in housing.
- Black focus group participants stated that the communities they live in lack diversity; therefore, are missing some services and activities appropriate for them.
- Immigrant focus group participants were concerned with safety and wanted to see more mixed income neighborhoods.

Discussions with Housing Developers and Service Providers. The project included eight interviews with stakeholders to solicit feedback. The project team spoke with:

- Service providers for vulnerable populations to better understand the range of unmet housing needs, particularly for people experiencing disabilities, mental illness, and/or discrimination. These discussions highlighted a lack of accessible units that are affordable for people with a range of disabilities, limited support services for people experiencing mental illness, and a lack of affordable units for caregivers of vulnerable populations. Preserving affordable housing and providing support to update/retrofit housing came up as important ways to help prevent displacement for vulnerable populations.
- Affordable housing developers to better understand the specific challenges to developing income-restricted housing affordable to low-income households. These interviews revealed regulatory barriers to affordable housing development including parking requirements, ground floor use requirements, and design review. Participants also identified a need for flexible funding and financing and suggested the City could help with acquiring properties for affordable homeownership (such as through land banking) as well as preserving naturally occurring affordable housing.
- Local housing developers and builders to understand the unique challenges in developing market-rate housing and identify policies and actions that could help support market-rate

housing development affordable to middle-income households. This group identified zoning and permitting as barriers to development, citing too many zoning districts, extensive landscaping requirements, and outdated design review requirements and processes. Market rate developers indicated that allowing/incenting density as well as tax abatements and other financial incentives can help get affordable, multifamily developments to pencil.

Public Open Houses. In the summer 2022 and winter of 2023, the project team held two public open houses that included opportunities for community members to ask questions about the project, share their housing experiences, and suggest potential solutions.

Community Conversation at City Events. In the summer of 2022 staff tabled three large community events and collected data regarding housing priorities, barriers the community faced in finding appropriate housing, and strategies the City could pursue. The events were held in different areas of the City. The early summer Juneteenth event was held in the Centennial neighborhood of west Gresham, the mid-summer Arts Festival was held in Downtown Gresham (a regional center), and the late summer I Heart Rockwood event was held in Rockwood (a town center). Demographic information was not collected. Over 90 community members engaged in a "sticky dot" exercise indicating prioritizing what they are looking for in housing, what barriers they have faced in finding housing, and what types of strategies they want the City to explore. The project team learned:

- Cost is the most important factor people consider when looking at housing and also the number one barrier to attaining housing appropriate for a household's needs.
- Different communities have different barriers to housing: some people face language challenges, some find the down payment or credit score requirements a problem, others need more bedrooms than they can find.
- Not all landlords know about fair housing laws.
- Different communities have different priorities in housing: while parks and open spaces are important to some people, being close to family or grocery stores are more important to others.
- There is a lack of small units and units accessible to people in the disability community.
- Community members would like the City to be part of the housing conversation.
- Community members want the City to help connect people looking for housing with providers, advocates, and non-profits.
- There is community support for encouraging neighborhoods with a mix of places to live, work and play, and a greater variety of housing types in neighborhoods.

Planning Commission. ECONorthwest provided a mid-way update on the HPS project to the Planning Commission in the summer 2022, gathering their feedback and thoughts on potential strategies. ECONorthwest then presented a draft of the Comprehensive Plan text amendments that are associated with the HPS at a work session in early 2023 before presenting the proposed Comprehensive Plan text amendments in Spring 2023.

City Council. ECONorthwest presented to the City Council in September 2022 and December 2022, gathering their feedback and thoughts on potential strategies. ECONorthwest delivered the final HPS and presentation in Spring 2023.

Incorporation of Input. The strategies included in this HPS draw from the conversations held throughout the project process with focus groups participants, open house participants, and other interested parties. In each of these conversations, the project team learned about the similarities and differences between Gresham's housing market and the rest of the region. Ground truthing potential strategies allowed the team to develop strategies that are attuned to the specific needs of Gresham residents.

The project team's experience in developing the HPS brought forward several considerations the City should account for when implementing the HPS and engaging residents on housing issues in the future. To understand the specific needs of different population groups in the city, the City should prioritize compensating residents for their time and making engagement easy and accessible for participants. Ongoing relationships with housing service providers, housing developers, and property owners will be key to implementing strategies that are attuned to the residents' needs. The City should invest time into building and maintaining relationships with people deeply involved in housing production.

Demographic and Socio-Economic Characteristics Affecting Gresham's Housing Needs

This section describes unmet housing needs for people in Gresham by age, race and ethnicity, disability, household size and composition, and household income.

Data Used in this Analysis

Throughout this analysis data is used from multiple well-recognized and reliable data sources. One of the key sources for housing and household data is the U.S. Census. This report primarily uses data from two Census sources:[24]

- The **Decennial Census**, which is completed every ten years and is a survey of *all* households in the U.S. The Decennial Census is considered the best available data for information such as demographics (e.g., number of people, age distribution, or ethnic or racial composition), household characteristics (e.g., household size and composition), and housing occupancy characteristics. As of 2020, the Decennial Census does not collect more detailed household

[24] The American Community Survey (ACS) is a national survey that uses continuous measurement methods. It uses a sample of about 3.54 million households to produce annually updated estimates for the same small areas (census tracts and block groups) formerly surveyed via the decennial census long-form sample. It is also important to keep in mind that all ACS data are estimates that are subject to sample variability. This variability is referred to as "sampling error" and is expressed as a band or "margin of error" (MOE) around the estimate.

This report uses Census and ACS data because, despite the inherent methodological limits, they represent the most thorough and accurate data available to assess housing needs. We consider these limitations in making interpretations of the data and have strived not to draw conclusions beyond the quality of the data.

information, such as income, housing costs, housing characteristics, and other important household information.

- The **American Community Survey (ACS)**, which is completed every year and is a *sample* of households in the U.S. The ACS collects detailed information about households, including demographics (e.g., number of people, age distribution, ethnic or racial composition, country of origin, language spoken at home, and educational attainment), household characteristics (e.g., household size and composition), housing characteristics (e.g., type of housing unit, year unit built, or number of bedrooms), housing costs (e.g., rent, mortgage, utility, and insurance), housing value, income, and other characteristics.

This report primarily uses data from the 2014-2018 and 2015-2019 ACS for Gresham and comparison areas.[25] Where information is available and relevant, we report information from the 2000 and 2010 Decennial Census.[26] Among other data points noted throughout this analysis, this report also includes data from Oregon's Housing and Community Services Department, the United States Department of Housing and Urban Development, Redfin, Costar, and other sources.

Age of People in Gresham

Population growth is the primary driver of growth in housing. Between 2000 and 2020, Gresham's population grew by about 23,204 people, with most of the growth occurring in the early 2000's. Over that period, Gresham's population grew by nearly 15,400 people, and by about 7,800 new residents between 2010 and 2020. Between 2000 and 2020, Gresham grew at a rate consistent with Multnomah County, but faster than the state of Oregon and the United States.

Gresham has higher percentage of its population under the age of 5 (6.5%) and under the age of 18 (23.7%) than Multnomah County (4.7% and 18%) and Oregon generally (5.0% and 20.3%). More information about how this impacts housing need is shown in Exhibit 24.

Growth in Gresham's senior population, as well as other age cohorts, will continue to shape the City's housing needs. The population aged 60 and older grew by nearly 10,000 residents in Gresham between 2000 and 2018, and seniors now account for 19% of Gresham's existing population. Oregon's population of residents 60 years and older is forecasted to grow by 36% (385,089) between 2020 and 2040, the largest growth of all age groups.

Growth in the number of seniors will result in demand for housing types specific to seniors, such as small and easy-to-maintain dwellings, assisted living facilities, or age-restricted developments. Senior households will make a variety of housing choices, including remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and

[25] Five-year 2020 ACS data was not available when this report was compiled.

[26] The 2020 Census was completed at the end of 2020. However, extenuating circumstances brought on by the COVID-19 pandemic has led to some challenges with the data. The Census Bureau is undergoing a post-enumeration survey to understand the accuracy of the 2020 Census which was not complete as of February 2022. The 2020 Decennial Census data is more limited than usual as a result of the COVID-19 pandemic.

attached) or multifamily units, moving in with family, or moving into group housing (such as assisted living facilities or nursing homes), as their health declines.

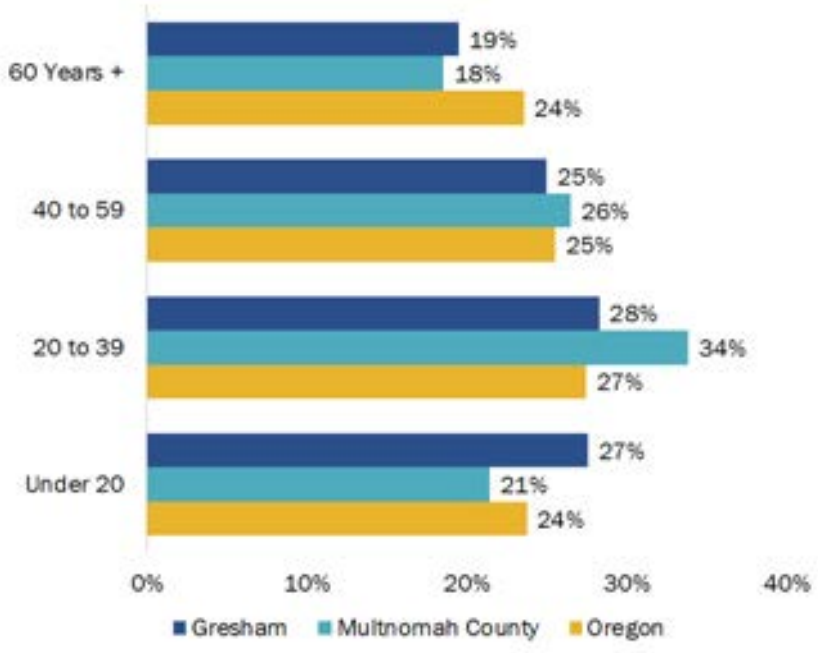
About 53% of Gresham's residents were between the ages of 20 and 59 years.

Gresham had a smaller share of people over the age of 60 than the state.

27% of Gresham's population was under 20 years old, compared to 21% of Multnomah County's population and 24% of Oregon's.

Exhibit 16. Population Distribution by Age, Gresham, Multnomah County, and Oregon, 2014-2018 ACS 5-Year Estimates

Source: U.S. Census Bureau, 2014-2018 ACS, Table B01001.

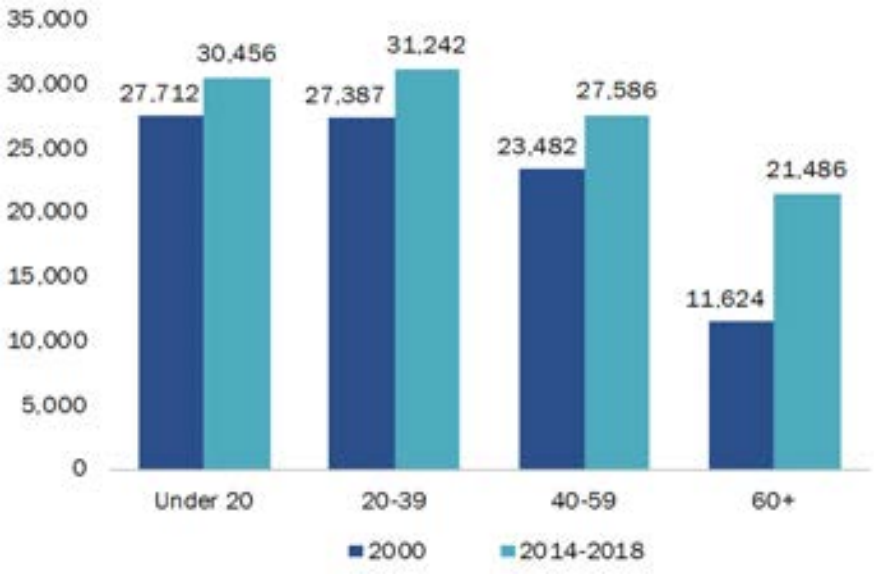


Between 2000 and 2018, the population within all age groups in Gresham grew.

The largest increase in residents were those aged 60 and older at nearly 10,000 people.

Exhibit 17. Population Growth by Age, Gresham, 2000 to 2014-2018 ACS 5-Year Estimates

Source: U.S. Census Bureau, 2000 Decennial Census Table P012 and 2014-2018 ACS, Table B01001.



Race and Ethnicity

Understanding the race and ethnicity characteristics[27] in Gresham is important for understanding housing needs because Black, Indigenous and People of Color often face discrimination when looking for housing.

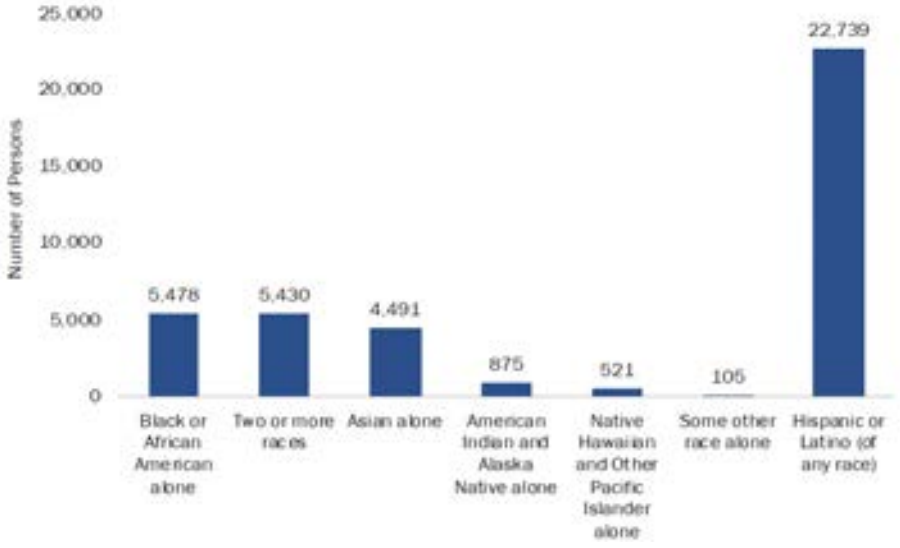
[27] The U.S. Census Bureau considers race and ethnicity as two distinct concepts. Latino is an ethnicity and not a race, meaning individuals who identify as Latino may be of any race. BIPOC as used in this report does not include individuals who identify as white and Hispanic/Latinx.

In Gresham, about 16,900 persons identified as a non-Hispanic or Latino and a race other than White alone, and over 22,700 persons identified as Hispanic or Latino of any race.

About 71,000 persons identified as White alone, non-Hispanic or Latino.

Exhibit 18. Number of Persons by Race and Ethnicity, Excluding White Alone, Gresham, 2014-2018 ACS 5-Year Estimates

Source: U.S. Census Bureau, 2014-2018 ACS, Table B03002.



Gresham was more racially diverse than Oregon.

Exhibit 19. Population by Race as a Percent of Total Population, Gresham, Multnomah County, Oregon, 2014–2018 ACS 5-Year Estimates

Source: U.S. Census Bureau, 2014–2018 ACS 5-Year Estimates Table B03002.

*Note: Categories of race comprising less than one percent of the population are included in "Some other race alone."

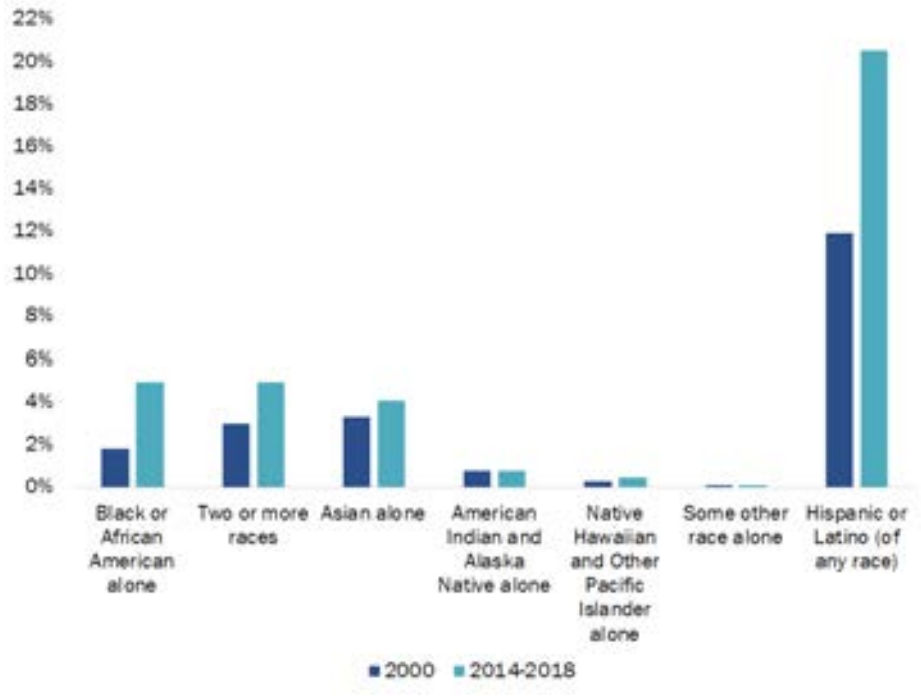
	Gresham	Multnomah Co.	Oregon
Non-Hispanic White Alone	64%	70%	76%
Hispanic or Latino (Any Race)	21%	11%	13%
Non-Hispanic Black or African American Alone	5%	5%	2%
Non-Hispanic Two or More Races	5%	5%	4%
Non-Hispanic Asian Alone	4%	7%	4%
*Some Other Race Alone	1%	2%	1%
American Indian and Alaska Native Alone	*	*	*
Native Hawaiian and Other Pacific Islander Alone	*	*	*

Gresham grew more racially diverse between 2000 and 2018.

The number of Gresham's households that identified as Latino (of any race) increased from 10,732 people in 2000 to 22,739 people in 2018, consistent with regional trends.

Exhibit 20. Change in Population by Race and Ethnicity as a Percent of the Total Population, Gresham, 2000 and 2014–2018

Source: U.S. Census Bureau, 2000 Decennial Census Table P008, 2014–2018 ACS Table B03002.



People with a Disability

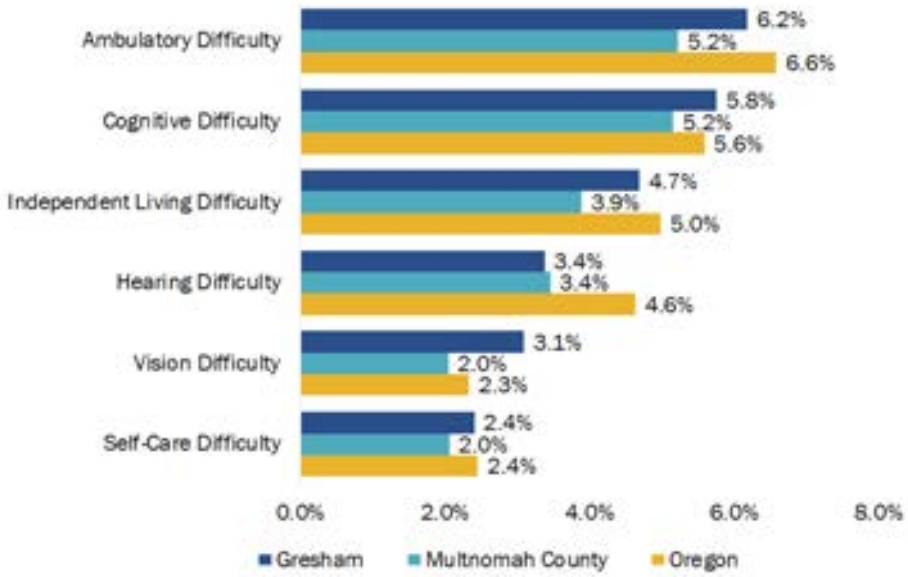
People with one or more disabilities have special housing needs because they may need housing that is physically accessible, housing that meets the needs of people with cognitive disability, or housing with specialized services.

Gresham had a higher share of persons living with a disability than Multnomah County.

Gresham had a total of 14,579 people with one or more disabilities, accounting for 13% of people in Gresham. The most common disabilities were ambulatory, cognitive, and independent living difficulty.

Exhibit 21. Persons Living with a Disability[28] by Type and as a Percent of Total Population, Gresham, Multnomah County, Oregon, 2014–2018 ACS 5-Year Estimates

Source: U.S. Census Bureau 2014-2018 ACS, Table K201803.



Household Size and Composition

Housing need varies by household size and composition. The housing needs of a single-person household are different than those of a multi-generational family. On average, Gresham's households are larger than both Multnomah County and Oregon.

Gresham's average household size was slightly larger than that of both Multnomah County and Oregon.

Exhibit 22. Average Household Size, Gresham, Multnomah County, Oregon, 2014–2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B25010.

2.72 Persons	2.42 Persons	2.51 Persons
Gresham	Multnomah County	Oregon

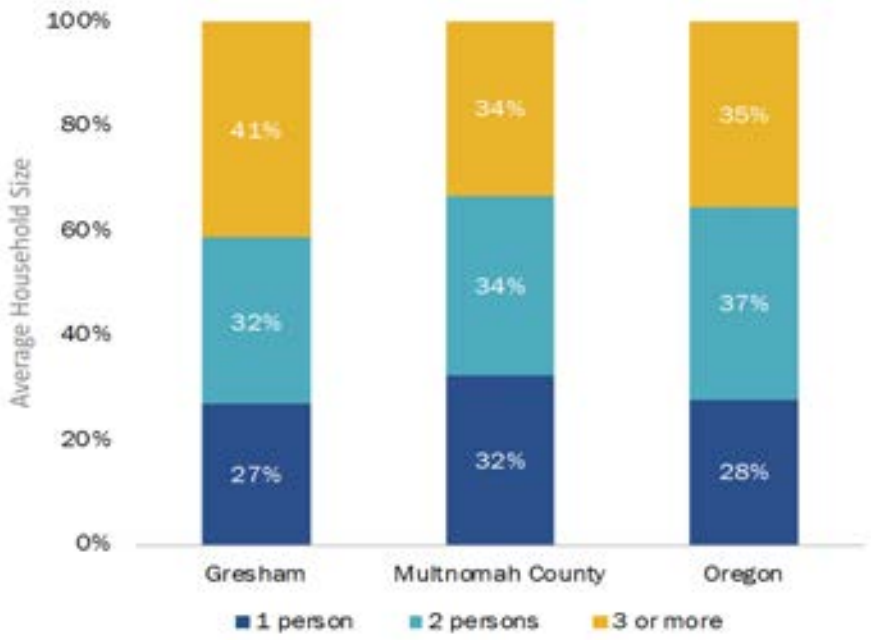
[28] The Census Bureau has identified people with disabilities as a hard-to-count population, which means it is likely these number are an undercount.

Gresham had a smaller share of one- and two-person households compared to Multnomah County and Oregon.

Gresham had a higher share of 3+ person households than the county or the state.

Exhibit 23. Household Size, Gresham, Multnomah County, and Oregon, 2014–2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B25010.



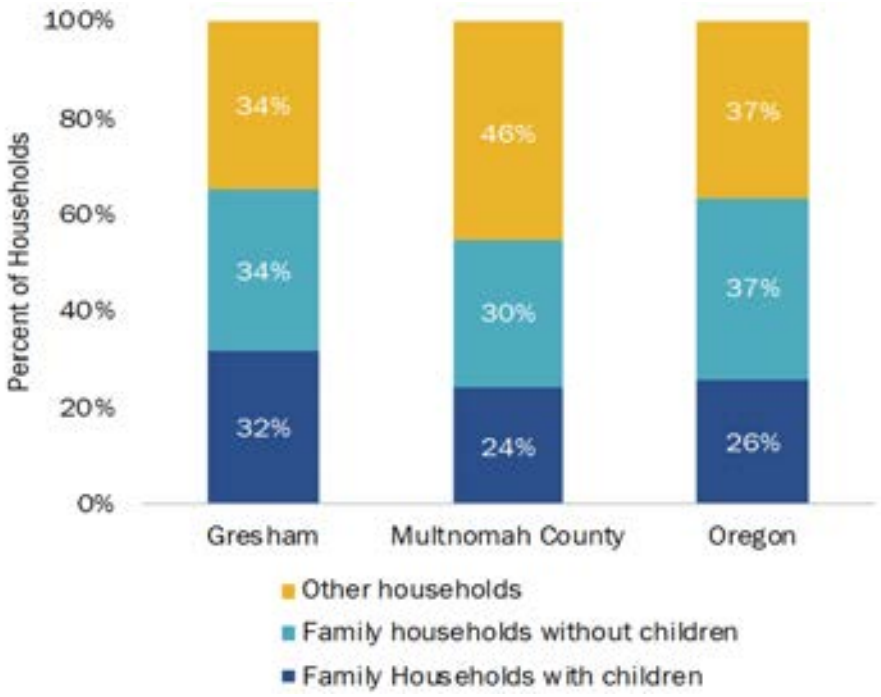
Gresham had a larger share of households with children than Multnomah County and Oregon.

About 32% of Gresham households had children, compared with 24% of Multnomah County households and 26% of Oregon households.

The US Census Bureau defines family households as households with two or more people related by birth, marriage, or adoption.

Exhibit 24. Household Composition, Gresham, Multnomah County, and Oregon, 2014–2018.

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table DP02.



Household Income

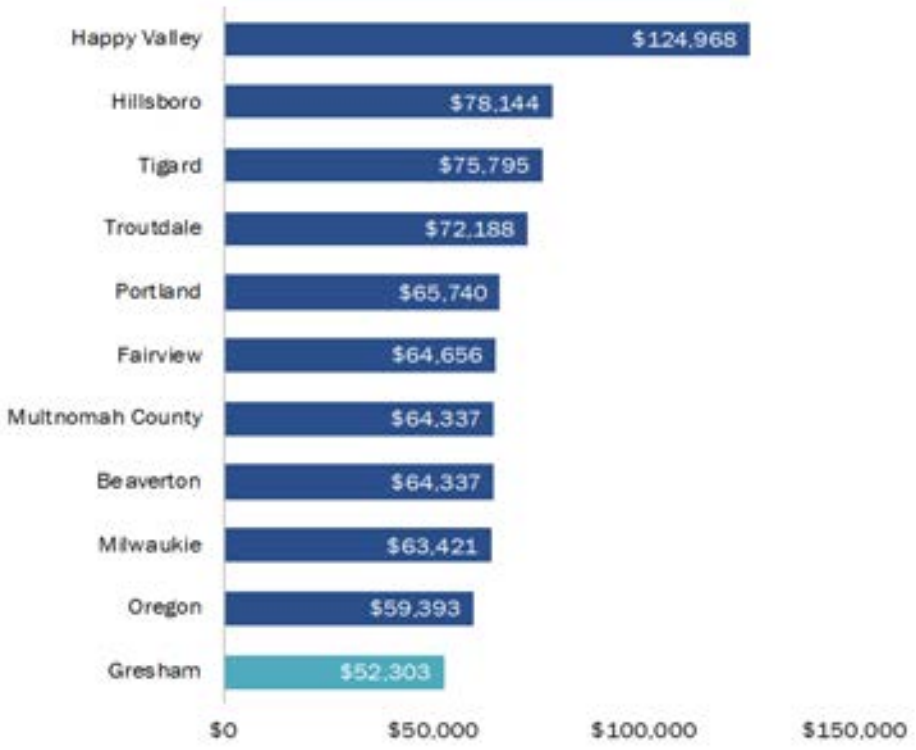
Income is one of the key determinants in housing choice and households' ability to afford housing. Income for residents living in Gresham was lower than the Multnomah County median income and the state's median income.

Gresham's median household income (MHI) was below that of the county, the state, and all comparison cities.

Over this period, Gresham's MHI was $52,303. Multnomah County's MHI was $64,337 and Oregon's MHI was $59,393.

Exhibit 25. Median Household Income, Gresham, Multnomah County, Oregon, and Comparison Cities, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B25119.



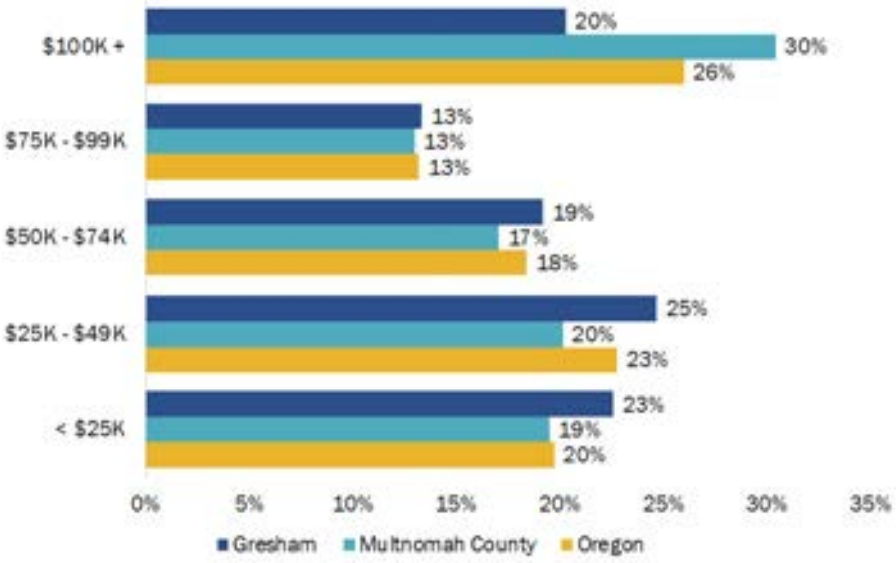
Gresham had a higher percentage of households that made less than $50,000 than the county or the state.

About 48% of Gresham households made less than $50,000 per year, compared to 39% of Multnomah County households, and 43% of Oregon households.

Similarly, Gresham had fewer households making more than $100,000 compared to Multnomah County and Oregon.

Exhibit 26. Household Income Distribution, Gresham, Multnomah County, and Oregon, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B19001.



In general, larger households in Gresham had higher household incomes than smaller ones.

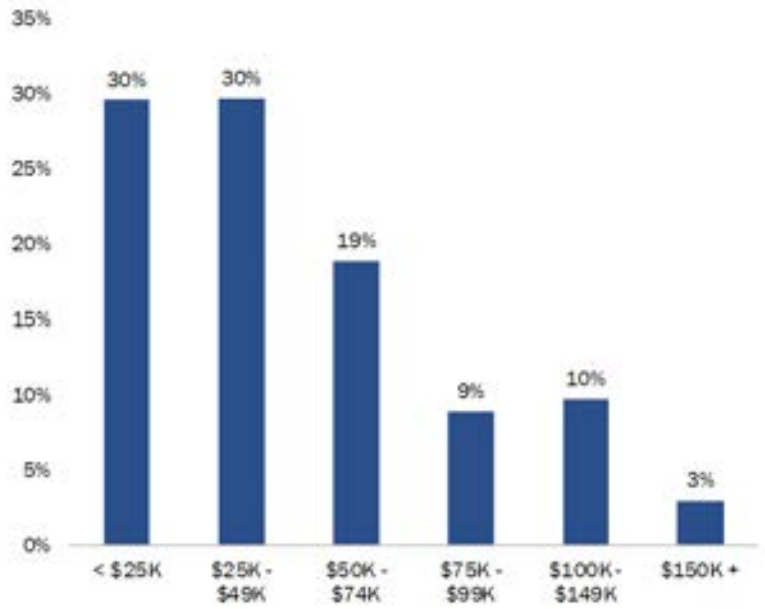
Exhibit 27. Median Household Income by Household Size, Gresham, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B19019

Sixty percent of Gresham households with a head of householder aged 65 or older earned less than $50,000 per year.

Exhibit 28. Household Income Distribution for Householders Aged 65 Years and Older, Gresham, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B19037.



Households that identify as Asian, Some Other Race, Two or More Races, or White had incomes above the City's median, ranging from $53,349 to $54,190.

Black, American Indian / Alaska Native, and Hispanic or Latino households had incomes below the City's median income, ranging from $24,777 to $38,066.

Exhibit 29. Median Household Income by Race/Ethnicity of the Head of Household, Gresham, 2014-2018 ACS 5-Year Estimates

Source: U.S. Census Bureau, 2014-2018 ACS 5-year estimate, Table B19013A-I.

Note: The black lines for each bar in this chart denote an estimate's margin of error. These are displayed because when parsing Census survey data for a cross-section of data, there is more statistical noise when computing estimates. The inclusion of the bars indicates the range in which the true estimate likely lies (within a degree of statistical certainty).

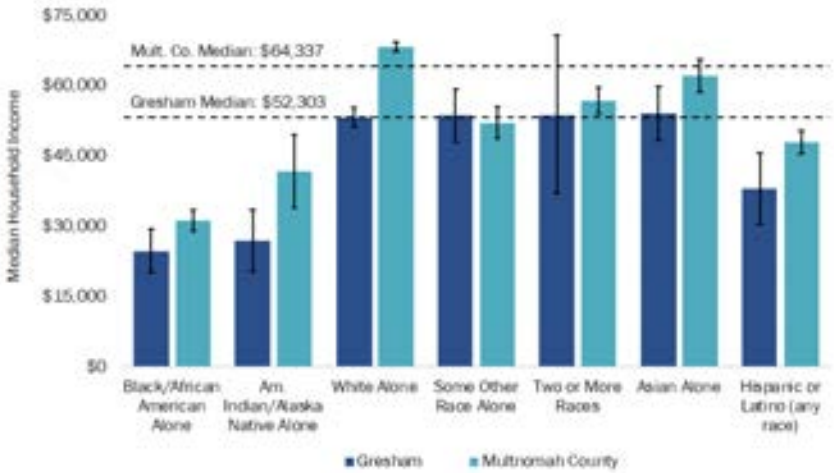


Exhibit 30 to

Exhibit 32 compares household income for Black, Indigenous and People of Color (BIPOC) households with White non-Hispanic households to show disparities in come levels. The income levels shown in these graphs are the same used throughout this report:

- Extremely Low-Income: Less than 30% MFI
- Very Low-Income: 30% to 50% of MFI
- Low-Income: 50% to 80% of MFI
- Middle-Income: 80% to 120% of MFI
- High-Income: 120% of MFI or more

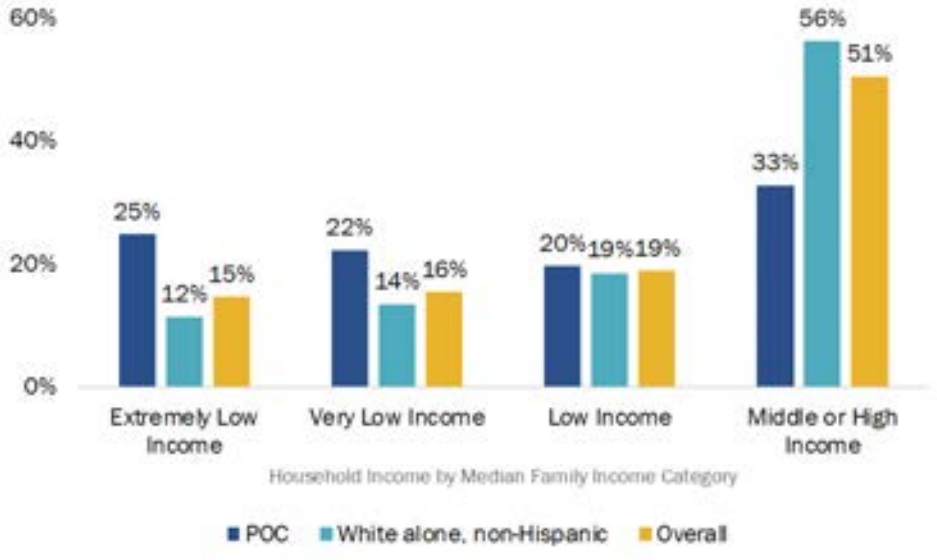
About 33% of BIPOC households were middle or high income compared to 56% of White, non-Hispanic households.

Extremely or very low-income households were more likely to be BIPOC.

Exhibit 30. Household Income by BIPOC, White non-Hispanic, and All Households, Gresham, 2014-2018

Source: CHAS, Table 2.

Note: BIPOC includes Hispanic/Latinx households



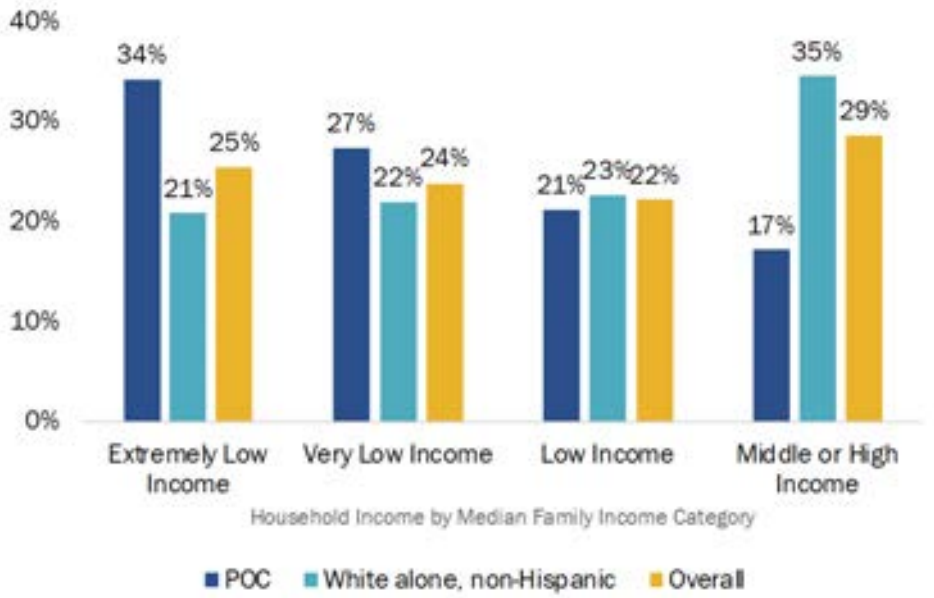
BIPOC renter households were more likely to be extremely low or very low-income compared to the average overall.

White, non-Hispanic renter households were more likely to be middle or high income.

Exhibit 31. Renter Income by Income Grouping for BIPOC, White non-Hispanic, and All Households, Gresham, 2014-2018

Source: CHAS, Table 2.

Note: BIPOC includes Latino households.



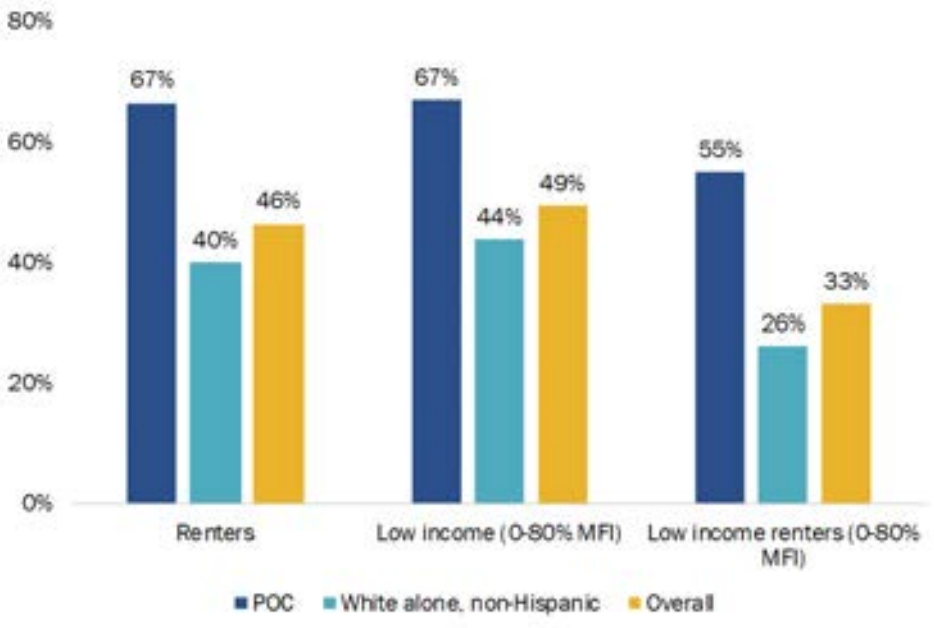
Compared to non-Hispanic White households, BIPOC households were more likely to rent and have low incomes.

Over half of BIPOC households in Gresham were low-income renters in 2018.

Exhibit 32. Comparison by Tenure and Income BIPOC, White non-Hispanic, and All Households, Gresham, 2014-2018

Source: CHAS, Table 2.

Note: BIPOC includes Latino households.



Housing Market Conditions and Trends

This section provides an analysis of Gresham's housing market conditions and trends. The housing types used in this analysis are consistent with needed housing types as defined in ORS 197.303:

- **Single-family detached** includes single-family detached units, manufactured homes on lots and in mobile home parks, and accessory dwelling units.
- **Single-family attached** is all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses.
- **Multifamily** is all attached structures (e.g., duplexes, triplexes, quadplexes, and structures with five or more units) other than single-family detached units, manufactured units, or single-family attached units. This analysis groups multifamily units into two sub-categories: (1) duplexes, triplexes, and quadplexes and (2) multifamily units in buildings with five or more units per structure.

Existing Housing Stock

According to the 2014-2018 American Community Survey (ACS) from the U.S. Census, Gresham had 42,497 dwelling units, an increase of 7,191 dwelling units from 2000. A majority of new units built were single-family units. In that time, about 1,823 units of multifamily housing were built in Gresham, accounting for 25% of the 7,191 new units over that period.

About 55% of Gresham's housing stock was single-family detached housing.

Gresham's share of multifamily housing is similar to Multnomah County but larger than Oregon's overall.

Exhibit 33. Housing Mix, Gresham, Multnomah County, and Oregon, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS Table B25024.

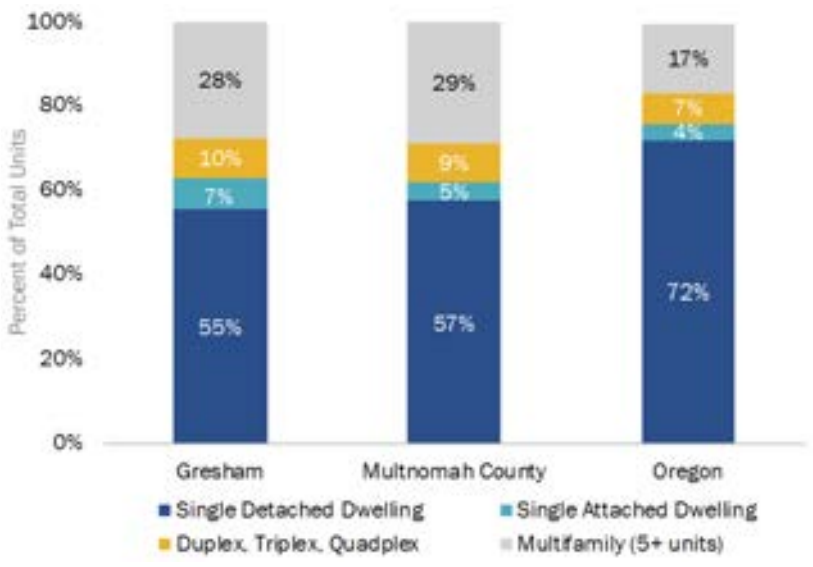
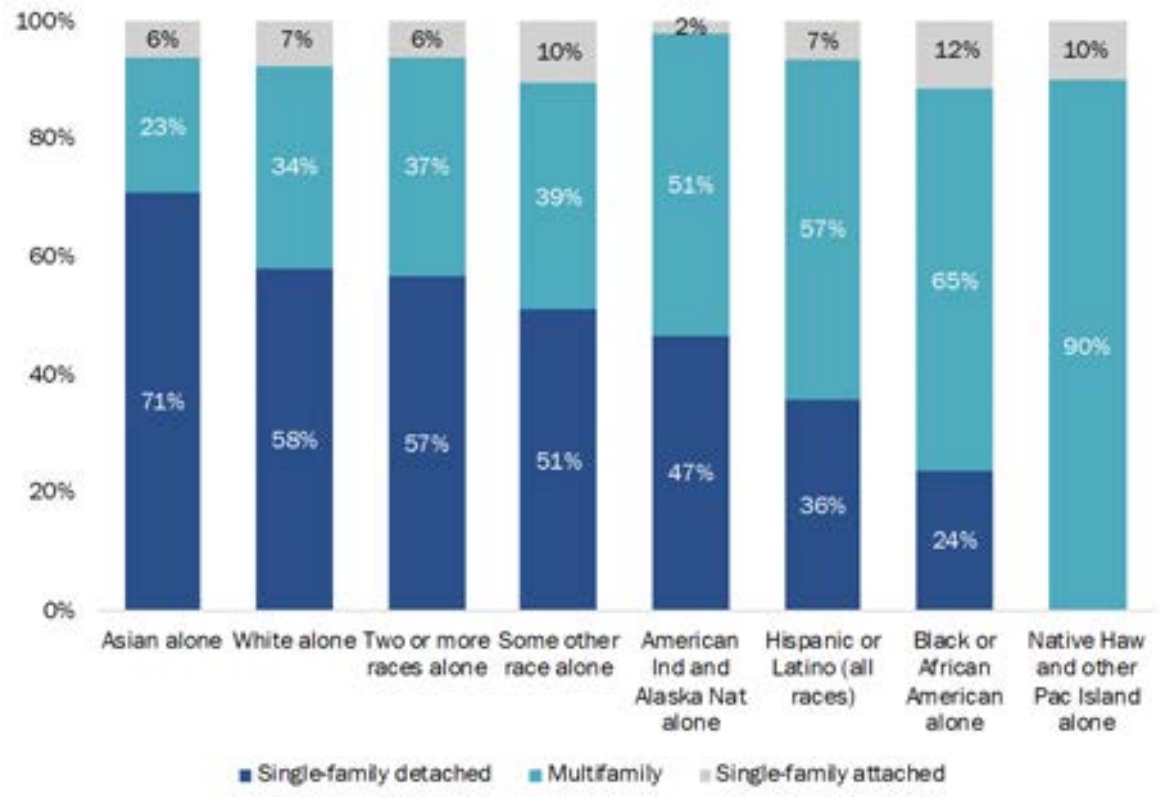


Exhibit 34 shows that White households and Asian households in Gresham had higher rates of living in single-family detached housing (58% and 71%, respectively). The groups most likely to

live in multifamily housing were Native Hawaiian and Pacific Islander, Black or African American, and Hispanic or Latino (of all races) households. While this exhibit reflects the types of housing these groups *currently* live in and/or what they can currently afford to live in, it may not reflect their housing preferences.

Exhibit 34. Occupied Housing Structure by Race and Ethnicity, Gresham, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS Table B25032 A-I.



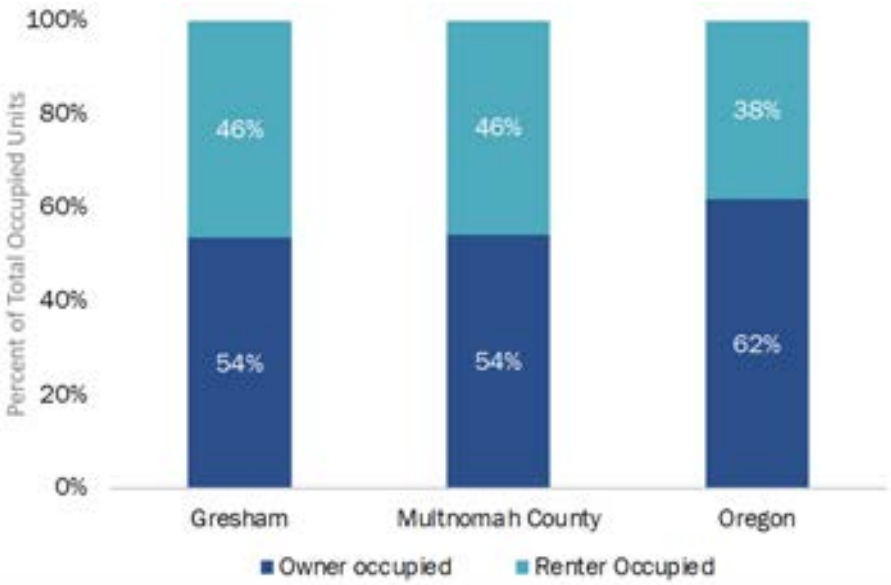
Housing Tenure

Housing tenure describes whether a dwelling is owner- or renter-occupied. In the 2014-2018 period, about 54% of Gresham's housing stock was owner occupied and 46% was renter occupied. Gresham's homeownership rate decreased by one percentage point from 2000 to 2018.

Gresham had the same homeownership rate as Multnomah County and a lower homeownership rate than Oregon.

Exhibit 35. Tenure, Occupied Units, Gresham, Multnomah County, and Oregon, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS 5-Year Estimates, Table B24003.

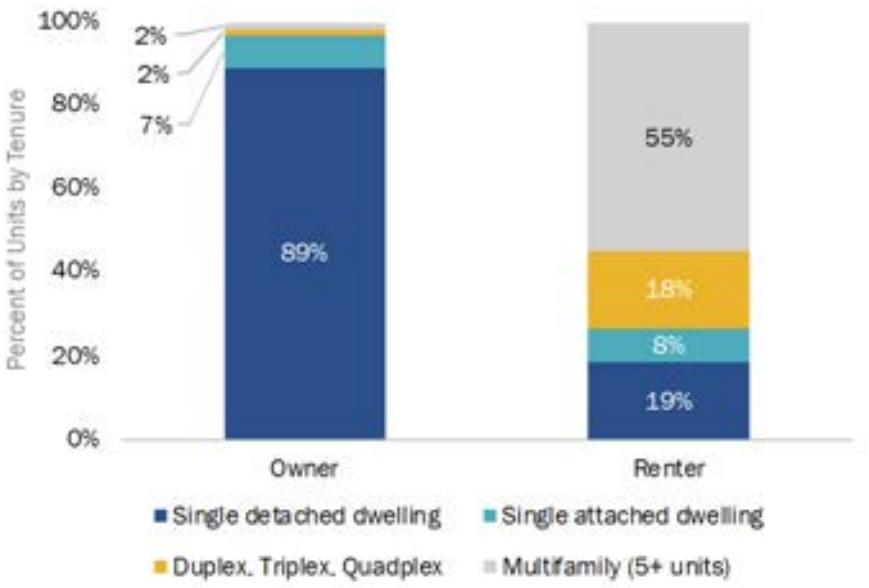


Most renters (73%) lived in multifamily housing, including duplexes, triplexes, and quadplexes.

In comparison, nearly all of Gresham's homeowners (89%) lived in single-family detached housing.

Exhibit 36. Housing Units by Type and Tenure, Gresham, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS Table B25032.

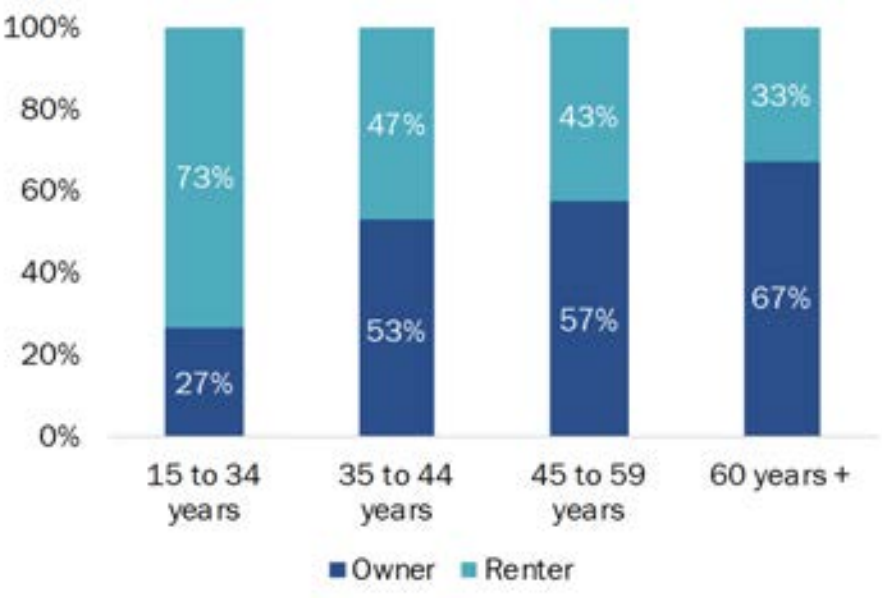


Older households had higher homeownership rates.

In Gresham, about 67% of householders sixty years of age or older owned their homes.

Exhibit 37. Housing Tenure by Age of the Head of Household, Gresham, 2015-2019

Source: U.S. Census Bureau, 2015-2019 ACS Table B25007.

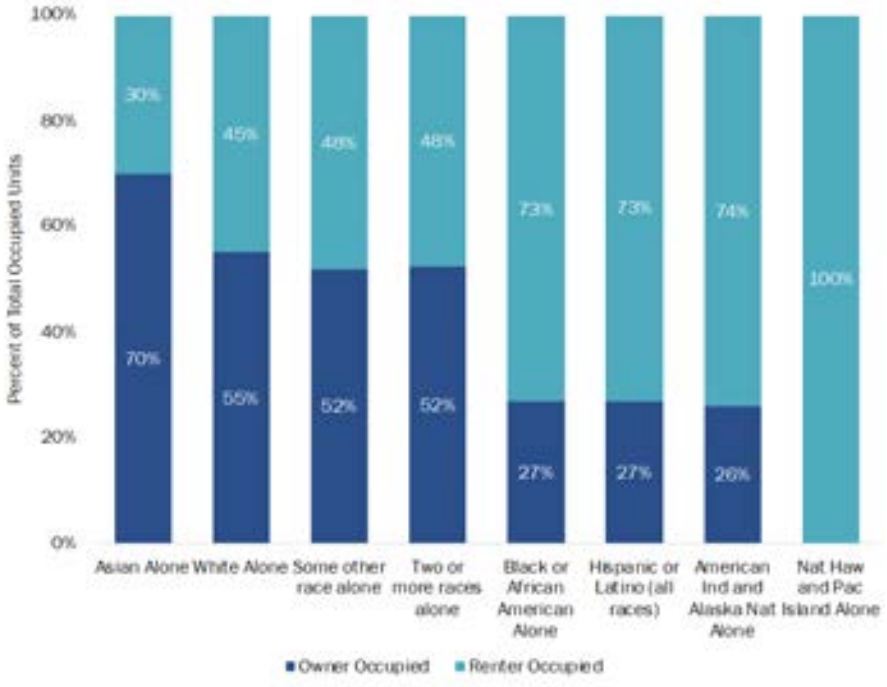


Asian, White, some other race, and two or more race households were more likely to live in owner-occupied housing. Native Hawaiian and Pacific Islander, American Indian and Alaska Native, Black or African American, and Hispanic or Latino (all races) households were more likely to live in rental housing.

These differences are more likely to reflect availability of affordable housing for homeownership, rather than different preferences for renting or owning by race or ethnicity.

Exhibit 38. Tenure by Race and by Ethnicity, Gresham, 2014-2018

Source: U.S. Census Bureau, 2014-2018 ACS Table B25003A-I.



Rent-Restricted and Emergency Housing

As of 2020, there were 50 income-restricted housing developments in Gresham, with 2,397 units.[29] Exhibit 39 shows an aggregation of income-restricted housing inventories from Oregon Housing and Community Services (OHCS) and Metro. The OHCS inventory includes information by bedroom and is also reported in this table where available.

As of 2019, the Portland, Gresham/Multnomah County (Continuum of Care) region had 1,470 emergency shelter beds and 663 transitional shelter beds supporting persons experiencing homelessness in the region. Due to the COVID-19 pandemic and increased funding, the number of beds available has increased and is expected to continue to increase with planned investments.

[29] This number does not capture the 374 units from two income restricted developments coming online in 2022.

Exhibit 39. Facilities and Housing Targeted to Households Experiencing Homelessness, Portland, Gresham/Multnomah County Continuum of Care Region, 2019

Source: HUD's 2019 Continuum of Care Homeless Assistance Programs Homeless Populations and Subpopulations.

Population Served	Emergency, Safe Haven, and Transitional Beds	
	Emergency	Transitional
Households with Adult(s) and Children	83	11
Households with Only Adults	1,167	486
Chronically Homeless Households	6	0
Veterans	134	109
Unaccompanied Youth	80	57

Exhibit 40. Income Restricted Housing, Gresham, 2020

Source: Oregon Housing and Community Services. (2020). Affordable Housing Inventory in Oregon; Metro Affordable Housing Inventory Draft, May 2021.

Development Name	Total Units	Studio	1 Bedroom	2 Bedrooms	3 Bedrooms	4 Bedrooms
181 St & NE Couch	90					
Albertina Kerr Crisis Psychiatric	24					
Aldercrest Apts	68		24	44		
Alderwood	20			13	7	
Alpha Apts	22		15	7		
Alpha Family Treatment Center	10					
Ava House	6					
Ava II	5					
Berry Ridge Apts	248		120	128		
Bristol Woods	156			132	24	
Cedar Meadows	19			5	13	1
Central Station Apts	23		17	6		
Chestnut Lane	70					
Coburn Woods Apts	10		9	1		
East County Project	6					
East Fair Terrace	100		94	6		
Eastwood Court	31					
Fir Acres	32					
Friendship House	5					
Gresham House	1					
Gresham Station	253	3	155	95		
Gresham Village Square	72			62	10	
Halsey Street Project	5					
Kelly Place Apts	20		2	5	8	5
Lone Pine Apartments	17					
Madrona Place	45					
Mattie Younkin Manor	35	9	26			
Mayfield Court	30					
Mccarthy Place	10					
Mi Casa	3					
Mt. Hood Community Apts	15		14	1		
On Your Own	7					
Powell Vista Manor	70	6	64			
Project Open Door	9					
Raintree Apts	77	20	57			
Rockwood Building	47					
Rockwood Landing	36					
Rockwood Station	195		78	117		
Rosewood Plaza	45					
Stark Manor	30			18	12	
Station 162	44					
The Cedars	22			7	13	2
The Pines Apts	66		4	50	12	
The Village Retirement Center	123					
Tillicum North	18				18	
Tillicum South	12			12		
Villa North	32					
Village Square	72			64	8	
West Gresham Apartments	26					
Willow Tree Apts	15		1	11	3	
Total	**2,397**	**38**	**680**	**784**	**128**	**8**

Manufactured Homes

Manufactured homes provide a source of affordable housing in Gresham. They provide a form of homeownership that can be made available to low- and moderate-income households. Cities are required to plan for manufactured homes—both on lots and in parks (ORS 197.475-492). Gresham has 126 manufactured home parks within city limits. Within these parks, there are a total of 1298 spaces, six of which were vacant as of Winter 2022.

Exhibit 41. Mobile/Manufactured Home Parks, Gresham, 2022

Source: Oregon Manufactured Dwelling Park Directory[30]/City of Gresham.

Park and Park Location	Location	Type	Total Spaces	Vacant Spaces
BellAcres LLC dba BellAcres Mobile Estates	2980 NE Division St	55+	68	0
Big Eddy Marina Inc	19609 NE Marine Dr	Family	60	1
Cedarwood Estates	21400 SE Stark St	Family	9	0
Cherry Blossom Mobile Home Park	2500 NE 201st St	Family	76	0
Emily Park	18345 NE Glisan St	55+	14	0
Fir Haven Stark Limited Partnership	17007 SE Stark St	Family	42	2
Glisan Terrace Mobile Home Park	17424 NE Glisan St	Family	14	0
Green Tee Mobile Estates	900 NE Francis Ave	55+	89	0
Gresham Mobile Home Community	515 SE Rene St	Family	48	1
Heritage Park LLC	21910 SE Stark St	Family	12	0
Hogan Meadows	1949 SE Palmquist Rd	Family	136	0
Jamestown Mobile Estates	801-802 NE 183rd Ave	Family	15	0
Mobile Park Plaza	19776 SE Stark St	55+	92	0
Noble Estates, LLC	2742 NE 201st Ave	Family	8	1
Palmquist Estates	3200 SE Palmquist Rd	Family	86	1
Palmquist Terrace	2905 SE Palmquist Rd	Family	64	0
Rockwood Mobile Court	18625 E Burnside St	Family	76	0
Rockwood Mobile Manor	16415 SE Stark St	Family	15	0
Rockwood Senior Living Park LLC	436 SE 197th Ave	55+	11	0
Rolling Hills Mobile Terrace LLC	20145 NE Sandy Blvd	Family	38	0
Sandy Mobile Villa	20140 NE Sandy Blvd	Family	113	0
Silent Creek	2600 NE 205th Ave	55+	38	0
Suburban Estates	21016 SE Stark St	55+	72	0
Terrand Mobile Terrace	2648 NE 201st Ave	Family	40	0
Victoria Estates	530 SE 197th Ave	Family	14	0
Whisper Creek	1819 SE Orient Dr	Family	48	0
		TOTAL	**1298**	**6**

[30] https://appsprod.hcs.oregon.gov/MDPCRParks/ParkDirQuery.jsp

People Experiencing Homelessness

Gathering reliable data from individuals experiencing homelessness is difficult precisely because they are unstably housed. People can cycle in an out of homelessness and move around communities and shelters. The 2022, Point-in-Time Count describes that there were approximately 48 households experiencing unsheltered homelessness in Gresham.[31] About 1,106 students in the Gresham-Barlow, Centennial, and Reynolds School Districts experienced homelessness. However, it should be noted that these districts include areas outside of the Gresham City limits. Housing needs for people experiencing homelessness range, including temporary shelter to rapid re-housing, permanently supportive housing, rental assistance, and income-restricted affordable housing.

Homelessness Data Sources

Point-in-Time (PIT) count: The PIT count is a snapshot of individuals experiencing homelessness on a single night in a community. The count records the number and characteristics of people who live in emergency shelters, transitional housing, rapid re-housing, Safe Havens, or PSH; as well as recording those who are unsheltered.

McKinney Vento data: This data records the number of school-aged children who live in shelters or hotels/motels and those who are doubled up, unsheltered, or unaccompanied. This is a broader definition of homelessness than that used in the PIT.

The following exhibits provide estimates of homelessness in Gresham and Multnomah County.

Based on the Point-in-Time Count the number of households experiencing unsheltered homelessness in Gresham was 64 in 2017, 103 in 2019, and 48 in 2022.[32]

Exhibit 42. Unsheltered Population, Gresham, Point-in-Time Count, 2017, 2019, and 2022

Source: Joint Office of Homeless Services and Multnomah County, Point-In-Time Count of Homelessness in Portland/Gresham/Multnomah County, Oregon, 2019

64 Households	103 Households	48 Households
2017	2019	2022

According to HUD's 2022 Annual Homeless Assessment Report (AHAR), across the United States, the number of people experiencing homelessness increased slightly (less than one percent) between 2020 and 2022. This increase reflects a three percent increase in people experiencing *unsheltered* homelessness, offset by a two percent decline in people experiencing *sheltered* homelessness. However, between 2021 and 2022, *sheltered* homelessness increased

[31] HUD defines "sheltered" homeless as people living in emergency shelters and transitional housing or other temporary settings. "Unsheltered" is defined as people who are staying in places not meant for people to live such as in cars, parks, abandoned buildings, and on the street.

[32] Due to data availability limitations for the City of Gresham, this count is in households. The rest of the chapter uses individual counts.

by seven percent, possibly due to the easing of pandemic-related restrictions that resulted in fewer beds being available and declines in the perceived health risks of staying in a shelter.

Exhibit 43 shows the number of persons experiencing homelessness in Multnomah County in 2017, 2019, 2021[33] and 2022.

Multnomah County's homeless count increased by 30% from 2019 to 2022.

Exhibit 43. Number of Persons Homeless, Multnomah County, Point-in-Time Count, 2017, 2019, 2021, and 2022

Source: Annual Homeless Assessment Report (AHAR) data. 2017-2021

Source: 2022: News Release: Tri-county Point in Time Count numbers, Joint Office of Homeless Services, May 4, 2022

Note: OHCS reported two counts in 2021 – estimated and reported counts. This report uses the estimated counts.

4,177 Persons	4,019 Persons	4,555 Persons	5,228 Persons
2017	2019	2021 (estimated)	2022

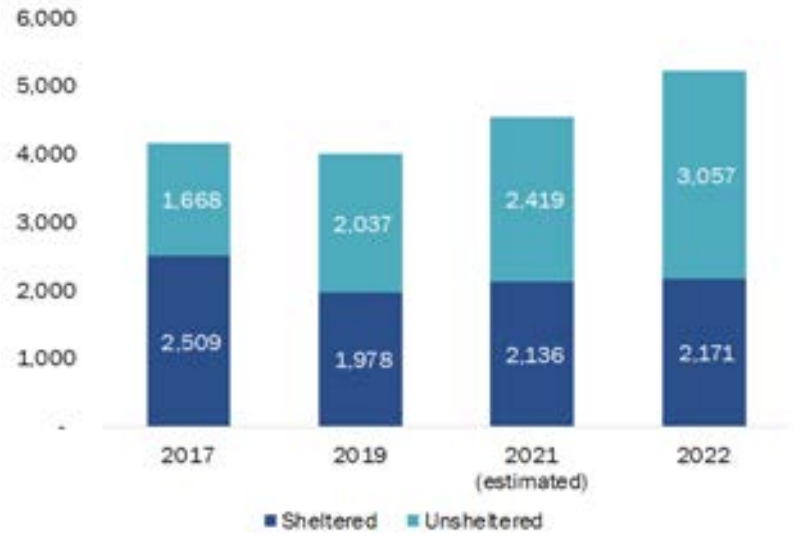
The unsheltered homeless population in Multnomah County has been increasing since 2017. In 2022, an estimated 3,057 people experienced unsheltered homelessness.

Exhibit 44. Point-in-Time Homelessness Estimates for Multnomah County, Portland/Multnomah Continuum of Care, 2017-2022.

Source: Annual Homeless Assessment Report (AHAR) data. 2017-2021

Source: 2022: News Release: Tri-county Point in Time Count numbers, Joint Office of Homeless Services, May 4, 2022[34]

Note: OHCS reported two counts in 2021 – estimated and reported counts. This report uses the estimated counts.



[33] Oregon Statewide Homelessness Estimates report from the Oregon Housing and Community Services presented two counts in their report – *estimated* and *reported* counts. The estimated count was developed to address concerns that data limitations imposed by the COVID-19 pandemic resulted in an undercount. The estimated count is actually just the highest shelter count that was reported during the 2019-2021 period. This report uses the estimated count for 2021. For unsheltered, the 2021 PIT count is not available for all counties, so the report modeled it by adding the predicted 2019-2021 change, determined through analysis of past trends and other homelessness data, to the 2019 PIT count.

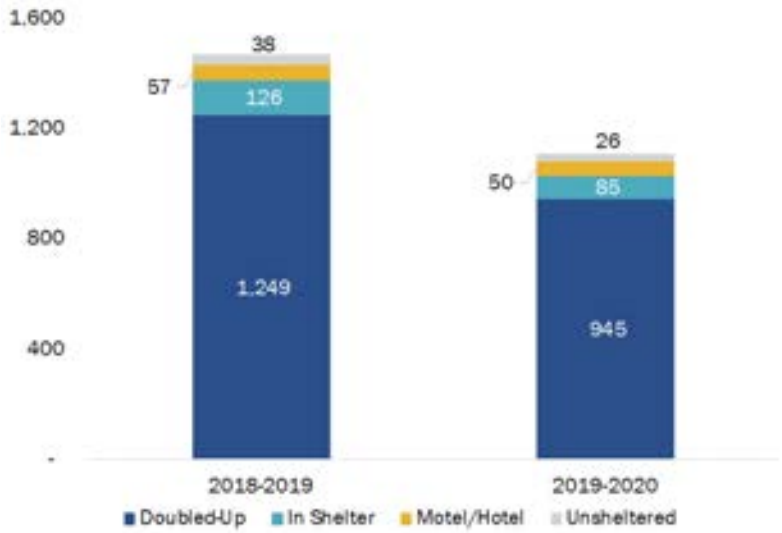
[34] The 2022 PIT count breaks homelessness down into three categories: unsheltered, sheltered, and transitional housing. In the graph transitional housing is combined with sheltered. In 2022, 686 people were in transitional housing in Multnomah County.

About 1,106 students experienced homelessness in the 2019-20 school year. students.

Of these students, 145 were unaccompanied.

Exhibit 45. Students Homeless by Living Situation, Gresham-Barlow, Centennial, and Reynolds School Districts, 2018-2019 and 2019-2020

Source: McKinney Vento, Homeless Student Data.



Housing Affordability Considerations

This section describes changes in sales prices, rents, and housing affordability in Gresham and a comparison of geographies. Both housing sale prices and rents have increased steadily in Gresham and the greater region over the last several years.

Housing Sale Prices

Gresham's median home sales price was $456,000 in December 2021.

Gresham's median home sale price is lower than Multnomah County and most comparison cities.

Exhibit 46. Median Home Sale Price, Gresham and Comparison Cities, December 2021

Source: Redfin.

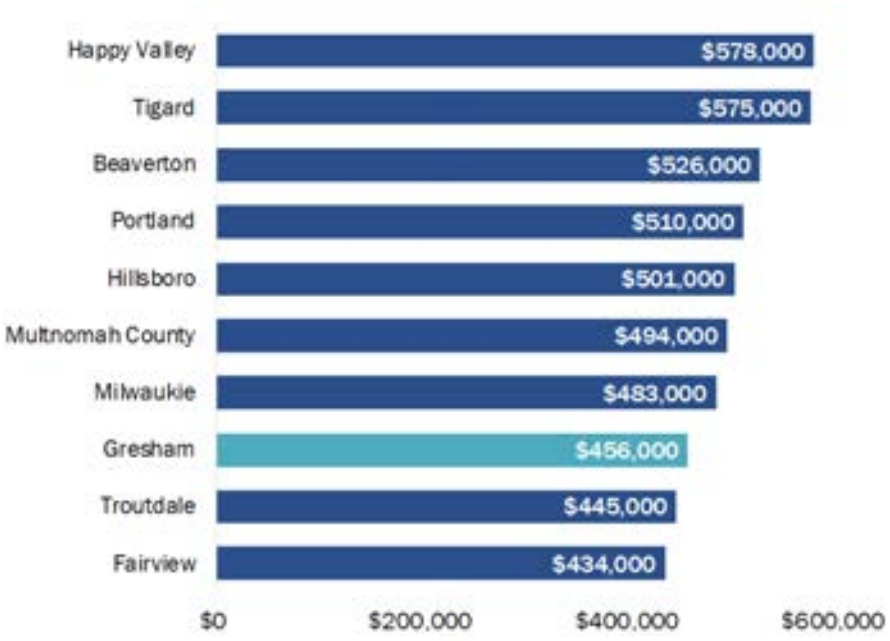
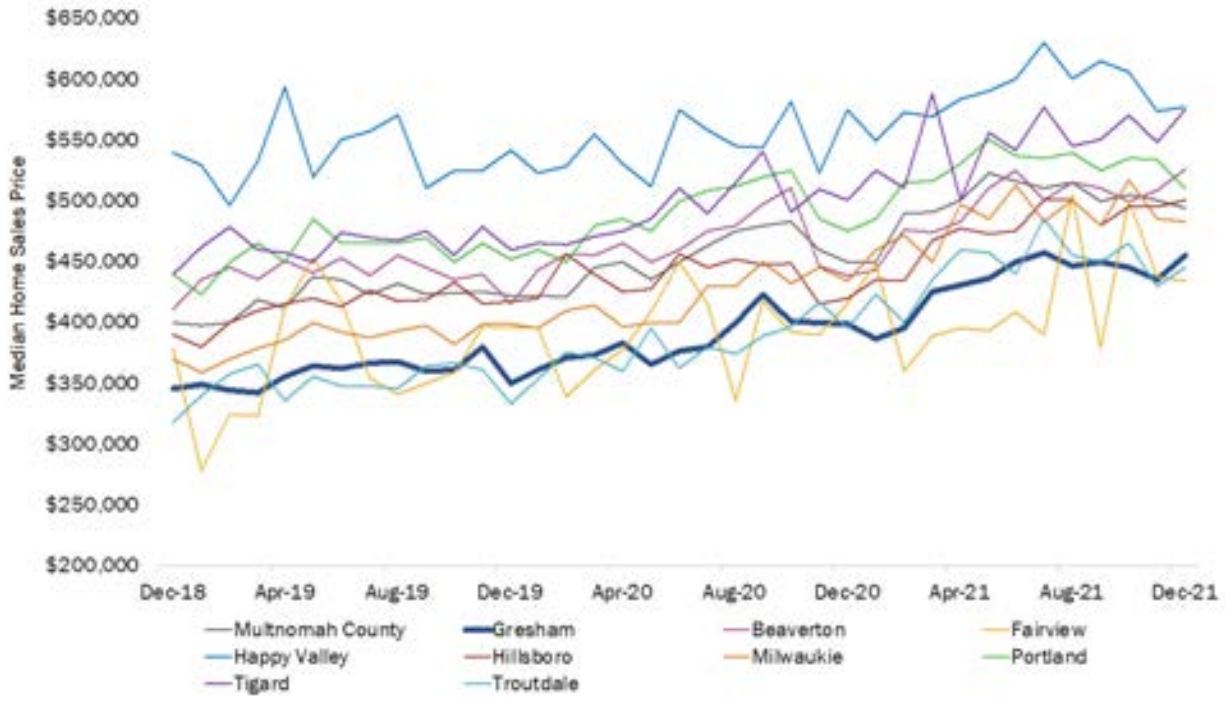


Exhibit 47 shows that Gresham's median home sale price was generally lower than other cities in the region. Between December 2018 and December 2021, the median sale price in Gresham increased by $110,500 (32%).

Exhibit 47. Median Sales Price, Gresham and Comparison Cities, 2018 through 2021

Source: Redfin.



Rental Costs

Gresham has some of the lowest rents in the Portland region, due to its large stock of relatively lower cost market rate housing. The median gross rent in Gresham was $1,178 in the 2015-2019 period, up from $661 in 2000. However, based on a Costar survey of *currently available* rental properties in Gresham in December 2021, the average asking rent for an apartment was about $1,430.

The median gross rent in Gresham was $1,178 in the 2015-2019 ACS 5-year estimate period.

Rent in Gresham is lower than most surrounding cities and Multnomah County's median rent.

Exhibit 48. Median Gross Rent, Gresham, Multnomah County, Oregon, and Comparison Cities, 2015-2019

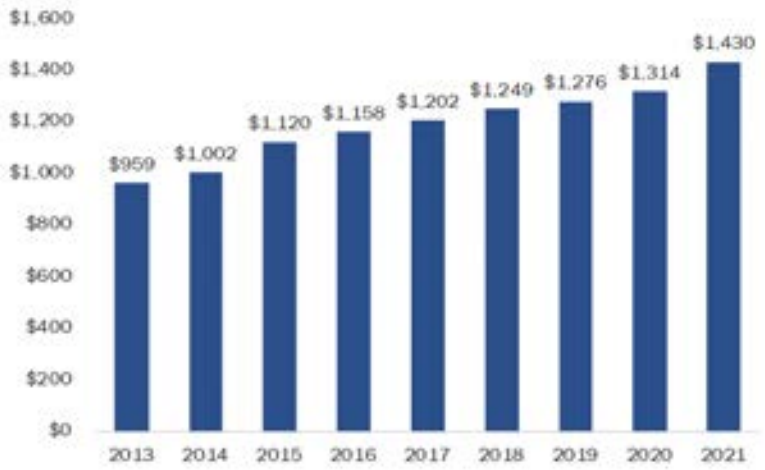
Source: U.S. Census Bureau, 2015-2019 ACS 5-year estimate, Table B25064.

The average asking price per multifamily unit in Gresham has increased steadily over the past decade.

Between 2013 and 2021, Gresham's average multifamily asking rent increased by about 50% or $471, from $959 per month to $1,430 per month.

Exhibit 49. Average Multifamily Asking Rent per Unit, Gresham, 2013 through 2021

Source: CoStar.

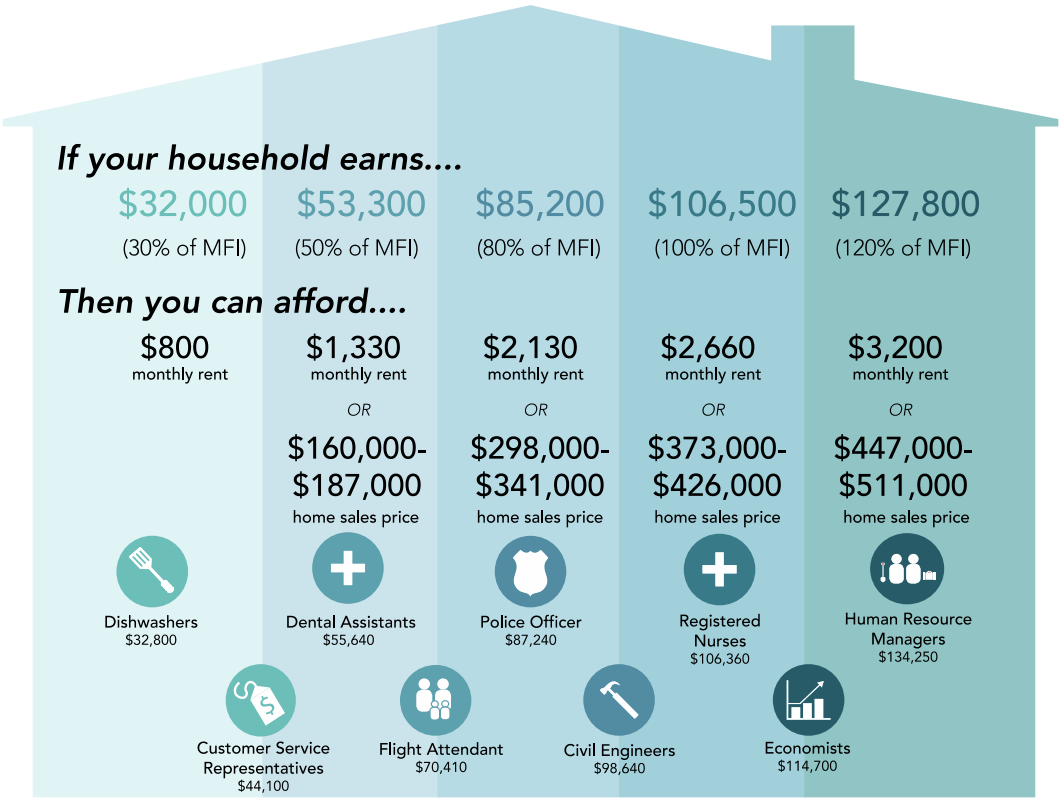


Housing Cost Burden

Financially attainable housing costs for households across the income spectrum in Multnomah County are identified in Exhibit 50. It also provides examples of annual salaries for different job types that fall into each income bracket. For example, a household earning median family income in Multnomah County (about $106,500 per year)[35] can afford a monthly rent of about $2,660 or a home roughly valued between $373,000 and $426,000 without cost burdening themselves. In Gresham, a household would need to earn $114,000 to $130,000 (107% to 122% of MFI for a family of four) to afford the median sales price of a home in Gresham. A household would need to earn about $57,000 (54% of MFI for a family of four) to afford the rent of a market-rate, apartment in Gresham ($1,430 per month, not accounting for basic utilities).

Exhibit 50. Financially Attainable Housing, by Median Family Income (MFI) for Multnomah County ($106,500), Gresham, 2022

Source: U.S. Department of Housing and Urban Development, Multnomah, 2022. Oregon Employment Department.
Note: The estimates of affordable home sales price in below are rough estimates. The affordable home sales prices will vary for each borrowing household, based on interest rates, loan term, down payment, and similar factors. These sales prices are illustrative estimates and do not make assumptions about interest rates, amount of down payment, whether mortgage insurance will be required, or other factors that are unique to an individual household's mortgage.



[35] Note that Median Family Income for the region is different than Median Household Income (MHI) for Gresham (see Exhibit 26). MFI is determined by HUD for each metropolitan area and non-metropolitan county. It is adjusted by family size – in that, 100% MFI is adjusted for a family of four. MHI is a more general term. MHI includes the income of the householder and all other individuals 15 years old and over in the household, whether they are related to the householder or not.

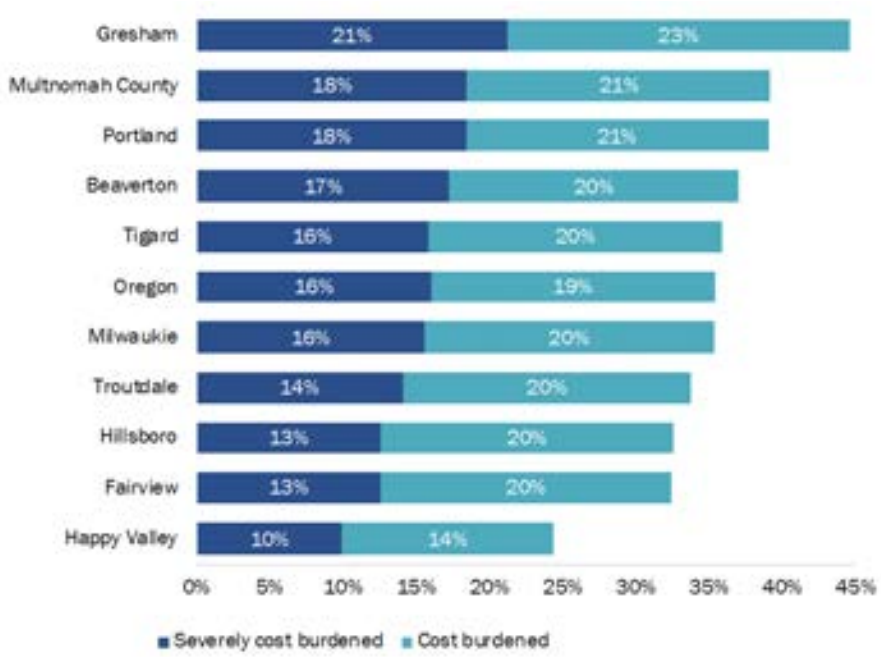
Because the local housing market cannot produce income-restricted, subsidized affordable housing at sufficient levels – and because it cannot often produce middle income housing without subsidy, many households in Gresham are cost burdened (as Exhibit 51 through Exhibit 56 show). A household is defined as cost burdened if their housing costs exceed 30% of their gross income. A household that spends 50% or more of their gross income on housing costs is said to be severely cost burdened.

Overall, about 44% of all households in Gresham were cost burdened.

Gresham had one of the largest shares of cost burdened households relative to all comparison cities as well as Multnomah County and Oregon for the 2014-2018 ACS 5-year estimate period.

Exhibit 51. Housing Cost Burden, Gresham, Multnomah County, Oregon and Other Comparison Cities, 2014-2018

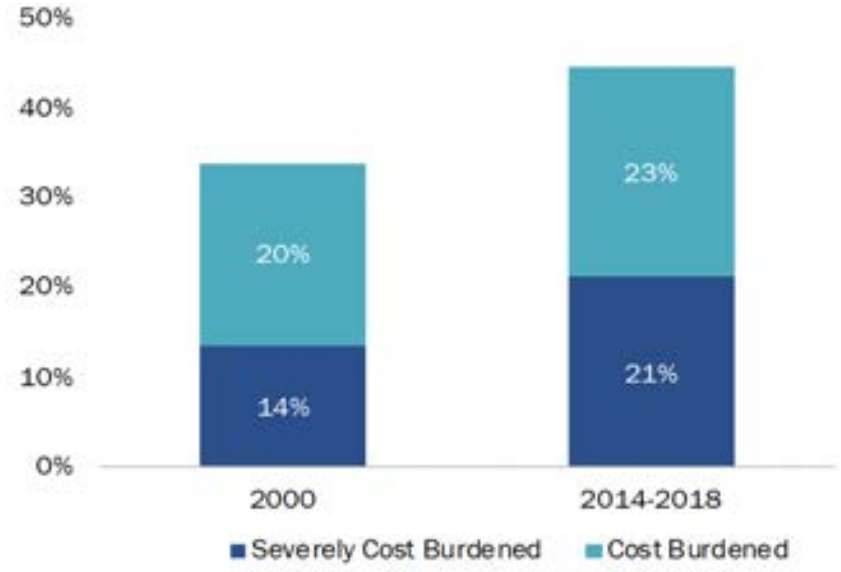
Source: U.S. Census Bureau, 2014-2018 ACS Tables B25091 and B25070.



From 2000 to 2018, the number of cost-burdened and severely cost-burdened households grew by 10% in Gresham.

Exhibit 52. Change in Housing Cost Burden, Gresham, 2000 to 2014-2018

Source: U.S. Census Bureau, 2000 Decennial Census, Tables H069 and H094 and 2014-2018 ACS Tables B25091 and B25070.



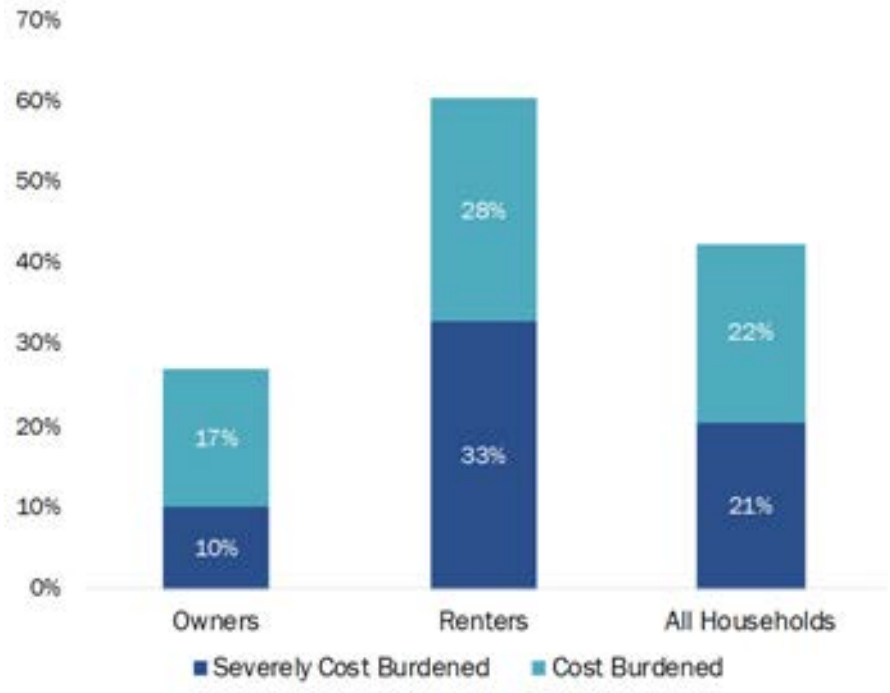
Renters in Gresham were much more cost burdened than homeowners.

About 61% of Gresham's renters were cost burdened or severely cost burdened, compared to 27% of homeowners.

About 33% of Gresham's renters were severely cost burdened (meaning they paid more than 50% of their income on housing costs alone).

Exhibit 53. Housing Cost Burden by Tenure, Gresham, 2015-2019

Source: U.S. Census Bureau, 2015-2019 ACS Tables B25091 and B25070.



Nearly three-quarters of renter households earning less than $20,000 were severely cost burdened.

Most households (95%) earning between $20k and $35k per year are cost burdened and over half of households earning between $35k and $50k per year are cost burdened. This pattern of cost burden by income is consistent with statewide trends.

Exhibit 54. Cost Burdened Renter Households, by Household Income, Gresham, 2015-2019

Source: U.S. Census Bureau, 2015-2019

ACS Table B25074.

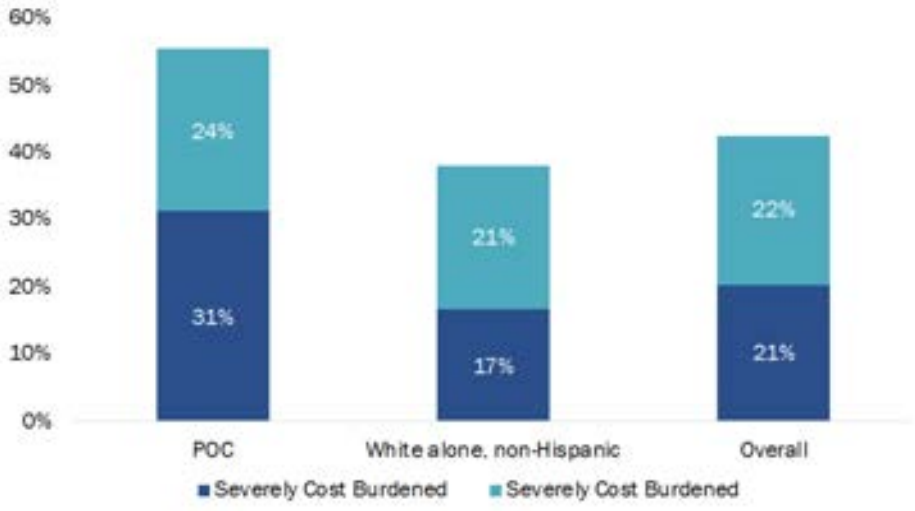
55% of BIPOC households were cost burdened or severely cost burdened compared to 38% of White households.

31% of BIPOC households were severely cost burdened spending 50% or more of their gross income on housing.

Exhibit 55. Cost Burdened for BIPOC, White non-Hispanic, and All Households, Gresham, 2014-2018

Source: CHAS Table 9

Note: BIPOC includes Hispanic/Latinx households.



BIPOC households were more likely to be severely cost burdened whether they rent or own a home compared to White households.

68% of BIPOC households that rent were cost burdened or severely cost burdened compared to 56% of White households.

Exhibit 56. Cost Burdened by Tenure for BIPOC, White non-Hispanic, and All Households, Gresham, 2014-2018

Source: CHAS Table 9.

Note: BIPOC includes Hispanic/Latinx households.

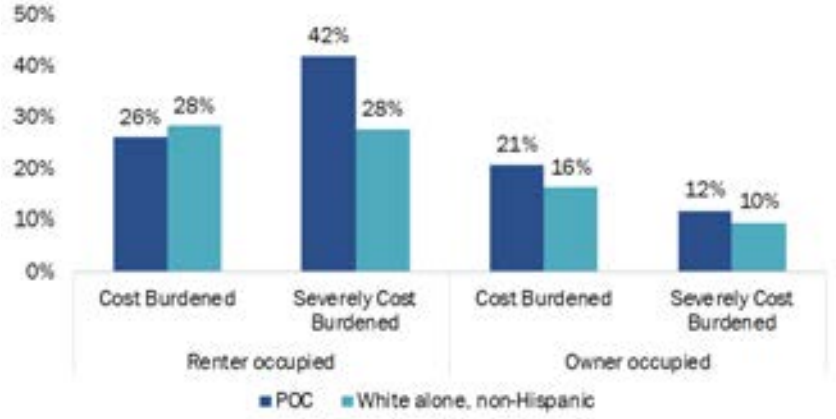


Exhibit 57 and Exhibit 58 show cost burden in Oregon for renter households for seniors, people of color, and people with disabilities.[36] This information is not readily available for a city with a population as small as Gresham, which is why we present statewide information. These exhibits show that these groups experience cost burden at higher rates than the overall statewide average.

[36] From the report *Implementing a Regional Housing Needs Analysis Methodology in Oregon*, prepared for Oregon Housing and Community Services by ECONorthwest, March 2021.

Renters 65 years of age and older were disproportionately rent burdened compared to the state average.

About 60% of renters aged 65 years and older were rent burdened, compared with the statewide average of 48% of renters.

Exhibit 57. Cost Burdened Renter Households, for People 65 Years of Age and Older, Oregon, 2018

Source: S. Census, 2018 ACS 1-year PUMS Estimates. From the Report *Implementing a Regional Housing Needs Analysis Methodology in Oregon: Approach, Results, and Initial Recommendations* by ECONorthwest, August 2020.

Renters with a disability in Oregon were disproportionately cost burdened.

Exhibit 58. Cost Burdened Renter Households, for People with Disabilities, Oregon, 2018

Source: S. Census, 2018 ACS 1-year PUMS Estimates. From the Report *Implementing a Regional Housing Needs Analysis Methodology in Oregon: Approach, Results, and Initial Recommendations* by ECONorthwest, August 2020.

APPENDIX B: INTERESTED PARTY ENGAGEMENT CONDUCTED BEFORE THE HPS

Between 2018 and 2022, the City of Gresham convened residents in several planning processes related to housing. The following is a summary of Gresham's primary public engagement efforts regarding housing and housing production along with key findings from each effort.[37]

Prior Public Engagement

2018-2019 Task Force on Housing

Purpose: Discuss existing housing conditions in Gresham, explore policies that impact housing, discuss best practices, and develop toolkits to provide for the housing needs of residents in the City of Gresham. This Task Force met nine times and ended with a presentation to the City Council

Attendees: Members/Representatives of: Home Forward, Gresham Planning Commission, Property Owner/Landlords, Port of Portland, Task Force on Homelessness, Multifamily Property Managers, Neighborhood Association, Tenant Groups, Multnomah County CIC, Community Development and Housing Subcommittee, Tri-Met Board, Native American Youth and Family Center

Key Findings:

Household support - The Task Force recommended actions that support residents in finding and remaining in a home:

- Increase services for renters.
- Provide down payment assistance and rent assistance.
- Strengthen the rental inspection program. Meeting attendees expressed concern of potential retaliation to renters who report violations. The Task Force recommended the City explore protections to reduce the risk of retaliation and/or discriminatory practices that could arise during inspections.
- Monitor and support implementation of state rules.
- Increase education for renters, home buyers and property managers.

[37] Please note that in addition to these efforts the City has a Community Development and Housing Subcommittee. The Subcommittee advises on community development and housing goals via the process of budgeting Gresham's federal CDBG and HOME funding. They provide input for the City's Consolidated Plan submitted to HUD every 5 years. The Consolidated Plan includes goals related to housing and community development. The City also hosts a regular Development Advisory Group to keep the development community informed and learn from their experiences.

Need for all types of housing and recommended actions to increase the supply and affordability of housing - Altogether, the Task Force recommended over thirty actions for housing in the City. Examples include:

- **Site Selection and Land Control** - The Task Force recommended actions to assist in land acquisition for housing, including expanding current relationships with land trusts and programs to identify purchasing rights and expiring contracts for affordability.
- **Project Design and Permitting** - There are several actions that can support more efficient and cost-effective development approvals including pre-development assistance, fast tracking permitting, and exploring space efficient housing in more locations throughout the City.
- **Financing** - Development grants and other mechanisms can lower the overall cost of development.
- **Operations** - This recommendation includes actions to make operations more efficient for housing investments.

2018-2019 Metro Affordable Housing Bond Local Implementation Planning

Purpose: Inform Gresham priorities for the Local Implementation Strategy with Metro for Gresham's share of Metro Housing Bond funding.

Meetings:

- Residential Service Coordinators meeting
- East County community-based organization meeting
- Coalition of Gresham Neighborhood Associations
- Planning Commission (twice)
- City Council (twice)
- Nonprofit and developer outreach
- Focus groups and listening sessions
- El Progama Hispano Catolico - Latinx community (including one in Spanish)
- Beyond Black – African American community

Key findings:

Meeting participants agreed that homeownership should be a priority.

- The plan should consider the special needs of families, elders and/or disabled people, renters, those transitioning into housing (from houselessness/the criminal justice system/foster care/education), and those from historically underserved populations.
- The needs of Gresham's neighborhoods should be met, including community meeting spaces (schools and parks), services, and property maintenance.

- General issues included transit access, perceived safety, need for services, commuting out of Gresham for work, lengthy screening processes, and aging/unmaintained housing stock.
- General desires included financial assistance, increasing services, infrastructure provided at time of development, more housing for "working families" (between market rate and deeply affordable housing), new development that complements or enhances existing neighborhood character, opportunities for mixed use developments, a balance of investments in different parts of the City, matching housing types to access and services, and having standards to prevent poor quality development.

Annual Community Needs Hearing

Purpose: House Bill 4006 (2018) requires cities greater than 10,000 in population with severely rent-burdened households (including Gresham) to hold a public meeting to discuss the causes of severe rent burdens, the barriers to reducing rent burdens, and possible solutions. In 2021, 14 individuals participated in the discussion. The annual community needs meeting also acts as community engagement to help inform the Community Development and Housing Subcommittee as well as Gresham City Council on community needs and priorities for Gresham's annual allocations of federal HUD CDBG and HOME funding. See Appendix B for a summary of the 2021 Multnomah County and Gresham Community Needs Hearing.

Attendees: Local service providers, representatives from community organizations and other community members.

Key Findings:

- There is a strong need for services that help lift families out of poverty or chronic houselessness. This would include housing assistance and wrap around services to help residents address needs such as mental health services, food assistance, free and affordable childcare, and eviction prevention.
- The Black, Indigenous, and People of Color (BIPOC) communities have faced ongoing housing discrimination impacting both renters and homebuyers.
- Often the only units that are "affordable" for lower income families are older units that are in poor condition.
- There is a need for various upgrades and repairs to improve transportation and pedestrian safety.
- There is need for job training and placement programs that focus on helping residents attain living wage employment are needed.

Other Engagement

Other one-time engagement or engagement for specific projects are listed in Exhibit 59. Since March 2019, Gresham has had more than two dozen meetings focused on housing issues, ranging from community meetings, online surveys, discussion groups, and hearings.

Exhibit 59. Gresham's Housing Stakeholder Engagement

Date	Type	Subject
Mar 2019	Design Commission	Rockwood 10 (affordable housing development) Hearing
October 2019	City Council	Vertical Housing Conditional Certification – Alta Civic Station Resolution
Feb 2020	City Council	Intergovernmental Agreements on Metro Affordable Housing Bond Council Business
Apr 2020	RFP	RFP for projects for Metro Affordable Housing Bond
Sep 2020	City Council	Project Concept Endorsement Metro Affordable Housing Bond Council Business
Nov 2020	Neighborhood Coalition	Housing Capacity Analysis
Nov-Jan 2020	Online Survey	Middle Housing
Dec 2020	Focus Group	Housing Capacity Analysis
Dec 2020	Council	Affordable Housing Bond/Albertina Kerr Council Business
Dec 2020	Virtual Open House	Middle Housing
Feb 2021	City Council	Housing Capacity Analysis Work Session
Mar 2021	City Council	Middle Housing Work Session
Mar 2021	Planning Commission	Housing Capacity Analysis Work Session
Mar 2021	Neighborhood Coalition	Housing Capacity Analysis
Apr 2021	Virtual Open House	Housing Capacity Analysis
Apr 2021	Online Survey	Housing Capacity Analysis
May 2021	Council	Affordable Housing Bond/Rockwood 10 Council Business
May 2021	Virtual Open House	Middle Housing
Jun 2021	Planning Commission	Middle Housing Work Session
Jun 2021	Neighborhood Coalition	Middle Housing
Jun 2021	Planning Commission	Housing Capacity Analysis Hearing
Jul 2021	Public Forum	Diversity in Housing forum
Jul 2021	City Council	Housing Capacity Analysis Work Session
Aug 2021	City Council	Housing Capacity Analysis Hearing
Sep 2021	Design Commission	Middle Housing Work Session

Date	Type	Subject
Oct 2021	Public Forum	Fair Housing Landlord Forum
Oct 2021	City Council	Vertical Housing Tax Credit (amendment): Alta Civic Station Hearing
Nov 2021	City Council	Aldercrest Apartments: Short Term Funding Agreement (American Rescue Plan Act funds) Resolution on Consent
Nov 2021	City Council	Middle Housing Work Session

APPENDIX C: EXISTING POLICIES TO ADDRESS GRESHAM'S HOUSING NEED

In early 2022, The City of Gresham created the following list of housing measures (or policies or strategies) that were in place to address the community's housing needs. Several of the potential or in-development strategies identified on this list are now effective, including allowance of middle housing development and the extension of the Rockwood Urban Renewal Area timeframe.

Existing Housing Policies (2022)

Zoning

Zoning Changes to Facilitate the Use of Lower-Cost Housing Types. Middle Housing is allowed as required by HB 2001 as well as in other districts. The code broadens the definition of multifamily to include attached and detached configurations.

Code Provisions for ADUs. There is an existing development code section permitting ADUs under certain provisions.

Promote Cottage Cluster Housing. Cottage Cluster is in the draft Middle Housing code and is currently in the Innovative Housing Development Code section. Cottage Clusters are allowed through zoning, but not yet promoted.

Add Restrictive Covenants to Ensure Affordability. The City applies these covenants in specific applications such as Metro Housing Bond projects, HOME, CDBG.

Align Lot Division Density with Zoning Density. Part of the City's current land division process.

Increase Density near Transit Stations and Regional Multi-use Trails. Built into land use district density provisions. When Gresham begins to implement the requirements of the State's new Climate Friendly and Equitable Communities rule, development near transit stations and in other key areas of the City will continue to have an emphasis on higher density development.

Ensure Land Zoned for Higher Density is not Developed at Lower Densities. Minimum density provisions and standard practice as planners work with developers.

Reduce Regulatory Impediments

Reduce parking requirements. Per HB 2001, Middle Housing in HB 2001 districts will have lower parking requirements. When Gresham begins to implement the requirements of the State's new Climate Friendly and Equitable Communities rule, the City will need to comply with rules for reduced parking requirements in Climate Friendly Areas.

Conversions. Per HB 2001 the proposed 7.0420-40 Design Standards will not apply to conversions to a middle housing type.[38]

Expedite Permitting for Needed Housing Types. Expedited permitting for affordable multifamily developments only, per code, the City reviews these applications within a 100-day review period instead of 120 days.

Financial Incentives

Reduce or Exempt SDCs for ADUs. ADUs do not pay water or sewer SDCs, Transportation SDCs apply and stormwater SDCs are based on the site's impervious area.

New practice being implemented. Deferral of SDCs for multifamily residential development (financing also available). SDCs related to new single family construction payable prior to request for final inspection (effective for all single-family residential development, developers need not apply for this timing). In place since Fall 2021.

Financial Resources

Community Development Block Grant (CDBG). Gresham typically receives between $1 million and $1.2 million annually in CDBG funding from HUD. Development of affordable housing and down payment assistance are eligible CDBG funding categories. Gresham historically utilizes HOME funding for those activities because both HOME and CDBG funding levels are limited, and CDBG presents more flexibility in the use of funds. Gresham has utilized the Section 108 loan program to facilitate a loan to Human Solutions for the acquisition/development of the Rockwood building/associated rental housing. Opening a line of credit for a non-profit/developer to utilize a Section 108 loan is a potential development tool. While not related to housing production, Gresham funds many programs that support housing stability with CDBG funding. The programs include emergency home rehabilitation and accessibility upgrades and programs that provide rent assistance and other stability services.

HOME Program. The City directs a significant portion of its $400,000 to $650,000 in HOME funding toward homebuyer down payment assistance and rental assistance, new development projects, and an ongoing partnership with Proud Ground community land trust. Gresham will receive a 1-time allocation of just under $2.3 million in specific HOME-ARP funding in 2022. The City is using these funds for supportive services, such as rental assistance, support for renters, and job training and placement programs.

General Obligation Bonds. The City has developed a plan for how it would spend Metro Housing Bond Dollars. Gresham's share of the bond funding totals $26.7 million. Gresham's target number of affordable housing units is 187, with 77 deeply affordable and 93 family-sized units. Gresham has allocated funding to two projects and has approximately $10 million remaining. The two projects funded include 194 units, and the City met the target for deeply

[38] This applies to the existing structure being converted (internal conversions), but any new structures on site will be subject to the design standard.

affordable units. Gresham's remaining metric is to produce 23 more family-sized units with the remaining $10 million.

Gresham opened an RFP in January and expects to allocate the remaining funding this year. The remaining funding will be utilized for development over approximately the next two years. Affordable homeownership, new construction of affordable rental housing, and the rehab and conversion of market-rate housing to affordable are all eligible development types. Bond regulations dictate a 60-year affordability period, so any ownership development would likely take the form of a land trust model.

Tax Exemption and Abatement

Vertical Housing Development Zone Tax Abatement. VHDZ includes an additional property tax abatement (on the land) for housing affordability, per State statute. The City's current VHDZs are restricted to Downtown and Civic area. The City is exploring expanding the zone to Rockwood Triangle and 223rd Ave and Glisan Street and altering the criteria by which the City evaluates VHDZ proposals. This will be presented to Council in mid-2023. The City is open to inclusion of other areas in the future.

Other: Home Forward statutory incentive for tax exemption. Gresham has an IGA/partnership pilot program with housing developers that mitigates the City's loss of tax revenues over a 20-year horizon. When Home Forward collects the fee from a developer, the City gets a portion of the fee.

Land, Acquisition, Lease, and Partnerships

Public/Private Partnerships (P3). Metro Partnership for mixed use development of the Civic Sites.

Other

Rockwood Urban Renewal Extension. The Gresham Redevelopment Commission has extended the existing urban renewal area for 6 years to fully use the area's maximum indebtedness. Gresham is currently exploring an Urban Renewal Area expansion.

APPENDIX D: EVALUATION CRITERIA FOR HPS ACTIONS AND ACTION DESCRIPTIONS

This appendix summarizes the evaluation criteria used to evaluate actions for inclusion in the HPS and contains a description of each action in the HPS. The evaluation criteria (summarized below) fall into five categories: income-level served, development impact, administrative complexity, funding required, and political acceptability.

Actions Evaluation Criteria

MFI Targeted

Gresham would like to see development and preservation of housing affordable at all income levels. ECONorthwest defined income levels based on 2022 Median Family Income for Multnomah County (as defined by the U.S. Department of Housing and Urban Development) for a household of four people, as follows:

Extremely Low and Very Low Income	**Low Income**	**Middle Income**	**High Income**
Extremely Low Income: Less than 30% MFI Less than $31,950 Very Low Income: 30% to 50% of MFI $31,950 to $53,250	50% to 80% of MFI $53,250 to $85,200	80% to 120% of MFI $85,200 to $127,800	120% of MFI+ $127,800+
49% of Gresham households	*21% of Gresham households*	*18% of Gresham households*	*13% of Gresham households*

Impact

Does the action result in a little or a lot of change in the housing market? How many units might be produced, relative to other tools? Can the tool leverage investments from other partners?

How long will the impact last? The scale of impact depends on conditions in the City, such as the City of Gresham's other existing or newly implemented housing policies, land supply, and housing market conditions. ECONorthwest defined the scale of impact as follows:

Small	Medium	Large
Will not directly result in development of new housing or it may result in development of a small amount of new housing. May not improve housing affordability in and of itself. May be necessary but not sufficient to increase housing affordability.	Could directly result in development of new housing. May not improve housing affordability in and of itself. May be necessary but not sufficient to increase housing affordability.	Could directly result in development of new housing. May improve housing affordability in and of itself. May still need to work with other policies to increase housing affordability.
~1-3% of needed housing	*~3% to 5% of needed housing*	*~5% to 10% (or more) of needed housing*

Administrative Burden

How much staff time is required to implement the action? Is it difficult to administer once it is in place? ECONorthwest defined administrative complexity, as follows:

Low	Medium	High
Requires some staff time to develop the action and requires some on-going staff time to implement the action.	Requires more staff time to develop the action and requires more on-going staff time to implement the action.	Requires significant staff time to develop the action and/or significant on-going staff time to implement the action.

Funding Required

What financial resources are required to implement the action? This includes the cost to establish and maintain a program. For funding sources, the easier it is to administer the tax or fee, the more net revenue will be available to offset costs for housing production or preservation. ECONorthwest defined funding required, as follows:

Low	Medium	High

Has relatively small funding impacts.	Has relatively moderate funding impacts.	Has relatively larger funding impacts.

Acceptability

Political acceptability assesses the acceptability of the action for stakeholders. It considers expected political acceptability for elected officials and the public at large. If the action is dependent on the action of another organizational entity, the action is less likely than if the City controlled all aspects of tool implementation. ECONorthwest defined political acceptability, as follows:

	Low	**Medium**	**High**
Potential resistance from stakeholder groups, the public at large, and/or elected officials	Likely significant resistance	Moderate resistance	Little resistance
Coordination with another entity required	Significant	One-time or ongoing coordination	Little or none
Planning Commission review and/or City Council acceptance/adoption required	Review and/or adoption required	Review and/or adoption required	Little or none

Funding Evaluation

While this project did not include a robust funding analysis component, Exhibit 60 provides an overview of which funding sources advanced to inclusion in the HPS.

Exhibit 60. Funding Sources Evaluated

Revenue Source	Recommendation HPS Inclusion?	Rationale for Inclusion/Exclusion?
Future TIF District(s)	Yes	Could provide a stable, dedicated revenue source in an area with limited existing infrastructure.
Use of CET funding	Yes	Evaluation of a CET as a funding source to support a potential System Development Charge waiver/reduction and/or tax exemption
Grants and State funding	No	Pursue as the City has staff capacity, without dedicated staff grants may not provide substantial source of funding
Private donations and gifts	No	Pursue as the City has staff capacity, without dedicated staff this is not likely to be a substantial source of funding
New local option levy	No	Requires voter approval, unlikely to pass
Increased lodging tax	No	Only 30% increased revenue could go to housing; 70% dedicated to tourism promotion
Increase Systems Development Charges	No	Would place burden on market-rate development
Increased utility fee	No	Difficult to target charges, not a large nexus between source and use of funds
New business license fee	No	May hinder local business development
New food and beverage tax	No	Requires voter approval, unlikely to pass
New sales tax	No	Not politically feasible
New payroll/business income tax	No	May not be politically feasible
New real estate transfer tax	No	Not legal in Oregon
New vacant/second home tax	No	Untested and possibly not legal in Oregon

Potential Partners

Implementing the actions in this strategy will require participation of key partners who have roles essential to the construction, delivery, and preservation of housing units. Exhibit 61 shows how each of the partners would play a role in different actions.

Exhibit 61. City and Partner Roles

Actions	City of Gresham	Other Government Agencies	Affordable and Market Rate Developers	Local Nonprofits	Other Partners
1A. 2A. Explore provision of grants/loans for new development within existing and potential new TIF District(s)	Develop program; funding	Funding	Provide input		
1B, 2B. Explore rehab grants to low-cost, market-rate rental property owners in exchange for affordability agreements in existing and potential new TIF District(s)	Convening; funding	Partnership; funding		Partnership	Property owners: provide input; use the program
1C, 2C. Explore partnerships to acquire and stabilize existing low-cost market rate housing within existing and potential new TIF District(s)	Develop and enforce program; funding; outreach			Partnership; development and services; outreach	Property owners: provide input; use program
1D, 2D. Explore funding and partnerships for housing-related infrastructure development in existing and future TIF District(s)	Partnership with Urban Renewal Agency	Partnership; support and resources		Development and services; outreach	
2E. Explore land banking, parcel assembly, and public land disposition efforts within potential new TIF District(s)	Contribute land; funding; partnership	Partnership; potential contributors of land	Partnership; development	Partnership; development and services	Faith-based organizations and other potential contributors of land
3A. Explore and reduce barriers for affordable homeownership models	Partnership; funding and resources; code revision; outreach	Funding	Development	Development and services	
3B. Reduce zoning barriers for housing development, with a focus on townhouse and multifamily development	Revise development code		Provide input		Provide input
3C. Streamline permitting processes for all housing types, with a focus on barriers to	Revise permitting processes		Provide input		Provide input

Actions	City of Gresham	Other Government Agencies	Affordable and Market Rate Developers	Local Nonprofits	Other Partners
townhouses and multifamily housing					
3D. Implement Rent Assistance Pilot Program and explore partnerships to address and prevent homelessness	Partnership; provide resources; outreach and advocacy	Partnership; support and resources		Partnership; development and services; outreach	
3E. Extension/expansion of tax abatement agreement with Home Forward	Manage the IGA	Outreach; provide services	Funding		
3F. Explore reduction/waiver of System Development Charges for certain needed housing types, including those not being produced by the market	Develop and implement program		Provide input		
3G. Evaluate the Multiple Unit Property Tax Exemption	Outreach, develop criteria, implement, reporting	Consider exemption approval	Provide input		
3H. Evaluate the Nonprofit Corporate Low Income Tax Exemption	Outreach, develop criteria, implement, reporting and admin	Consider exemption approval	Provide input	Provide input	
3I. Explore a Gresham-specific Construction Excise Tax	Develop and implement program		Provide input		

Action Descriptions

For each HPS action, a rationale, description, the role of the City, anticipated impacts, potential risks, implementation steps, and implementation timeline is described below.[39] There are several actions to be implemented in potential new TIF Districts (2A-2E). Prior to implementing this action, new district(s) must be established. New TIF District(s) will need clear objectives and community support, as they are voter approved.

For brevity, implementation steps to pursuing a new district are broadly generalized below:

[39] For each action partners are described in Exhibit 60.

- Work with City Council to identifying potential district boundaries, housing and non-housing goals, and key projects,
- Forecast funding; match funding projections to URA goals and projects,
- Conduct community outreach, and
- Seeking voter approval.

1A, 2A. Explore provision of grants and loans for new development within existing and potential new TIF District(s)

Rationale: Tax increment financing is a flexible funding tool that can support new housing development within a TIF District. Building affordable housing often costs more than the funding available for the development, leaving a funding gap, therefore, developers need subsidies. Gresham has one TIF District, the Rockwood-West Gresham TIF District, which was established in 2003. In May 2022, Gresham voters approved an extension of the Rockwood-West Gresham TIF District until 2029.[40] Over the next six years, the Gresham Redevelopment Commission is forecasted to have approximately $30 million remaining to invest toward new projects, technical assistance such as business grants, debt, and agency administration.[41]

The City is also considering creating a new TIF District. One or more new TIF Districts with housing goals could be created. The Agency could choose to spend a portion of the funding on projects to support new affordable housing development.

Description: A city can use tax increment dollars to directly invest in a specific affordable housing project. These grants or loans can serve as gap funding to improve development feasibility. The City could consider contributing to programs that are successfully operating, such as non-profit land trusts or even other government agencies that have the administrative capacity to maintain compliance requirements over time, using intergovernmental agreements.

The City can help reduce the funding gap by providing direct subsidies to support the development of multifamily rental, middle housing, and affordable ownership projects that are affordable to families making up to 100% of MFI in the long term. These subsidies could fund predevelopment costs (e.g., due diligence), serve as lower-cost capital for construction financing (with lower interest rates), or provide direct up-front grants during the development phase in exchange for deeper levels of affordability.

The City could fund these using tax increment financing in existing and potential future TIF Districts. Within the Rockwood-West Gresham TIF District, funding might focus on the development of housing affordable to 80% to 120% of MFI. In new TIF Districts, funding might focus on housing affordable from 0% to 120% of MFI.

[40] https://greshamoregon.gov/Urban-Renewal/

[41] https://gresham.granicus.com/MetaViewer.php?view_id=2&clip_id=911&meta_id=57971

City Role: The City could provide direct funding to support affordable housing development. City would need to set up investment criteria and monitor any agreements made in coordination with the grants.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely, very, and low-income (rental) and (ownership)	0-60% MFI (rental) 60-120% MFI (ownership)	Both	Medium*

*Medium. Depending on the level of funding, the City's ability to provide locally generated gap funding could help to attract more affordable housing producers to the area.

Potential Risks: A key risk with using urban renewal to support affordable housing development in the TIF District is granting too many property tax exemptions for new affordable housing development, reducing growth of the property tax base in the URA. In addition, funds spent on affordable housing reduce funds available for other priorities. Generally, if the TIF investments align with City goals, the City is less likely to encounter political headwinds, especially if the investments achieve multiple community goals.

Implementation Steps:

- Within the Rockwood-West Gresham Urban Renewal District, identify investments that align with the plan goals.
- Determine type(s) of new construction subsidies the City would offer (e.g., direct project loans/grants, etc.)
- Determine investment criteria:
    - Level of affordability the City will prioritize for funding. The options are (1) publicly subsidized housing affordable to households earning less than 60% of MFI, (2) low- and moderate-income affordable housing affordable to households earning between 60% and 120% of MFI, or (3) both.
    - Other criteria could include long-term affordability requirements, locations for project subsidy, alignment with Climate Action Plan goals, size of development, distance to key amenities, access to transit, equity considerations, sustainability considerations, and other criteria.
- Quantify the level of subsidy the City is willing to commit to on any given project. Should there be a cap on direct project subsidy investments for any one site or a cap based on funding per new dwelling unit?

Funding or Revenue Implications: Tax increment financing would be used to implement this action in TIF Districts.

1B, 2B. Explore rehabilitation grants to low-cost market-rate property owners in exchange for affordability agreements within existing and potential new TIF District(s)

Rationale: Much of the housing in Gresham that is affordable to low- and moderate-income households is older, privately-owned housing that is not subject to affordability restrictions. This housing may have deferred maintenance issues (and, in some cases, owner neglect) because of a lack of resources to make improvements and pay for repairs. When rehabilitating housing units in multifamily buildings, most property owners increase rents because they make improvements that enhance what they can charge. Keeping low-cost housing both habitable and affordable reduces the need to subsidize new construction. By offering rehabilitation grants tied to affordability requirements, the City could prevent the loss of affordable units while also ensuring that low- and moderate-income households have access to safe, updated housing.

Description: The City can work with property owners of low-cost unregulated housing to support needed repairs without displacing residents. The City would work with partners to assemble a pool of money to help unregulated properties recapitalize their loans and/or pay for necessary capital repairs. Low interest loans or grants to non-regulated affordable housing owners would be made in exchange for agreements to rent units below market for a specified period.

The City would need to consider the terms of affordability (how far below market would the units be required to rent and how long would units have to remain affordable), required level of habitability, how the City would monitor and enforce compliance, how to minimize displacement of residents due to rehabilitation.

City Role: Funder and monitor of rehabilitation and affordability per agreements.

Community Housing Fund or the Network for Oregon, Affordable Housing could be potential partners to explore program structure, guidance, and collaboration. Portland Affordable Housing Preservation Partnership could help to identify properties and investors.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Moderate	60-80% MFI	Rental	Depending on funding levels, these funds can be a powerful tool for preservation.

Potential Risks: Rehabilitation assistance must be enough to entice owners to participate and should be commensurate with the restrictions. The City will want to carefully consider affordability requirements, so that these properties maintain long-term affordability.

Implementation Steps:

- Conduct additional study. The City can explore:
    - What rate of return would the City expect on its investment?
    - How long would the City be willing to lend?
    - How much risk is the City willing to take?
    - To what level of habitability would the City require of rehabilitated units?
    - How would the City monitor compliance?
    - How would the City qualify borrowers?
    - What are the consequences of noncompliance?
    - How would the City value its return (years of below-market rent in exchange for a given investment)? How far below market would units be required to rent?
    - How much would the City invest in these sorts of programs? Where would this funding come from?
- Consider conducting a pilot program for a set number of years where there may be available funding, such as in the Rockwood-West Gresham TIF District. The City of Beaverton developed a pilot program in 2018 in which it explored offering subsidized funding for rehabilitation in exchange for 10 years of reduced rents. It was targeting rents appropriate for households making 60%-80% of the area median income.
- Identify City staffing needs to support this program. For example, offering loans may require staff who are knowledgeable about finance. Alternatively, the City could contract with a nonprofit organization that has a similar program to run the City's program or contribute funding to an existing program.
- Establish criteria for participation in this program, such as income level, whether owners or renters are eligible, types of housing condition problems the City will support addressing, and other criteria. Conduct additional analysis using example properties to determine the appropriate investment amount and affordability requirements for properties.

Funding or Revenue Implications: Tax increment financing would be used to implement this action in TIF Districts.

1C, 2C. Explore partnerships to acquire and stabilize existing low-cost market rate housing within current and potential future TIF District(s)

Rationale: Acquisition and rehabilitation of existing apartments by providers of regulated affordable housing preserves existing housing. Placing conditions on the sale, demolition, or replacement of certain housing types, and providing renter protections can increase the availability of affordable housing. This makes redevelopment less attractive or cost-effective, preserving existing housing.

Description: The City of Gresham has a large stock of small- to medium-sized apartment

buildings which provide some of the region's naturally occurring affordable housing. As Gresham's neighborhoods change, some of these units may be ripe for "repositioning," meaning that an investor would buy the units, rehabilitate them, and then rent them at a higher price. If this occurs, many Gresham residents could be at risk of displacement. Preservation of existing housing may focus on preservation of smaller, more affordable housing and aging apartment complexes. The City could explore supporting acquisition and rehabilitation of existing apartments by providers of regulated affordable housing. The City could look for opportunities to expand policies requiring or incenting purchase rights to the local housing authority,[42] current tenants, the City, and/or qualified nonprofit organizations within Oregon law. The City could also establish an acquisition loan fund to acquire and compete for aging apartment complexes. These types of loans can provide bridge financing until the buyer is able to complete the necessary steps to secure long-term funding and prepare to rehabilitate the property.[43] The City could provide financial support to Home Forward in purchasing developments with expiring LITHC contracts. Home Forward has first right of refusal for units with Section 8 and LIHTC properties. The City could also advocate for this to be an eligible use of future Metro Housing Bond funds.

City Role: The City would be a convener and could also provide incentives and funding.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Low- and middle-income	60-120% MFI	Owner and Renter	Low to Med

Potential Risks: This action is limited to the existing stock of housing and would focus on the preservation (or careful redevelopment) of smaller, more affordable housing. The City should be careful to calibrate such regulations to ensure that moderate density developments such as middle housing development types are not blocked.

Implementation Steps:

- Conduct outreach with local nonprofits (particularly Network for Oregon Affordable Housing), property owners, and service providers to understand which type of preservation strategies may be most successful in preserving affordable housing.
- Establish an inventory of "naturally occurring affordable housing" that could be targeted for acquisition and preservation. Staff would need to determine criteria for inclusion in the inventory, including year build, number of units, location, property value, presence of

[42] Home Forward has first right of refusal, along with state and local governments.

[43] Preserve Oregon housing, "Loans: Purchase of Existing Project to Convert to Affordable," http://www.preserveoregonhousing.org/loans.php

amenities, recent sales or remodel, and current rent levels. The City of Beaverton conducted an inventory of their naturally occurring affordable housing which might be useful to review.

- Discuss any potential strategies or regulations with City Council at work sessions and in public hearings.

Funding or Revenue Implications: Tax increment financing would be used to implement this action in TIF Districts. This could also be a potential use of future Metro Housing Bond funds; in that case, implementation could expand beyond TIF Districts.

1D, 2D. Explore funding and partnerships for housing-related infrastructure development within existing and potential new TIF Districts

Rationale: Tax increment financing is a funding source that can support the development of various types of infrastructure improvements needed for housing development. On-site and off-site infrastructure improvements could meet multiple community goals such as facilitating housing and multimodal transportation. **Description:** Tax increment financing can be used to defray the costs of infrastructure development needed for multifamily rental, middle housing, and affordable ownership projects. Incentives can be structured in various ways. For example, contributions to the developer for infrastructure development, or an agreement for the Urban Renewal Agency to complete infrastructure improvements that are required as a condition of development approval.

City Role: The Gresham Redevelopment Commission would continue to implement the Rockwood-West Gresham Urban Renewal Plan and select projects to fund using the Tax Increment Financing tool. For one or more new TIF District(s), the City Council would adopt, and the Urban Renewal Agency Board would implement, the plan.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely low-, very low-, low- and middle-income households	0-120% of MFI	Renter or Owner	Moderate

Potential Risks: Funds spent on housing related infrastructure improvements will need to be balanced with other TIF District priorities, and (where possible) used to achieve multiple priorities. Property owners may not want to develop on the same time frame as identified in the urban renewal plan timeline. New TIF District(s) will need clear objectives and community support, as they are voter approved.

Implementation Steps: Decide how to use and leverage the TIF funding to support infrastructure and affordable housing development. The best use of funding may be in

coordination with other actions in the HPS, such as with land banking and support of development of income-restricted housing.

Determine desired project characteristics and partner with developers and nonprofits.

Funding or Revenue Implications: Tax increment financing would be used to implement this action in TIF Districts.

2E. Explore land banking, parcel assembly, and public land disposition efforts within potential new TIF District(s)

Rationale: Public sector land banking can support affordable housing by reducing or eliminating land cost from development. Developers interviewed through the HPS cited land costs as a substantial portion of overall development costs. Any action the City takes to assemble land for affordable housing would support the City's housing production goals.

Description: Through land banking, the City can pursue a pipeline of land for future development and control the type of development that may occur on the land. The City could:

- Designate vacant city-owned land as surplus and contribute that land to the land bank, eventually conveying that land to affordable housing developers for development of housing at agreed-on level of affordability (e.g., 60% of MFI or below).
- Look for opportunities to:
    - Purchase and assemble smaller sites into a larger site to support multiunit development, especially in high-opportunity neighborhoods.
    - Purchase larger sites properties for the purpose of building affordable housing and convey that land to affordable housing developers for development of housing at agreed-on level of affordability. Land can be acquired cost-effectively if purchased in down-cycles and used to leverage developer investment.

Land banking is likely to focus on land within potential new TIF Districts, which is where funding to support land banking may be available. If the City has funds to support land banking outside of TIF Districts, then the City could look for opportunities for land banking citywide.

City Role: The City may participate in multiple projects using different types of land banking strategies, such as assisting with land purchase and assembly, providing funding to support land purchase, or leading development as well as other strategies.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely low-income, very low–income, low-income, and	0-60% of MFI	Renter or Owner	Moderate to Large

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
limited moderate-income households	(Could include projects for households with income below 120% of MFI)		

Potential Risks: If public land is used for affordable housing, typically it cannot be used for other city functions. However, if the land were identified as surplus or excess, it would likely not be needed for city functions. Staff would need to be well-versed in real estate. Not all public sector land may be eligible for public sector disposition. Vacant land in high opportunity areas with willing sellers is scarce.

Implementation Steps: The following steps would most likely focus on land in new TIF Districts, if the City establishes any:

- Identify the City's land banking investment goals. Does the City want long term control of land through a ground lease? Or would the City be open to land write downs upon sale in exchange for projects that meet the City's investment criteria?
- Identify criteria for purchasing or dedicating city-surplus land for land banking. These could include lot size, ability to assemble adjacent parcels, willingness of the owner to sell at appraised value, zoning, distance to key amenities/transit, and displacement risk. The City should consider where it would focus its efforts in high-opportunity areas (e.g., transit corridors, downtown, and existing TIF Districts). The City should also consider how land banking activity aligns with Gresham's Climate Action Plan.
- Inventory city-owned properties for land banking. If appropriate, surplus publicly owned land identified as suitable for land banking could be contributed to the bank. The City could implement a policy that establishes when to convey surplus land to the land bank for affordable housing. The City could explore opportunities to vacate unused streets that are functioning as alleys and have no underground utilities for the land bank.
- Inventory other public and nonprofit owned land. Consider potential partnerships on land owned by Metro, ODOT, County, State, schools, and faith-based properties.
- Consider internal staffing capacity to support land banking, with a focus on the ability to act quickly and flexibly when opportunities arise and seeking opportunities with partners.
- Determine the City's requirements for sale or long-term ground lease, including long-term affordability and how those requirements should be enforced (e.g., deed restriction)
- Evaluate the use of state brownfield funding to evaluate potential brownfields in high-opportunity areas. If those properties were declared brownfields, the City could tap into State funding for cleanup and redevelopment.

Funding or Revenue Implications: Tax increment financing would be used to implement this action in TIF Districts.

3A. Explore and reduce barriers for affordable homeownership models.

Rationale: Access to homeownership is uneven for low-income and BIPOC populations who face systemic barriers to homeownership. The barriers to development of affordable homeownership projects are myriad, from a lack of developer capacity, financing challenges for prospective homeowners, and development regulations. Alternative models of ownership could improve ownership opportunities but are particularly challenging for small, attached housing units on single lots. These building types cannot always support fee simple owner-occupancy and are costly to develop as condos.

Description: The City could pursue a multi-pronged approach which could include advocacy at the state level to reduce barriers to development, incentives in exchange for affordability requirements, and innovative approaches to acquiring foreclosed homes, and exploring alternative homeownership models.

Advocate for and pursue State and Metro funding resources for Gresham, such as:

- The State's Homeownership Development Program, which has $40 million for alternative homeownership models across the State.[44] Through this program Gresham could be eligible for gap funding sources and predevelopment and capacity building grants. As of 2023, the City will support some of the development costs of a planned affordable ownership cottage cluster development. That project will be an innovative use of a limited amount of one-time funding from the state and Gresham's HOME-funded down payment assistance.
- Future Metro Housing Bond proceeds, which may continue to include homeownership project as eligible projects.
- LIFT funding, which would require advocacy to lift restrictions on depth of affordability to make this program a better match for homeownership projects.[45]

Support alternative affordable homeownership models. The City could build capacity and technical assistance support for organizations pursuing affordable homeownership:

- Support conversions of existing low-cost market rate buildings or manufactured home communities to limited equity housing cooperatives, working with tenant advocacy groups in areas threatened with redevelopment and displacement. These types of investments could provide proof of concept for novel ownership formats, such as cooperative housing. This support may be limited to areas in current or future TIF District(s) unless other funding is available.
- Examine and reduce the City's code for barriers to alternative ownership models**.** The City has addressed some barriers to middle housing already, including removing

[44] A summary of the program and a framework of the Homeownership Development Program can be found on page 41 of the OHCS Housing Stability Council meeting packet from September 2022: Housing Stability Council (oregon.gov)

[45] LIFT funding may change substantially in the 2023-2025 biennium depending on the funding provided in the 2023 Legislative Session.

maximum densities for duplexes, triplexes, (most) townhouses, and cottage cluster developments. Middle housing types are allowed outright in most areas and do not require public notice.

- Support education programs to build awareness of alternative homeownership models like limited-equity cooperatives among the financial and development communities.[46]
- Work with existing organizations to create revolving loan programs to reduce construction loan costs for affordable homeownership.
- Collaborate with Oregon communities to advocate for changes to the State's construction defect laws (CDL). CDL is a state-enabled law that "places an obligation on developers to correct or compensate for any defects in design, materials, and/or workmanship of a recently constructed building."[47] Oregon's CDL statutes stipulates that the term for which CDL can be pursued is 10 years, which is longer than other West Coast states. Advocacy could involve reducing the 10-year term and bolstering existing notice-and-opportunity-to-repair laws. This would reduce barriers to condominium and cooperative models.

City Role: The City could provide seed money or revolving loan funds, educational programs, and advocacy for changes to the States' construction defect laws. There could also be code changes (e.g., occupancy restrictions) that the City could make to remove barriers.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Low- and Middle-Income	60-120% MFI	Owners	Small

Potential Risks: Funds spent on alternative homeownership models will be unavailable for other city services and affordable rental housing opportunities. Homeownership programs may serve a smaller portion of the population than larger developments focused on affordable rental opportunities. Lower income households that buy a home may struggle to maintain or keep that home without additional support. For co-op models there are often few banks who will provide loans.

Implementation Steps:

[46] A summary of the program and a framework of the Homeownership Development Program can be found on page 41 of the OHCS Housing Stability Council meeting packet from September 2022: Housing Stability Council (oregon.gov)

[47] Impact of Construction Defect Liability on Condominium Production in Oregon Frequently Asked Questions.

https://olis.oregonlegislature.gov/liz/2019R1/Downloads/CommitteeMeetingDocument/196263

- Determine partners that the City could work with to advocate for changes to the State's construction defect liability laws.
- Engage developers and service providers who are working in the affordable homeownership space or interested in branching out into this space to better understand the type of support they need and to identify how City code may be limiting this type of development.
- Examine City code for barriers to alternative type of ownership model (e.g., occupancy restrictions) and revise the code as appropriate.
- Establish a revolving loan program to reduce construction loan costs using funding such as a potential CET, TIF dollars, or future Metro bond dollars.
- Collaborate with community land trusts or small-scale developers to support affordable homeownership or cooperative housing pilot projects. Consider providing financial support using future Metro bond dollars, urban renewal dollars, or CDBG/HOME.
- Explore partnerships to better support educational programs to build awareness of affordable ownership opportunities and promote their benefits in the community.

Funding or Revenue Implications: The City could direct a portion of potential future Metro bond proceeds, potential Construction Excise Tax revenues, and TIF dollars to provide seed money or a revolving loan fund for construction. Education, advocacy, and changes to codes could be partially accomplished with existing staff time but may need additional employees to support more intensive efforts. Private or foundation dollars could support key projects.

3B. Reduce zoning barriers for housing development, with a focus on multifamily and townhouse development.

Rationale: Reducing complex or restrictive zoning can make multifamily and townhouse development less difficult, time consuming, and costly. Increasing development densities in select locations can also increase the financial feasibility of development projects. This could attract more developers to Gresham or encourage developers already working in Gresham to look for other properties to develop.

Description: Gresham has barriers in its Development Code that limit or prevent multifamily development. Based on conversations as part of the HPS development, the City could consider if and how it can update the Development Code to alleviate these barriers while still achieving other City goals. The City also recently contracted an outside consultant (MIG) to evaluate the Development Code. Implementing recommendations within this evaluation could assist with easing and clarifying multifamily development standards. Examples of regulations to consider are listed below:

- Gresham currently has numerous residential and mixed-use districts which could be consolidated to reduce complexity and encourage development.

- More flexible open space and landscaping requirements could be adopted. More flexible open space and landscaping requirements would provide developers with flexibility on the types of housing products they build and could help to reduce the overall cost of building housing units. Developers cited the following requirements as hindering development feasibility: (1) transition spaces between public, semi-public, and private open spaces, (2) private outdoor spaces, (3) landscape requirements that detail deciduous/evergreen, spacing, caliper, shade, color, scale, mulch type, pathway material, and more detail that varies depending on the setback side.
- The design standards could be streamlined. The standards could be streamlined to focus on key urban design and pedestrian-oriented development strategies and to eliminate overly prescriptive standards.
- Parking requirements (particularly in affordable units) have been discussed as a barrier to be considered. However, as the City responds to the State's Climate Friendly and Equitable Communities regulations parking requirements are changing. Allowing market demand to determine parking supply gives developers more flexibility on the types of housing products they could build, as fewer parking spaces can reduce the overall cost of development.
- Increase flexibility for ground floor use requirements. The current ground floor requirements for multifamily and mixed-use developments are complex and were cited as overly restrictive. The City's goal is to transition to a more walkable and active street frontage, but the current market demand for these commercial spaces is lower than the requirements. Instead, the policies could result in vacant ground floor spaces, which reduces development feasibility. Allowing more residential units on the ground floor will help to meet the current demand for housing in these city areas. However, the City should look for ways to ensure that standards do not preclude commercial development in the future and support a pedestrian-friendly environment.
- Relax maximum density requirements. Some districts specify maximum densities, minimum lot sizes, and have lenient minimum densities. The City can identify areas where these standards can be amended including revisiting density allowances in high opportunity areas. The City may have opportunities to upzone certain areas and rezone or allow multifamily buildings in commercial zones without commercial uses (Station Center, Community Commercial, and Moderate Commercial land use districts).
- The City's minimum floor area ratios for mixed-use and multifamily vary. The City can revisit minimum and max floor area standards to ensure that they are supporting development as intended.
- The development code does not explicitly or clearly address standards for some housing types, such as density calculations for congregate shelters or allowances for single-room occupancy units. The development code can be updated to clearly address standards for a wider variety of housing types.

Despite challenges with the zoning code, developers indicated that City staff are easy to work with and provide timely assistance helping them navigate these barriers. Addressing these barriers can make the overall process easier for developers and free up staff time to focus on

other tasks.

City Role: The Gresham Urban Design and Planning Department should amend the Development Code to reduce barriers to allow selectively greater densities and increase flexibility of certain standards.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Low-income and middle-income households	80-120% of MFI	Owner and Renter	Small

Potential Risks: Reducing development code barriers to achieve greater multifamily development must be balanced with other city objectives such as preserving tree canopy and open space and promoting walkable, active streets (among others). Staff capacity is needed for implementation.

Implementation Steps:

- Engage the development community to better understand how the development code is impacting multifamily and townhome development.
- Review the barriers in Gresham's Development Code and consider implementing revisions to the Development Code discussed in the description above.
- Advance other recommendations from the outside consultant's evaluation of the development code and land use review processes.
- Identify potential sites for future multifamily development and ensure that the zoning will allow development of these housing types outright to reduce developer uncertainty and make overall development easier and faster.

Funding or Revenue Implications: Staff time and Planning Department tools and resources will be relied on to accomplish this action.

3C. Streamline permitting processes for all housing types, with a focus on barriers to townhouses and multifamily housing.

Rationale: Reducing development delays and costs can make it easier to build middle housing or multifamily housing types.

Description: In 2018 the City adopted code in response to the State's SB 1051 which created a slightly expedited land use review process for qualifying affordable housing applications. As of February 2023, the expedited process has not been utilized. In 2023, Gresham codified a new

exemption from the land use review process for the conversion of a hotel or motel into an emergency shelter or qualifying affordable housing from the land use review process. This was based on the State's requirements in House Bill 3261 (ORS 197.748). The City could build off of this code amendment in a variety of ways. The City has also engaged the consulting firm, MIG, to conduct a deeper dive into Gresham's design review processes and pre-application meetings. The City could consider the following actions to further streamline the permitting process and make it easier to develop multifamily and townhouse developments:

- The City could streamline the process land use review process for townhouses in corridor districts.
- The City could continue to provide support for developers as they navigate the planning and permitting process. Despite challenges with the permitting process, developers indicated that City staff are easy to work with and provide timely assistance helping them navigate these barriers. As Gresham continues to grow, the City should focus on maintaining the approachable and helpful style and ensure that City departments continue to collaborate internally so that the City can provide timely and accurate support to developers.
- The planning and building departments could evaluate changes to permitting processes to reduce development timelines.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely Low- to High-Income	0-120%+ of MFI	Owner and Renter	Small

Potential Risks: While it would reduce holding costs for developers, expediting the development review timeline alone will not have much impact on development costs on its own. Reducing/streamlining some design standard requirements may have a limited impact on housing costs. Implementation will take significant staff capacity in the short- to mid-term.

Implementation Steps:
Engage the development community to:

- Review findings from this process and the separate consulting contract.
- Understand how City could alter the review process to reduce barriers to multifamily development.
- Develop criteria for multifamily housing types that would trigger an expedited process.
- Consider developing preapproved plan sets for some housing typologies.
- Identify potential sites for future middle housing and multifamily development and ensure that the zoning will allow development of these housing types outright.

- Consider ways to continue to improve City staff and developer relationships throughout the development process.

Funding or Revenue Implications: No direct funding required. Requires re-prioritization of staff activities and may increase staff workload if process includes additional assistance to applicants. A continued focus on streamlining affordable housing permitting should not increase staff workload in the long-term.

3D. Implement Rent Assistance Program for individuals experiencing homelessness and explore partnerships to address and prevent homelessness.

Rationale: While many strategies that reduce homelessness do not directly result in the development of new housing, they are essential to providing opportunities to transition from homelessness or housing instability to long-term housing.

Description: The City will consider the following actions to address and prevent homelessness:

- Ensure the continuation of existing homeless services programs by pursuing funding and collaboration opportunities.
- Implement rent assistance pilot program for people experiencing homelessness in Gresham. The program will provide:
    - Payment of move-in costs and rent for up to 12 months.
    - Case management by City homeless services staff that fits individual circumstances including job training and placement, financial literacy, and other resources for success.
    - The City will consider how to fund additional staff and resources to support expanded programming. There may be opportunities for the City to explore regional partnerships and secure additional State funding in the next legislative session.
    - Expand partnerships to support temporary and permanent supportive housing options and services to address and prevent homelessness (align with regional funding resources).

City Role: The City will continue to provide and pursue expanding homeless services of outreach and case management including resource navigation, rent assistance, partnerships, and advocacy.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely low-income households and people experiencing homelessness	0-30% of MFI	Renter	Low

Potential Risks: The action will require explicit consideration of ongoing funding sources to support City-led and partner-led homeless services. Residents may be concerned with the location of certain homeless services.

Implementation Steps:

- Continue to share Gresham's successful programming to provide homeless services (homelessness approach, resource navigation, code enforcement such as RV parking permit program, etc.) with regional partners to encourage information sharing, collaboration, and additional investment.
- Implement a rent assistance pilot. Consider program parameters (who can qualify for assistance and what type of assistance). Identify funding sources necessary to support the program such as the Metro Supportive Housing Services Bond
- Work with the Oregon Mayor's Association to communicate the City's homeless services program and funding needs to support the programs (such as funding for additional staff, other resources, etc.)
- Collaborate with Multnomah County Joint Office of Homelessness Services to navigate the City's regulatory process.
- Continue to work with local nonprofits and service providers to understand their needs and how the City may be able to support them in navigating planning processes and regulatory requirements.

Funding or Revenue: Maximizing usage of Metro Supportive Housing Services Bond and other regional resources could help produce new units to meet the needs of the population experiencing homelessness. Expanding City programming will require additional staff time and resources. The City should work with the Oregon Mayor's Association to advocate for additional funding to support desired programs in the 2023 State Legislative session.

3E. Extend/expand the City's tax abatement agreement with Home Forward

Rationale: The City is interested in providing property tax exemptions for affordable housing projects but doing so would require the City to forgo substantial tax revenue. The current intergovernmental agreement with Home Forward allows the City to recoup its foregone property tax revenue through a fee that is shared with Home Forward.

Description: The City could explore extending and expanding the existing intergovernmental agreement with Home Forward to exempt property taxes on income-restricted developments in which Home Forward has an ownership stock. This would expand on the City's IGA/partnership pilot, which encompasses up to four projects and runs through Fiscal Year 2022/23. As of early 2023, the only project that has used this process is Rockwood Village. The general process includes the following steps:

- Home Forward comes forward with a new housing project in which it is a limited partner.
- Gresham and Home Forward collaboratively review the proposal, and if Gresham is in concurrence with the proposal, Home Forward approves a 20-year property tax exemption from all taxing districts. After 20 years, upon mutual agreement of both parties, the property tax exemption may be renewed if the project is still in compliance with the requirements and conditions.
- A Special Limited Partner fee (SLP) is calculated by Home Forward
- The developer pays the SLP to Home Forward. The fee is equal to the lesser of $1,000,000 or 25% of the full property tax exemption for 20 years.
- Sixty percent of the SLP is distributed to the City of Gresham and 40% is distributed to Home Forward who must use the fee for the primary purpose of resident services in Gresham.

City Role: Manage the IGA.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely low- to low-income	0-60%	Renter	Medium

Potential Risks: Within the current program, risks have been identified as minimal. Potential expansion of the IGA will require further risk analysis for the different product types/outcomes and would be presented to City Council for review and approval as part of any IGA expansion.

Implementation Steps:

- Extend the IGA and consider increasing the number of eligible projects.
- Explore expanding the use of the IGA to include housing preservation as an eligible use.

Funding or Revenue: The IGA allows the benefit of tax exemption while also recouping some of Gresham's tax revenue that would be lost with a full exemption. Overall, the agreement provides a tax benefit to developers and requires minimal loss to the City.

3F. Explore a reduction/waiver of Systems Development Charges for certain needed housing types.

Rationale: The City of Gresham collects System Development Charges (SDCs) for wastewater, water, stormwater, transportation, and parks.[48] These fees increase the cost of producing affordable housing in Gresham. Programs that reduce or waive SDCs reduce development costs and can incentivize development of qualifying housing types or building features. Qualifying housing types can be defined to support the development of needed affordable housing that is not currently able to be produced by the market.

Description: The City has several options to reduce the cost of SDCs for affordable housing, which are discussed below. The first option, exempting affordable housing from City SDCs without specifically "backfilling" funding from another source, is described below for reference, but it is not recommended for the City.

- Exempt affordable housing from City SDCs without specifically "backfilling" funding from another source.[49] Policy-based reductions, waivers, or exemptions that do not have a basis in reduced impacts or costs are not explicitly addressed in Oregon's SDC laws,[50] and local jurisdictions have taken a range of approaches to navigating this ambiguity. Most jurisdictions that waive SDCs have separately adopted ordinances that provide for the exemption and simply offer the exemption without transferring funding from another source; others allocate other funds to cover the foregone revenue (see discussion below). If revenues are not backfilled, this will reduce SDC collections and could delay funding of some infrastructure projects. SDC waivers or exemptions are typically available only for the SDCs associated with affordable units, so for a mixed-income project, SDCs that are not calculated on a per-unit basis could be reduced proportionately with the percentage of units that are affordable.
- Use non-SDC City funds to subsidize SDC reductions or waivers for affordable housing. To do this, the City would require a funding source such as TIF (in TIF Districts) or CET revenue to

[48] These infrastructure services are provided by the City of Gresham for most of the City. The exception is that a part of west Gresham gets water services from the Rockwood Water PUD.

[49] Most communities that do not charge SDCs for affordable housing describe this as an "SDC Exemption." Some make a distinction between "waivers" given on a case-by-case basis and "exemptions" that are set in policy. Others use these terms interchangeably.

[50] The 2016 Oregon law enabling inclusionary zoning (Senate Bill 1533) identifies SDC and permit fee reductions or waivers as incentives that may be offered to development impacted by an inclusionary zoning requirement. While SB 1533 does not include further discussion on SDC or permit fee waivers or reductions for affordable housing generally, it has been interpreted by some as authorizing SDC reductions or waivers for affordable multifamily development. (To the authors' knowledge, policy-based exemptions, reductions and waivers have not been tested in court.) The equal protection clause of the 14th amendment is also relevant here, in that the government must have a rational basis to treat similar cases or individuals differently (the legal standard is higher if there is a direct or indirect impact on certain protected groups). The City Attorney should continue to advise on the legality of this option.

"backfill" the costs of SDCs. As with exemptions, SDC subsidies should be scaled to the percentage of units in the project that are affordable.

- Allow SDC deferral and financing of SDCs at a low interest rate for affordable housing. The City already offers a program for SDC financing and deferral. Deferral allows the SDCs to be paid when a certificate of occupancy is issued. The interest rate for financing is set at the rate paid on U.S. Treasury Notes plus 2%. The standard security for SDC deferral or financing is a priority lien on property. The City Manager may, at their discretion, offer alternative security which may include a second position lien, security in alternative property, or a financial guarantee acceptable to the Manager. The Manager is authorized to set a lower rate for specific projects based on market rates and development incentives.[51] A potential change could be to offer more flexible and preferable terms for affordable housing developments as standard if the City does not opt to reduce or waive SDCs for those projects. The City could offer a lower interest rate (e.g., 0.25% above the Oregon Prime rate) and/or allow the lien to be in second position for affordable housing developments. This would not require any direct subsidy, although it would still slightly reduce the City's SDC revenues and increase its risk. It has less impact on total development costs than SDC waiver but requires less subsidy from the city. Because SDC financing applies to all SDCs for a project, the City would need to set a minimum percentage of the units that would have to be affordable to use the special financing terms or restrict it only to non-profit affordable housing development.
- Reduce or Exempt SDCs for ADUs - ADUs do not pay water or sewer SDCs, but transportation SDCs apply and stormwater SDCs are based on the site's impervious area. The City could explore SDC waiver/reductions for qualifying affordable housing developments.

City Role: The City would create a program with specific eligibility criteria, and work with City departments to implement it.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced[52]
Extremely, very, and low-income	0-80% MFI	Owner and Renter	Moderate

[51] Resolution No. 3332: Relating to the Deferral and or Financing of System Development Charges. https://gresham.granicus.com/MetaViewer.php?view_id=2&clip_id=503&meta_id=46334

[52] Magnitude of new housing developed is approximate number of new units that the action may reasonably be expected to result in. See the discussion under the section "

Impact ," later in this memorandum.

Potential Risks: The City would want to ensure that implementing this action does not negatively impact the City's near-term finances or ability to fund needed capital projects. There is some legal risk associated with offering exemptions that are not funded by another source.

Implementation Steps: In evaluating potential SDC incentives the City could:

- Consider SDC waivers for income-restricted units.
- Consider SDC deferral interest rates for income-restricted units.
- Develop eligibility criteria for SDC reductions or waivers (e.g., project size, depth of affordability (60% MFI or below).
- Review SDC charges by unit size (review coming up in next three years).
- Revisit SDC financing terms.
- Evaluate funding sources to backfill loss of revenue.

Funding or Revenue: If the City implements a Construction Excise Tax, the City could use a portion of those revenues to backfill foregone revenue from SDC waivers.

3G. Evaluate the Multiple Unit Property Tax Exemption.

Rationale: The Multiple Unit Property Tax Exemption (MUPTE) program is flexible and eligibility criteria can be set locally, allowing the City to target the exemption to meet its needs. It offers an incentive for preservation and development of housing for low- to moderate-income households. It can offer an incentive for mixed-income housing, providing a way to leverage private, market-rate development to expand affordable housing.

Description: MUPTE allows cities to offer a partial property tax exemption (limited to the value of the housing, not the land) for multifamily development that meets specific locally established criteria, such as having an affordability agreement with a public agency. The terms of the affordability agreement can be set by the City—there are no specific income or affordability requirements in the state statute that enables the program. The City could explore using MUPTE in two ways:

- To incent mixed income development through inclusion of below-market units (units affordable below 80% of MFI) in otherwise market-rate developments.
- To incent owners of existing low-cost market rate housing to rehabilitate properties without displacing existing tenants or escalating rents.

What does the exemption apply to? It applies to rental housing for low-income and moderate-income people, often in a mixed-income multifamily building. The exemption applies only to improvement value of the housing.

How long does it apply? The property tax exemption can be granted for up to 10 years. Housing would be required to remain affordable for the term of the property tax exemption.

What taxing districts would participate? The property tax exemption only applies to city property taxes (which account for about 20% of property taxes in Gresham, inclusive of levies) unless the City gets affirmative support from at least 51% of overlapping taxing districts for the exemption to apply to their tax collections.

What impact might MUPTE have? The property tax exemption would only apply to qualifying newly built multifamily buildings where the City Council granted an exemption. For example, The Archibald is a newly built multifamily building, with 37 dwelling units. In 2021, this building generated approximately $10,500 of property tax revenue for Gresham or $284 per dwelling unit in the building. If this building was granted a tax exemption, it would be similar to this amount of taxes. In return, the City would get more multifamily development and development that meets the criteria identified in the City's MUPTE program.

City Role: The City could implement the exemption and conduct annual reporting and administration procedures

Partners and Their Role: Overlapping taxing districts would weigh in on the exemption.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Low- and middle-income households	60-80% MFI	Renter	Moderate

Potential Risks: The City and participating taxing districts would forgo property tax income for the duration of the exemption, reducing revenue for city services and revenue for participating taxing districts.

Next Steps: Initiate additional study to explore:

- Desired eligibility criteria (percentage of affordable or workforce housing or other public benefits, where the program applies, etc.).
- Estimates of the revenue loss that could result from the tax exemption and identify a replacement revenue source to support police and fire services.
- Potential agreement from taxing districts representing 51% or more of the combined levying authority on the property to include all the taxing jurisdictions in the abatement. If the City is unable to get agreement from other taxing districts, the abatement will only apply to the City's portion of property taxes.
- Discussions with City Council at work sessions and in public hearings. City Council may choose to adopt MUPTE by resolution or ordinance following a public hearing.

- Establishing annual reporting and administration procedures.
- Promoting exemption to qualified projects.

Funding or Revenue: MUPTE reduces general fund revenues for all overlapping taxing districts. The City of Gresham must weigh the loss of tax revenue, including revenue that funds public safety, against value of the rent discounts offered by qualifying development. The City also chooses which projects to support and how long the property will receive the exemption.

3H. Evaluate the Nonprofit Corporation Low-Income Tax Exemption

Rationale: The Nonprofit Corporation Low-Income Tax Exemption can lower operational costs, such as property tax costs, and make affordable housing projects more feasible for nonprofit affordable housing developers. Affordable housing owned by a public agency is already exempt from all property taxes, and nonprofits can partner with public agencies to get a tax exemption in some cases. However, this adds complexity to the development. This program would reduce development barriers and lower operating costs for publicly subsidized affordable housing (affordable at 60% of MFI or below).

Description: The Nonprofit Corporation Low-Income Rental Housing Exemption[53] provides a full property tax exemption for new and existing affordable housing owned and operated by a 501(c)(3) or (4) nonprofit organization, and land held by a nonprofit for future affordable housing development. This tax exemption allows nonprofit developers of affordable housing to access a property tax exemption without partnering with the housing authority, who is already exempt from property taxes.

The exemption can apply for as long as the property meets eligibility criteria. These include requirements that tenants must initially qualify at 60% of Median Family Income (MFI) or below, which is about $58,100 for a family of four people in Gresham based on 2022 MFI. Once qualified, existing tenant incomes may rise to as much as 80% of MFI ($77,500 for a family of four) over time. Annual renewal is required to ensure compliance with these requirements.[54]

Some examples of Oregon cities that have adopted this tax exemption include Newport, Beaverton, Portland, Tigard, Forest Grove, Cornelius, and Wilsonville.

City Role: The City would implement the exemption and conduct annual reporting and administration procedures.

[53] This tax exemption is authorized in ORS 307.540 to 307.548.

[54] This requirement is stated in ORS 307.545.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely low- and very low-income households	0-60% MFI	Renter	Small to Moderate

Potential Risks: The City and participating taxing districts will lose property tax income for the duration of the exemption, reducing revenue for city services and revenue for participating taxing districts. One income-restricted housing development in Gresham receives a property tax exemption through an agreement with Home Forward. The City may want to assess how many other income-restricted affordable housing buildings may be newly eligible for this property tax exemption, to assess potential impact on Gresham's property tax revenues.

Next Steps: The City has options to consider in evaluating the tax exemption:

- Which taxing districts? Only the City's property taxes (which account for about 20% of property taxes in Gresham, inclusive of levies) would be exempted unless there is sufficient support from overlapping taxing districts. If the City and other taxing districts that comprise at least 51% of the local tax roll participate in the program, qualifying developments could have 100% of their property taxes waived. With this majority, all taxing districts would be obligated to participate. Without the support of at least 51% of overlapping districts, only city taxes would be affected by the exemption.
- Which depth of affordability is eligible? The City must select a definition of affordability (if different from the one stated above of having income at or below 60% of MFI)
- What other requirements would the City impose?
- Length of exemption: Exemption can be granted for as long as the property meets eligibility criteria, but the property owner must reapply on an annual basis to demonstrate on-going eligibility. For land held for future affordable housing development, the City sets a limit on how long the exemption can apply, with the option for property owners to apply for an extension after that time.

If the City determined that it wants to move forward with the program, the City would:

- Seek agreement from taxing districts representing 51% or more of the combined levying authority on the property to include all the taxing jurisdictions in the abatement. If the City is unable to get agreement from other taxing districts, the abatement will only apply to the City's portion of property taxes.
- Discuss topic with City Council at work sessions and in public hearings. City Council may choose to adopt this exemption by resolution or ordinance following a public hearing. Adopt standards and guidelines for applications and enforcement mechanisms.
- Follow up with overlapping taxing districts to request that they pass resolutions to support the exemption.

- Promote exemption to qualified projects.

Funding or Revenue: This exemption will result in foregoing property tax revenues for all overlapping taxing districts. The City of Gresham must weigh forgoing of property tax revenue against the benefit of housing more income-restricted affordable housing in the community. The City could backfill lost property tax revenues through funds from a CET, if the City adopts a local CET (Action 3I). Staff time and available Community Development Department tools and resources will be relied on to accomplish this action.

3I. Explore a Gresham-specific Construction Excise Tax.

Rationale: One of the largest limitations that cities generally face in supporting affordable housing development is a lack of funding. A Construction Excise Tax (CET) could be a potential funding source to pay for other affordable housing policies, such as paying SDCs for low-income affordable housing. A CET is intended to provide funding to support development of affordable housing and other initiatives by pooling funds aimed at serving low-income households. The funds from the CET are required by State law to be spent on developer incentives, affordable housing programs, and homeownership programs.

Description. A CET is a development-driven funding tool. It is a tax assessed on construction permits issued by local cities and counties. The tax is assessed as a percent of the value of the improvements for which a permit is sought unless the project is exempted from the tax.

In 2016, the Oregon Legislature passed Senate Bill 1533 which permits cities to adopt a construction excise tax (CET) on the value of new construction projects to raise funds for affordable housing projects. CETs may be assessed on residential only, commercial only, or residential and commercial. If the City were to adopt a CET, the tax would be up to 1% of the permit value on residential construction and an uncapped rate on commercial and industrial construction.

The allowed uses for CET funding are defined by state statute. The City may retain up to 4% of funds to cover administrative costs. The funds remaining must be allocated as follows, depending on whether the CET is on residential or commercial and industrial development:

- For a residential CET:
    - 50% must be used for developer incentives for multifamily housing. These incentives could include City payment of permit fees and SDCs for development, tax abatements, or finance-based incentives. The City may use the CET to fund voluntary developer incentives that:
        - Increase the number of affordable housing units in a development.
        - Decrease the sale or rental price of affordable housing units in a development.

    - Build affordable housing units that are affordable to households with incomes equal to or lower than 80% of MFI.[55]
  - 35% may be used flexibly for affordable housing programs, as defined by the jurisdiction.
  - 15% flows to Oregon Housing and Community Services for homeownership programs that provide down payment assistance in Gresham.
- The State allows for more flexible use of commercial/industrial CET:
  - 50% of the funds must be used for housing-related programs, as defined by the jurisdiction (note that these funds are not necessarily limited to affordable housing).
  - The remaining 50% is unrestricted.

City Role: The City would implement plans for using CET funds for affordable housing development.

Anticipated Impacts:

Populations Served	Income	Housing Tenure	Magnitude of New Units Produced
Extremely low-, very low-, low- and middle-income households	0-120% of MFI	Renter or Owner	Moderate

Potential Risks: In tight markets, the cost may be passed on in the form of higher housing costs. In weaker markets, the increased cost can make development less feasible: Since the revenue is generated from building permits, when new development activity slows, little revenue is collected. Interested parties may oppose the CET, but opposition could be reduced with robust outreach and input on how the program will be used. Gresham's school districts and Metro already have a CET which increases development costs.

Implementation Steps:

- Evaluate potential adoption of a CET. Consider how a CET could impact feasibility and attractiveness of building in Gresham.
- If City Council chooses to pursue adoption of a CET, work with stakeholders to develop the rules and program to implement CET. Determine what use (zone) CET will be tied to. Justify the rationale for the tax amount, for example 1% vs 0.5%. Estimate the revenue resulting from the CET.

[55] Based on information in ORS 197.309(7).

- Create a plan for the CET in collaboration with stakeholders and determine how to use CET funds. Identify the affordable housing program(s) that CET will support.
- Work with stakeholders to develop buy-in from community prior to CET adoption through proactive outreach to stakeholders.

Funding or Revenue Implications: To some extent, revenues generated depend on structure (applied only to residential or also to commercial / industrial properties). CET funding relies on an active construction cycle and, as such, fluctuates from year to year. Funds can be used for preservation or for new construction. The City will want to ensure that the CET is set at a rate that generates revenue for the City but does not discourage development. The City will also want to ensure that it has the staff capacity to implement a CET.

APPENDIX E: EVALUATION OF OUTCOMES

Evaluation of Outcomes

The actions included in Gresham's Housing Production Strategy work together to achieve equitable outcomes for all residents of Gresham. They emphasize improving outcomes for underserved communities, lower-income households, and people in state and federal protected classes. OAR 660-008 requires an evaluation of the HPS for achieving the following types of outcomes:

Affordable Homeownership

This outcome is achieved through actions that support development of housing affordable at less than 120% of MFI.

Existing actions and programs (including but not limited to):

- Zoning and code changes that support development of affordable ownership housing, such as allowing middle housing as required by House Bill 2001 and adding restrictive covenants to specific applications such as Metro Housing Bond projects, HOME, and CDBG.
- The allocation of a significant portion of the City's HOME funding toward homebuyer down payment assistance and an ongoing partnership with Proud Ground community land trust.

Actions in the HPS:

- Action 1A and 1B are focused on reducing the funding gap for new development, including development of affordable homeownership projects.
- Action 2E could include dedicating city-owned surplus land or acquiring land for development of affordable housing, including affordable ownership housing.
- Action 3A focuses on removing barriers to affordable homeownership models by advocating at the state level to reduce barriers to development, providing incentives in exchange for affordability requirements, and exploring alternative homeownership models.
- Action 3C streamlines permitting processes for townhouses, which can make it easier to build this housing type.
- Action 1A, 2A, and 2D advocate for using TIF District funding to support housing and infrastructure development. Some of this investment could support development of affordable housing for homeownership through direct project subsidies or infrastructure investments.
- Action 3I evaluates a Gresham-specific Construction Excise Tax (CET) which the City could use to support development of affordable housing for homeownership; 15% of CET would flow to Oregon Housing and Community Services for homeownership programs that provide down payment assistance in Gresham.

Affordable Rental Housing

Supporting affordable rental housing includes actions that support both income-restricted affordable housing (affordable to households with incomes below 60% of MFI) and privately developed affordable housing (affordable for households with incomes between 60% and 120% of MFI).

Existing actions and programs (including but not limited to):

- Zoning and code changes that support development of affordable rental housing, such as allowing middle housing as required by House Bill 2001, adding restrictive covenants to specific applications such as Metro Housing Bond projects, HOME, and CDBG, and increasing densities near transit and multi-use trails.
- Expedited permitting for affordable multifamily developments as required by Senate Bill 1051.Deferment of SDCs for multifamily residential development.
- A one-time allocation of just under $2.3 million in specific HOME-American Rescue Plan funding in 2022. The City will use these funds for supportive services, such as rental assistance, support for renters, and job training and placement programs.
- Two new affordable housing projects with a total of 194 units funded by the Metro Housing Bond.
- The Vertical Housing Development Zone Tax Abatement, which supports mixed-use housing development.

Actions in the HPS:

- Action 1A and 2A are focused on reducing the funding gap for new development, including development of affordable rental housing.
- Action 2E could include dedicating city-owned surplus land or acquiring land for development of affordable rental housing.
- Action 1B, 1C, 2B, and 2C focus on partnering and providing funding to support the rehabilitation or acquisition of existing low-cost unregulated rental housing to support long-term affordability.
- Action 3B and 3C focus on reducing zoning and permitting barriers to multifamily housing development. Reducing these barriers can make development less difficult, time consuming, and costly.
- Action 3F focuses on potentially reducing the cost of developing affordable rental housing by exploring waiving or reducing SDCs.
- Action 3E, 3F, 3G, and 3H focus on evaluating tax exemption and offers incentives for the development of rental housing for low to moderate income households in mixed-income, market-rate developments, and publicly subsidized affordable rental developments (affordable at 60% of MFI or below).

- Action 1A, 2A and 2D advocates for using TIF District funding to support housing and infrastructure development. Some of this investment could support development of affordable rental housing through direct project subsidies or infrastructure investments.
- Action 3I explores a potential Gresham-specific CET which could be used to support development of affordable rental housing.

Housing Stability

Increasing housing stability includes actions that increase the stability of existing households and prevent displacement resulting from public investments or redevelopment.

Existing actions and programs (including but not limited to):

- City programs that support housing stability with CDBG funding, including emergency home rehabilitation and accessibility upgrades and programs that provide rent assistance and other stability services.

Actions in the HPS:

- Action 1B, 1C, 2B and 2C focus on partnering and providing funding to support the rehabilitation or acquisition of existing low-cost unregulated rental housing to support long-term affordability and prevent displacement.
- Action 2E could include acquiring land for development of affordable housing in areas at risk of gentrification and displacement.
- Action 3G explores implementing the Multiple Unit Property Tax Exemption. The City could structure the program to incent the preservation of rental housing for low- to moderate-income households in mixed-income, market-rate developments. This can be used to support rehabilitation of multifamily rental housing, with agreements about retaining naturally occurring affordable housing costs.

Housing Choice for Protected Classes

Increasing housing choice involves increasing access to housing for communities of color, low-income communities, people with disabilities, and other state and federal protected classes. It also means increasing access to existing or new housing that is in neighborhoods with healthy and safe environments and high-quality community amenities, schools, and employment and business opportunities.

Existing actions and programs (including but not limited to):

- Zoning and code changes that support development of a variety of housing types in different neighborhoods such as increasing density near transit stations and multi-use trails and allowing middle housing as required by House Bill 2001.
- Programs that support housing choice, including emergency home rehabilitation and accessibility upgrades, rent assistance, and project subsidies or incentives for affordable housing development.

- Gresham's down payment assistance programs support households in purchasing market-rate housing in locations of their choice.

Actions in the HPS:

- Actions 1A, 2A and 2E focus on providing financial support and other resources (including land) to support development of affordable housing. Depending on the criteria used to identify projects, this could be in locations with access to amenities or other equity considerations.
- Actions 1B, 2B, 1C and 2C focus on ensuring that existing rental housing is safe and affordable and can support the rehabilitation of this housing to be more accessible for community members. Depending on the criteria used to identify projects, this could be in locations with access to amenities or other equity considerations.
- Action 3E, 3F, 3G, and 3H focus on tax exemptions or fee waivers that offer incentives for the development of housing for low to moderate income households. Depending on the criteria used to identify projects, if these are implemented, the actions could be used in locations with access to amenities or other equity considerations.
- Actions 3H and 3I include TIF and CET funds. Depending on the criteria used to identify projects, if these are implemented, these funds could be targeted in locations with access to amenities or other equity considerations.

Location of Housing in Compact, Mixed-Use Neighborhoods

Diversifying the location of housing requires increasing options for residential development that is compact, in mixed-use neighborhoods, and available to people within state and federal protected classes. This measure is intended, in part, to meet statewide greenhouse gas emission reduction goals.

Existing actions and programs:

- A Vertical Housing Development Zone Tax Abatement to support development of mixed-use housing.
- Zoning and code changes that can support development of a variety of housing types in different neighborhoods such as increasing density near transit stations and multi-use trails and allowing middle housing as required by House Bill 2001.

Actions in the HPS:

- Actions 1A, 2A, 1D, and 2E focus on providing financial support and other resources (including land) to support development of affordable housing. Depending on the criteria used to identify projects, this could be in locations with access to amenities or other equity considerations.
- Actions 1B, 2B, 1C and 2C focus on ensuring that existing rental housing is safe and affordable and can support the rehabilitation of this housing to be more accessible for

community members. Depending on the criteria used to identify projects, this could be in locations with access to amenities or other equity considerations.

- Action 3E, 3F, 3G, and 3H focus on evaluating potential tax exemptions or fee waivers that offer incentives for the development of housing for low to moderate income households. Depending on the criteria used to identify projects, if these are implemented, they could be used in locations with access to amenities or other equity considerations.
- Actions 3H and 3I include potential TIF and CET funds. Depending on the criteria used to identify projects, if these are implemented, then these funds could be targeted in locations with access to amenities or other equity considerations.

Fair Housing

Supporting Fair Housing is accomplished by increasing access to housing for people in state and federal protected classes, addressing disparities in access to housing opportunity for underserved communities, and decreasing patterns of segregations or concentrations of poverty.

Existing actions and programs (including but not limited to):

- Gresham has a rental housing inspection program, which helps ensure housing units are up to fire, life, and safety codes.
- Gresham's rental housing codes includes protections against landlord retaliation and have a requirement for landlords to provide tenants with a document titled, "Rights and Responsibilities of Tenants and Landlords."
- Gresham hosts an annual Fair Housing training for landlords, which includes information about Section 8 vouchers and the Rent Well program.
- Gresham's housing resource coordination provides support related to Fair Housing, as that staff person connects with tenants and landlords.
- Zoning and code changes that can support development of a variety of housing types in different neighborhoods such as increasing density near transit stations and multi-use trails.
- Allowing middle housing as required by House Bill 2001. This can help address patterns of segregation by ensuring affordable housing options in a variety of neighborhoods.

Actions in the HPS:

- Actions 1A, 2A and 2E B focus on providing financial support and other resources (including land) to support development of affordable housing. Depending on the criteria used to identify projects, this could be in locations with access to amenities or other equity considerations.
- Actions 1B, 2B, 1C and 2C focus on ensuring that existing rental housing is safe and affordable and can support the rehabilitation of this housing to be more accessible for community members. Depending on the criteria used to identify projects, this could be in locations with access to amenities or other equity considerations.

- Action 3E, 3F, 3G, and 3H focus on evaluating tax exemptions or fee waivers that offer incentives for the development of housing for low to moderate income households. Depending on the criteria used to identify projects, if implemented this could be in locations with access to amenities or other equity considerations.
- Actions 3H and 3I include exploring TIF and CET funds. Depending on the criteria used to identify projects, if implemented these funds could be targeted in locations with access to amenities or other equity considerations.

Housing Options for People Experiencing Homelessness

Increasing options for people experiencing homelessness includes working with partners and identifying ways to address homelessness and reduce the risk of households becoming homeless (especially for households with income below 30% of MFI).

Existing actions and programs (including but not limited to):

- The City has created a Homeless Services team which does field outreach to people experiencing homelessness to provide shelter, housing and other resources that fit the individuals' needs.
- Providing rent assistance and support via contracts with CDBG and HOME funding.
- Taking the steps to pilot a rent assistance program for people experiencing homelessness in Gresham.
- Addition of Housing Resources Coordinator position to assist people at risk of becoming homeless by connecting them to resources to stay in their housing.

Actions in the HPS:

- Action 3D focuses on implementing a rent assistance pilot program for people experiencing homelessness in Gresham which will include payment of move in costs and rent for up to 12 months and case management.

APPENDIX F: TRENDS IN GENTRIFICATION AND DISPLACEMENT RISK IN GRESHAM

As the City of Gresham set the stage for its Housing Production Strategy, staff were interested in understanding current trends in gentrification and displacement risk in Gresham. Therefore, ECONorthwest produced this appendix, which the Housing Production Strategy Project Team used to inform potential actions that the City could take to mitigate the risk that the City's most vulnerable populations would be displaced from their housing. As the City implements the actions in the HPS, this information can help City staff structure housing and development policies and programs. This work builds on the Gresham Neighborhood Change report that ECONorthwest completed in 2015.[56]

The high-level results of our analysis reveal that:

- **Powell Blvd/Highway 26 is a dividing line when it comes to gentrification and socioeconomic vulnerability**. In general, there are more vulnerable and gentrifying areas to the north of the highway and more stable areas to the south.
- **Most Gresham residents live in neighborhoods that are at risk of gentrification.** Approximately 75% of households live in areas that are either susceptible to gentrification or in the early stages of gentrification. These areas are generally those that also have high levels of socioeconomic vulnerability, Ih may lead to housing insecurity or displacement.
- **Gresham has a substantial number of households that are at-risk of displacement and vulnerable, especially in the northern parts of the city.** Gresham has higher concentrations of vulnerable populations such as people with less than a bachelor's degree, Hispanic/Latinx population, and Black, Indigenous, and other People of Color (BIPOC).

In the following sections, we will examine results and trends in further detail. An overview of the methodologies used in this analysis is within this memorandum.

Analysis Methodology

ECONorthwest conducted this analysis by combining two parallel models that look at (1) where the city's most **socioeconomically vulnerable populations** are currently clustered and (2) where **gentrification** has been most rapidly advancing within Gresham since 2010. While the causal relationship between gentrification and displacement is complicated, this analysis considers both gentrification and socioeconomic vulnerability, which are markers that can help planners

[56] Gresham Neighborhood Change Analysis. 2015. ECONorthwest. https://greshamoregon.gov/WorkArea/DownloadAsset.aspx?id=1409

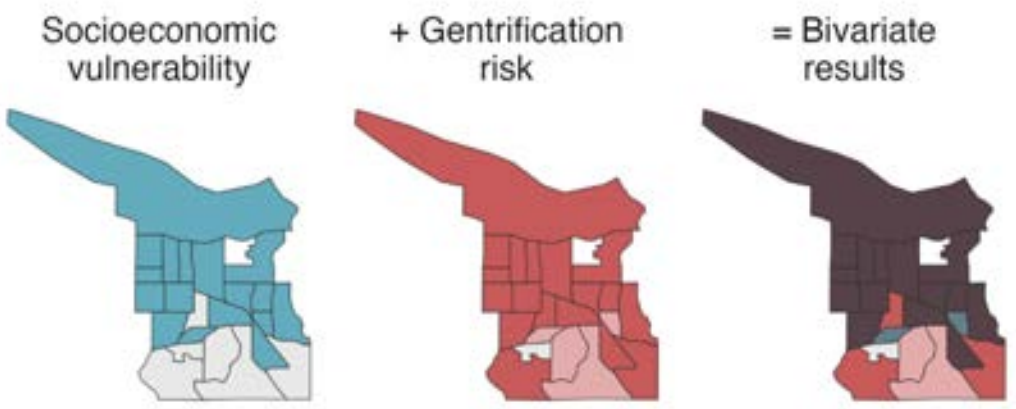
and elected officials identify neighborhoods where policy interventions should be prioritized. Some research has shown that displacement comes before gentrification.

There are very few investigations into gentrification and displacement that have resulted in "accurate" predictors of displacement, as there is no real way to measure whether the predictors captured the events. This analysis is to be used to recommend how to target the location of policy approaches to the specific characteristics and needs of neighborhoods.

Within the **socioeconomic model**, we designed a model that identified the Portland Metro region's most disproportionately cost-burdened demographic groups (such as households with children present or households with people of color, or households with people with a disability) using 2016-2020 ACS Public Use Microdata Survey data, then compiled Census tract-level estimates of these demographic groups.

Within the **gentrification model**, we used Dr. Lisa Bates' 2018 gentrification methodology that the Portland Bureau of Planning and Sustainability (BPS) used for the City of Portland, which identifies areas in different stages of gentrification, from stable (low risk of gentrification) to early-stage gentrification to late-stage gentrification. The data we used was similar to the data Dr. Bates used but shifted over a few years for ease of accessibility, for example: rather than using decennial census, we used American Communities Surveys for the years of 2006-2010, 2011-2015, and 2016-2020. For housing market conditions, we utilized RLIS data to capture median sale prices within a census tract for the years of 2010 and 2020.

Exhibit 62. Bivariate Analysis Outline



Socioeconomic Vulnerability Methodology

In this part of the analysis, ECONorthwest answers the question, "Who is most likely to be displaced if housing market conditions were to further appreciate in price or stay the same?"

We began by identifying groups that are inequitably burdened by housing costs, meaning that these groups have higher rates of cost burden compared to all households. First, we developed a weighted vulnerability indexing analysis, based on Oregon's 2019 Public-Use Microdata Survey (PUMS) data at the state level to identify demographic groups that are unequally burdened by housing costs. This means that a given group's share of the state's cost-burdened households is greater than its total share of all state households. For example, households with a Hispanic/Latinx head comprise 8.6% of the state's households, but 13.4% of the state's cost-burdened households, a difference of 4.8% points.

Our analysis identified six demographic groups that were most disproportionately burdened:

- Households with children present
- Black, Indigenous and People of Color (neither White non-Hispanic, nor Hispanic/Latino people are included in this group)
- People of Hispanic/Latino origin, any race
- People five years and older who speak English "not well"
- People with one or more disabilities
- People 25 years and older who have an educational attainment of less than a bachelor's degree

Disproportionate cost burdening varies across the state. To capture this variation, ECONorthwest compared disproportionate cost burdening among these groups for six geographic areas of the state and compared levels of disproportionate cost burden among the demographic groups for Census tracts in Gresham with state and regional results.[57]

The result of this analysis is identification of Census tracts with lower and higher percentages of people in vulnerable groups. Census tracts with higher vulnerability levels would indicate places where it is more likely that not only current, but where future housing cost burdening and possible displacement are more likely to occur.

Gentrification and Displacement Methodology

Displacement takes many forms and does not have a singular definition. The researcher operationalizes displacement differently within their analytical approach. Displacement is caused by many factors and there is not a clear causal relationship between displacement and gentrification. Put another way, investment in an area does not need to lead to residents

[57] ECONorthwest rank-ordered vulnerable demographic groups by six geographic areas of the state. We used the rank (1 through 6) as a weighting factor. Based on this rank-ordered list, we next used tract-level 2019 ACS estimates of all six demographic groups to calculate each tract's percentage of its region's total number of vulnerable groups. This share was then converted to decile ranks, and each decile rank was multiplied by the rank-ordered weighting factor. These "scores" were then summed for each tract, with total scores ranging between 21 to 210. Lastly, this score was then divided by the maximum possible value to compute a more intuitive percentage value, with "100%" indicating tracts with the **highest** levels of **all** vulnerable demographic groups.

leaving the area, especially if the city takes actions to avoid displacement. This awareness of the potential for displacement with neighborhood investment can allow a city to prevent or reduce displacement associated with investments.

The analysis identifies Census tracts in Gresham where gentrification is taking place or may take place in the future. These tracts where place-specific ordinances and location-specific research can serve to protect vulnerable populations and determine how much the data matches the lived experience of residents on the ground.

The Gentrification and Displacement Risk Analysis methodology used in this analysis mirrors closely to what BPS and Dr. Lisa Bates utilized in 2018 with an additional typology, explained below.[58] The analysis considers the following characteristics:[59]

Vulnerable populations are ones with:

- High rates of renting households relative to the region
- Large shares of communities of color relative to the region
- Large shares of adults (25 years and older) without a four-year degree relative to the region
- Large shares of low-income households (below 80% Median Family Income) relative to the region

Demographic changes (over the last decade or so) require three of the following four conditions being true or the **two bolded** were true:

- Share of homeowners increased or decreased slower than the regional average
- **Share of white population increased or decreased slower than the regional average**
- **The share of adults with a four-year degree increased faster than the regional average**
- Median household income increased faster than the regional average

Housing market conditions are Census tracts with the following conditions:

- Adjacent tracts
    - Had low or moderate 2010 home values/rents
    - Experienced low or moderate 2010-2020 appreciation (or 2015-2020 rental appreciation)
    - Touched the boundary of at least one tract with high 2020 values and/or high 2010 appreciation (or 2010-2020 rental appreciation)
- Accelerating tracts

[58] The methods used by ECONorthwest draw from the work of Dr. Lisa Bates and BPS, but used the observation years of 2010, 2015, and 2020 for both Census and American Communities Surveys years.

[59] More information about the definitions for the "Vulnerable Population", "Demographic Change", and "Housing Market Condition" can all be found in the 2018 report here.

    - Had low or moderate 2020 home values/rents
    - Experienced high 2010-2020 appreciation (or 2010-2020 rental appreciation)
- Appreciated tracts
    - Had low or moderate 2010 home values/rents
    - Had high 2020 home values/rents
    - Experienced high 2010-2020 appreciation

This analysis of change (in populations, demographics, and housing markets) over time is completed at the regional and Census-tract levels, rather than at the household level. A basic limitation of census and ACS data is that they cannot provide longitudinal data on individual households between surveys (e.g., over +10-year spans of time). Whether or not low-income families in Gresham have been displaced from other neighborhoods in that time (tracts labeled Late: Type 1 or Dynamic) requires a much deeper level of analysis and qualitative analysis done by either academics or the City.

Exhibit 63 shows a summary of the typologies used in this analysis. They are:

Early-Stage Gentrification. These tracts have not started to gentrify or show early signs that they could be gentrifying.

- **Susceptible**. These tracts have higher shares of vulnerable populations but have not yet experienced demographic changes. Their housing market sales and rents were low or moderate in costs, but they are adjacent to tracts whose housing costs are already high or are increasing rapidly.
- **Early Type 1.** These tracts have higher shares of vulnerable populations but have not yet experienced demographic changes. Their housing market is still low or moderate in cost but has experienced high appreciation since 2010.
- **Early Type 2.** These tracts have higher shares of vulnerable populations but have experienced demographic changes showing the loss of vulnerable populations. Their housing market is low or moderate in costs, but they are adjacent to tracts whose housing costs are already high or are increasing rapidly.

Mid-Stage Gentrification.

- **Dynamic**. These tracts are currently undergoing gentrification. They have higher shares of vulnerable populations and have experienced demographic changes by losing vulnerable populations. Their housing market is still low or moderate in costs but has experienced high appreciation since 2010.

Late-Stage Gentrification. These tracts have mostly gentrified but vulnerable populations may still reside there. The housing market has completely shifted from low or moderate to high housing costs.

- **Late Type 1.** These tracts have higher shares of vulnerable populations but have experienced demographic changes by losing vulnerable populations proportionally. Their

housing market used to be low or moderate in 2010 but has appreciated rapidly since, and now values are high.

- **Late Type 2.** These tracts no longer have high shares of vulnerable populations like they used to in 2010. They have experienced demographic changes by losing their once-high share of vulnerable populations. Their housing market is still low or moderate but has experienced high appreciation since 2010.

Continued loss. These tracts no longer have high shares of vulnerable populations like they used to in 2010 or in 2015. The share of white people is growing and/or the share of people with a four-year degree is growing. Their housing market used to be low or moderate in 2010 but has appreciated rapidly since, and now values are high.

Stable Low-Vulnerability Communities. These tracts are ones that have had historically low levels of vulnerable populations relative to the region (from 2010-2020).

Exhibit 63. Gentrification/Displacement Methodology

Typology	Vulnerable Population?	Demographic Change?	Housing Market Condition
Early-Stage Gentrification			
Susceptible	Yes	No	Adjacent
Early: Type 1	Yes	No	Accelerating
Early: Type 2	Yes	Yes	Adjacent
Mid-Stage Gentrification			
Dynamic	Yes	Yes	Accelerating
Late-Stage Gentrification			
Late: Type 1	Yes	Yes	Appreciated
Late: Type 2	Used to be in 2010 or 2015	Yes	Accelerating
Continued Loss	Used to be in 2010 or 2015	Increasing share of white people and adults with bachelor's degree	Appreciated
Stable - Low Vulnerability **	No	No	Any**

What neighborhoods are at most risk of gentrification and displacement?

The most at-risk neighborhoods are in the northern, denser areas of Gresham, while the more stable, low-risk neighborhoods are located south of US 26.

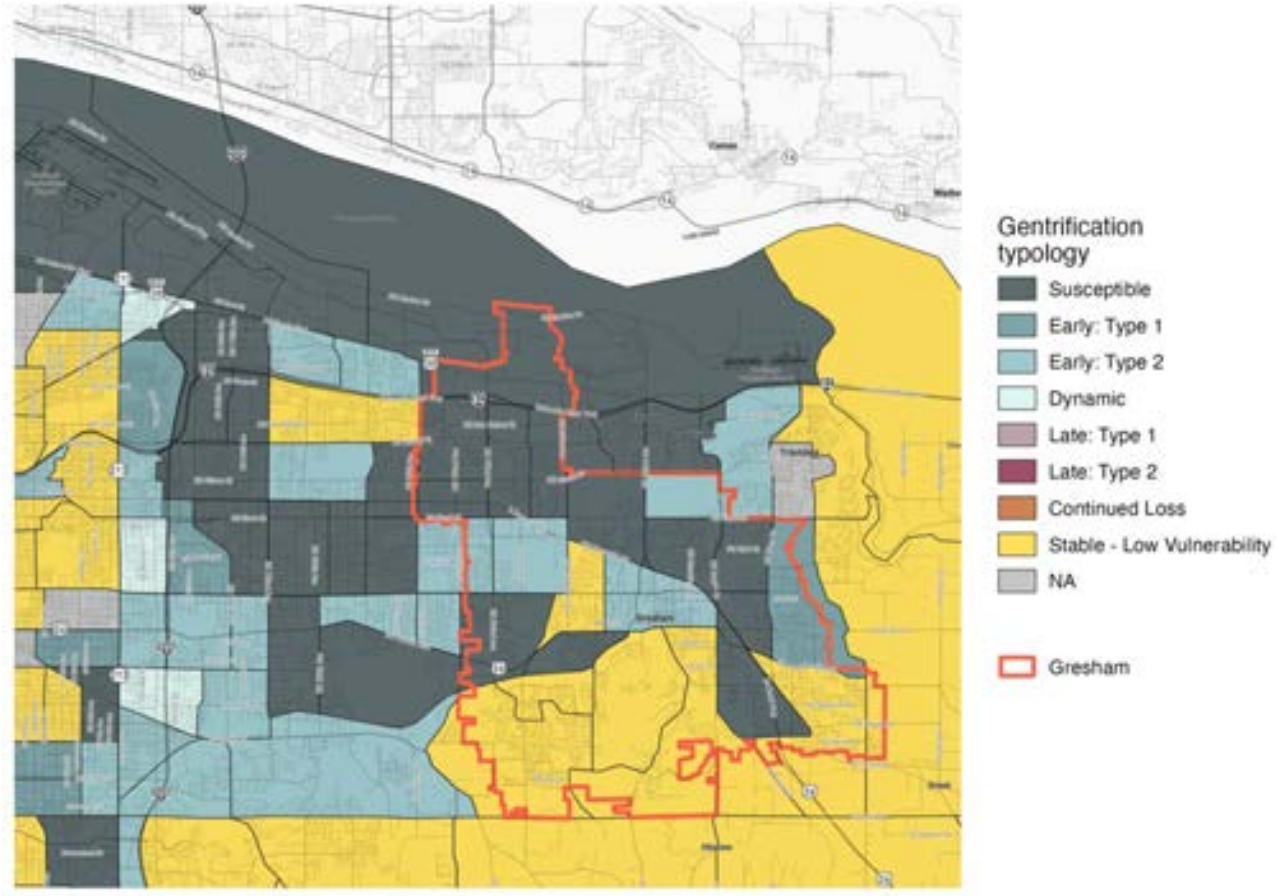
Most households (53%) live in Census tracts that are susceptible to gentrification, with 22% of households in the early stages of gentrification, while around 25% are in low-risk areas (see Exhibit 65).

Most tracts north of Powell Blvd/Highway 26 are classified as Early: Type 2 or Susceptible (see Exhibit 64). Demographic changes and housing price increases suggest that these areas are in the early stages of gentrification. This indicates that economically vulnerable neighborhoods may be at-risk of experiencing gentrification which ultimately leads to rising housing costs, and potentially displacement. Early: Type 1 may indicate that some areas are already experiencing gentrification to some degree, while Early: Type 2 indicates demographics of the neighborhood are changing relative to the Metro area while also being near tracts that are increasing in housing value (both rent and sale value).

Areas south of Highway 26 are generally classified as Stable – Low Vulnerability (see Exhibit 64). In these neighborhoods, incomes and housing prices are generally higher and have not changed over the study period (2010-2020). However, some pockets of Susceptible tracts are found in this area around Hogan Butte and Hogan Cedars.

Exhibit 64. Gresham's Gentrification Typology by Census Tract.

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest, Bates/BPS

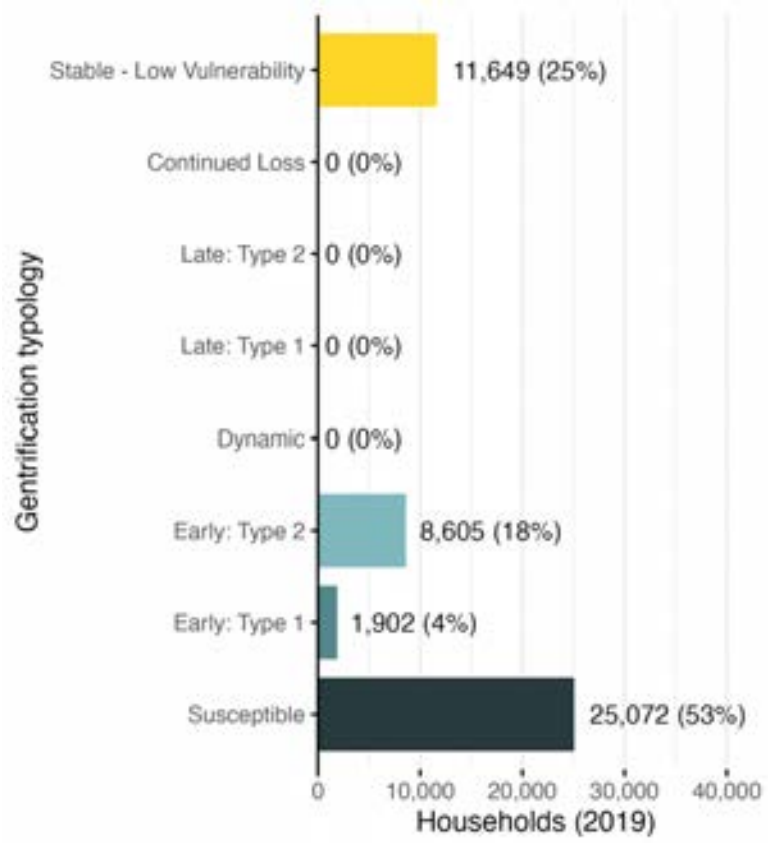


About three-fourths (~75%) of households in Gresham live in tracts that are in the early or susceptible stages of gentrification, as shown in

Exhibit . While this does not necessarily indicate that three-fourths of *all households* are at risk of gentrification, it indicates that the majority of Gresham shows signs of housing instability relative to the Metro region.[60]

Exhibit 65. Total Gresham Households by Tract Gentrification Typology

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest



[60] Gresham's tracts are small enough that they cannot be compared to each other. As a result, the methodology used in the analysis compares Gresham to the Metro region, which makes additional examination of regional differences difficult.

Neighborhood-Level Observations Results

Gentrification can be quite a nuanced topic. While the data presents one story about an entire census tract, Gresham's neighborhoods that are in the process of being gentrified may be a much smaller portion of that Census tract.

For Gresham, most tracts and households within those tracts fall under the definition of **Early: Type 2** and **Susceptible**. These typologies are characterized by having high levels of economic vulnerability, low rates of demographic change, and having either nearby tracts (called "adjacent" tracts) becoming more valuable (rents and/or sale prices appreciating quickly) or being in an "appreciated" tract where rent values and home sale prices rose drastically between 2010 and 2020. These tracts are ones where the City may want to focus active monitoring to make sure that residents who are already cost-burdened are not forced to leave due to gentrification.

Where do Gresham's most vulnerable residents live?

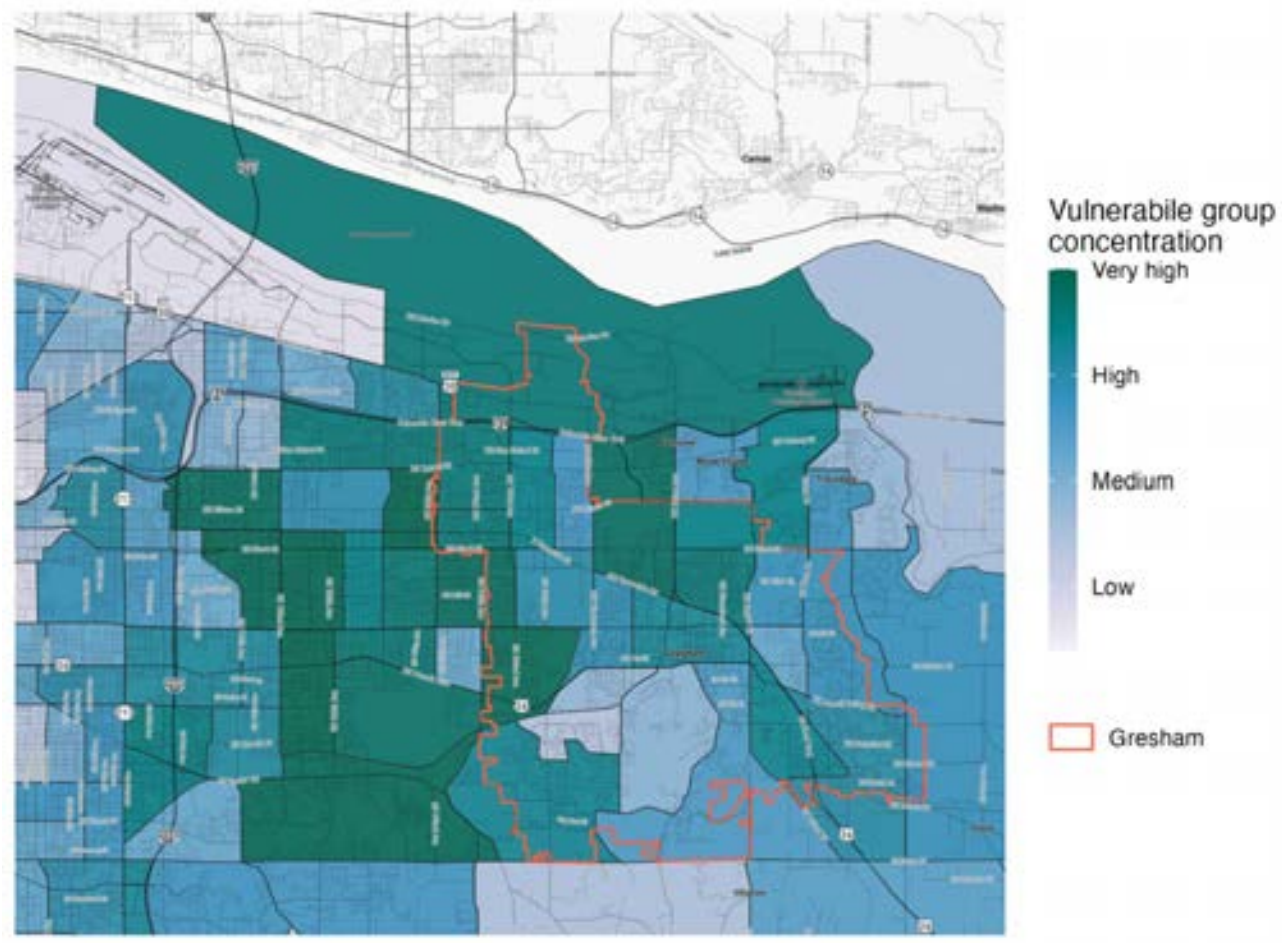
While the previous section provides information on how tracts in Gresham have or have not gentrified, based in part on the Dr. Bates/BPS methodology, this does not answer the question of which neighborhoods and demographic groups are most disproportionately burdened by housing costs. To address this issue, ECONorthwest developed a separate model (described on page 124) using ACS/census datasets to determine which tracts in Gresham are most acutely and unequally burdened by housing prices – the implication being that, should trends hold, the most burdened households today will likely be the first to be displaced tomorrow.

Tracts showing the highest levels of vulnerability are mainly clustered around Gresham's western and northern boundary.

Error! Reference source not found.shows the results of the Socioeconomic Vulnerability model. These "high vulnerability" tracts contain the combined largest shares of the Metro region's most disproportionately cost burdened demographic groups, such as people without a bachelor's degree or higher, people of color, and people living with one or more disabilities. Low-vulnerability tracts in Gresham are mostly found in the south-central areas of the city, around Hollybrook neighborhood and southwards. Most vulnerable tracts are clustered in the northern portion of Gresham, but the unique groups that make up those tracts vary around the city.

Exhibit 66. Overall Socioeconomic Vulnerability by Tract

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest



Who is most likely to be displaced if housing market conditions housing market conditions continue to appreciate or stay the same?

Some interesting trends include a noticeable clustering of Limited English Proficiency (LEP) households along Gresham's northwestern boundary, higher BIPOC shares in the Centennial neighborhood area, and higher clustering of households with at least one disabled person around the North Central neighborhood.
Exhibit 6 shows the results of our Socioeconomic Vulnerability analysis, broken out by each demographic group examined.

Across the state of Oregon, having less than a bachelor's degree was the strongest determinant of cost-burdened households. Gresham largest vulnerable group is "Less than a Bachelor's Degree", though this group can also include relatively more financially secure elder or retired residents.

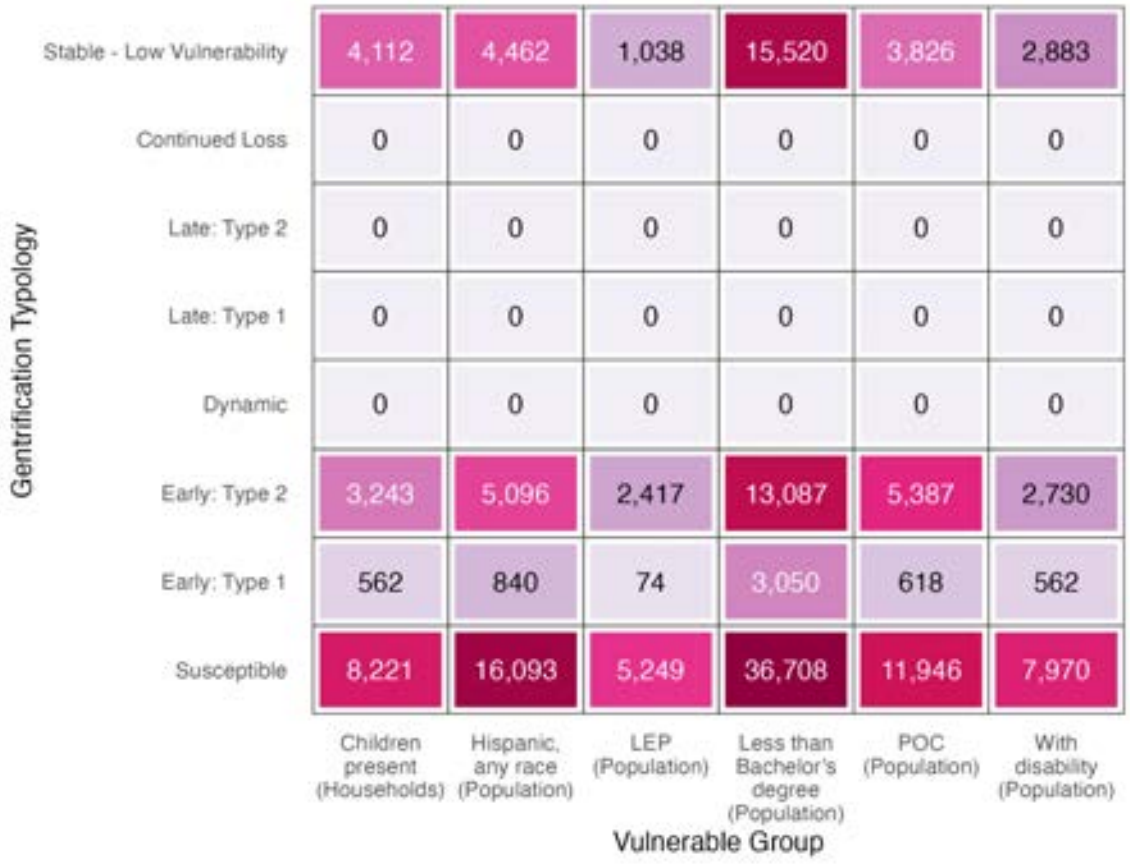
Exhibit 67. Vulnerable Group Concentration by Tract

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest

Exhibit 68 depicts the combined Socioeconomic Vulnerability model results in terms of number of households that reside in tracts with intersecting gentrification typologies and socioeconomic vulnerability groupings. For instance, we find that the most common intersection of our model are the 36,708 households living in a Susceptible to gentrification tract and having a head of household educational attainment of less than a bachelor's degree. These demographic groups are not mutually exclusive, so many households would be counted in multiple groups (i.e., a BIPOC head of household, with children present, and with someone in the household having a disability).

Exhibit 68. Estimated Households or Population by Vulnerability Group and Gentrification Typology

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest
Note: The colors in the graph indicate total number of households facing a level of vulnerability to a typology of gentrification. The darker the color, the higher the number of households.



Most socioeconomically vulnerable residents in Gresham are in the "Less than bachelor's degree" group, which falls in line with high degrees of housing cost-burdening across the state of Oregon. This sub-group is concentrated in tracts that are susceptible to gentrification, or have started the process of gentrifying, thus placing them even more at risk. Interestingly, there are also pockets of neighborhoods in Gresham that are stable with low levels of vulnerability for their neighborhood gentrifying, while also having a high number of households without a bachelor's degree.

Where do areas with higher gentrification risk and vulnerable populations intersect?

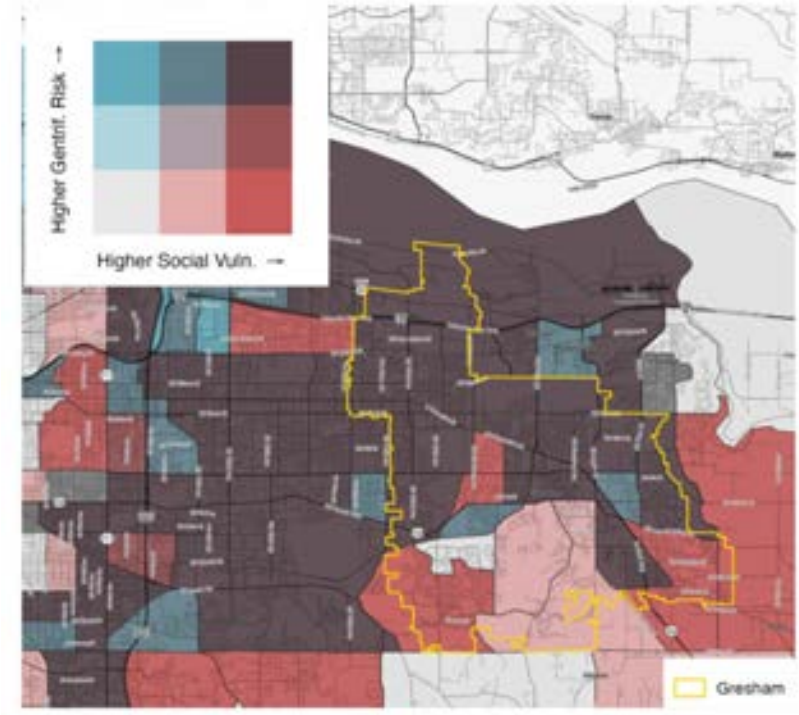
Powell Blvd/Highway 26 is a dividing line when it comes to gentrification and vulnerability.

Gresham, along with portions of East Portland, contains large amounts of the Metro region's most vulnerable tracts when considering both gentrification and displacement risk. The denser tracts north of Powell Blvd./Highway 26 exhibit signs of highest gentrification risk combined with high socioeconomic vulnerability to displacement. By comparison, areas south of Highway 26 (which are lower density and have a larger share of homeowners) show signs of low gentrification risk or low levels of socioeconomic vulnerability.

Exhibit 69 shows areas with higher gentrification risk and areas with higher social vulnerability.

Exhibit 69. Composite Gentrification and Socioeconomic Vulnerability Risk, by Tract

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest



Indicators of higher gentrification risk include:

- High shares of low-income households
- Changing socioeconomic demographics as compared to the region
- Rising prices of housing for sales and rent

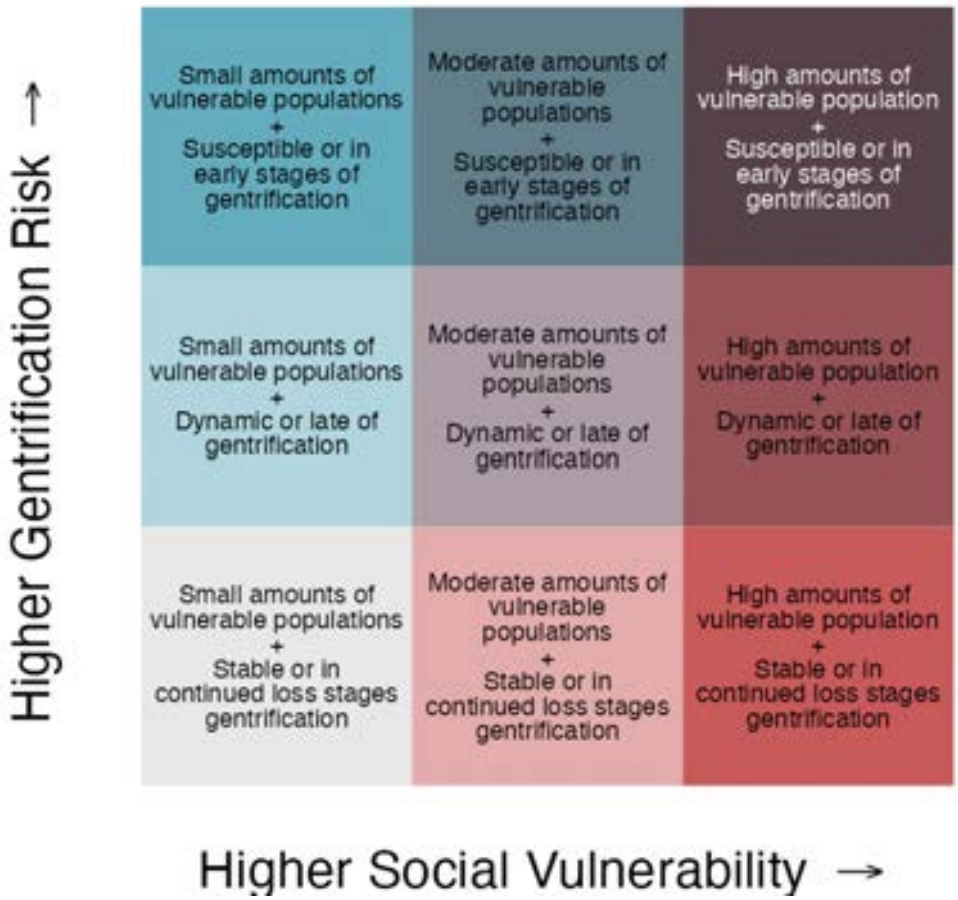
Indicators of higher social vulnerability include:

- higher shares of the region's BIPOC
- higher shares of the region's population without a bachelor's degree or higher

Exhibit 70 provides more context about the risk for gentrification and the level of social vulnerability in Exhibit 69. The following describes the gentrification risk and social vulnerability at each corner of the matrix.

- Top row left side – in blue. These areas are at risk of displacing existing populations but the populations in these areas are generally less vulnerable as compared to the region. This may also indicate that neighborhoods nearby are experiencing appreciations in home sales and rents.
- Top row left side – in dark grey.
- These areas are the highest risk of displacement of existing vulnerable population, such as lower-income households, people of color, Latino households, or other vulnerable populations.
- Bottom row left side – in light grey. These are areas with little risk of displacement and few vulnerable populations.
- Bottom row right side – in pink. These areas have little existing risk of displacement but are home to vulnerable populations.

Exhibit 70. Gentrification and Socioeconomic Vulnerability Risk Matrix



Most Gresham residents live in neighborhoods that are at risk of gentrification.

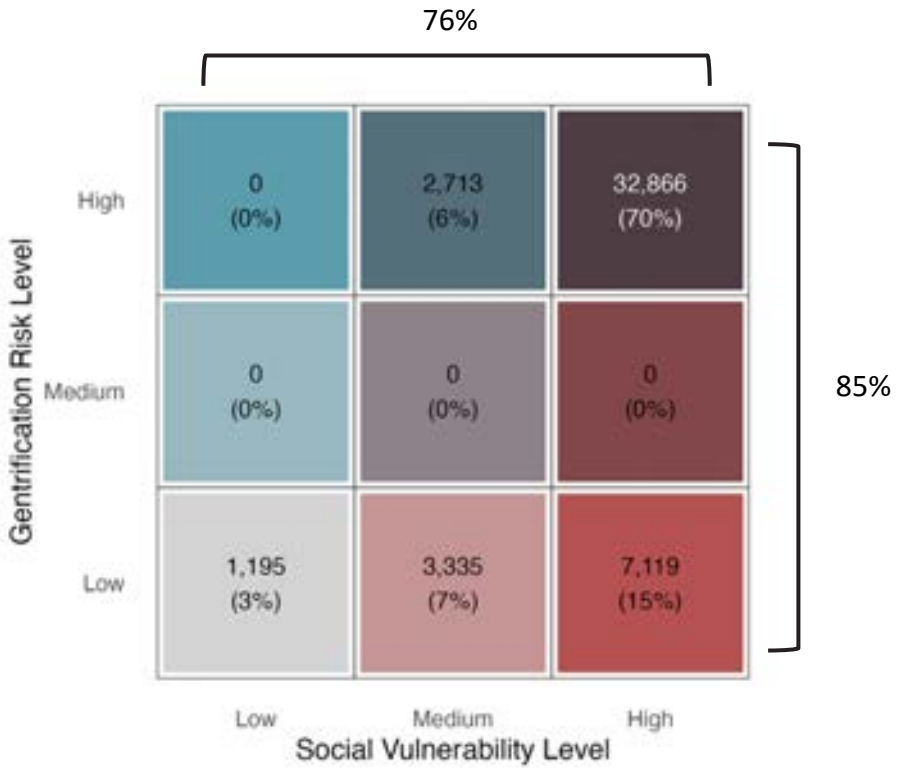
Many Gresham residents are at risk of displacement. The analysis describes the households and tracts that may be at most risk of displacement or additional cost-burdening if the City continues business as usual. Nearly two thirds (63%) of Gresham households live in Census tracts that combine a high gentrification risk and a high socioeconomic vulnerability level.

Exhibit 71 shows the percentage of the population in Gresham in each of the groupings shown in Exhibit 69 and Exhibit 70.

- 76% of Gresham households reside within tracts identified as at high risk of gentrification (either in early or susceptible stages).
- 85% of households reside in tracts identified as at high socioeconomic risk of housing displacement.

Exhibit 71. Gresham Households Within Composite Gentrification and Socioeconomic Vulnerability Groups

Source: ACS 2010, 2015, 2019 (5-year), RLIS, ECONorthwest



Implications and Next Steps for the Housing Production Strategy

This analysis shows that substantial parts of Gresham are in the early stages of gentrification or at-risk of gentrification, especially where there are higher concentrations of vulnerable population. As neighborhoods that were once low-income begin to appear appealing to new residents, it is important to recognize that the people living in those neighborhoods may not have the same economic opportunities as the people moving in.

For the City of Gresham to validate what is happening on the ground, it is important to consider neighborhood characteristics and design community charettes to accurately represent what change looks like to the residents there now. Gresham may want to take steps to further understand potential for gentrification and potential displacement of vulnerable population, such as conducting additional research about areas at risk for gentrification to better understand the demographic characteristics of people who may be displaced. This could include an analysis of whether existing and new regulated housing reduces risk of gentrification and/or displacement gentrification. Preserving existing affordable housing, stabilizing households, and preventing future displacement and gentrification are considerations for the HPS.

APPENDIX G: PRE-HPS SURVEY

Below is the survey that City of Gresham staff submitted to the Department of Land Conservation and Development prior to starting the HPS.

Housing Portal — **Pre-HPS Survey Submission** — Page: 1 of 2

Year: 2021 City: Gresham Submitted Date: 01/11/2022 3/16/2023 12:31:01 pm

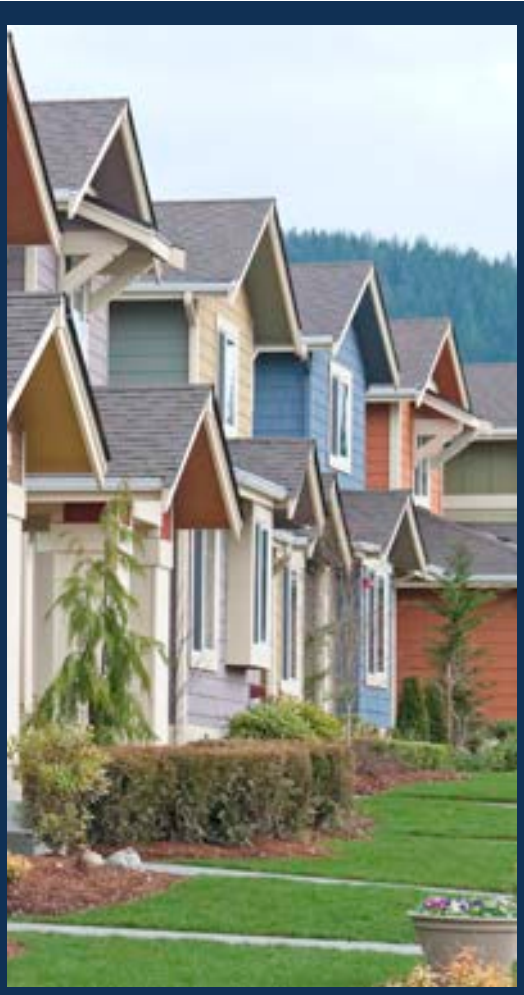
Category	Strategy	Encourage Needed Housing	Increase Affordability	Reduce Rent Burden
A - Zoning and Code Changes	A01 - Ensure Land Zoned for Higher Density is not Developed at Lower Densities	Yes	No	No
Comments:				
A - Zoning and Code Changes	A02 - Zoning Changes to Facilitate the Use of Lower-Cost Housing Types	Yes	Yes	Yes
Comments:				
A - Zoning and Code Changes	A05 - Code Provisions for ADUs	Yes	Yes	No
Comments:				
A - Zoning and Code Changes	A08 - Promote Cottage Cluster Housing	Yes	Yes	No
Comments:				
A - Zoning and Code Changes	A11 - Add Restrictive Covenants to Ensure Affordability	Yes	Yes	Yes
Comments:				
A - Zoning and Code Changes	A12 - Align Lot Division Density with Zoning Density	Yes	Yes	No
Comments:				
A - Zoning and Code Changes	A18 - Increase Density near Transit Stations and Regional Multi-use Trails	Yes	Yes	No
Comments:				
B - Reduce Regulatory Impediments	B03 - Expedite Permitting for Needed Housing Types	Yes	No	No
Comments:	Expedited permitting for affordable multifamily developments.			
C - Financial Incentives	C03 - Reduce or Exempt SDCs for ADUs	Yes	Yes	No
Comments:				
D - Financial Resources	D01 - Community Development Block Grant (CDBG)	Yes	Yes	No
Comments:				

Housing Portal — **Pre-HPS Survey Submission** — Page: 2 of 2

Year: 2021 City: Gresham Submitted Date: 01/11/2022 3/16/2023 12:31:02 pm

D - Financial Resources	D06 - HOME Program	Yes	Yes	No
Comments:				
D - Financial Resources	D09 - Construction Excise Tax (CET)	Yes	No	No
Comments:				
D - Financial Resources	D16 - General Obligation Bonds – for Affordable Housing	Yes	Yes	Yes
Comments:				
E - Tax Exemption and Abatement	E03 - Vertical Housing Development Zone Tax Abatement	Yes	Yes	Yes
Comments:				
F - Land, Acquisition, Lease, and Partnerships	F04 - Public/Private Partnerships (P3)	Yes	Yes	Yes
Comments:				

What difference does the balance of jobs to housing have on commute time?					Comments
	From 2020 Metro #			From US Census	
	Households	Jobs	Jobs/HH	Commute Time	
Clack, Mult, Wa. Counties	732,937	1,026,032	1.40		
Beaverton	39,895	63,500	1.59	24.9	Has close to regional jobs/household average. Commutes 48 seconds less than Sherwood
Gresham	41,195	40,562	0.98	28.6	Gresham has almost the same jobs/household ratio as Sherwood and 2.9 minute longer commuter
Hillsboro	42,338	84,623	2.00	23.1	
Happy Valley	6,893	7,823	1.13	28.0	
Lake Oswego	17,257	21,525	1.25	23.2	Commute is only six seconds longer than Hillsboro which has many more jobs/household
Oregon City	13,557	17,112	1.26	26.4	Better ratio of jobs to households than Sherwood and has a slightly longer commute time.
Portland	280,708	480,904	1.71	25.5	
Sherwood	6,567	6,646	1.01	25.7	Almost identical to Portland which many more jobs per household
Tigard	21,617	45,109	2.09	23.5	
Tualatin	10,995	34,115	3.10	22.9	
West Linn	9,955	4,982	0.50	27.3	West Linn has less one quarter as many jobs/household as Wilsonville and commute is 1 minute, 4%, lo
Wilsonville	9,778	20,539	2.10	26.3	Wilsonville has many more jobs/household than Lake Owego but a 3 minute longer commute



OREGON SYSTEM DEVELOPMENT CHARGES STUDY:

WHY SDCs MATTER AND HOW THEY AFFECT HOUSING

Source: Portland Parks and Rec

December 2022

Prepared for Oregon Housing and Community Services (OHCS)

Acknowledgements

This report was prepared by ECONorthwest on behalf of Oregon Housing and Community Services (OHCS) with funding from the 2021 Oregon State Legislature and substantial contributions from FCS GROUP and Galardi Rothstein Group. Staff and project team members are grateful to the many cities, counties, special districts, and housing developers who participated in focus groups and interviews and/or provided written commentary to inform this study.

While many individuals contributed to this study, core project team members are listed below.

OREGON HOUSING AND COMMUNITY SERVICES

- Elise Cordle Kennedy, *Project Lead*
- Kim Travis, *Engagement Support*

ECONORTHWEST

- Becky Hewitt, *Senior Project Manager*
- Tyler Bump, *Project Director and Senior Advisor*
- Lorelei Juntunen, *President and Senior Advisor*
- Michael Wilkerson, *Director of Data Analytics*
- James Kim, *Research and Analysis Lead*
- Lee Ann Ryan, *Engagement Lead*
- Spencer Keating, *Analyst*

GALARDI ROTHSTEIN GROUP

- Deborah (Deb) Galardi, *Principal*

FCS GROUP

- John Ghilarducci, *President/Principal*
- Doug Gabbard, *Project Manager*

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Executive Summary

In 2021, the Oregon legislature passed House Bill 3040 (HB 3040), directing Oregon Housing and Community Services (OHCS) to prepare a study of System Development Charges (SDCs)—a form of one-time impact fees charged on new development to help pay for infrastructure that serves or provides capacity for growth. The legislature requested that the study cover the history of the charges, methodologies for setting the fees, recent trends in fee levels, how the fees relate to other development costs, and how they ultimately affect the cost and production of housing. The findings from this study can inform future policy discussions related to SDCs, but the legislature's direction for this study did not include making policy recommendations.

OHCS contracted with ECONorthwest and subcontractors FCS GROUP and Galardi Rothstein Group to undertake this report. The team drew its findings from reviews of national and local studies; surveys of cities, counties, and special districts; interviews and focus groups with local government officials and housing developers; original data analyses; and decades of experience conducting SDC studies, analyzing residential development, and evaluating infrastructure funding mechanisms.

Key Findings

SDCs have become an essential funding mechanism in many Oregon communities, for practical, political, and policy reasons.

- **SDCs are increasing faster than inflation due to lack of alternative funding and increasing infrastructure costs.** Over the last several decades, flat or declining state and federal infrastructure spending, limitations on property taxes, and increasing costs for operations, maintenance, and regulatory compliance have increased dependence on SDCs and other local revenue sources. On average, both SDCs and water and sewer utility rates have increased faster than construction costs over the past 10-15 years. Even so, many jurisdictions report falling behind in their ability to pay for infrastructure, especially in the last few years as costs have escalated so quickly that annual indexed adjustments have not kept up.
- **SDCs are a critical component of local funding for infrastructure needed to support growth.** SDCs can allow communities to build the infrastructure needed to accommodate orderly growth, making them an important part of Oregon's growth management system. They can benefit both developers (by funding investments that make development possible and distributing costs among multiple benefitting parties) and existing residents (by reducing reliance on utility rates, bonds, and other community-wide funding mechanisms that can disproportionately impact lower-income households). Further, the requirements associated with other local funding sources for capital improvements (e.g., voter approval for general obligation bonds) can increase jurisdictions' reliance on SDCs. However, small, slow-growing communities tend to use

SDCs less, as they have less need to increase infrastructure capacity, few costs attributable to growth, and little development that would generate revenue.

- **The variation in SDC rates across the state reflects differences in local needs, cost factors, and priorities.** Oregon's SDC Act and the broader legal context provide guardrails to ensure SDCs recover an equitable share of costs of capacity, while also providing flexibility to tailor the approach to community values and local circumstances. Local differences in funding choices, system needs, and construction and land costs can lead to differences in the total costs that SDCs are expected to cover. Local choices related to how costs are linked to development impacts can also lead to differences in SDC rates for similar development in different communities. Further, because SDCs are adopted by local elected officials, some communities intentionally keep SDC rates down to avoid discouraging development, either by discounting the calculated charges or reducing the size of the capital improvements list.

SDCs also increase the cost of building new housing in ways that can skew housing development towards higher-cost homes and can impact buyers and renters. SDCs likely account for anywhere from just under 2 percent to nearly 13 percent of total development costs for housing in Oregon, depending on the housing type, SDC rates, other cost factors, and market conditions. There are many other factors driving home prices, rents, and development costs—SDCs are just one contributor that impacts the market by influencing development decisions. In an accounting sense, housing developers pay the SDC (e.g., write a check), but the cost is typically shared with other actors, including landowners, homebuyers, renters, and (rarely) investors. A large body of evidence, including new analysis for Oregon, finds that higher SDCs/impact fees tend to be associated with higher home prices, though there are multiple possible explanations. This study identifies several ways that SDC costs may affect buyers and renters:

- **Smaller and lower-cost housing units tend to be more affected by SDCs than larger and more expensive homes.** SDCs typically account for a larger share of total costs for smaller homes, middle housing, and moderately priced apartments. These housing types are often targeted to moderate-income households who may not be able to absorb higher prices or rents, making them sensitive to small increases in development costs. They often also have lower system impacts than larger homes. *Scaling fees for smaller units based on lower demand for infrastructure (as a growing number of communities are doing) can even out financial impacts across housing types and sizes, but only if implemented across multiple infrastructure systems at a meaningful discount.*
- **SDCs can combine with other factors to exacerbate challenges for housing production and affordability,[1] even if they are not the primary driver**.
  - **Communities with lower home prices and rents tend to be more sensitive to SDCs (and other development costs).** The market may not support passing costs on to

[1] As used in this report, *housing affordability* means households' ability to find housing within their financial means, with or without public support or restrictions in place, across a range of income levels.

buyers/renters and lower land values mean less room to absorb SDCs or other costs through land price negotiations. Over time, lack of housing production can lead to higher rents and home prices for existing housing, which can indirectly affect buyers and renters. However, SDC rates in these communities tend to be lower. *Keeping SDC rates low in areas with lower home prices and rents can reduce barriers to housing production, if key projects to enable growth can still be funded.*

- **Communities with strong demand and limited new housing supply are more likely to see rising costs—including SDCs—shift to homebuyers and renters.** Higher SDCs in this context likely reinforce other market factors—including high land costs and demand from higher-income households—that encourage more expensive housing development. Higher land and construction costs can contribute to both higher SDC rates and higher home prices/rents. In addition, some infrastructure investments (e.g., parks) can serve as amenities, and affluent buyers and renters may choose to pay more to live in places that are making more investments in that infrastructure, though low and moderate-income households may not have this option. Keeping SDC rates low overall may be neither politically palatable nor aligned with infrastructure needs, but when SDC rates are both relatively high and relatively flat among different types and sizes of housing, it can increase the barriers to building smaller and lower-cost housing. For medium or large single-family homes in moderate and high-cost areas, ECONorthwest's analysis suggests that SDCs typically represent a relatively small percentage of costs (e.g., 2 to 7 percent), and reductions would likely have at most a modest impact on new home prices. *However, for smaller and lower-cost units in moderate and high-cost areas, evidence from a few Oregon communities suggests a major reduction or elimination of SDCs can sometimes enable development that would not be financially feasible otherwise.*

- **SDCs on affordable housing development[2] can increase the difficulty of securing adequate funding for the development and, even as a small percentage of total development costs, likely consume millions of dollars per year in funding for affordable housing statewide.** Smaller affordable housing developments and those with less traditional funding sources (which often includes affordable homeownership projects) are more impacted. *SDC exemptions or reductions for affordable housing development can allow funding for affordable housing to stretch further and reduce obstacles to affordable housing development, provided the needed infrastructure can still be funded.*

Some jurisdictions have implemented SDC measures to support affordability, but broader adoption is hindered by administrative, legal, and financial concerns. SDCs must remain rooted in recovering an equitable share of costs based on the impacts of the development, but jurisdictions have discretion over many choices that can affect how and to what extent SDCs impact housing development. Many jurisdictions are concerned about housing affordability, and a growing number have implemented new SDC rate structures and policies in response.

[2] As used in this report, *affordable housing* means income and/or rent-restricted housing that is affordable to households earning a certain income level (e.g., at or below 80 percent of area median income).

Some have adopted scaled rates that account for lower demand from smaller dwelling units, some offer policy-based exemptions for affordable housing, and some allow developers to defer paying SDCs until construction is complete rather than before it begins. other jurisdictions express serious reservations about some of these measures, and each has trade-offs to consider.

- **Scaled SDC rates for smaller units** are typically tied to evidence of lower development impacts, which is well within the discretion allowed under statute. Scaling reduces costs for smaller units while remaining revenue neutral for the jurisdiction, but it can increase complexity for both applicants and jurisdictions. *The primary barriers to broader adoption include the effort associated with a methodology update, collecting and analyzing supporting data, and updating permitting systems to collect the necessary information.*
- **SDC waivers** can offer substantial savings for affordable housing development, but there are differing views on their validity. Some practitioners believe that jurisdictions implicitly have the discretion to exempt certain classes of development, including affordable housing. Others see legal risks if lost funds are not paid from another source because the issue is not explicitly addressed in statute,[3] and the loss of revenue may prevent an agency from completing the project list upon which the SDCs were calculated. *Overcoming these concerns would require clear legal authority and ways to mitigate lost revenue.*
- **SDC deferrals** reduce financing costs for developers, which can be 10 to 25 percent of the SDC amount. While the financial impacts for jurisdictions are minimal, many expressed concerns about their ability to collect fees after permits are issued, increasing administrative cost and complexity, and, in some cases, delaying revenue collection. Those that have implemented deferrals reported mixed results: Some saw a substantial increase in administrative effort, while for others this was minor. Major challenges with nonpayment were rare (and mostly linked to commercial development) but time-consuming to resolve. This suggests that there is potential for more jurisdictions to adopt administrative approaches to deferrals that have worked well for others, but that the level of effort may depend on jurisdiction-specific systems and practices and may not allow for a one-size-fits-all approach. *Broader adoption may require additional focused discussions with stakeholders to identify a range of approaches to administering deferrals that could work for jurisdictions of different sizes and staffing levels and additional/better mechanisms for enforcement that reduce the risk of (and costs associated with) nonpayment.*

Difficulty estimating SDC costs up front can create challenges for multifamily, affordable housing, middle housing, and greenfield development. Developers value being able to estimate total SDC costs with some certainty during early project budgeting, but this is difficult for some types of development. Multifamily SDCs can be especially hard to calculate early in a

[3] Oregon's SDC statutes emphasize that new users should contribute no more than an equitable share of costs but say little about assigning costs to individual developments. Other state statutes make clear that jurisdictions may waive SDCs for affordable multifamily housing in at least some circumstances, but they do not clearly address whether "backfilling" lost revenue is required.

project because they are often not a flat rate per unit. When they exceed initial estimates after financing and budgets are set, this can cause major challenges, especially for affordable housing. Rates for middle housing types are often not listed or defined. Policies related to credits for building SDC-eligible projects, which is common for greenfield development, can also be difficult to discern. While most jurisdictions provide some information about SDCs online, many do not yet fully comply with recent updates to statute increasing requirements for transparency and may not be aware of the change. *SDC rate structures and approach to SDC changes can lead to variability between initial estimates and final SDC costs, but uncertainty for middle housing SDCs and SDC credit policies could be addressed through clearer information for applicants.*

Conclusion

At their core, SDCs are a funding mechanism; reducing SDC costs broadly in the interest of housing production and affordability would require greater availability of other funding for infrastructure that does not increase development costs or burden low-income households. The jurisdictions and special districts that provide water, sewer, stormwater, transportation, and park infrastructure have a clear mandate to keep those systems functioning and provide sufficient capacity for planned development. Given fiscal constraints, SDCs are likely to remain central to local funding for infrastructure, and most stakeholders agree that development should contribute to growth-related infrastructure costs at some level. SDCs provide a consistent and relatively predictable mechanism for development contributions to growth-related costs, and they can support housing production by funding capital projects needed for growth. However, the equity implications of relying on SDCs to fund eligible infrastructure projects are mixed. Residential SDCs can be regressive, with higher impacts on lower-cost housing (especially when applied more uniformly to all housing), but some alternatives (e.g., raising utility rates) can also be regressive and directly impact lower-income households. *Expanding other funding mechanisms or increasing state funding for infrastructure with a focus on mitigating impacts to affordable and lower-cost housing could help even the playing field for lower-cost housing development while retaining SDCs as a key funding source for infrastructure to serve growth.*

Even in the current fiscal context, jurisdictions can take steps to mitigate the impacts of SDCs on housing production and affordability. SDC rates must relate to impacts, which limits jurisdictions' ability to align them with housing costs. However, some jurisdictions have implemented measures that offer improvements at the margins. This includes changes to rate structures (e.g., scaling by unit size), policies (e.g., allowing discounts or waivers for regulated affordable housing), and administrative practices (e.g., allowing deferral to certificate of occupancy for some residential development, offering clear SDC estimates for more housing types). All have trade-offs and can increase administrative costs, suggesting that these changes may not be appropriate in the same form for all communities. Still, broader implementation of these measures could yield a meaningful change. *Jurisdictions can identify locally appropriate measures to reduce or mitigate SDCs' impact on housing development during SDC methodology updates, housing production strategies, infrastructure funding plans, or other policy discussions related to infrastructure and/or housing.*

Introduction

In 2021, the Oregon legislature passed House Bill 3040 (HB 3040), directing Oregon Housing and Community Services (OHCS) to prepare a study of System Development Charges (SDCs)—one-time fees charged on new development to help pay for existing and planned infrastructure to serve growth. The legislature requested that the study cover the history of the charges, methodologies for setting the fees, recent trends in fee levels, how the fees relate to other development costs, and how they ultimately affect the cost and production of housing. OHCS contracted with ECONorthwest and subcontractors FCS GROUP and Galardi Rothstein Group to undertake this study. This report's framework is drawn from the legislative request.

This report is not intended to pit SDCs against housing production or affordability, but rather to clarify how they interact. The scope of this study, as established in HB 3040, does not include a comprehensive evaluation of local funding mechanisms for infrastructure, cost drivers for housing development, the impact of housing production on affordability, or strategies to reduce the cost of housing development or support housing production. Other recent and on-going studies address some of these topics in greater detail;[4] others may need further study. Furthermore, HB 3040 did not direct the study to include recommendations, though the study's findings provide a fact base to inform consideration of related future policy choices as they emerge in the legislative process.

What Is a System Development Charge?

SDCs are one-time fees paid by new development (or, in some cases, re-development) at the time of development. They are intended to capture an equitable share of the cost of "system" capacity—large backbone facilities that provide service system-wide or to a portion of the service area, with extra capacity beyond an individual development's needs. They can be based on the value of existing facility capacity available to serve growth and/or the cost of building future facilities to provide additional capacity to serve growth.

This report provides a statewide look at how SDC rates are established, the role they play in funding infrastructure, and how they impact housing cost and production. In addition to research, data collection, and analysis by the consultant team, this report is based on input from stakeholders, including a wide range of service providers—cities, counties, and special districts—that charge SDCs and housing developers. (See Appendix A and Appendix B for summaries of the input from stakeholders.)

[4] See, for example:

Oregon Department of Land Conservation and Development Oregon Housing and Community Services, "Oregon Housing Needs Analysis Draft Recommendations Report: Leading with Production," Draft Report, August 2022.

Blue Sky Consulting Group for Oregon Housing and Community Services, "Affordable Housing Cost Study: Analysis of the Factors that Influence the Cost of Building Affordable Housing in Oregon," 2019.

A summary of findings follows this introduction, followed by more detailed discussions of SDC History and Legal Context, The Role of SDCs in Funding Infrastructure, How and Why SDCs Vary Across Oregon, SDCs and Housing Costs, and SDC Administrative Policy Implications that document the project team's research and analysis as well as input from stakeholders, where applicable. A list of acronyms and a glossary are included following the Conclusions, followed by appendices with additional details of data and analysis discussed in the report.

Similar studies have been conducted recently in different contexts. The University of California Berkeley's Tener Center for Housing and Innovation completed a study of residential impact fees in California in 2019. The Federal Highway Administration completed a national study of development impact fees and other development charges in 2021. Topics in both works include impact fee structure, design, transparency, and timing; legislative history and case law; alternative funding options; impact of housing affordability, development feasibility, and cost incidence; and case studies and nexus studies. This report explores many of these topics within Oregon's context.

Housing Affordability vs. Affordable Housing

This report addresses the implications of SDCs for *housing affordability* and for *affordable housing* and *lower-cost housing*. As used in this report, these terms are differentiated as follows:

- *Housing affordability* means households' ability to find housing within their financial means, with or without public support or restrictions in place, across a range of income levels. This is commonly measured based on spending no more than 30 percent of gross income on housing (rent or mortgage, plus utilities). Housing affordability is a greater challenge for low-income households than higher-income households, but it is not exclusively focused on households at a particular income level.[5]
- *Affordable housing* means income and/or rent-restricted housing that is affordable to households earning a certain income level (generally below 60 or 80 percent of the area median income). Sometimes described as "income-qualified affordable housing" or "regulated affordable housing."
- *Lower-cost housing* means market-rate housing (without income or rent/price restrictions) that offers lower sale prices or rents than most new housing in a given area and typically also has lower development costs.

[5] The 30 percent standard is widely used but simplistic. See discussion and additional context related to defining affordability and affordable housing in the following memorandum:

Nick Meltzer, Sadie DiNatale, Bob Parker & Rebecca Lewis, University of Oregon, "Definitions of Affordable Housing," to the Department of Land Conservation and Development and the HB 4079 Rulemaking Advisory Committee (RAC), September 19, 2016. https://www.oregon.gov/lcd/UP/Documents/UO-Defining_Affordability.pdf

Summary of Findings

History and Legal Framework

- **Impact fees have a long history, emerging nationally after World War II and in Oregon in the 1970s**. Requiring developers to build public improvements became common during the Great Depression.[6] After World War II, local governments began to require that developers pay money instead of or in addition to dedicating land or public improvements.[7] The first SDC in Oregon was enacted in 1972 by the City of Corvallis.[8]
- **U.S. Supreme Court rulings on development exactions inform how impact fees are set, though it's unclear whether they apply directly.** Legal doctrine surrounding development exactions (required dedications of land, money, or anything else of value as a condition of development approval) requires that they be clearly related and roughly proportional to the development's impact. A 2013 Supreme Court ruling raises questions about whether the same tests extend to impact fees, given that they are established in a legislative policy context rather than ad hoc for individual properties, but this broader legal context informs local approaches to impact fees.[9]
- **The Oregon SDC Act of 1989 established guidelines on the purpose and use of the charges and the methods for developing SDC rates**. The Act intended to help Oregon public agencies equitably recover the costs of infrastructure needed to serve growth from growth, thereby reducing the likelihood that those costs would be shifted to existing rate and taxpayers. The statutes allow SDCs to be used for capital improvements for five categories of public facilities: 1) water supply, treatment, and distribution; 2) wastewater collection, transmission, treatment, and disposal; 3) drainage and flood control; 4) transportation; and 5) parks and recreation. SDCs can be based on future improvements (an "improvement fee") identified in a capital improvement program or comparable plan and/or on available capacity in systems the jurisdiction has already built (a "reimbursement fee").[10]

Fiscal Context and the Role of SDCs

- **Federal infrastructure spending has declined since the 1980s, particularly for water infrastructure, while state and local infrastructure spending has increased**. Much of the increase in local infrastructure spending has been for system operations and

[6] Vicki Elmer and Adam Leigland, Infrastructure Planning and Finance: A Smart and Sustainable Guide for Local Practitioners (Routledge, 2014), page 228.

[7] Ibid 228.

[8] Oregon Legislative Policy and Research Office, "System Development Charges" (State of Oregon, December 17, 2020), page 2.

[9] Koontz v. St. Johns River Water Management District, 570 U.S. 595 (2013).

[10] ORS 223.297.

maintenance, rather than capital projects.[11] The 2021 Bipartisan Infrastructure Law promises substantial federal investment in transportation and water infrastructure over the coming years, much of which is targeted at the repair and replacement of aging or unsafe infrastructure.[12] However, given the scale of the need, it will not fully close the gap for needed investment, and some funding will come in the form of loans rather than grants that must be repaid from local sources.[13]

- **In Oregon, declining state gas tax revenues and reductions in timber payments to many Oregon counties have caused further declines in available funding for transportation.**[14] This has limited available revenue at the state and county level to fund major road improvements.
- **Oregon property tax limitations imposed in the 1990s slowed the growth of property tax revenue and sharply reduced localities' abilities to use property taxes to finance infrastructure improvements.** Oregon's Measures 5 and 50 limited property tax rates and the growth in assessed values, respectively. New operating or bond levies require voter approval under Measure 50, and special operating levies are subject to Measure 5 limits on total tax rate. These changes have constrained property tax revenue at the local level, which has generally grown at less than 5 percent per year for the past 2 decades,[15] and they make funding infrastructure investments through property taxes more challenging.
- **At the same time, higher environmental and safety standards have increased the cost of infrastructure investments and maintenance, while construction costs and personnel costs (including pensions) have also risen.** Factors such as Clean Water Act requirements, requirements to manage water pollution from roadway runoff, and improvements to address particular pollutants and combined sewer overflows have increased the cost burden on local governments.[16, 17, 18] Increasing awareness of risks from natural hazards such as earthquakes and tsunamis has also led to higher costs for many infrastructure capital projects, even before accounting for changes in material and labor

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[11] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2017," October 18, 2018; and Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," March 2, 2015.

[12] The White House. 2022. "Data Guidebook." A Guidebook to the Bipartisan Infrastructure Law.

[13] McKinsey & Company, "US Water Infrastructure: Making Funding Count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count.

[14] Oregon Legislative Policy and Research Office, "Funding Transportation Background Brief," September 2016, https://www.oregonlegislature.gov/lpro/Publications/BB2016FundingTransportation.pdf.

[15] Oregon Department of Revenue, "A Brief History of Oregon Property Taxation," 150-303-405-1 (Rev. 6-09). https://www.oregon.gov/DOR/programs/gov-research/Documents/303-405-1.pdf

[16] Rhiannon Jerch, "The Local Benefits of Federal Mandates: Evidence from the Clean Water Act" (Temple University, 2021).

[17] Arthur C. Nelson, et al., *A Guide to Impact Fees and Housing Affordability* (Island Press, 2008), pages 12-13.

[18] McKinsey & Company, "US Water Infrastructure: Making Funding Count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count.

costs. Smaller cities and rural communities may be disproportionately impacted by these costs.[19]

- **Local governments and special districts have increased water/sewer rates and added user fees to close funding gaps.** Water and wastewater utility rates have risen faster than inflation for many years, increasing by over 80 percent in total from 2008 levels compared to an increase of a little over 20 percent in the Consumer Price Index (CPI) over the same period.[20] At least 50 cities across Oregon also impose on-going user fees for government services like parks, streets, and public safety to fill the void that tax limitations created.[21]
- **SDCs are not the only local funding mechanism for infrastructure, even for growth-related infrastructure needs, but they are a key part of local infrastructure funding plans, particularly in fast growing communities.**
  - **SDCs can benefit developers by helping fund key infrastructure investments to make growth possible.** For example, SDCs often account for a substantial share of funding for infrastructure in new growth areas, with much of the rest coming from other development-derived sources.[22] In this case, SDCs may make greenfield development costs more predictable and more evenly distributed, but not necessarily higher, if they substitute for other forms of exactions or developer contributions. In addition, several Oregon communities have used SDCs to help fund major water supply projects needed to allow residential development to continue, although they also needed to bond against utility rate revenue to provide a dependable income stream for debt payments.[23, 24]
  - **SDCs also provide an important source of local matching funds** for state and federal infrastructure grants, particularly for parks and transportation.[25]
  - **SDCs may be more viable than the alternatives.** Given the political challenges and legal or financial limitations associated with other potential local funding sources, jurisdictions face obstacles in using other funding sources to pay for infrastructure. This can increase pressure to maximize the use of SDCs for eligible costs, within the bounds of state law and legal precedent.

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[19] Scott Lazenby and Diane Odeh, "2021 Infrastructure Survey Report" (League of Oregon Cities, January 2021), pages 12-13.

[20] Robert Raucher et al., "Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector" (April 17, 2019).

[21] FCS GROUP, "Water, Sewer & Storm Rate Study" (City of Newport, 2017), https://www.newportoregon.gov/dept/fin/documents/WaterSewerStormRateStudy2017v6.pdf.

[22] ECONorthwest, "Infrastructure Funding Plan Toolkit: Guidance for Title 11 Concept and Comprehensive Planning" (Washington County, October 2020).

[23] Memorandum to Chris Cummings, Assistant Director, Economic Development regarding City of North Plain, Reservoir & Pump Stations Improvements (June 21, 2018).

[24] Jeff Bauman, "Review of Wilsonville's Water Supply Planning," (City of Wilsonville, February 23, 1998), 1.

[25] See Oregon SDC Study Summary of Service Provider Focus Groups (Appendix A).

- **SDCs can benefit existing residents by supporting infrastructure investments and mitigating utility rate and property tax increases.** While not all of a jurisdiction's capital needs are related to growth and eligible for SDC funding, being able to draw on SDCs for costs that are eligible means less cost needs to be allocated to ratepayers or property owners. Increases to utility rates and property taxes impact residents' cost of living on an on-going basis and may not track with household income (particularly for utility rates), creating their own affordability challenges for low-income households. Investments that maintain current service levels or create facilities that the whole community can use (e.g., new parks) also benefit existing residents.

SDCs Across Oregon

- **Most cities in Oregon charge at least one of the five allowable SDCs, but total rates vary substantially.** The total 2022 SDCs for a single-family residence range from under $5,000 in some small cities to close to $50,000 in some Portland Metro area jurisdictions based on data collected by FCS GROUP. Some of the smallest cities, particularly in Eastern Oregon, do not charge SDCs at all.
  - Based on 2022 data collected by FCS GROUP, the average total SDC rate for a single-family residence statewide is roughly $15,000. SDCs for water, wastewater, transportation, and parks all average between $3,800 and $4,600 per single-family dwelling for the jurisdictions included in the sample, but substantial variability exists in these amounts across the state.
  - There is less aggregated data available on SDC rates for other housing types (e.g., multifamily and townhouses), but rates are typically less than those applied to single-family detached homes (roughly two-thirds as much for apartments and roughly 90 percent of the single-family detached rate for townhouses based on a review of several example communities).
- **SDC rates have increased over time in most Oregon communities for most infrastructure systems.** The average increase between 2007 and 2022 in total SDCs for single-family homes was roughly 105 percent over 15 years, with the highest increases for parks and transportation SDCs (101 and 110 percent, respectively).[26] For comparison, construction costs escalated by roughly 60 percent nationally and the Seattle area (the closest city included in the available construction cost index data) over the same period of time. Because many SDCs are indexed to construction cost escalation (increases in labor and material costs broadly), a faster pace of increase suggests other factors at play, such as regulatory mandates that drive more costly facility designs; less grant funding; changes to SDC methodology or discounting policies; land cost escalation (especially for parks); or under-reporting of some regional and district charges in 2007.

[26] 2007 data comes from the earliest available SDC survey data from the League of Oregon Cities (LOC). 2022 data is from data collected by FCS GROUP for the same jurisdictions who participated in the 2007 survey. Note that regional and district charges may not be consistently reported in the 2007 LOC data, which could exaggerate the magnitude of increases to some extent.

- **Many other states use impact fees, but comparing SDCs in Oregon to impact fees in other states can be misleading.** While a few studies have published national data on impact fees, differences between states in terminology and in which infrastructure systems or public services impact fees may apply to make it difficult to draw useful comparative conclusions. For example, both Idaho and Washington have separate statutes applicable to water and wastewater charges, and facilities charges related to these systems may not be consistently reported as impact fees. These studies primarily serve to highlight that impact fees in one form or another are used extensively in many states, and that total rates vary substantially between different communities in the states where they are in use.
- **Variation in local SDC rates stems from several factors, not all of which are related to the SDCs themselves.** Key factors include planning and policy choices made prior to establishing or updating an SDC rate that determine future system needs, methodology choices during rate-setting, and cost factors that service providers do not control.
  - **SDC project lists typically draw from local infrastructure system plans, which can vary widely in type and level of planned capital investments.**
    - Water, sewer, and stormwater master planning efforts are largely technical exercises informed by state and federal regulations. Depending on the nature and condition of the system, some communities may need to make more costly investments than others.
    - For transportation, while state standards and requirements can impact local project lists, local governments generally have discretion over priorities and standards for city streets. Communities may need different amounts and types of investment to meet local goals and state standards.
    - Parks plans are generally responsive to community-defined goals and informed by public input. This aligns investments with local priorities but can also result in greater variations in SDC-eligible project lists.
  - **Decisions about use of other local funding mechanisms to pay for infrastructure may occur prior to SDC updates.** For example, if there is support by the local community, a General Obligation (GO) bond may be used to fund a recreation center or a group of high-profile transportation projects.
  - **In establishing the SDC methodology, jurisdictions have flexibility on many elements that can impact SDC rates while staying within the bounds of statute.** There are many methodology variables that can impact the total costs the SDCs are designed to recover or how those costs are allocated to future users. Within the framework of Oregon SDC law, local governments have flexibility in selecting approaches that balance local objectives and data availability. Examples of SDC methodology choices that could impact rates include:
    - Narrowing projects to include in the SDC project list to keep costs down.
    - Valuing existing facilities based on replacement cost vs. original cost (with or without depreciation) in setting a fee based on available capacity.

- How costs are allocated to growth vs. existing users when facilities serve both (e.g., relative to existing level of service, based on the incremental cost of an oversized facility, or based on share of demand).
- Whether grants or other sources are assumed to cover a portion of eligible costs for bigger projects (e.g., aquatic centers or major transportation improvements).
- Whether rates account for financing and administrative costs.
- How demand is measured (e.g., meter size for water, impervious surface area for stormwater, trip ends for transportation, or population for parks).

- **A growing number of jurisdictions are adopting SDC methodologies that adjust rates to reflect differences in demand or impact based on housing unit size.** These adjustments are typically based on local demand data. While they often pivot off an average rate for an average-size unit, they can lead to substantial differences in SDCs across jurisdictions for smaller or larger units.
- **Many jurisdictions make policy choices to reduce SDC rates below what their methodology would support.** Among jurisdictions surveyed in 2020, 14 percent reported discounting a wastewater SDC, and 29 percent reported implementing a discounted parks SDC.[27] In focus groups, service providers highlighted elected officials' concern about impacts to development and desire to remain competitive with peer jurisdictions as primary reasons for these choices. Some also noted phasing in larger SDC increases over several years for similar reasons.
- **The cost of constructing capital improvements varies across the state.** Local cost drivers include lack of local labor and materials in some rural areas, high land costs in some urban areas, and geological and soil factors (e.g., steep slopes, rock outcroppings, or soils at risk of liquefaction) that can increase the costs of grading and construction.

Implementation Considerations

- **Beyond the SDC rates themselves, administrative decisions can play a big role in how SDCs affect developers and jurisdictions.** Key factors include the timing of SDC payment, exemptions for affordable housing or other types of development, policies related to credits for making improvements on the SDC project list, and availability of information about SDCs.
  - **There are differing views on the validity of SDC exemptions for affordable housing** (or any purpose that is unrelated to a reduced demand for system capacity). Several cities and service providers have waiver policies in place for regulated affordable housing, while others do not feel it is fair (or, in some cases, legal) to waive fees for affordable housing unless the foregone revenue is "backfilled" from

[27] FCS GROUP analysis of data from League of Oregon Cities, System Development Charges Survey Report (February 2020).

other sources. A growing number of communities offer SDC exemptions for regulated affordable housing, but this is still the exception rather than the rule.

- **SDC credits for developers that build public improvements on the SDC project list can be a win-win for developers and jurisdictions, particularly in greenfield settings, but how they are administered matters.** Credit policies differ across providers in terms of project eligibility, creditable costs, and transferability. This variation, combined with a lack of clear information regarding how to calculate credit-eligible costs, can create uncertainty for developers. In addition, jurisdictions occasionally require developers to pay SDCs up front that will be reimbursed later even when they are building eligible projects, and this further increases carrying costs. Transferability was cited as a valuable benefit by multiple developers, especially given statutory limits on how long credits are valid (10 years). However, transfers can increase administrative costs for jurisdictions and reduce cash flow as more developers build projects or buy credits rather than paying SDCs directly.
- **The timing of SDC payment is important for both jurisdictions and developers, but for different reasons.** Jurisdictions have flexibility under statute to assess and collect SDCs at issuance of a development or building permit, or connection to or increased usage of a capital improvement.
  - **Many developers prefer to pay later in the process, primarily for financial reasons.** Payment at certificate of occupancy or even at time of sale (for for-sale housing) reduces financing costs or allows the money to go towards early construction costs, reducing the impact of the SDCs.
  - **Most service providers prefer to collect SDCs at issuance of the building permit as this offers the greatest certainty of payment with the least administrative effort.** Many expressed concerns about challenges with collecting payment at certificate of occupancy, and even more so at time of sale. However, the timing of the revenue was less of a concern, except in limited situations (e.g., park land acquisition within a new growth area). Jurisdictions that offer (or previously offered) deferral to certificate of occupancy report mixed results. All noted an increase in administrative effort to process and track deferrals, but the magnitude varies widely. Nonpayment issues and avoidance behavior do not appear to be common (some were linked to commercial development or to a specific developer) but were time-consuming when they did occur.
- **Developers value certainty about SDC costs for a particular project.** Unexpected increases to SDC costs can be difficult for both market-rate and affordable housing developers to absorb after financing and budgets are set. Estimating costs for multifamily development can be particularly challenging when SDCs are based on detailed characteristics such as fixture counts that may not be known early on. Clear definitions of housing types (particularly related to middle housing) are also important to allow for accurate early estimates of SDC costs. And if developers that defer SDCs are subject to the SDCs at time of payment, the uncertainty about SDC rate changes erodes the value of the interest cost savings from the deferral.

- **Some jurisdictions go above and beyond statutory notice and information availability requirements to engage and inform stakeholders, while others may not fully comply with (or be aware of) recent additions to state law regarding transparency.** Some jurisdictions pro-actively engage stakeholders in methodology decisions, provide simplified summary information about SDCs for the general public, and/or offer SDC estimation tools for developers. However, based on focus groups and review of several jurisdictions' websites, newly required informational items (current SDC rates, methodology reports, project lists, and contact information for questions) are not consistently available online—most jurisdictions provide at least one of these items, but not all.

SDC Impacts on Housing Costs and Production

- **SDCs fund infrastructure that is needed to support growth, which can enable development and benefit future residents, but they also increase the cost of building new housing. Both factors can influence housing costs and housing production.**
- **In an accounting sense, housing developers pay the SDC (e.g., write a check). But the cost burden of the charge can be shared with a variety of other actors, including investors, landowners, homebuyers, and renters**. Developers need to weigh SDCs and other cost inputs against the sales prices or rents they are expecting to achieve on each project. Because SDC costs are outside developers' control, they must make choices about other aspects of the development to bring total costs and prices or rents into alignment. How the SDC costs are ultimately distributed among the various market actors depends on the actors' relative sensitivity to prices. Economic theory assumes the party with fewer alternatives is less sensitive to change in price and bears a greater portion of the SDC.
  - **Homebuyers and renters in tight housing markets likely bear a greater share of SDC costs**. If developers build larger units to justify higher prices, build smaller units to stay within what buyers or renters are willing to pay, or charge higher prices/rents for the same housing, end users are getting less value for their money and absorbing some of the costs, even if they are paying the same amount. Developers cannot charge higher prices or rents unless the market demand is strong enough to accept the increase. This is more likely to occur if demand exceeds supply. Affluent households are less likely to be cost-sensitive than lower-income households, but limited supply and lack of lower-cost options can also affect lower-income households, even if they are not absorbing costs directly.
  - **Theory suggests that landowners should absorb SDCs in large part by receiving less value for their land, though this may not always be the case**. Whether and to what extent SDCs are absorbed in land prices depends on the availability of other developable land within the same market, how much SDCs vary between comparable pieces of developable land, and the timing of the land purchase relative to when SDCs are known.
  - **Investors, lenders, and developers are unlikely to absorb SDCs by accepting lower returns except in very unusual circumstances or when SDC costs increase unexpectedly during development and cannot be passed on to others.** Generally,

market-rate development will not occur unless the expected revenues from the project exceed the expected costs by a sufficient margin to create financial returns for investors, lenders, and developers that justify the risk of their investment. Investors and lenders usually have other options to invest in across multiple markets and will avoid places that generate lower risk-adjusted returns. Developers may absorb costs when they exceed initial expectations, but they avoid this as much as possible through contingency funds and by getting estimates of SDC costs up front.

- **Studies from Oregon and across the country have consistently shown a pattern of higher home prices in areas with higher SDCs. However, the reasons behind this remain unclear.**
  - **Academic research from across the country and across several decades shows positive correlations between impact fees and housing prices in a range of contexts.** The difference in home prices was larger than the difference in impact fees in some studies and smaller in others, but the direction of the relationship was consistently positive (higher home prices in areas with higher impact fees). Studies that evaluated relationships between impact fees and land prices or housing production had mixed results, with some finding positive relationships and others finding negative ones. These studies could not control for all other potentially relevant variables and do not establish causation, though some authors posit that the amenity value of the infrastructure itself is responsible for the relationship, rather than the costs of the impact fees. Others suggest potential cost-related explanations.[28]
  - **Academic literature has also established a link between property values and key infrastructure**. Studies suggest that property values are higher closer to parks and that congestion is associated with "disamenity" (negative) values for some economic indicators, while bicycle and pedestrian infrastructure can increase property values. These factors can potentially drive home prices and rents in areas where SDCs are providing infrastructure that is valued by housing consumers.
  - **A comparison between average single-family home values and single-family SDC rates for 76 cities in Oregon shows a general pattern of higher SDC rates in areas with higher home values, but also substantial variation between communities.** Statistically this relationship accounts for only 33 percent of the variation in the data without controlling for any other factors. Service provider focus groups suggest that policy direction to keep rates low due to elected officials' concern about impacts on development could account for some of the observed relationship (i.e., areas with lower home values and weaker housing markets may be less willing to impose high SDCs, even if infrastructure needs would justify them).
  - **An original analysis by ECONorthwest found a positive relationship between SDC levels and home prices for new development in Washington County, Oregon.** ECONorthwest analyzed sales transactions for new homes in three urban expansion areas and adjacent recent subdivisions in Beaverton, Hillsboro, and Tigard. Current SDC rates for the areas range from roughly $33,000 to $53,000 per

[28] See Appendix G for works cited.

single-family detached unit, with higher rates in the expansion areas and differences between jurisdictions. A linear regression model showed higher housing prices in places with higher SDCs after controlling for other readily available housing characteristics: a $10,000 difference in SDCs was associated with a $7 per-square-foot difference in the price of newly built housing (about $16,800 for a 2,400-square-foot home). However, developer interviews suggest the difference may also be due to the overall amount of infrastructure needed in the expansion areas and use of premium design and amenities to capture demand from higher-income households.

  - **Longitudinal data from the City of Bend shows that changes in new home prices have not tracked closely with changes in SDC rates over time.** While both have increased over the past decade, new home prices have tracked with broader housing market conditions while SDC rates have tracked with construction cost indices that are used to adjust the rates year to year. While rising SDC costs could still be a contributing factor in rising home prices in Bend, they are not the primary driver.

- **SDCs affect some housing more than others—smaller entry-level homes, lower-cost middle housing and apartments, and communities with weaker markets are disproportionately affected by SDCs.** High-end single-family detached housing is generally impacted least.

  - **For a typical new single-family home, SDCs account for a relatively small share of development costs** (estimated at roughly 3 percent in Oregon at average costs). Even a relatively high SDC rate (e.g., $30,000) would account for 6 percent or less of development costs in many medium and large cities. For larger single-family homes, the share of costs is even less.

  - **SDCs are a greater share of costs for lower-cost housing types—multifamily, middle housing, and smaller single-family detached houses.** ECONorthwest's estimates suggest SDCs account for roughly 4 to 5.5 percent of total development costs for these housing types at average costs for Oregon, but potentially 10 percent or more in high-cost markets with high SDCs. SDCs have a greater impact on financial returns and feasibility for these housing types as a result. This is supported by findings from developer focus groups, which highlighted entry-level homes and middle housing as particularly sensitive to SDC costs.

  - **When SDCs are scaled to unit size, their share of development costs is more consistent across housing types and unit sizes.** Compared to SDCs that are applied per unit, scaled SDCs result in a lower SDC share of development costs for lower-cost housing types with smaller units.

  - **While SDCs are typically lower in areas with weaker housing markets and lower land costs, these areas are also more sensitive to increases in SDCs.** For example, in a small city outside a metropolitan area, typical SDC costs for a single-family detached home might account for only 2 to 3 percent of development costs. However, a $10,000 change in fee for a single-family unit would have a greater impact on financial feasibility in such a city than for developments inside a metropolitan area where land and housing prices are relatively expensive.

- **In communities without SDC exemptions, affordable housing development can also face substantial SDC costs.** Data from several Oregon communities shows that SDCs for an income-qualified affordable apartment development can cost from tens of thousands to over a million dollars in some jurisdictions. While other cost drivers may have a greater impact on affordable housing development costs overall, the cumulative expenditures on SDCs for affordable housing development across the state likely total millions of dollars per year.
- **SDC reductions do not guarantee lower prices or rents for market-rate housing, but targeted exemptions or reductions for certain housing types or price-points can support production of lower-cost housing options.** Evidence from communities that offer exemptions for lower-cost housing without long-term affordability restrictions shows that in some cases eliminating SDCs for housing that meets specific price points (or for small units like ADUs) can increase production of that type of housing by for-profit developers. However, the difference must be enough to meaningfully change development costs, and the development must be close to viable already. For more expensive housing, cost savings may or may not be passed on to buyers or renters, depending on how competitive the housing market is.

Part 1:
SDC History and Legal Context

Primary Contributors: Galardi Rothstein Group, FCS GROUP

1.1 History of System Development Charges

1.1.1 Origins of American Impact Fees

System development charges (also referred to as impact fees) are a form of exaction. When an owner of land plans to develop that land, the local government may determine that the planned development will create a need for additional public infrastructure. Having made such a determination, the local government may require the owner to provide some form of contribution or payment as compensation for the additional infrastructure that the local government must provide. This requirement is known as an exaction.

Exactions have long been viewed as the legitimate exercise of a local government's police power. Requiring developers to build public improvements became common during the Great Depression.[30] Exaction of land or public improvements is still common today, and such an exaction is known as a dedication.

> *In terms of the police power, most local governments have great discretion in regulating to protect the public's health, safety, and general welfare. In contrast, local governments have almost no discretion in the exercise of their power to tax. It was natural, then, that local governments would turn to the police power, where they had discretion, in order to finance infrastructure needs.*[29]

After World War II, local governments began to require that developers pay money instead of, or in addition to, dedicating land or public improvements.[31] These monetary exactions come in two forms. An ad hoc monetary exaction is a customized calculation that is unique to a single development, its impacts, and the means of mitigating those impacts. A legislative monetary exaction is a rate or set of rates adopted by a governing body and applied consistently to development applications. These exactions are known generally as impact fees and known in Oregon as SDCs.

The first impact fee imposed in the United States (U.S.) may have been a "tap in" fee for new users imposed by the Hinsdale, Illinois, Sanitary District in 1947. The purpose of the fee was to finance expansion of the water treatment plant. The fee was challenged in court, but the Illinois Supreme Court ruled that the impact fee was "legal if used for capital and not operating expenses."[32] The first SDC in Oregon was enacted in 1972 by the City of Corvallis.[33]

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[29] Arthur C. Nelson, Liza K. Bowles, Julian C. Juergensmeyer, and James C. Nicholas, *A Guide to Impact Fees and Housing Affordability* (Island Press, 2008), page 49.

[30] Vicki Elmer and Adam Leigland, Infrastructure Planning and Finance: A Smart and Sustainable Guide for Local Practitioners (Routledge, 2014), page 228.

[31] Ibid 228.

[32] William Grady Holt, "Impact Fees" in *The Encyclopedia of Housing*, second edition, edited by Andrew T. Carswell (2012), page 385.

[33] Oregon Legislative Policy and Research Office, "System Development Charges" (State of Oregon, December 17, 2020), page 2.

1.1.2 The Rise of State Enabling Acts

States have explicitly authorized impact fees in a variety of forms, for a variety of public services, since 1987. By 1995, 21 states had authorized impact fees of one form or another. By 2007, 27 states had authorized impact fees.[34] It is now estimated that as many as 34 of the 50 United States have codified impact fee authority and accompanying constraints.[35] All 4 of the states neighboring Oregon—Washington, California, Idaho, and Nevada—have impact fee statutes.[36]

Local governments in Oregon and other states have always had the authority to impose impact fees on developers, but constitutional, statutory, and case laws constrain that authority.

The Oregon SDC Act: A Brief History

The Homebuilders Association (HBA) sponsored an SDC bill in Oregon that was vetoed by then Governor Goldschmidt in 1987. A small group of city and homebuilder representatives subsequently collaborated on a bill that became the initial law. In 1989, the Oregon Legislative Assembly passed the first provisions of the SDC Act, which is now codified in Chapter 223 (223.297 to 223.316) of the Oregon Revised Statutes (ORS). The SDC Act became effective in 1991.

The SDC Act's broad objective was to "provide a uniform framework for the imposition of system development charges by local governments, to provide equitable funding for orderly growth and development in Oregon's communities and to establish that the charges may be used only for capital improvements."[37] It was thought that having a uniform framework would protect both developers and public agencies—and reduce the cost of potential future litigation.

More specifically, the law was intended to help Oregon public agencies equitably recover the costs of infrastructure needed to serve growth from growth, thereby reducing the likelihood that those costs would shift to existing ratepayers and taxpayers.

Since its original passing in 1989, there have been multiple attempts to modify key provisions of the Oregon SDC Law, including expansion and restriction of the types of costs that may be included in the SDCs, clarification of legislative intent and other "housekeeping" modifications, and changes to procedural and methodological requirements.

The most significant changes to the law occurred with the passage of Senate Bill 939 in 2003. Ultimately, SB 939 was a negotiated solution to a longer list of changes sought by the

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[34] Arthur C. Nelson, James C. Nicholas, Julian C. Juergensmeyer, "State Impact Fee Enabling Acts", contributed by Clancy Mullen, in *Impact Fees: Principles and Practice of Proportionate-Share Development Fees* (2009), page 114.

[35] National Impact Fee Survey: 2019, Mullen.

[36] Washington, RCW 82.02; Idaho, IC 67-82; Nevada, NRS 278B; California, CGC 66000.

[37] ORS 223.297.

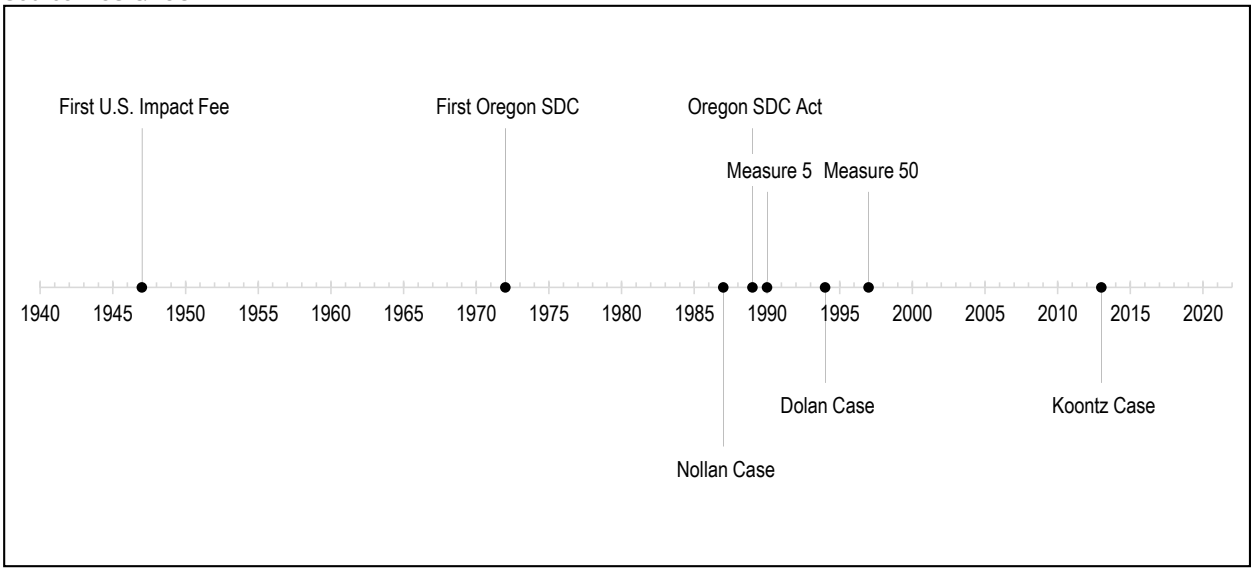
Homebuilders Association. The most recent change to the statutes occurred in 2021. Section 1.2.2 outlines the key elements of ORS 223.297 – 223.316.

1.2 Legal Framework

1.2.1 Landmark Case Law

A number of U.S. Supreme Court cases related to exactions have defined tests of their constitutionality for exactions generally and monetary exactions. The most recent of these raises questions about whether the same tests extend to impact fees given that they are established in a legislative policy context rather than ad hoc for individual properties, but this broader legal context informs local approaches to impact fees. These cases are summarized below. The timing of these cases relative to other key events in SDC history is shown in Exhibit 1.

Exhibit 1. Impact Fee/SDC Historical Timeline
Source: FCS GROUP



Nollan (1987): Essential Nexus

Whether authorized by statute or not, all impact fees in the U.S. are subject to the Fifth Amendment of the U.S. Constitution, which created a distinction between an exaction that is a legitimate use of a local government's police power and a taking that would require the local government to compensate the property owner.

The U.S. Supreme Court further clarified the line between exaction and taking in 1987 with its ruling on *Nollan v. California Coastal Commission*.[38] This ruling introduced the concept of "essential nexus" as a test for the validity of an exaction: Whatever is being required (exacted) as a condition of development approval must be clearly and directly related to the impact of the proposed development.

In this case, the California Coastal Commission was concerned that the new, larger home that the Nollans proposed would obstruct the public's view of the ocean. But instead of imposing a

[38] Nollan v. California Coastal Commission, 483 U.S. 825, 837 (1987)

restriction on the house's height or width, the Commission required an easement for public access to the beach. The Court found that this requirement (exaction) did not fulfill the purpose of maintaining the public's view and was therefore a taking. In other words, if the impact of the development is an obstructed view, a valid exaction must mitigate that particular problem. This is the "essential nexus" that was henceforth required of a valid exaction.

Dolan (1994): Rough Proportionality

Like the Nollan case, *Dolan v. City of Tigard*,[39] was about dedications, not monetary exactions. Taking a step beyond an "essential nexus," the U.S. Supreme Court ruling held that a "rough proportionality" must exist between the impact of the proposed development and the exaction intended to mitigate that impact.

However, the exaction in Dolan was a land dedication, or "possessory exaction," required ad hoc at the time of permit approval, leaving open the question of whether the "rough proportionality" standard applied to legislatively adopted, non-possessory (monetary) exactions, like impact fees. The court also noted that generally applicable legislative regulations should be treated with more deference than property-specific determinations.[40]

Koontz (2013): Monetary Exactions

In 2013, the U.S. Supreme Court finally ruled on a case involving monetary exactions. In *Koontz v. St. Johns River Water Management District*,[41] the Court held that the Nollan and Dolan tests apply to monetary exactions just as they do to dedications, at least in the case of adjudicative exactions (specific to an individual parcels). However, the ruling may still leave open (to lower courts) the question of whether the more restrictive essential nexus test applies to legislative exactions that are programmatic or apply to development more broadly (e.g., service area-wide).[42, 43, 44]

1.2.2 Oregon SDC Act: Overview of Key Elements

As mentioned previously, the broad objective of the Oregon SDC Act was to provide a uniform framework for the imposition of SDCs by local governments. The essential elements of this

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[39] Dolan v. City of Tigard, 512 U.S. 374 (1994).

[40] U.S. Department of Transportation, Federal Highway Administration, "Essential Nexus, Rough Proportionality, and But-For Tests: State of the Practice," 2021.

[41] Koontz v. St. Johns River Water Management District, 570 U.S. 595 (2013).

[42] Julie Kim, Bene Tellus, Thay Bishop, and Stefan Natzke. Value Capture: Development Impact Fees and Other Fee-Based Development Charges, A Primer. Report No. FHWA-HIN-21-004. Washington, D.C.: U.S. Department of Transportation, August 2021 (page 26).

[43] Howard Ellman, Esq. and Kimberly Huangfu, Esq., "U.S. Supreme Court's Koontz Decision Seemingly Broadened Landowner Protection in the Realm of Regulatory Takings Law, While Leaving Several Intriguing Questions Unanswered," *Buchalter Nemer Client Alert*, September 2013.

[44] Adam Lovelady, "The Koontz Decision and Implications for Development Exactions," *Coates' Canons NC Local Government Law,* UNC School of Government, July 1, 2013.

framework are listed below. More specific requirements and local approaches to each element are addressed later in this report. Appendix C summarizes Oregon case law that clarifies some provisions of the Oregon SDC Act.

Definition of Capital Improvements

SDCs may be used for capital improvements for the following public facilities:

- Water supply, treatment, and distribution
- Wastewater collection, transmission, treatment, and disposal
- Drainage and flood control
- Transportation
- Parks and recreation

Previous legislative bills to amend the law by broadening facilities to include schools, police or fire improvements have been unsuccessful.[45] However, because of some of these efforts, the legislature did adopt a construction excise tax that is charged per square foot for new residential development to provide additional funding for schools.[46]

Determination of SDC Amount and Methodology

SDCs may consist of a reimbursement fee, an improvement fee, or both. Improvement fees are associated with capital improvements to be constructed, while reimbursement fees are designed to recover the costs associated with capital improvements already constructed or under construction. The statutes put some constraints on the costs that may be included in each fee component:

- Reimbursement fees exclude existing facility costs funded by gifts or grants and costs associated with "used capacity" (facility capacity needed to meet existing development service demands).
- Improvement fees are based on the projected costs of capital improvements included on an SDC capital project list that expand capacity to meet the service demands of future system users.[47]

An SDC methodology based on a combination reimbursement and improvement fee structure must demonstrate that the charge is not based on providing the same system capacity.[48]

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[45] For example, HB 2581 from the 2007 Oregon Legislature.

[46] ORS 320.176

[47] An increase in system capacity may be established if a capital improvement increases the level of performance or service provided by existing facilities or provides new facilities. ORS 223.307

[48] This requirement is straightforward to meet if there is no overlap in specific facility improvements between the two fee components, and if the value of used capacity in facility components is excluded from the reimbursement fee.

Beyond these constraints, the statutes provide flexibility in determining SDC amounts and methodologies, provided that new users contribute no more than an equitable share of costs.[49] It is important to note that the statutes do not prescribe specific bases for charging individual developments, nor do they preclude local governments from providing discounts, waivers, or exemptions for certain classes of development, consistent with modern rate-making principles.[50]

SDC Capital Project List

Local governments are required to prepare a capital improvement program or comparable plan, prior to the establishment of an improvement SDC, that includes a list of the improvements that the jurisdiction intends to fund with improvement fee revenues and the estimated timing, cost, and eligible portion of each improvement.[51] This requirement was an added provision to the original statute to provide greater transparency on the basis for improvement fee costs and expenditures. Since reimbursement fees are based on facilities already constructed or under construction, the project list requirement is not applicable.

SDC Credits

A credit must be provided against the improvement fee for the construction of "qualified public improvements." Qualified public improvements are improvements required as a condition of development approval, identified in the SDC capital project list, and either:

a) Not located on or contiguous to property that is the subject of development approval; or
b) Located in whole or in part on or contiguous to property that is the subject of development approval and required to be built larger or with greater capacity than is necessary for the particular development project to which the improvement fee is related."[52]

SDC Expenditures, Accounting, and Appeals

Expenditures of SDC revenues are limited to payment for capital improvements (including repayment of indebtedness) for the systems for which the fees are collected. Improvement fee revenues are limited to capacity-increasing capital improvements needed to provide service to future users, in accordance with the SDC capital project list.[53] SDC revenue may also be spent

[49] ORS223.297 (Policy) indicates that the imposition of SDCs is intended "to provide equitable funding for orderly growth and development in Oregon's communities…" and 223.304 indicates that reimbursement fees must "promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities."

[50] See for example, "Affordability and Equity Considerations for Rate-Setting" (Eric Rothstein, Stacey Isaac Berahzer, Joe Crea, and Michael Matichich for *Journal AWWA*, September 2021) which argues that water, wastewater, and stormwater service providers have a social responsibility to ensure universal, affordable access to services, as part of their rate-setting framework. Not all service providers or experts agree with this interpretation.

[51] ORS 223.309

[52] ORS 223.304(4)

[53] Per 223.307(2), "an increase in system capacity may be established if a capital improvement increases the level of performance or service provided by existing facilities or provides new facilities."

on the cost of complying with the statutes, but not for administrative office facilities or operation and maintenance costs associated with capital facilities.

Local governments are required to deposit SDC revenues into dedicated accounts and provide an annual accounting of revenues and expenditures.[54] Furthermore, local governments must create administrative procedures for individuals to challenge SDC revenue expenditures or calculations, and to provide adequate notice regarding review procedures, including the right to petition for review pursuant to ORS 34.010 to 34.100.

Methodology Notification, Review, Updating, and Transparency

The local government must maintain a list of persons who have made a written request for notification of establishment or modification of an SDC and provide notice to such individuals at least 90 days prior to the first public hearing to enact a new or modified SDC. The SDC methodology must also be made available for review 60 days prior to the first public hearing.[55]

Application of one or more cost indices periodically is not considered a change in the methodology, provided that the index is published by a recognized agency, independent from the methodology, and incorporated into the methodology or adopted separately by ordinance or resolution.[56]

Similarly, the SDC capital project list may be updated at any time. However, if an SDC is to be increased by a proposed modification to the list then written notice must be provided to interested parties at least 30 days prior to adoption of the proposed modification, and if requested within 7 days of the planned adoption, a public hearing must be held.[57]

As a result of the most recent amendments in 2021, local governments are required to make information on SDC rates, methodologies, planned capital improvement project funding, and local official contact information available on a website or other means free of charge upon request.[58]

[54] ORS 223.311. While not required, some local governments track fund balances for improvement fees and reimbursement fees separately, because there are fewer restrictions on reimbursement fee spending.

[55] ORS 223.304(7)

[56] ORS 223.304(8)

[57] ORS 223.309(2)

[58] ORS 223.316

Part 2: The Role of SDCs in Funding Infrastructure

Primary Contributors: ECONorthwest, FCS GROUP, Galardi Rothstein Group

2.1 Evolving Fiscal Context

There are a number of potential funding sources for water, wastewater, stormwater, transportation and parks infrastructure. However, the level of funds available to support development-driven infrastructure is constrained by local, state, and federal laws (that limit overall funding) and by rising costs for system operations, repair and replacement, and other capital improvements (that compete for some of the same funds). Beyond legal restrictions, broad local funding sources, like utility fees, are also increasingly constrained by concerns over ratepayer affordability, as ongoing user fees place an added burden on local households.

Exhibit 2 provides a list of potential infrastructure funding sources, which are described in more detail in Appendix D. While it is beyond the scope of this study to fully evaluate the trade-offs associated with each option, Sections 2.1.1 through 2.1.4 discuss key local, state and federal cost and funding trends that have elevated the importance of SDCs for funding development-driven infrastructure costs and implications of shifting the cost burden to other local sources like user fees.

Exhibit 2: Potential Infrastructure Funding Sources

Category	Examples
State and federal grants or low-interest loans	Water Wastewater Fund, Congestion Mitigation and Air Quality Improvement Program, Safe Drinking Water Revolving Loan Fund
Property tax-based funding	General obligation bonds, designating existing permanent rate operating tax revenue, or redirecting growth in operating revenue through tax increment financing
User-based funding	Utility rates, parking fees, facility rental fees, tolls, and system-wide user charges
Development-based funding	System-wide or area-specific SDCs, exactions, development agreements, local improvement districts
Fees or taxes on economic activity	Franchise fees, local gas tax, vehicle registration fees, prepared food and beverage tax, or transient lodging tax

2.1.1 Federal and State Funding Trends

Trends in Federal Funding for Infrastructure

Historical Trends

The U.S. Congressional Budget Office (CBO) describes historical trends in federal funding for infrastructure compared to state and local funding, going back to the 1950s:

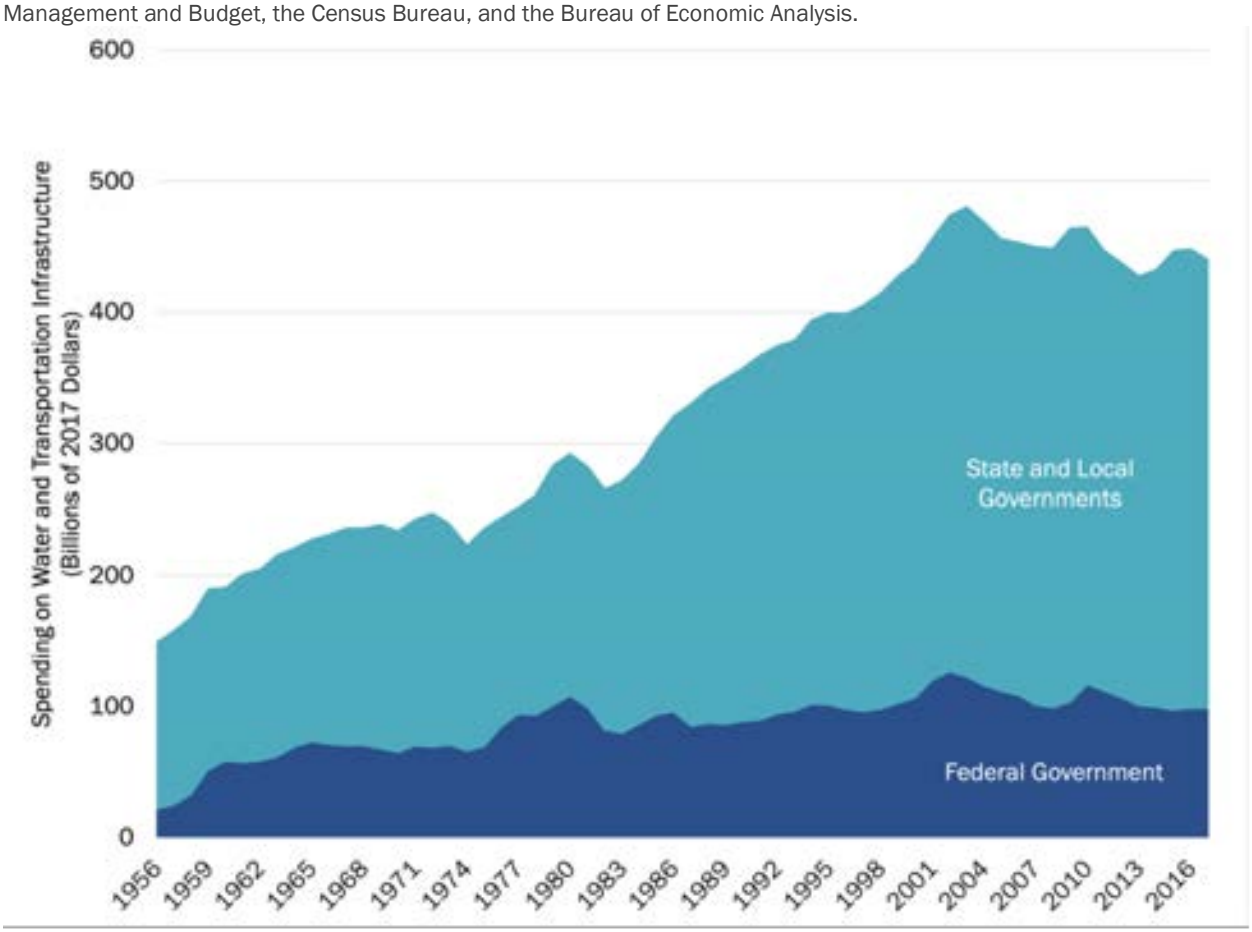
> *From the 1950s to the 1980s, the federal share of public infrastructure spending was typically much larger than it is today, reaching a high of 38 percent in 1977. But that share started to decrease in the 1980s, when state and local governments began to invest more in transportation and water infrastructure while federal spending on infrastructure remained relatively stable. Since 1987, federal spending has accounted*

for roughly one quarter of public spending on transportation and water infrastructure.[59]

This is shown in Exhibit 3.

Exhibit 3: Public Spending on Transportation and Water Infrastructure by Level of Government, 1956-2017

Source: ECONorthwest using data from the Congressional Budget Office, originally drawn from data from the Office of Management and Budget, the Census Bureau, and the Bureau of Economic Analysis.



Dollar amounts are adjusted to remove the effects of inflation using price indexes for government spending that measure the prices of materials and other inputs used to build, operate, and maintain transportation and water infrastructure.

The CBO notes that the American Recovery and Reinvestment Act (ARRA) "temporarily boosted federal outlays for infrastructure by $55 billion, in nominal terms, over the 2009–2014 period; about one-half of that amount was spent in 2009 and 2010."[60]

Impact of Recent Infrastructure Spending Packages

The summary referenced above from the CBO predates passage of the federal Bipartisan Infrastructure Law introduced in mid-November of 2021, which allocated funding to over 350

[59] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49910-infrastructure.pdf, March 2015, page 27.

[60] Ibid, page 16.

programs across several federal departments and agencies to improve broadband, rail and transit, clean energy, water, and other infrastructure.[61] This infrastructure bill specifically budgeted almost $570 billion for transportation projects, including roads, bridges, public transit, passenger and freight rail, and airports and waterways projects.[62] Furthermore, the bill's budget allocated over $100 billion to resilience, water infrastructure, and clean drinking water projects. These investments far exceed those noted above from the ARRA and could dwarf federal spending on transportation and water infrastructure in 2017.

Exhibit 4: Bipartisan Infrastructure Law Budget, 2021: Transportation and Water Investments
Source: The White House. 2022. "Data Guidebook." A Guidebook to the Bipartisan Infrastructure Law.

Investment Category	Budgeted (in billions)
Transportation	569
Roads, Bridges, and Major Projects	326
Public Transit	83
Passenger and Freight Rail	63
Electric Vehicles, Buses, and Ferries	19
Airports, Ports, and Waterways	42
Safety	38
Resilience, Water Infrastructure, and Clean Drinking Water	102
Total Transportation, Resilience, and Water	671

Additional discussion of recent federal legislation related to infrastructure funding for specific types of infrastructure is included in the following sections.

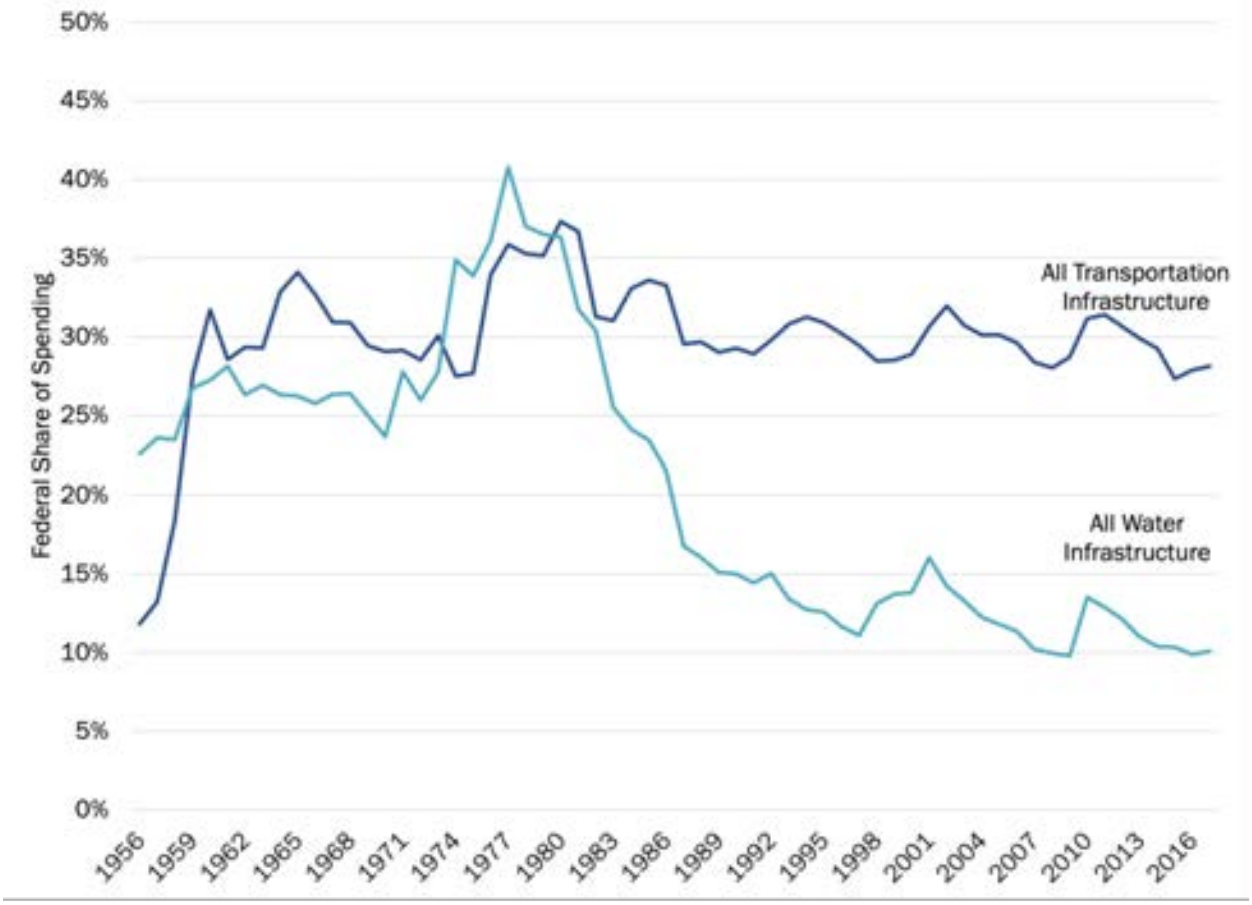
Variation by Infrastructure System

Federal contributions to infrastructure have varied between water and transportation over time, as shown in Exhibit 5. This shows that federal contributions to water infrastructure have dropped more dramatically as a share of total public spending, while federal transportation investments have remained relatively flat relative to total public spending.

[61] The White House. 2022. Building a Better America: A Guidebook to the Bipartisan Infrastructure Law.

[62] The White House. 2022. "Data Guidebook." A Guidebook to the Bipartisan Infrastructure Law.

Exhibit 5: Federal Contribution to Infrastructure Spending by Type, 1956-2017
Source: ECONorthwest using data from the Congressional Budget Office, originally drawn from data from the Office of Management and Budget, the Census Bureau, and the Bureau of Economic Analysis.



Federal Spending on Water and Wastewater Infrastructure

Historical Trends in Federal Water and Wastewater Spending

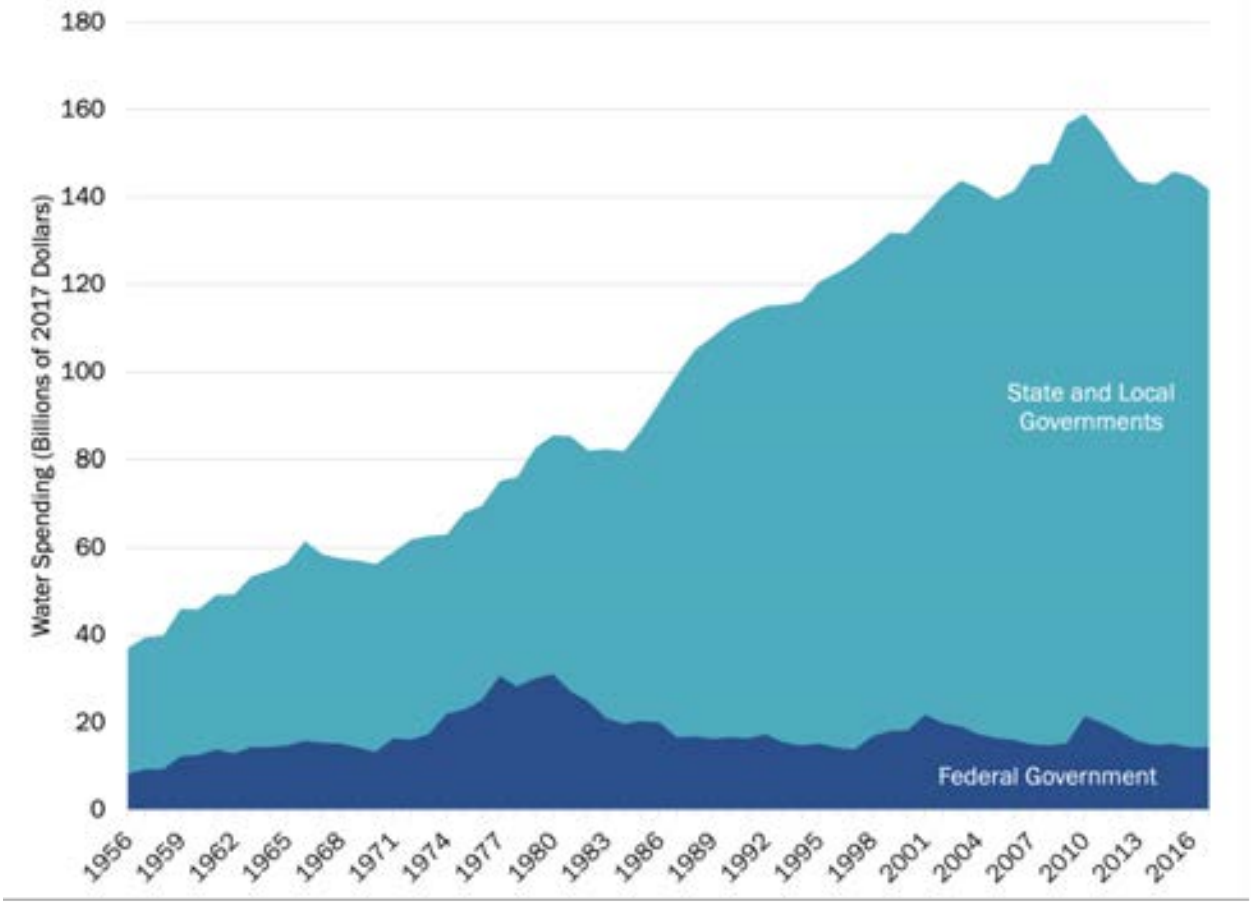
Data on public spending for water resources and water and wastewater utilities[63] specifically (Exhibit 6) shows the rise of state and local spending for water-related infrastructure, and the decline in federal investment since the 1980s.[64] Spending on water supply and wastewater treatment facilities increased in the mid-1970s when the federal government provided grants to state and local governments under the Clean Water Act of 1972.[65]

[63] According to the CBO data notes, "Water resources include water containment systems (dams, levees, reservoirs, and watersheds) and sources of freshwater (lakes and rivers). Water utilities include water supply and wastewater treatment facilities."

[64] The rise in spending may be attributed to numerous factors including state and federal mandates and extensive need for infrastructure repair and replacement. In Oregon, recent changes to land use laws imposed on communities over 25,000 population by House Bill 2001 will further increase infrastructure spending needs for some local agencies to upgrade infrastructure to accommodate higher density development.

[65] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," March 2015, page 16.

Exhibit 6. Public Spending on Water Infrastructure* by Level of Government, 1956-2017
Source: ECONorthwest using data from the Congressional Budget Office, originally drawn from data from the Office of Management and Budget, the Census Bureau, and the Bureau of Economic Analysis.



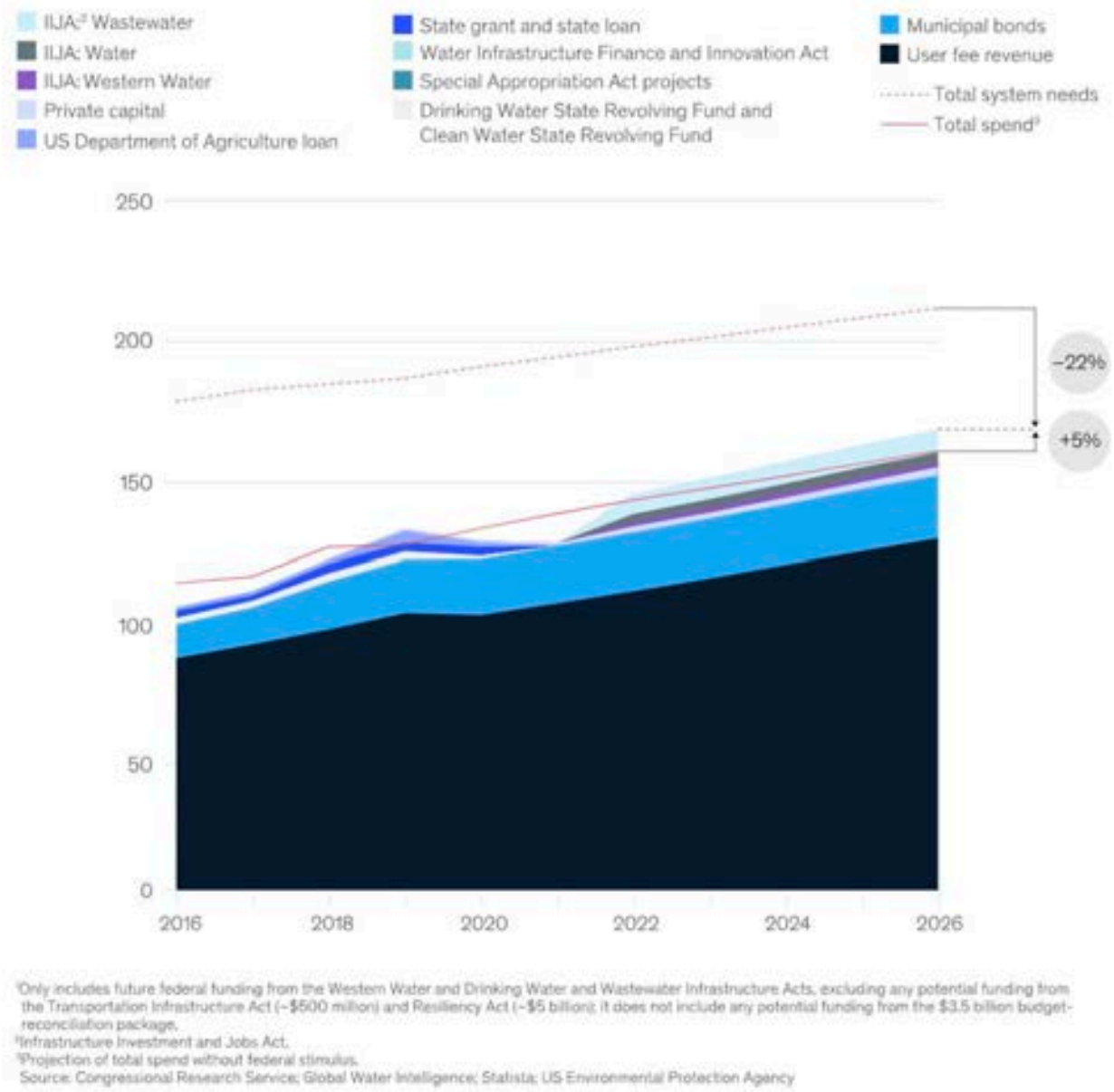
*Combines data on water resources, which include water containment systems (dams, levees, reservoirs, and watersheds) and sources of freshwater, and water utilities, which include water supply and wastewater treatment facilities.

Recent Federal Funding Commitments for Water and Wastewater

Federal legislation like the Water Infrastructure Finance and Innovation and Infrastructure Investment and Jobs Acts have also contributed new critical funds for restoration and improvement since 2017 not reflected in Exhibit 6, including over $55 billion of new investment. However, as Exhibit 7 shows, the combination of user fee revenue, municipal bonds, and increased funding from state and federal sources is still projected to leave a gap between available and necessary funds for these systems.[66]

[66] McKinsey & Company, "US Water Infrastructure: Making Funding Count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count.

Exhibit 7. Water and Wastewater Funding Sources by Year, $ billions
Source: McKinsey and Company[67]



Some of the largest federal contributions will be under the existing Drinking Water State Revolving Fund and Clean Water State Revolving Funds. While roughly half of their $22 billion allocation is required to be in the form of grants or forgivable loans, the remainder will need to be repaid over time by the agencies receiving the funds.[68]

[67] McKinsey & Company, "US Water Infrastructure: Making Funding Count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count.

[68] Seth Robertson and Ruby Wells, "Once-In-a-Generation Funding Opportunity: The $1 Trillion IIJA," Hazen and Sawyer, September 15, 2022, https://www.hazenandsawyer.com/articles/once-in-a-generation-funding-opportunity-for-water-infrastructure-congress-passes-the-1t-iija.

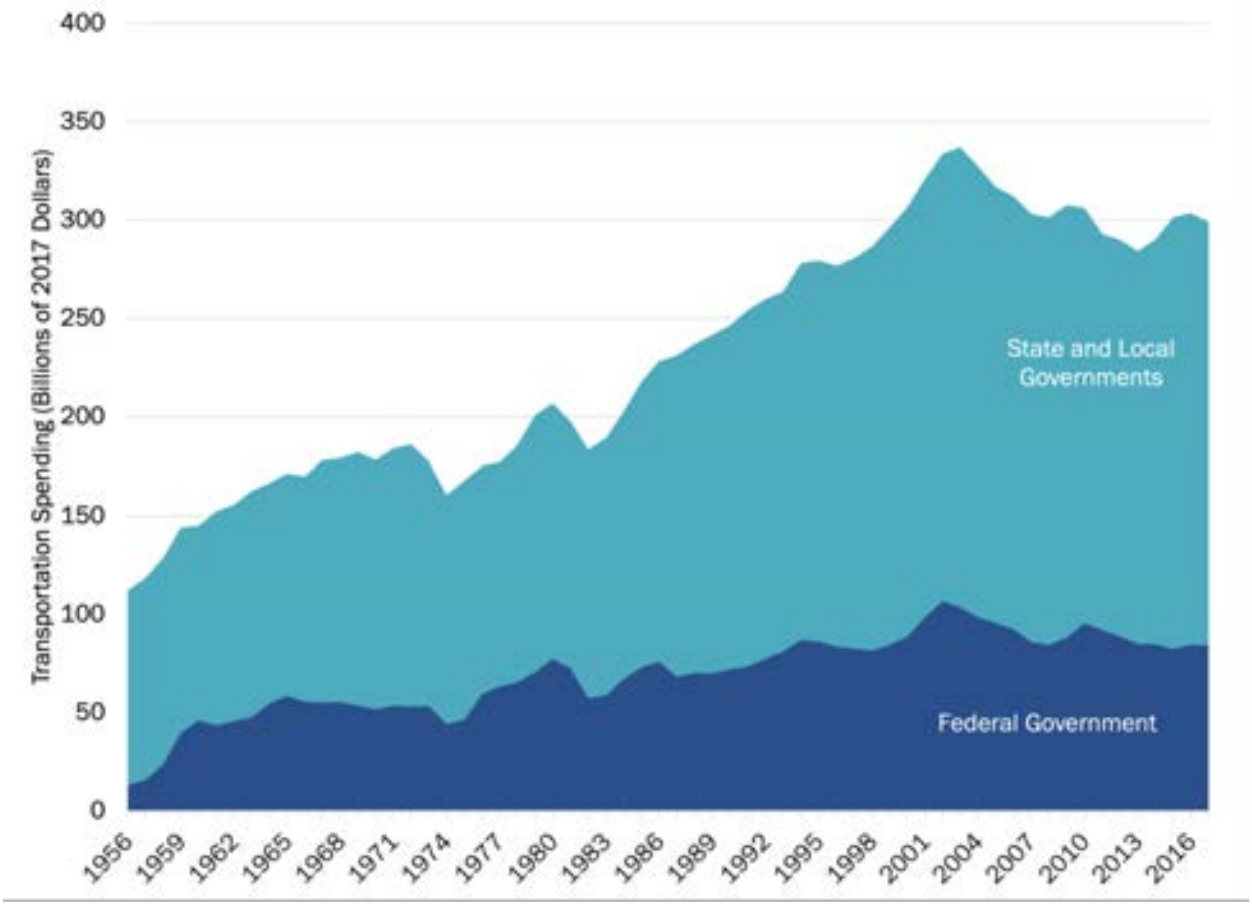
Federal Spending on Transportation

Historical Trends in Federal Transportation Spending

According to the CBO, "spending on highways increased under the Federal-Aid Highway Act of 1956 when the federal government funded construction of the Interstate Highway System. In the late 1990s, spending on highways and mass transit increased under the Transportation Equity Act for the 21st Century." As shown in Exhibit 8, federal transportation spending has been relatively flat to slightly declining since the late 1990s in real terms.

Exhibit 8: Public Spending on Transportation* Infrastructure by Level of Government, 1956-2017

Source: ECONorthwest using data from the Congressional Budget Office, originally drawn from data from the Office of Management and Budget, the Census Bureau, and the Bureau of Economic Analysis.



* Transportation infrastructure includes highways, mass transit and rail, aviation, and water transportation.

According to one study:

> *The highway system that was to be primarily funded by federal sources has fallen into disrepair with increasing congestion because of inadequate federal funding. States elected not to assume the primary role that the federal government was abandoning for precisely the same reason that the federal government was abandoning it: cost. The*

responsibility for highway maintenance and other major public investments has fallen to local jurisdictions by default.[69]

Another component of federal funding for transportation in Oregon comes from federal timber payments in lieu of property taxes, 75 percent of which are dedicated to transportation. With declining timber harvests, these payments have been reduced, even with special allocations to address the decline.[70]

Recent Federal Funding Commitments for Transportation

The Bipartisan Infrastructure Law is expected to boost federal spending on transportation in Oregon, some of which will include projects that would otherwise be funded (in whole or in part) at the local level, including bridge replacements, safety improvements, and climate resilience. (Note that these types of capital improvements are generally not growth-related, and they are less likely to include projects that would be eligible for significant funding from SDCs.) Much of the funding that could go towards local projects will be allocated through competitive grants.[71]

State Funding for Transportation

Revenue limitations have affected state funding for transportation as well. Oregon's State Highway Fund is shared among the state highway program, county roads, and city streets under a formula in which approximately 50 percent of revenues go to the state, 30 percent to counties, and 20 percent to cities. The State Highway Fund's revenue sources include state fuel taxes, state weight-mile taxes on trucks, state vehicle registration and title fees, and federal funds. Neither fuel taxes nor user fees are indexed to inflation, and increasing vehicle efficiency, along with hybrid and electric vehicles, are reducing fuel consumption, which have led to flat or decreasing funding from these sources.[72]

Federal Financial Backing for Subdivision Development

The spike in federal transportation spending in the post-World War II era was accompanied by federal housing policies that supported new housing development and developers' ability to finance greenfield development costs. During that period, the Federal Housing Association (FHA) incentivized developers to build large new segregated single-family subdivisions through guaranteeing bank loans and mortgage insurance by way of pre-construction plan approvals.[73] The FHA's approval of subdivision plans ensured builders' ability to obtain low-

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[69] Arthur C. Nelson, Liza K. Bowles, Julian C. Juergensmeyer, and James C. Nicholas, *A Guide to Impact Fees and Housing Affordability* (Island Press, 2008), pages 12-13.

[70] Oregon Legislative Policy and Research Office, "Funding Transportation Background Brief," Updated: September 2016. https://www.oregonlegislature.gov/lpro/Publications/BB2016FundingTransportation.pdf

[71] U.S. Department of Transportation, "The Bipartisan Infrastructure Law Will Deliver for Oregon," April 12, 2022, https://www.transportation.gov/briefing-room/bipartisan-infrastructure-law-will-deliver-oregon

[72] Oregon Legislative Policy and Research Office, "Funding Transportation Background Brief," Updated: September 2016. https://www.oregonlegislature.gov/lpro/Publications/BB2016FundingTransportation.pdf

[73] Rothstein, Richard. 2018. *The Color of Law*. New York, NY: Liveright Publishing Corporation. p. 70, 75.

interest loans issued by banks to finance their construction projects.[74] At this time, banks were usually cautious about issuing loans for working families, but they often did so when the mortgages were insured.[75] Therefore, because the FHA's approval of the pre-construction plans would automatically guarantee mortgage insurance, this meant little risk for the banks, and so they regularly financed these massive subdivision construction projects and land aquations costs, sometimes covering the full cost of entire suburbs.[76]

However, there was a major caveat to attaining the FHA's approval and mortgage insurance: the requirement of an "openly stated prohibition on sales to African Americans."[77] FHA rejected subdivision construction proposals that either considered housing African Americans and/or were to be built too close to where predominantly non-white communities resided. Anything that threatened possible integration was not federally insured.[78] The FHA (and later the Department of Veterans Affairs) required that any mortgage insurance approval would be reliant upon the addition of racially restrictive covenants in every one of the subdivisions' property deeds, often with overt racist language such as "*no lot or portion of a lot or building erected thereon shall be sold, leased, rented, or occupied by any other than those of the Caucasian race*."[79]

Thus, suburban development during the post-World War II era enjoyed federally supported low-interest financing that facilitated infrastructure investments by private developers, but only for segregated, white-only subdivisions.

2.1.2 Infrastructure Cost Trends

Costs Associated with Changing Environmental Regulations

A growing understanding of the importance of environmental and public health protections has led to an increase in federal regulations that affect water, wastewater, stormwater, and transportation infrastructure, including the National Environmental Policy Act (NEPA) of 1969, the Clean Air Act (CAA) of 1970, the Clean Water Act (CWA) of 1972 (CWA), and the Endangered Species Act (ESA) of 1973. These policies have led to major improvements in environmental protection and human health, but not without cost.

A study of the state and local costs associated with the Clean Water Act (CWA), for example, found that local government wastewater expenditures increased by $157 per capita, or over 230 percent, after the implementing CWA mandates. Total city expenditures increased by

[74] Rothstein, Richard. 2018. *The Color of Law*. New York, NY: Liveright Publishing Corporation, p. 10.

[75] *Ibid.*, p. 11.

[76] *Ibid.*, p. 70- 71.

[77] *Ibid.*, p. 10.

[78] *Ibid.*, p. 74.

[79] *Ibid.*, p. 84-85.

approximately 33 percent, primarily driven by increased wastewater spending. To recoup the expenditures, cities increased wastewater user fees by $40.80 per capita.[80]

Another study found that the cost of water pollution control for streets also increased the cost burden on local governments:

> *As a result of new federal environmental mandates, local jurisdictions were also being directed to make massive investments in water pollution control facilities. These investments originally were funded up to 85 percent by federal grants. They are now funded by federal loans amounting to 45 percent.*[81]

Other regulatory requirements that improve safety and resilience but increase the amount of capital needed for improvements include addressing levels of harmful polyfluoroalkyl substances (PFAS) in drinking water, combined-sewer overflows, phosphorus and nitrogen levels that impact algae blooms, and preparation for extreme weather events.[82]

In Oregon, the rising cost of keeping up with safety improvements may have disparate impacts across the state. Many smaller cities lack the funding capacity to add additional expenses for treatment and may not qualify for grants or loans because of population size or leverage in the form of matching funds.[83]

Operations and Maintenance Costs

As the total amount of infrastructure has grown over time and major facilities built in previous decades have aged, the cost of operations and maintenance for existing facilities has increased, with much of this cost falling on local governments.

> *Spending for the operation and maintenance of all types of transportation and water infrastructure has increased steadily since 1956. Spending for capital—particularly for mass transit and rail, for aviation, and for water utilities—has also increased since then, but it has typically done so at a lower rate.*[84]
>
> *Since 1956, state and local governments' expenditures for the operation and maintenance of infrastructure have grown at an average annual rate of 2.4 percent, roughly three times faster than the 0.9 percent average annual growth rate of*

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[80] Jerch, Rhiannon. 2021. The Local Benefits of Federal Mandates: Evidence from the Clean Water Act. Temple University.

[81] Arthur C. Nelson, Liza K. Bowles, Julian C. Juergensmeyer, and James C. Nicholas, *A Guide to Impact Fees and Housing Affordability* (Island Press, 2008), pages 12-13.

[82] McKinsey & Company, "US Water Infrastructure: Making Funding Count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count.

[83] Scott Lazenby and Diane Odeh, "2021 Infrastructure Survey Report" (League of Oregon Cities, January 2021), 12-13.

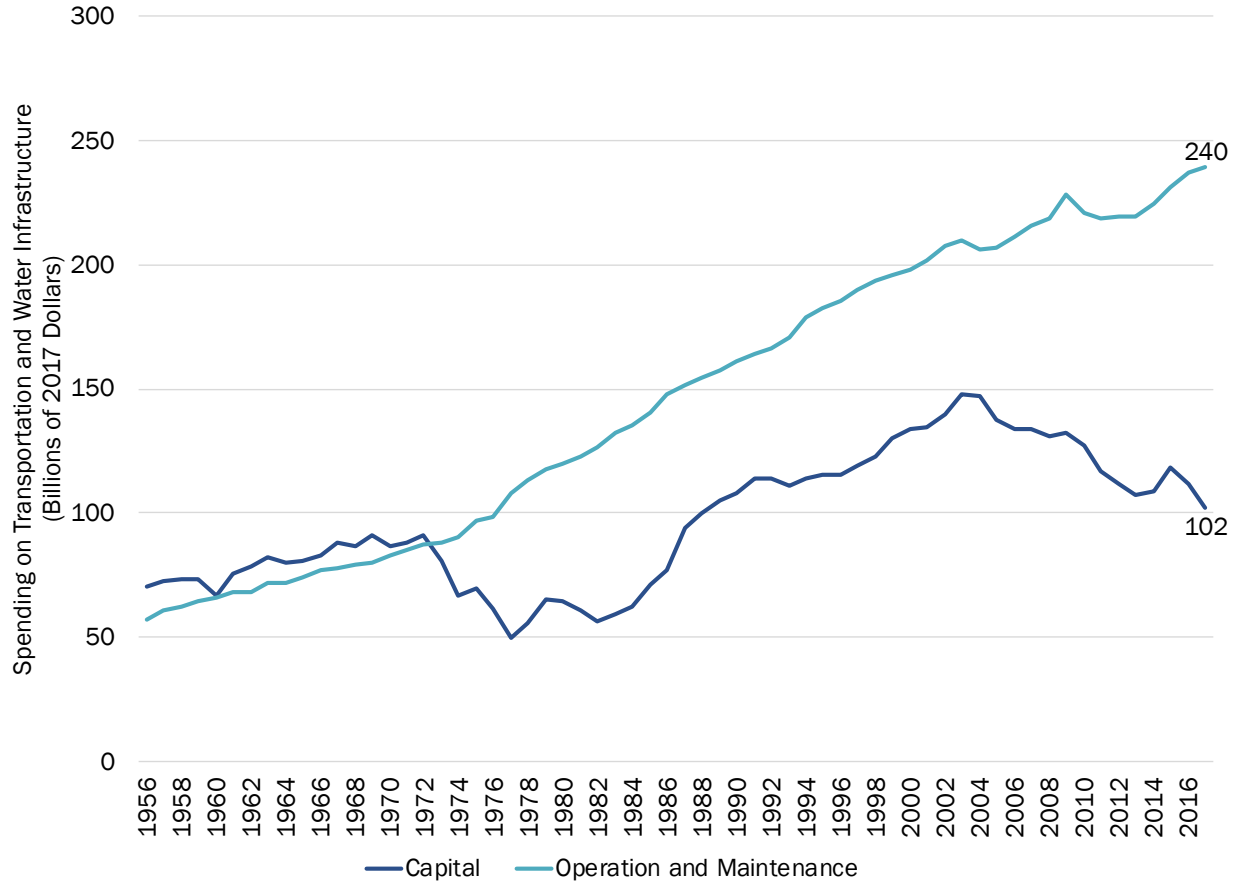
[84] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49910-infrastructure.pdf, March 2015, page 27.

spending on capital. As a result, although state and local governments spent more for capital than for operation and maintenance in 1956, state and local spending for operation and maintenance has exceeded capital spending each year since 1973.[85]

This is shown in Exhibit 9.

Exhibit 9: State and Local Spending on Transportation and Water Infrastructure, by Category of Spending, 1956 to 2017

Source: ECONorthwest using data from Congressional Budget Office originally drawn from data from the Office of Management and Budget, the Census Bureau, and the Bureau of Economic Analysis.



State and local spending is net of federal grants and loan subsidies.
a. Dollar amounts are adjusted to remove the effects of inflation using price indexes for government spending that measure the prices of goods and services consumed by governments, including materials and other inputs used to operate and maintain transportation and water infrastructure.
b. Dollar amounts are adjusted to remove the effects of inflation using price indexes for government spending that measure the prices of materials and other inputs used to build transportation and water infrastructure.

The Bipartisan Infrastructure Law's focus on bridge repair and replacing lead drinking water pipes[86] could mitigate some of the more costly maintenance needs affecting water and transportation infrastructure, but it will not eliminate local operations and maintenance and

[85] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49910-infrastructure.pdf, March 2015, page 22.

[86] The White House, "President Biden's Bipartisan Infrastructure Law", https://www.whitehouse.gov/bipartisan-infrastructure-law/

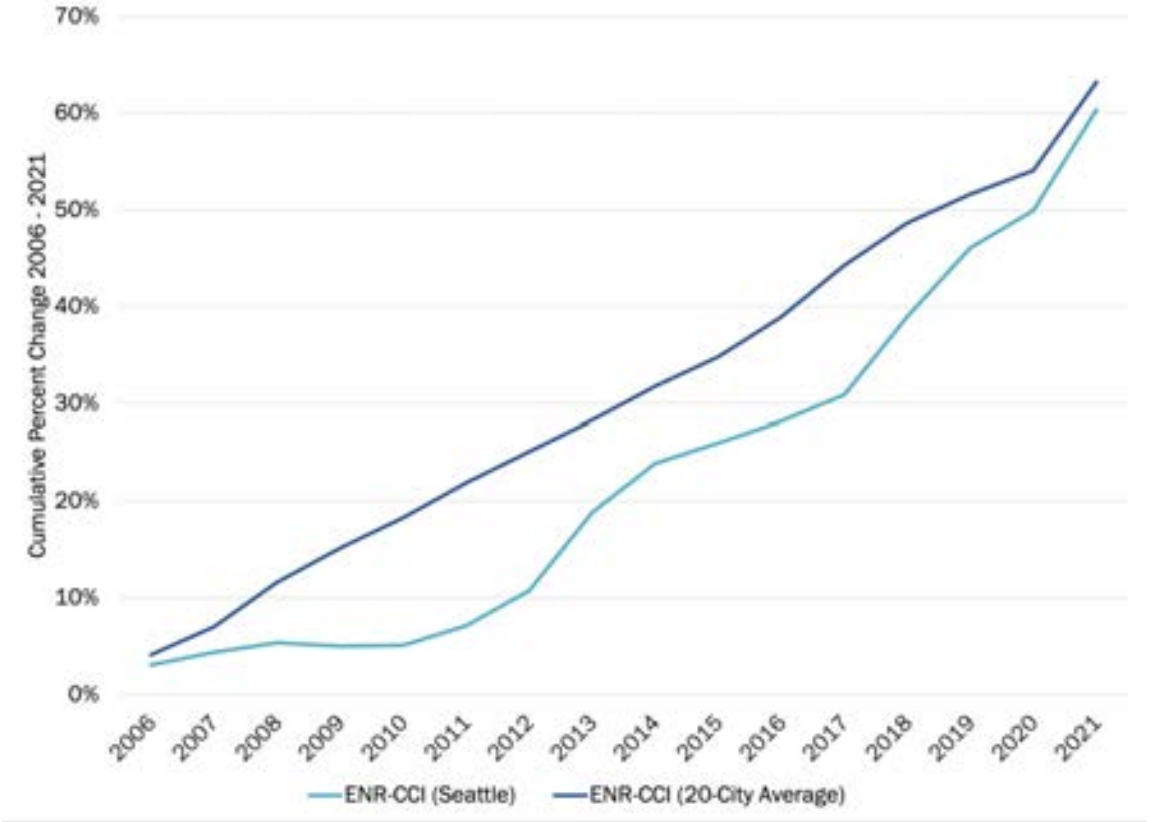
other system replacement costs. A recent assessment found that "even a large increase in federal funding won't fully cover the needed investment."[87] Some localities are employing strategies like new metering technology to more efficiently track and plan for demand (ideally saving costs in the long run), but that may require startup capital for these upgrades.[88]

Rising Capital Construction Costs

The most widely used construction cost indices in the Pacific Northwest are the Construction Cost Index (CCI) for Seattle and the 20-City Average Index, both published by the *Engineering News-Record (ENR)*. Exhibit 10 shows the annual average percent change in each index between 2007 and 2021. While the Seattle index has greater variation from year-to-year (particularly during the Great Recession and the few years following recovery), the longer-term trends of both indices are similar, with each increasing an average of about 3.0 percent per year. However, national and regional costs have increased significantly in the first half of 2022. Both the Seattle and 20-City average indices increased by 8-10 percent through June, compared to the 2021 annual average indices.

Exhibit 10. Historical Construction Cost Escalation, 2006-2021

Source: ECONorthwest and FCS GROUP using data from Engineering News Record, Construction Cost Index for Seattle and 20-City Average



[87] McKinsey & Company, "US Water Infrastructure: Making Funding Count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count.

[88] *Ibid.*

2.1.3 Property Tax Limitations

Starting around 1974, the U. S. experienced an inflationary period that significantly affected home prices. In areas where property tax bills were based on the market value of the home, resulting tax increases drew resistance. In 1978, voters in California passed the first of many such anti-tax measures across the country. Proposition 13 amended the California Constitution in three important ways:

- Real property valuations were rolled back to their 1975-76 values.
- Increases in assessed value were limited to 2 percent per year.
- Except for some voter-approved levies, total property tax per year was limited to 1 percent of a property's assessed value.

Oregon Property Tax Measures

Oregon's property tax system changed substantially in the 1990s, following the trend in California and other states. The system as it existed in the early 1990s, and the major changes to it, are described in a publication from the Oregon Department of Revenue.[89] Excerpts of this summary are included below:

> *Measure 5, which introduced tax rate limits, was passed in 1990 and became effective in the 1991-92 tax year. When fully implemented in 1995-96, Measure 5 cut tax rates an average of 51 percent from their 1990-91 levels. Measure 50, passed in 1997, cut taxes, introduced assessed value growth limits, and replaced most tax levies with permanent tax rates. It transformed the system from one primarily based on levies to one primarily based on rates. When implemented in 1997-98, Measure 50 cut effective tax rates an average of 11 percent from their 1996-97 levels.*
>
> ***Pre-Measure 5***
>
> *Pre-Measure 5 Oregon had a pure levy-based property tax system until 1991-92. Each taxing district calculated its own tax levy based on its budget needs. … Generally speaking, the full market value of property was taxable; there was no separate definition of assessed value. …Most levies were constitutionally limited to an annual growth rate of 6 percent, and levies that would increase by more than 6 percent required voter approval. …The annual growth in taxes on an individual property depended on a number of factors, including new or larger levies and the amount of new construction within the district. …*
>
> ***Measure 5***
>
> *Measure 5 introduced limits, starting in 1991-92, on the taxes paid by individual properties. The limits of $5 per $1,000 real market value for school taxes and $10 per*

[89] Oregon Department of Revenue, "A Brief History of Oregon Property Taxation," 150-303-405-1 (Rev. 6-09). https://www.oregon.gov/DOR/programs/gov-research/Documents/303-405-1.pdf

$1,000 real market value for general government taxes apply only to operating taxes, not bonds. If either the school or general government taxes exceeded its limit, then each corresponding taxing district had its tax rate reduced proportionately until the tax limit was reached. This reduction in taxes to the limits is called "compression." …

Measure 50

The objective of Measure 50 was to reduce property taxes in 1997-98 and to control their future growth. It achieved these goals by cutting the 1997-98 district tax levies, and by making three changes: switching to permanent rates, reducing assessed values, and limiting annual growth of assessed value.

While Measure 5 simply limited the tax rates used to calculate taxes imposed, Measure 50 changed the concepts of both assessed values and tax rates. Assessed value is no longer equal to real market value. For 1997-98, the assessed value of every property was reduced to 90 percent of its 1995-96 assessed value. …

For existing property, Measure 50 limited the annual growth in assessed value to 3 percent. …For new property (e.g., newly constructed homes), assessed value is calculated by multiplying the new property's real market value by the ratio of assessed value to real market value of similar property. …

Under Measure 50, permanent tax rates replaced most levies, making the permanent rates central to the property tax system. There are three types of property taxes that taxing districts may impose: taxes from the permanent rates, local option levies, and bond levies. Only the permanent rates are fixed. …

Taxes from the permanent rates, typically referred to as operating taxes, are used to fund the general operating budgets of the taxing districts. … Local option taxes represent the only way taxing districts can raise operating revenue beyond the permanent rate amount. Even so, these taxes are the first to be reduced if the Measure 5 limitations are exceeded. Because voters at the local level must approve these levies, they represent one aspect of local control over the level of property taxes.

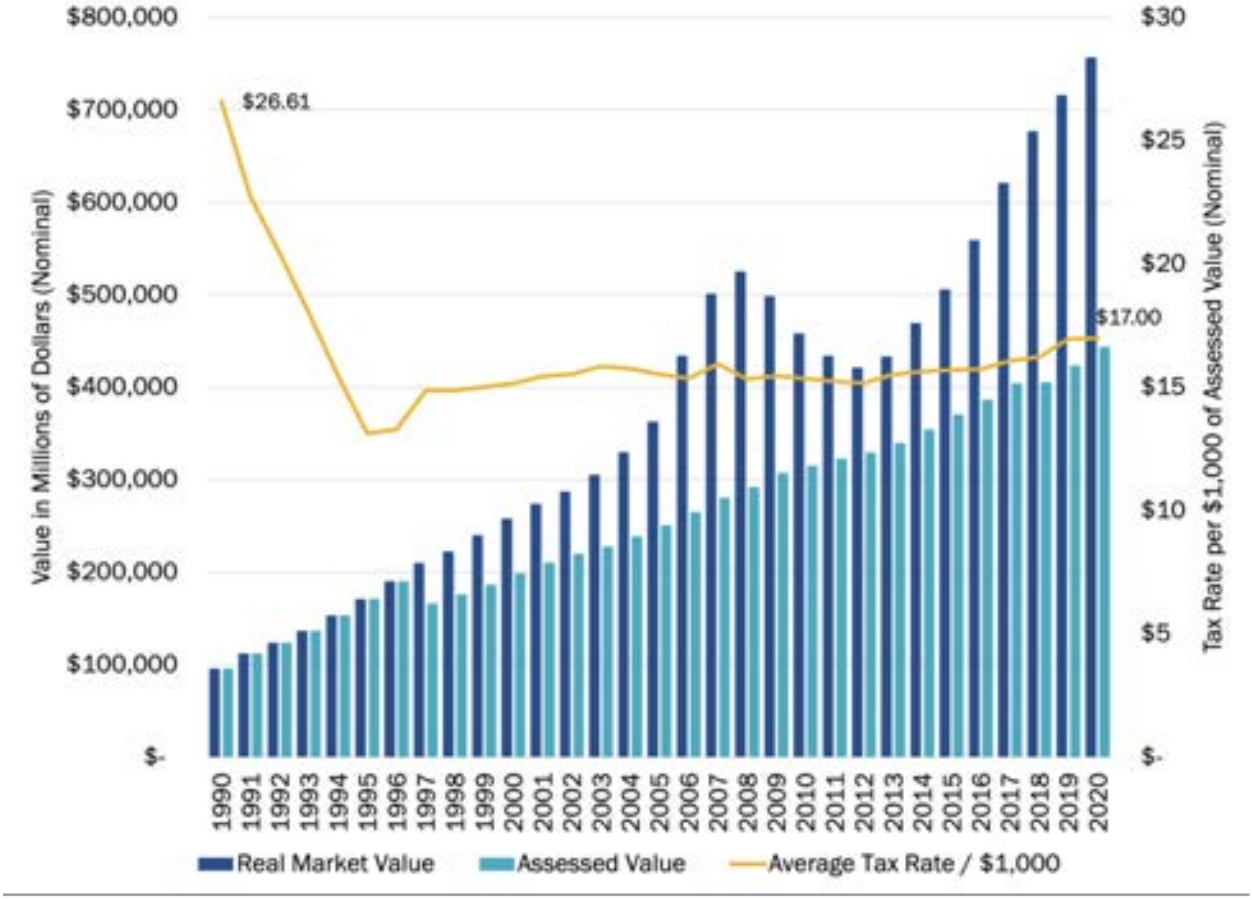
Bond levies have remained largely unchanged. They are used to pay principal and interest for bonded debt. Under the provisions of Measure 50, new bond levies, like new local option levies, are subject to a 50 percent voter participation requirement if the election is not a general election.

The statewide revenue implications of these measures can be seen in data from tables published by the Oregon Legislative Revenue Office, as summarized in Exhibit 11 and Exhibit 12, based on data from the Oregon Department of Revenue.

In Exhibit 11, the impact of Measure 5 can be seen by the decrease in the "Average Tax Rate/$1,000" beginning in July 1991 (the start of FY 1991-92). Similarly, the impacts of Measure 50 are reflected in the July 1997 decrease and then generally smaller increases in "Assessed Value," as compared to the "Real Market Value" column.

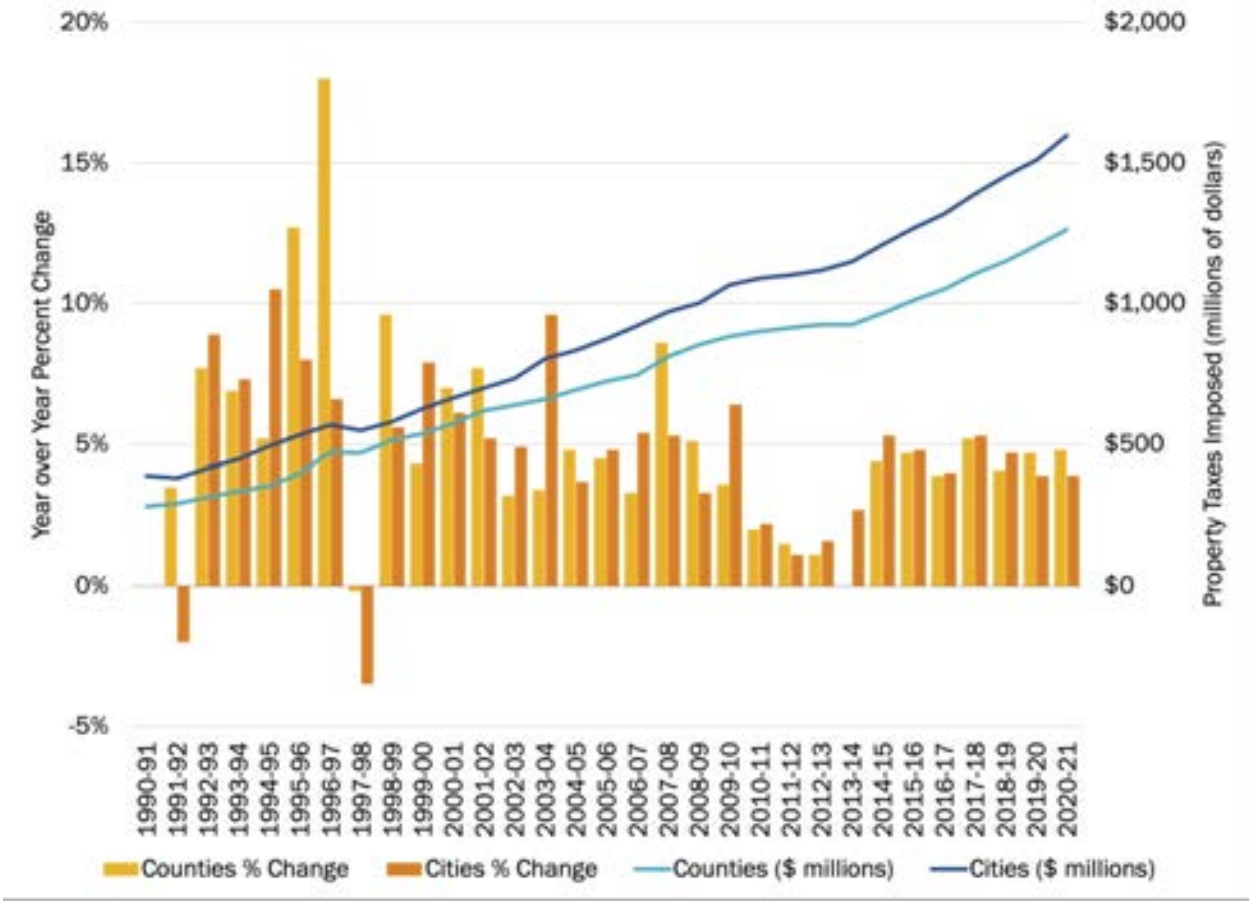
Exhibit 11. Property Value (Real Market Value and Assessed Value) and Effective Tax Rate History, Oregon (Statewide), 1990-2020

Source: ECONorthwest and FCS GROUP, using data from Oregon Legislative Revenue Office, *2022 Oregon Public Finance: Basic Facts*, page D6



The impacts of these measures on city and county revenues become even clearer when the resulting property tax imposed for the same period are considered, as shown in Exhibit 12.

Exhibit 12. Property Tax Revenue History
Source: ECONorthwest and FCS GROUP, using data from Oregon Legislative Revenue Office, *2022 Oregon Public Finance: Basic Facts*, page D10



In addition to constraining property tax revenue, the requirement for voter approval of new bond levies increases the political difficulty of using this mechanism to fund capital improvements in infrastructure.

2.1.4 Trends in Utility Rates and Other User Fees

The combined effect of state property tax limitations and flat or reduced federal funding has been increased pressure on local government-controlled user fees to meet growing infrastructure funding needs (both operation and maintenance and capital investment). This has resulted in significant increases in water, wastewater, and stormwater utility rates (ongoing charges to utility customers based on system-specific usage measures) and imposition of new user fees for other government services (e.g., parks and transportation).

Utility Rates

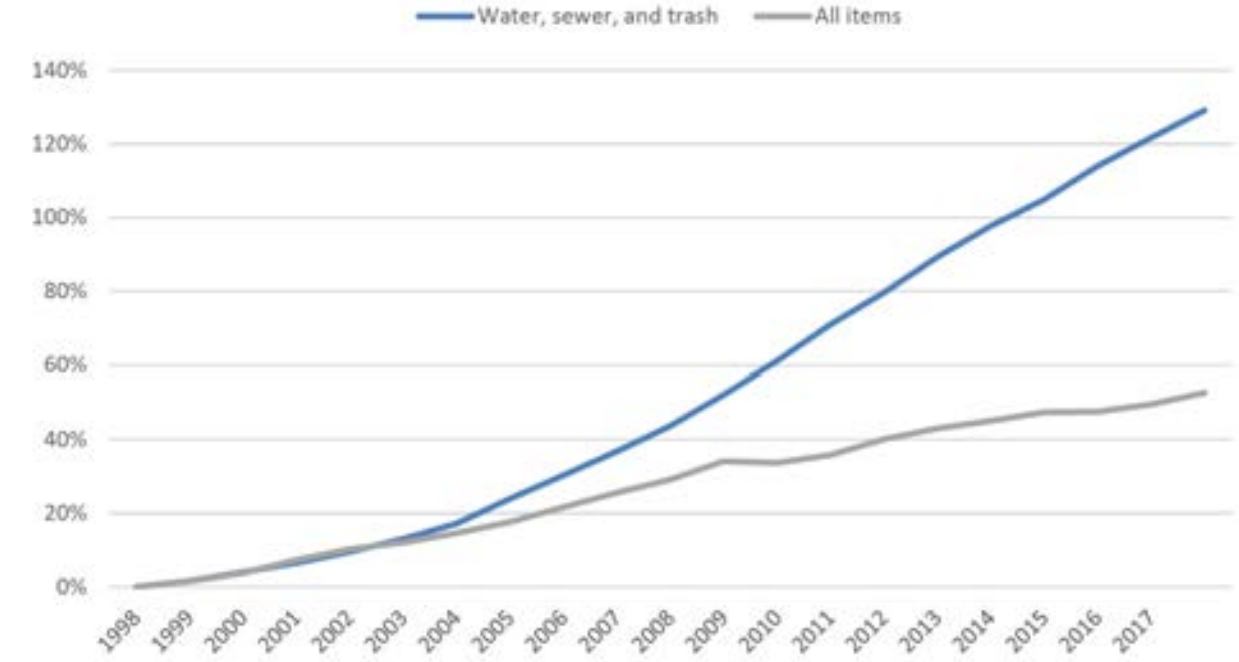
National Rate Trends

For the past several decades, utility rate increases have significantly outpaced growth in the Consumer Price Index (CPI). Between the mid-1980s and 2000, the increase in water and sewer

bills exceeded CPI growth by 50 percent.[90] More recently, the growth in utility bills relative to the CPI has become even more pronounced. Between 1997 and 2017, utility bills (water, sewer, and trash combined) increased an estimated 130 percent (4.3 percent per year on average), compared to 52 percent increase in the CPI (2.1 percent per year on average), as shown in Exhibit 13.[91] Even more recent data (see Exhibit 14) shows average utility rate increases for water and wastewater services of roughly 80 percent as of 2020 compared to 2008 levels (5.1 percent per year on average), while the CPI increased a little over 20 percent over the same period (1.7 percent per year on average).

Exhibit 13. Annual Cumulative Increase in Household Costs for Water, Sewer, and Trash Compared to Increase in CPI for All Items (1997–2017)

Source: *Developing A New Framework for Water Affordability and Financial Capability Assessment in the Water Sector*[92]



Source: Bureau of Labor Statistics, 2017

Note: BLS does not separately report costs for trash, water, and sewer in its summary tables/data.

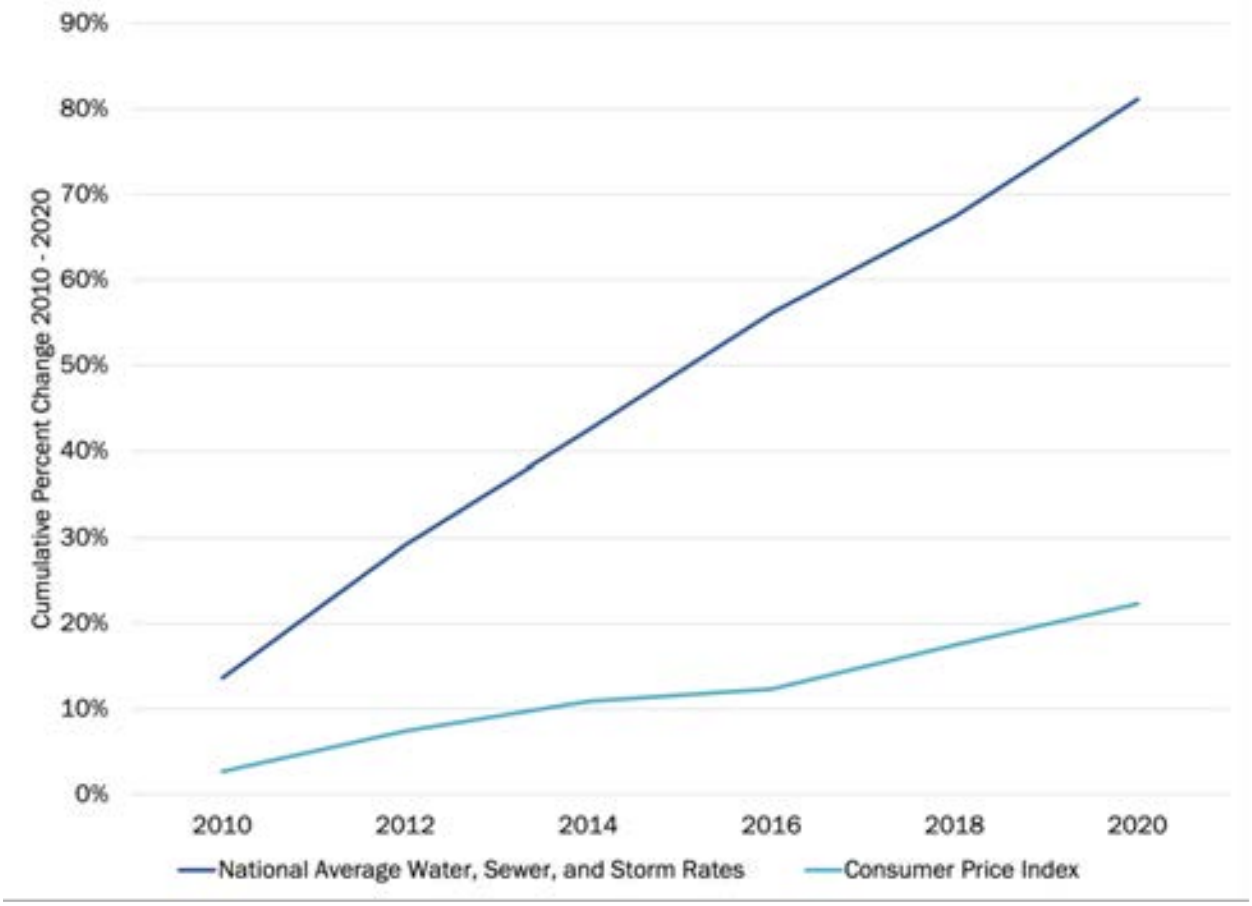
[90] Van Abs, Daniel J. Evans, Tim. Assessing the Affordability of Water and Sewer Utility Costs in New Jersey. Jersey Water Works. Final Report: September 2018.

[91] R. Raucher, PhD. And J. Clements (Corona Environmental Consulting), E. Rothstein, CPA (Galardi Rothstein Group) and J. Mastracchio, CFA and Z. Green (Raftelis Financial Consultants), Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector, (April 17, 2019)

[92] *Ibid.*, page 1-4.

Exhibit 14. Cumulative Water and Wastewater Utility Average Rate Increases Relative to 2008 vs. CPI (2010-2020)

Source: ECONorthwest and Galardi Rothstein Group, using data from 2020 Water and Wastewater Rate Survey published by American Water Works Association (AWWA) and Raftelis



Percent change is cumulative increase relative to 2008 baseline.

Drivers of Rate Increases

As discussed in prior subsections, historical cost increases have reflected landmark regulations and growth in system operation and maintenance needs. Other cost factors include growing infrastructure replacement needs and investments to address climate and seismic resiliency.

National data suggests that operating expenses account for a substantial share of utility rates: between 45 and 67 percent of water and wastewater rates typically go towards operating expenses depending on the year and the scale of the service provider, with an average of 52 percent for water utilities and 54 percent for wastewater utilities in 2020.[93] However, growth in operations and maintenance costs are not the only reasons for increasing rates.

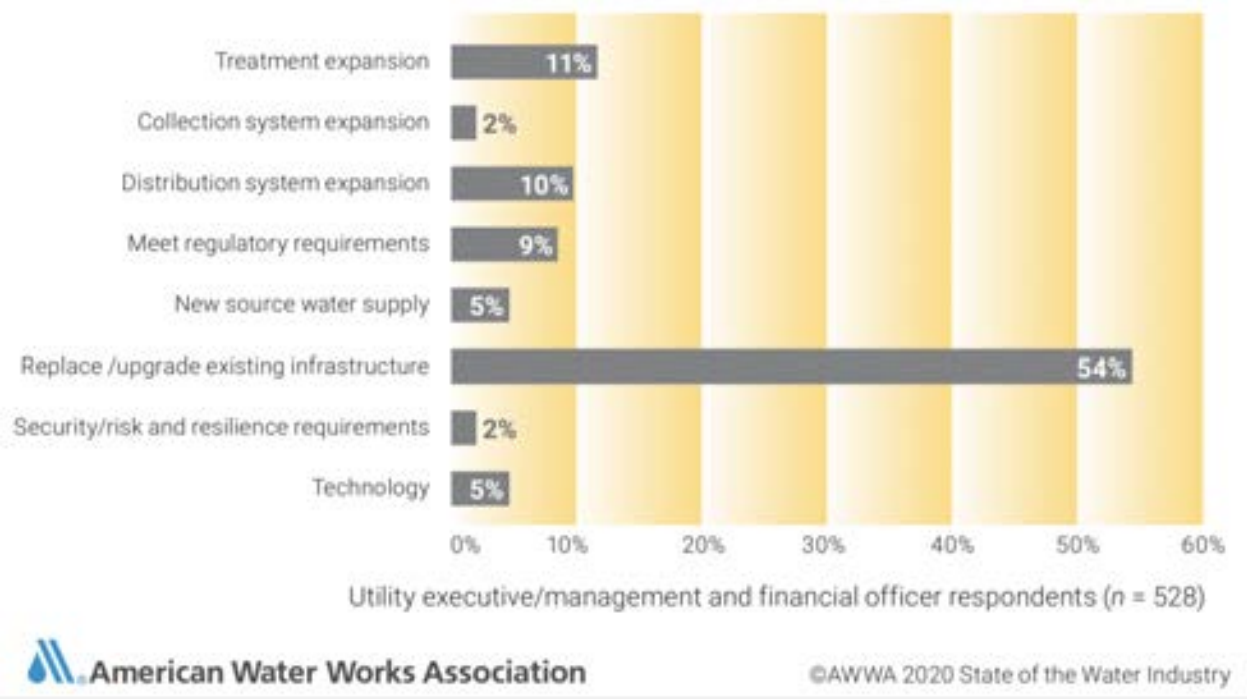
One study, which estimated an average 43.2 percent increase in water and wastewater bills from 2012 to 2021, pointed to regional differences in what was driving those increases (e.g., utilities in the Western U.S. investing in new water supplies due to drought vs. those in the Northeast facing aging pipe and treatment systems) and noted that "the most significant water

[93] American Water Works Association and Raftelis Financial Consultants, Inc., *2021 Water and Wastewater Rate Survey.*

rate increases have been in response to specific capital investment needs," including wastewater treatment plant upgrades to address water quality issues and a major water system improvement plan.[94]

A range of drivers within capital-related costs is also reflected in data from a national survey regarding anticipated capital expenditures by water utilities, as shown in Exhibit 15. Based on this survey, more than half of expected capital expenditures for water utilities in 2020 were expected to be for replacements and upgrades to existing infrastructure, but expansion of treatment, collection, and distribution systems as well as new source water supplies were expected to account for a total of 28 percent of capital spending.[95]

Exhibit 15: Anticipated Water Utility Capital Spending in 2020
Source: American Water Works Association[96]



While the specific drivers vary for each community and over time, recent examples from two Oregon communities illustrate the role that capital improvements can play in driving rate increases in some communities:

[94] Bluefield Research, "Up 43% over Last Decade, Water Rates Rising Faster than Other Household Utility Bills," August 23, 2021. https://www.bluefieldresearch.com/ns/up-43-over-last-decade-water-rates-rising-faster-than-other-household-utility-bills/

[95] American Water Works Association, *State of the Water Industry 2020*, page 21. https://www.awwa.org/Portals/0/Awwa/Professional%20Development/2020SOTWIreport.pdf

[96] *Ibid.*

- In a 2017 rate study for the City of Newport, FCS GROUP estimated that debt payments on needed capital improvements would increase revenue requirements for water and sewer by 4 to 8 percent per year over 5 years.[97]
- A 2018 Water Affordability Assessment Report from the City of Hillsboro highlighted the role of rising capital costs in recent and projected rate increases: *"…over the last few years, rate increase percentages have been on the rise due primarily to rising capital costs caused by needed improvements to the existing infrastructure and also the construction of a second water supply system to serve Hillsboro's growing needs. A Water Rate Study is underway and will most likely suggest double-digit percentage rate increases until 2026."*[98]

Taken together, the data suggest that utility rates are increasing faster than inflation largely due to factors that are unrelated (or minimally related) to growth, including increasing operation and maintenance costs and the need to replace or upgrade older infrastructure to meet current standards or due to deterioration, though growth-related costs can contribute to rate increases in some cases. Consequences for rate affordability and capital funding choices are discussed in Section 2.2.4.

Other System-Wide User Charges

In the context of fiscal constraints, local governments have increasingly implemented other types of user fees for a broader suite of government services such as parks, streets, public safety, and others. In 2018, research by the City of Salem found 50 cities charging such user charges (sometimes referred to "operating fees") across the state, for various services.[99]

While on-going user charges or operating fees have helped to fill the void created by tax limitations, they typically rely on political/public support for fee increases, and as discussed later in this report (Section 2.2.4), fee levels are approaching unaffordable levels for larger segments of the population. Limitations on fee increases often mean that the fees for some services such as transportation and parks may only be sufficient to fund ongoing operation and maintenance costs (e.g., pavement preservation), as opposed to large-scale capital projects.

[97] FCS GROUP, "Water, Sewer & Storm Rate Study," Prepared for the City of Newport, 2017. https://www.newportoregon.gov/dept/fin/documents/WaterSewerStormRateStudy2017v6.pdf

[98] City of Hillsboro Water, "Affordability Program Assessment Report," October 2018, page 3.

[99] Sustainable Services Revenue Task Force Report, City of Salem (2018).

2.2 SDCs' Role in Local Infrastructure Funding

2.2.1 Perspectives From Oregon Jurisdictions

As noted previously, the Oregon SDC Act was intended to provide a mechanism for recovering growth-related infrastructure costs from new development and to avoid shifting those costs to existing rate and taxpayers. Local agencies participating in the Oregon SDC Project Focus Groups indicated that SDCs have become an increasingly important way to address these intergenerational equity concerns, particularly in fast-growing communities.

In focus groups, most service providers highlighted how important SDCs are to their ability to fund infrastructure. As detailed in Appendix A, participants noted several ways in which they play a key role in funding infrastructure:

- Growing communities rely heavily on them, and they are a key part of delivering infrastructure in new growth areas. (Slower growing communities see less SDC revenue and need to rely on other sources.)
- Some service providers highlighted SDCs' importance in contributing to major infrastructure projects that might not have been possible without that contribution.
- Parks and transportation providers in particular noted SDCs' importance for leveraging other funds (e.g., matching funds for state and federal infrastructure grants).
- Those with utility rates highlighted the importance of SDCs to balance out reliance on user rates, and highlighted equity considerations from putting the cost of capacity increases on existing users.

2.2.2 SDCs as Part of an Infrastructure Funding Plan: Examples From Oregon

This section summarizes examples from a number of jurisdictions and situations—urban growth boundary expansion area funding plans, a citywide transportation funding strategy, and funding for major water supply capacity increases—to give a sense of how SDCs contribute to funding local infrastructure in Oregon.

Transportation Funding Plans

Washington County Urban Growth Boundary Expansion Areas

As part of preparing an Infrastructure Funding Plan Toolkit for Washington County as a resource for future infrastructure funding plans for new urban growth areas, ECONorthwest compiled information from several infrastructure funding plans completed for newly urbanizing areas across Washington County. As shown in Exhibit 16, the contribution from SDCs (including the County's Transportation Development Tax (TDT), which is a form of SDC, and supplemental SDCs for some areas) varies substantially between the different expansion areas. The funding plans also include a variety of other sources. Some are simply other

mechanisms for development to contribute, including developer contributions/requirements, a "supplemental fee,"[100] and a local improvement district where the assessment is being paid off as homes are sold. Most, but not all, include some contribution from another source that is not development-derived, such as grants; contributions from Washington County's Major Streets Transportation Improvement Program (MSTIP), which is funded through a general fund allocation; Tax Increment Financing (TIF); and a utility fee surcharge.

Exhibit 16: Example Transportation Infrastructure Funding Plan Strategies
Source: "Infrastructure Funding Plan Toolkit: Guidance for Title 11 Concept and Comprehensive Planning," Prepared by ECONorthwest for Washington County, October 2020. Original data compiled by ECONorthwest using infrastructure funding plans for each planning area.

Planning Area	Total Cost (in $millions)	Transportation funding strategy
URA 6D – King City West	$57.3m	• Supplemental fee: 100% - offset by existing SDCs
River Terrace	$149.6m	• Private cost: 40% • SDC citywide: 20% • Developer contribution: 18% • Transfers: 7% • TDT: 7% • Utility fee surcharge: 3% • SDC subdistrict: 2% • Grants: 2% • Washington County share: unknown
South Hillsboro	$225m	• New tools: 39% • Regional share (e.g., MSTIP): 34% • SDCs: 27%
Evergreen	$51.6m	• Developer requirements: 95% • TIF: 16% • *(surplus revenues identified)*
South Cooper Mountain	$112.4m	• TDT: 27% • Developer contribution: 27% • New SDC: 24% • MSTIP: 21% • Other: <1%

Notes:
TDT = Transportation Development Tax (Washington County's version of a transportation SDC)
MSTIP = Major Streets Transportation Improvement Program, a County program funded through a general fund allocation
The "New tools" listed for South Hillsboro include a Local Improvement District.

Another older example from Washington County is the North Bethany Transportation Funding Strategy. This strategy included up to $10 million from the County's MSTIP; over $21 million from TDT; over $22 million from a new, supplemental North Bethany Transportation System

[100] Some jurisdictions use using "supplemental fees" that are similar to area-specific SDCs but can combine projects from multiple infrastructure systems. These may be imposed as part of annexation agreements for new growth areas rather than implemented under SDC statute.

Development Charge; and over $13 million in additional property taxes from a new North Bethany County Service District for Roads.[101]

While the reality may not always align perfectly with the infrastructure funding plan, this gives a sense of how SDCs can be combined with other funding tools to deliver infrastructure to serve new growth areas. Despite the variation in specifics, **development-derived funding accounts for the majority of the funding for infrastructure in these new growth areas, and SDCs specifically account for a substantial share of funding in most cases.**

City of Bend Transportation System Plan Funding Strategy

As part of the City of Bend's recent Transportation System Plan (TSP) update, ECONorthwest helped develop a Funding Strategy for how revenue from multiple sources would pay for capital costs as well as operations, maintenance, and programs (OM&P) with a focus on projects prioritized for near-term implementation (within the first 10 years of the planning horizon). Exhibit 17 illustrates one of two alternative funding strategies, showing how the available amounts from existing sources and potential new funding sources could be allocated to capital projects vs. OM&P, including existing funding commitments as well as priority new projects and programs. It shows that:

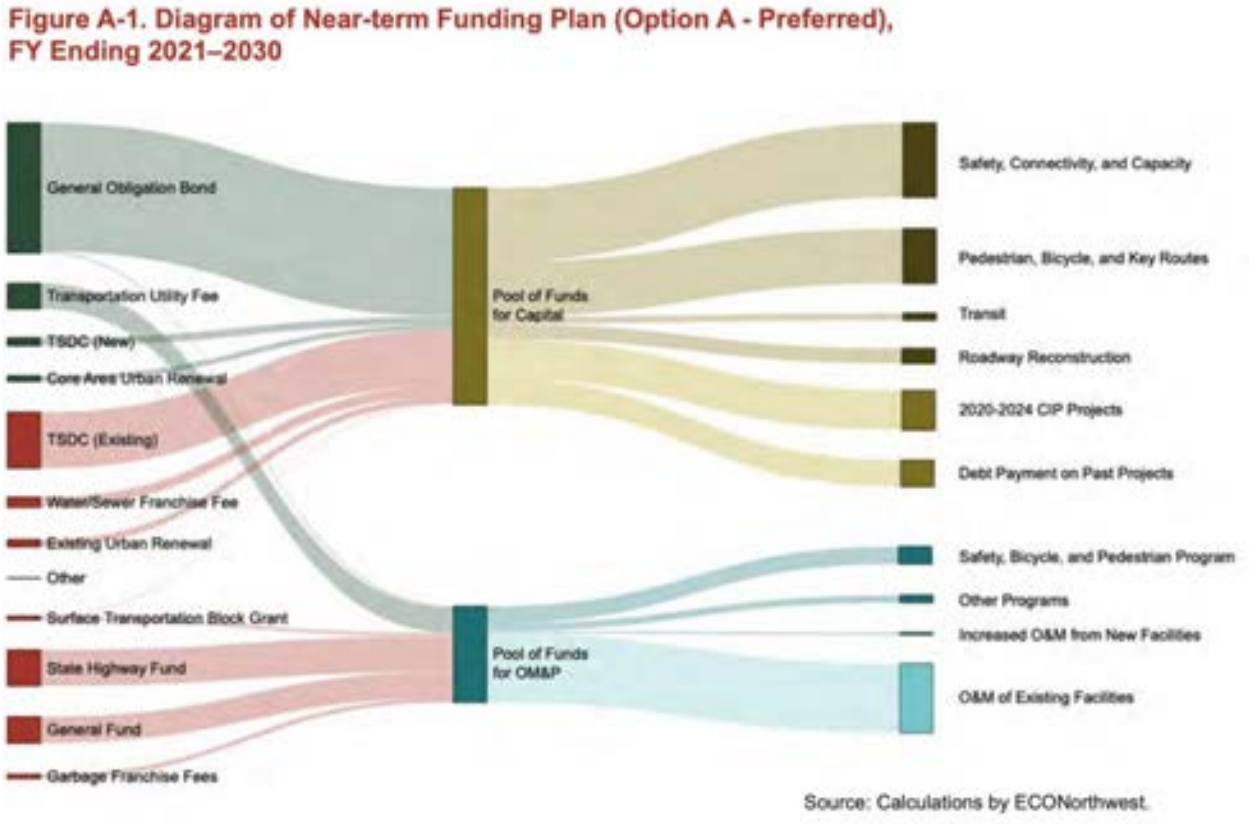
- Nearly all the existing state and federal funding plus local general fund allocations are being directed towards existing operations and maintenance responsibilities.
- Nearly all of the 10-year projected revenue from the existing TSDC was already committed to projects on the near-term capital improvement plan (CIP) list plus debt payments for past capital projects.
- Funding sources such as franchise fees play a comparatively small role in the overall infrastructure funding plan, but they were large enough to include as a relevant funding source.
- The City considered (and ultimately passed[102]) a General Obligation (GO) bond to fund a citywide package of new projects.

[101] Washington County, North Bethany Funding Strategy, October 10, 2021. https://www.washingtoncountyor.gov/lut/documents/north-bethany-transportation-funding-strategy/download?inline

[102] City of Bend, "2020 Transportation GO Bond - Thank You Voters!" https://www.bendoregon.gov/city-projects/safe-travel

Exhibit 17: Illustrative Diagram of Transportation Funding Sources and Uses for City of Bend Near-Term Funding Plan (2021-2030)

Source: City of Bend Transportation System Plan, Appendix A. Near-term Funding Action Plan, page A-2.[103]



The committee that advised on the TSP and Funding Strategy did recommend some increase to the City's existing TSDC rates as part of the overall funding plan, but limited reliance on this solution due to volatility with development cycles, steep recent increases in TSDC rates and concerns about impacts to development and housing costs, and desire to leave room for use of supplemental TSDCs as a funding option for projects in UGB expansion areas.[104] The City has recently undertaken an TSDC update project that will determine the portion of projected capital improvements that will be funded through TSDCs.

Water Supply Funding

City of Wilsonville Development Moratorium

In the late 1990s, the City of Wilsonville adopted a moratorium on development due to lack of water system capacity. A city memo from that time notes that Wilsonville had relied on wells as its sole municipal water supply source until the 1970s when "it became evident that local aquifers would not be adequate to meet the needs of this growing community" and the City was granted a water right on the Willamette River. By the time of the moratorium, the

[103] Available online at https://www.bendoregon.gov/home/showpublisheddocument/47764/637381859539770000.

[104] City of Bend, *Transportation System Plan Appendix L—Initial Funding Assessment*, January 30, 2019. https://www.bendoregon.gov/home/showpublisheddocument/47702/637372519699600000

"unprecedented growth" had "increased peak water demand to the limit of the City's ability to meet such demand, even with all the operational and capital improvements being undertaken."[105]

As part of the correction plan to allow development to go forward, the City needed to identify funding and financing to pay for costly water supply improvements. The City proposed to increase both water SDCs and water utility rates, using a voter-approved revenue bond to finance the improvements.

This example highlights the role of SDCs in helping fund critical capacity improvements to enable development to resume, even though SDCs reduce but do not eliminate the need to bond against rate revenue to build large infrastructure projects.

City of North Plains

In 2018, the City of North Plains faced water system capacity constraints that had the potential to limit additional growth. As noted in a memorandum from Business Oregon[106]:

> *The City of North Plains storage capacity is limited due to substantial growth within the last few years. The current wholesale water agreement with the Joint Water Commission (JWC) requires the city to maintain a three-day supply at all times. The current storage is meeting the agreement requirements at this time, but the city will be in violation with construction of approximately 700 homes in the near future.*
>
> *The construction of a new two-million-gallon pre-stressed concrete reservoir and pump station and implementation of a new Supervisory Control and Data Acquisition (SCADA) control system will provide for water storage needs through the 25 year Master Plan period, based upon the JWC agreement for required water storage.*

As part of the funding strategy for the new project, the City increased water SDCs to pay for the new reservoir and associated financing costs.[107] The revenue from the updated SDCs was included in the financial proforma the city submitted to Business Oregon as part of its funding package.

2.2.3 Benefits to Developers

In a greenfield setting, and in situations where capacity constraints are severe, infrastructure investments to increase capacity may be essential to enable new development to occur, and SDCs are often a critical part of the infrastructure funding plan to pay for the new facilities or expanded capacity. The alternative could be that development cannot move forward or that the

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[105] Jeff Bauman, City of Wilsonville Public Works Director, "Review of Wilsonville's Water Supply Planning," February 23, 1998, page 1.

[106] Memorandum to Chris Cummings, Assistant Director, Economic Development related to City of North Plains, Reservoir & Pump Stations Improvements (June 21, 2018).

[107] Water System Development Charges Methodology Report, Prepared for City of North Plains by Galardi Rothstein Group (December 18, 2017).

first development(s) must take on major infrastructure investments as a condition of approval or through a development agreement, making it more difficult to allocate costs among multiple benefitting property owners or developments. **SDCs may make greenfield development costs more predictable and more evenly distributed, but not necessarily higher, because SDCs may substitute for other forms of exactions or developer contributions.** Area-specific SDCs are sometimes used for this purpose, but jurisdiction-wide SDCs can play the same role if they are providing SDC credits to developers who build the needed infrastructure and charge SDCs to other developers that benefit from it.

SDCs collected across a broad area and used to fund incremental capacity increases in many locations may offer less direct substitution for property-specific exactions. However, the infrastructure they help to fund can contribute to the value of homes in the area generally, as discussed below.

Based on developer interviews, the value that developers ascribe to SDCs depends on how clear it is what is being funded through SDCs and how critical the funded projects are to enabling development to occur.

2.2.4 Benefits to Residents

Amenity Value of Infrastructure

There is strong evidence that living in a community with functioning infrastructure has value to future residents.

- There is substantial literature demonstrating the value of parks to nearby residents. A review of 33 studies suggests that: a) property values are higher closer to parks, b) the price premium is higher for larger parks, and c) the price premium is higher for "passive" parks than for "active" parks.[108]
- There are also studies that show a positive relationship between bicycle and pedestrian facilities and home values.[109] Others show negative economic impacts from transportation delays.[110]

Mitigating Utility Rate and Property Tax Increases

Existing residents also benefit from SDCs by reducing the need for jurisdictions to increase utility rates, pass General Obligation (GO) bonds that increase property taxes, or implement other funding mechanisms that could increase their costs. **While not all of a jurisdiction's capital needs are related to growth and eligible for SDC funding, being able to draw on**

[108] John L. Crompton. 2020. "Impact on property values of distance to parks and open spaces: An update of U.S studies in the new millennium." *Journal of Leisure Research*, 51(2): 127-146.

[109] See, for example: Shi, Wei, "Impact of Bike Facilities on Residential Property Prices" (2017). TREC Friday Seminar Series. 110. https://pdxscholar.library.pdx.edu/trec_seminar/110

[110] Transportation Research Board. 2001. NCHRP Report 436. Economic Implications of Congestion. National Cooperative Highway Research Program.

SDCs for costs that are eligible means less cost needs to be allocated to ratepayers or property owners. Without SDCs, existing residents may have to pay for capital improvement projects related to growth through higher utility bills or property taxes.

Utility Cost Impacts Due to Capital Projects

As discussed in Section 2.1.4, utility rates have increased over time. Even with those increases, they typically account for a small percentage of household income and are small in comparison to housing costs (rent or mortgage and other costs of homeownership). However, given the number of other expenses that households must cover, even a small percentage of household income (e.g., less than 10 percent for a lower-income household) can be unaffordable.[111]

In Oregon, a recent League of Oregon Cities rate survey shows an average of roughly $99 per month (about $1,200 per year) in water and sewer rates for a typical single-family home,[112] which is roughly 1.8 percent of the state's median household income.[113] **However, while utility rates may not be problematic for a median-income household, they can be burdensome for low-income households because utility rates and costs do not generally scale with income**. National data suggests that 20 percent of households (as of 2019) and closer to 24 percent of households (in 2021) were spending more than 4.5 percent of their household income on water and sewer bills.[114] A 2018 survey of water customers in the City of Hillsboro found that 10 percent of customers considered their rates so high that "paying them is a struggle."[115]

Many jurisdictions attempt to mitigate affordability issues for their most vulnerable customers through payment assistance options for income-qualified households and/or seniors on fixed income who are unable to afford their bills. (For example, both Newport and Hillsboro, which were used as examples in Section 2.1.4, offer such programs.)

Given that, as described in Section 2.1.4, utility rates are already increasing faster than inflation in many places (mostly due to factors other than growth-related capital costs), even if growth-related capital costs account for a small share of total utility rates, they may layer onto other cost increases. And although utility rates are generally small in comparison to household income and housing costs, utility rate increases can disproportionately affect lower-income households unless the service provider provides a robust customer assistance program. To the extent that

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[111] R. Raucher, PhD. And J. Clements (Corona Environmental Consulting), E. Rothstein, CPA (Galardi Rothstein Group) and J. Mastracchio, CFA and Z. Green (Raftelis Financial Consultants), Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector, (April 17, 2019). As described in this report, the approach to defining and measuring affordability is evolving, and there is not a clear agreed-upon standard of affordability for water and wastewater utility rates.

[112] Aljets Consulting. *2021 Water Rates Survey Report*. December 2021. League of Oregon Cities.

[113] Median household income for Oregon is $65,667 based on 2016-2020 American Community Survey data.

[114] McKinsey & Company, "US water infrastructure: Making funding count," November 24, 2021, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count

[115] City of Hillsboro Water, "Affordability Program Assessment Report," October 2018, page 3.

SDCs reduce the need for utility rate increases, they can benefit existing residents through lower costs, particularly lower-income households.

Property Tax Impacts Due to Capital Projects

While the details can vary among communities, a few recent examples illustrate the magnitude of property tax increases that could be due to new bonds for funding infrastructure projects:

- The City of Bend GO Bond discussed in Section 2.2.2, for example, had an estimated cost of $170 per year for an average-value home in the City.[116]
- Tualatin Hills Park and Recreation District's 2008 bond measure established a $0.34/$1,000 of assessed value levy,[117] which translates to roughly $100 per year for an average-value home (using an average assessed value for improved residential properties in Washington County of $295,978 as of the 2021/22 tax year[118]).

The magnitude of these costs suggests that the impact of GO bonds on affordability is likely modest for an average household and would account for a small share of an average household's budget. (With the example of Bend's GO Bond, with a median household income of $67,973 as of 2020, the bond cost for an average-value home would account for roughly a quarter of a percent of a median household's annual income.) Because property taxes vary with property value, lower-income households would likely face somewhat lower costs from GO bonds to the extent that they live in lower-value housing, but the costs may not scale linearly with income because all housing costs typically represent a larger share of income for lower-income households.

[116] City of Bend, "2020 Transportation GO Bond - Thank You Voters!" https://www.bendoregon.gov/city-projects/safe-travel

[117] Tualatin Hills Park and Recreation District, *Making Good: 6th Report on Bond Measure Progress*, 2015, page 4. http://cdn1.thprd.org/pdfs2/document3294.pdf

[118] Washington County Department of Assessment & Taxation, "Summary of Assessment and Tax Roll 2021-22," page 10. https://www.washingtoncountyor.gov/at/documents/tax-year-2021-2022-summary-book/download?inline

Part 3: How and Why SDCs Vary Across Oregon

Primary Contributors: Galardi Rothstein Group, FCS GROUP

3.1 SDC Rates: Geographic Variations and Trends

3.1.1 System Development Charges Across the State

Data Sources

Several organizations in Oregon publish compilations of SDC rates for multiple jurisdictions:

- The League of Oregon Cities (LOC) surveys its member cities every three years regarding their usage of SDCs and current rates. LOC's most recent available report is from 2020 based on survey data collected in 2019. LOC has statewide coverage and relatively high participation. In the 2020 report (2019 survey), 96 jurisdictions responded. The respondents were distributed across the state with overrepresentation in the Metro, North Willamette Valley, and Central Oregon regions and underrepresentation of cities in the Coast regions, South-Central Oregon, and the Gorge.[119] Variation in which jurisdictions participate in a given survey can affect year-to-year comparisons. Because survey participants represent cities, there are some inconsistencies in how SDCs administered by special districts and other service providers are reported, given that city staff may not know the rates for all other service providers operating in their jurisdiction. Reported rates focus on single-family detached homes and an office building using example projects.
- The Homebuilders Association of Metropolitan Portland (HBA of Metro Portland) publishes estimates for most jurisdictions in the greater Portland region. The most recent estimates are from 2020 and include both single-family detached and multifamily summaries. Special district SDCs appear to be consistently reported, and special rates for specific subareas are listed in addition to citywide fees. However, the data does not attempt to provide estimated SDCs for an example multifamily project and may not reflect all the adjustments that would apply to a given project. For example, water rates are listed for the same meter size as listed for single-family development, which is typically not the case. The data encompasses most jurisdictions in Washington, Clackamas, and Multnomah Counties, as well as select jurisdictions in Hood River, Yamhill, and Columbia Counties, but it does not cover the balance of the state.[120]
- The Oregon Building Officials Association (OBOA) sends annual fee surveys to members. The most recent available data dates from January 2018 and covers 39

[119] League of Oregon Cities, "System Development Charges Survey Report," February 2020.

[120] Home Builders Association of Metropolitan Portland, "System Development Charges," https://www.hbapdx.org/system-development-charges.html

jurisdictions in various parts of the state. The data covers single-family detached, multifamily, and commercial office development using example projects.[121]

Given that all available sources are at least two years old and that some sources may not capture all special district or county SDCs, FCS GROUP collected data on current (mid-2022) SDC rates from jurisdictions across the state. To allow for historical comparisons, FCS GROUP collected data from jurisdictions that were represented in the oldest LOC survey data available, from 2007, which included a robust number of respondents.[122] Research was based on a combination of fee schedules published on City websites and direct communication with City staff. The 2022 data include regional and district charges that apply in the researched cities, to the extent data were verifiable. Where jurisdictions have area-specific SDCs, the 2022 data collected reflects the citywide rate and does not include supplemental area-specific fees.

To make effective comparisons between jurisdictions, the 2022 SDC calculations are based on the same single-family residence used in the LOC survey, as described in Exhibit 18.

Exhibit 18. Sample Survey Residence
Source: League of Oregon Cities, System Development Charges Survey Report (February 2020), page 3

Single-family, 3-bedroom home	Amount	Units
Lot size:	9,000	sq. ft.
Building size:	2,000	sq. ft.
Development value:	$190,000	
Land value:	$60,000	
Parking spaces:	2	
Water meter size:	¾	inch
Water flow (gallons/month):	6,000	
Fixture units:	16	
Number of employees:	N/A	
Impervious square footage:	1,000	sq. ft.

FCS GROUP did not collect additional data for multifamily SDC rates.

Who Charges and Who Doesn't?

Most cities in Oregon charge at least one of the five allowable SDCs—66 percent of the 2007 LOC survey respondents charge SDCs in 2022.[123] Exhibit 19 shows the number of services charged among those researched, and the average population of those cities.

[121] Oregon Building Officials Association, "OBOA Standards Committee," https://www.oregonbuildingofficials.com/standards

[122] LOC reports that 121 out of 242 Oregon cities (50 percent) responded to the 2007 SDC survey. Of the 121 respondents, 79 (65 percent) charged at least one SDC. Of the 121 initial respondents, updated (2022) SDCs could be verified for 76.

[123] In the 2020 LOC survey, which captured a different sample of Oregon cities, 82 percent of the 96 respondents reported charging at least one SDC.

Exhibit 19. Surveyed Cities Charging SDCs in 2022
Source: FCS GROUP

Cities Charging SDCs	Number of Services Charged						Total
	0	1	2	3	4	5	
# of Respondents	39	3	12	10	17	34	115
% of Respondents	34%	3%	10%	9%	15%	30%	100%
Total population	82,810	18,006	21,750	33,886	247,174	1,406,700	1,810,326
Average population	2,123	6,002	1,813	3,389	14,540	41,374	15,742

This sample data suggests that more populous cities are more likely to use SDCs than less populous cities. This pattern appears in both the most recent LOC data and the HBA of Metro Portland data.

As noted in the *Oregon SDC Study: Summary of Service Providers Focus Groups* (included as Appendix A), factors contributing to local decisions not to charge SDCs include:

- Little development activity.
- Political concerns about affordability or economic development.
- Developers required to install infrastructure directly via exactions.

How Do Rates Vary Across the State?

The cities included in the 2022 data are shown on Exhibit 20 by the total amount charged for the sample single-family detached residence described in Exhibit 18. Cities with no SDCs are largely (but not exclusively) located in eastern Oregon and away from major metropolitan areas. The highest tier of SDCs (between $25,000 and $50,000) are primarily found in the Portland Metro region, though the City of Bend and a few smaller communities, including Carlton, Philomath, Donald, and Newberg, also have SDCs towards the lower end of this range. While not directly comparable due to the age of the data, the 2020 data from the HBA of Metro Portland suggests that there are likely more Portland region jurisdictions with rates in this range than were included in the 2022 update by FCS GROUP. The charges for each city and each infrastructure system are listed in Appendix D.

Exhibit 20. Total Single-Family Detached SDCs by City in Oregon, 2022
Source: ECONorthwest, using data from FCS GROUP

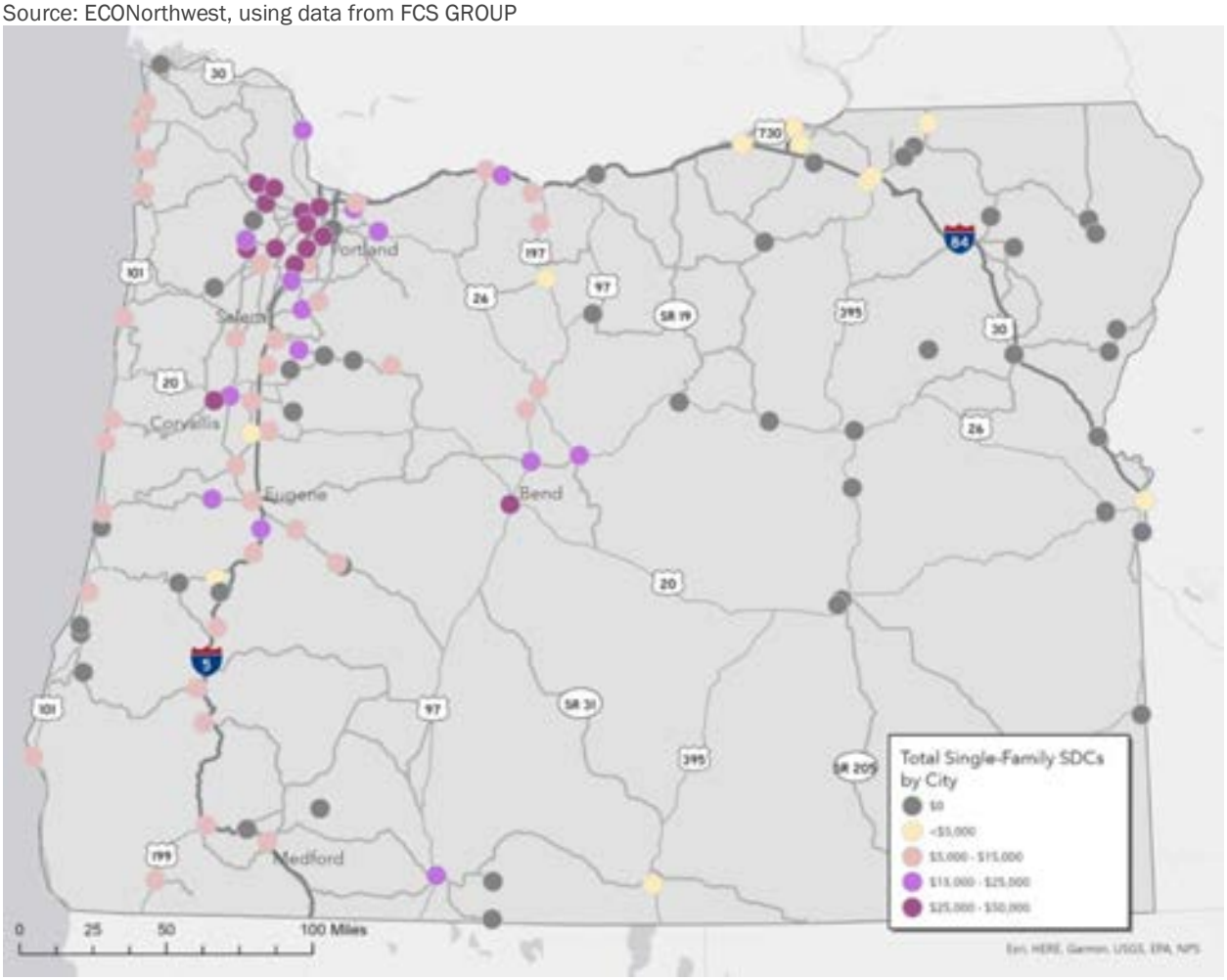


Exhibit 21 provides mean and median values by system.

Exhibit 21. Summary of City Mean and Median SDCs (2022)
Source: FCS GROUP

Mean and Median SDCs	Number of Cities	Mean	Median
Water	72	$4,500	$3,830
Wastewater	72	$4,644	$4,353
Stormwater	45	$1,078	$756
Transportation	51	$4,433	$3,489
Parks	55	$3,829	$2,535
Totals	**76**	**$15,047***	**$12,168**

* This value represents the average of the totals for each jurisdiction, rather than a sum of the averages for each system.

For comparison, the 2020 LOC survey report found average total estimated SDC costs for single-family residential of $13,135 for fiscal year 2018,[124] though, as noted previously, this figure likely undercounts special district and county SDCs. The average across the jurisdictions and special areas included in the HBA of Metro Portland 2020 data is just over $27,000, though this data set is weighted towards larger jurisdictions and has little coverage outside the

[124] League of Oregon Cities, *System Development Charges Survey Report* (February 2020), page 17.

Portland metropolitan region.[125] The average of the total SDC rates for jurisdictions included in the January 2018 OBOA data was roughly $14,500.[126] This variability suggests that aggregate statewide numbers from any given subset of communities may not be representative of the state as a whole.

Exhibit 22 shows the distribution of each SDC type as well as the distribution of total SDCs from the 2022 FCS GROUP survey data. The "box" captures the middle two quartiles of values for each set of data (25th percentile to the median in the lower box and median to 75th percentile in the upper box). Lines ("whiskers") encompass the minimum and maximum range within the survey data.

Exhibit 22. Distribution of SDCs Among Surveyed Oregon Jurisdictions that Charge One or More SDCs by Infrastructure System (2022)

Source: ECONorthwest, using data from FCS GROUP

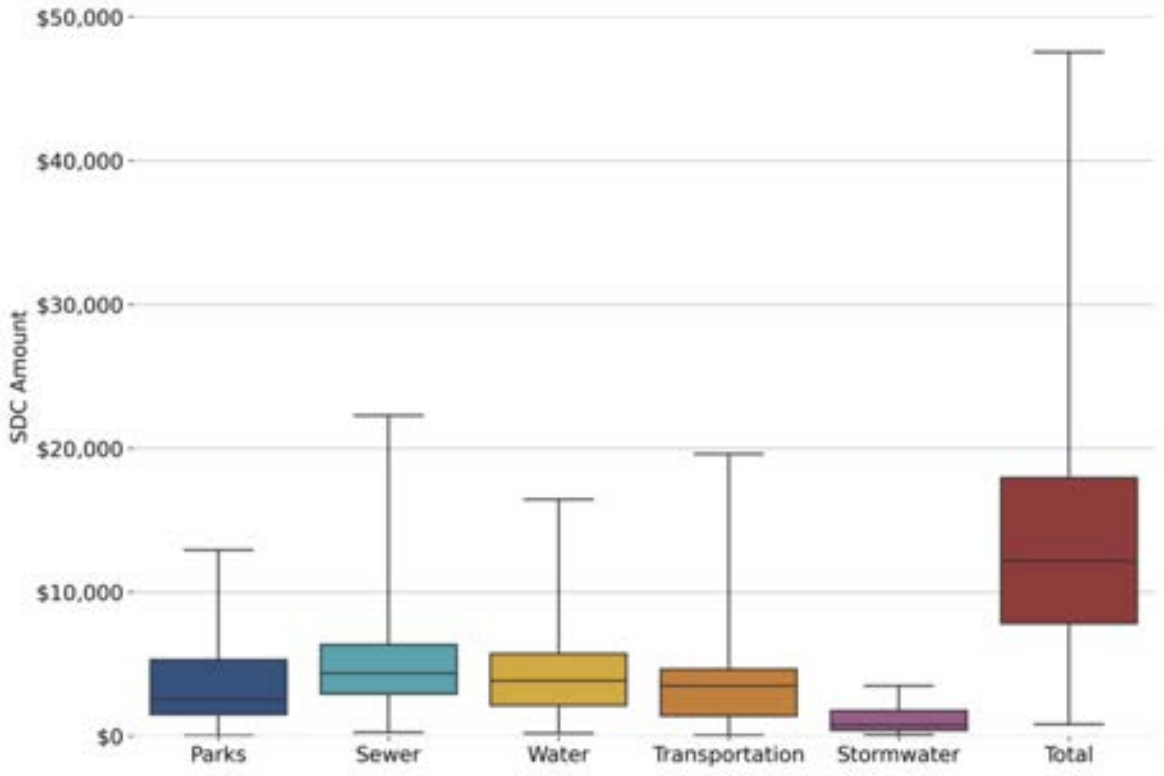


Exhibit 22 shows substantial variation in SDC amounts across all SDC types, with the greatest range for transportation and sewer SDCs. In total, the range is even more pronounced, from a low of $819 (Lakeview) to a high of $47,550 (Tigard).

[125] Home Builders Association of Metropolitan Portland, "System Development Charges," https://www.hbapdx.org/system-development-charges.html

[126] Oregon Building Officials Association, "OBOA Standards Committee," https://www.oregonbuildingofficials.com/standards. This figure excludes excise taxes, which are also listed in this data set.

Multifamily SDCs

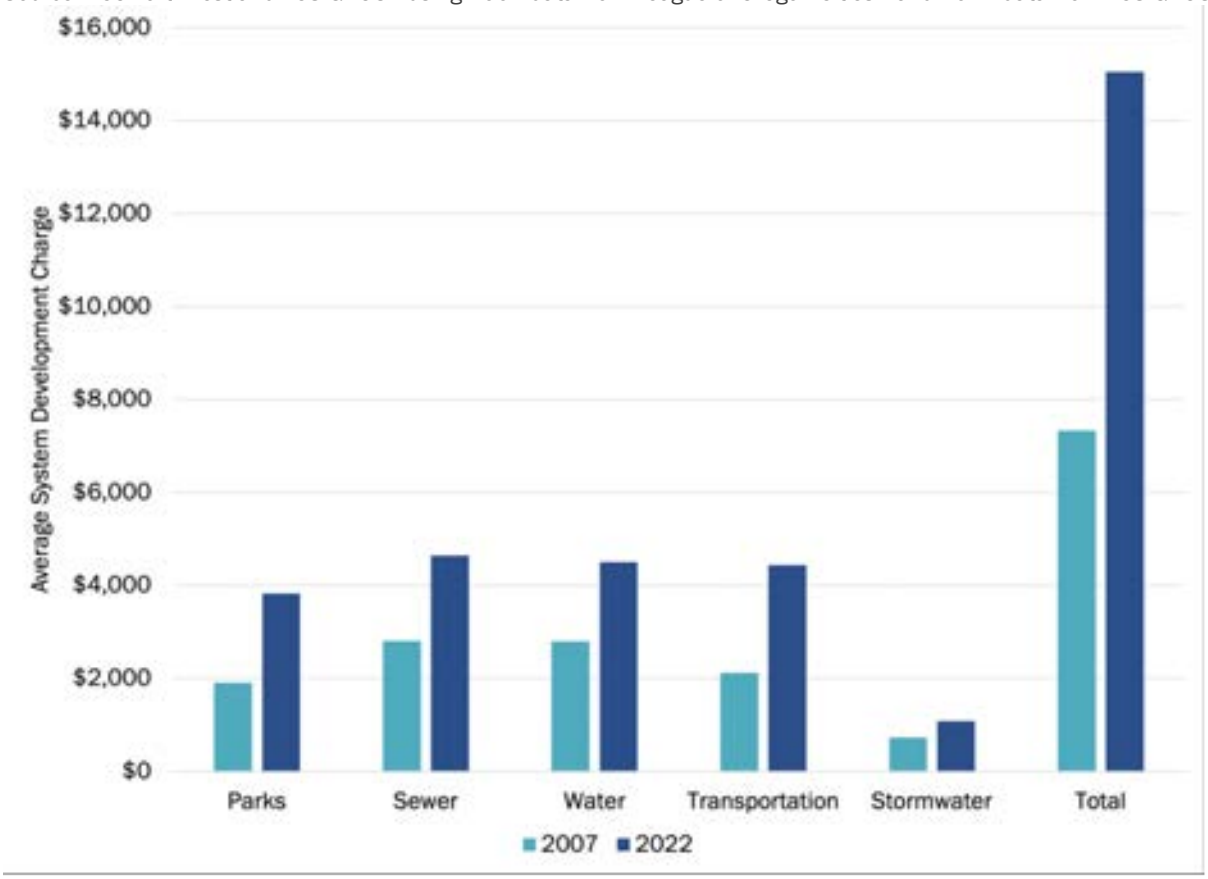
In OBOA's 2018 survey data, the only readily available data that includes fees for example single-family detached and multifamily projects,[127] the ratio of the average multifamily SDC rate to the average single-family SDC rate is about 66 percent. The data shows there is a wide range of relationship between multifamily and single-family SDC rates.

3.1.2 Trends in System Development Charge Levels

Using the data on SDC fee levels by infrastructure system for 2007 and 2022 for the sample cities, Exhibit 23 shows fee level trends for each type of SDC.

Exhibit 23. Average SDC Levels by Infrastructure System for Surveyed Cities in Oregon, 2007 and 2022

Source: ECONorthwest and FCS GROUP using 2007 data from League of Oregon Cities* and 2022 data from FCS GROUP

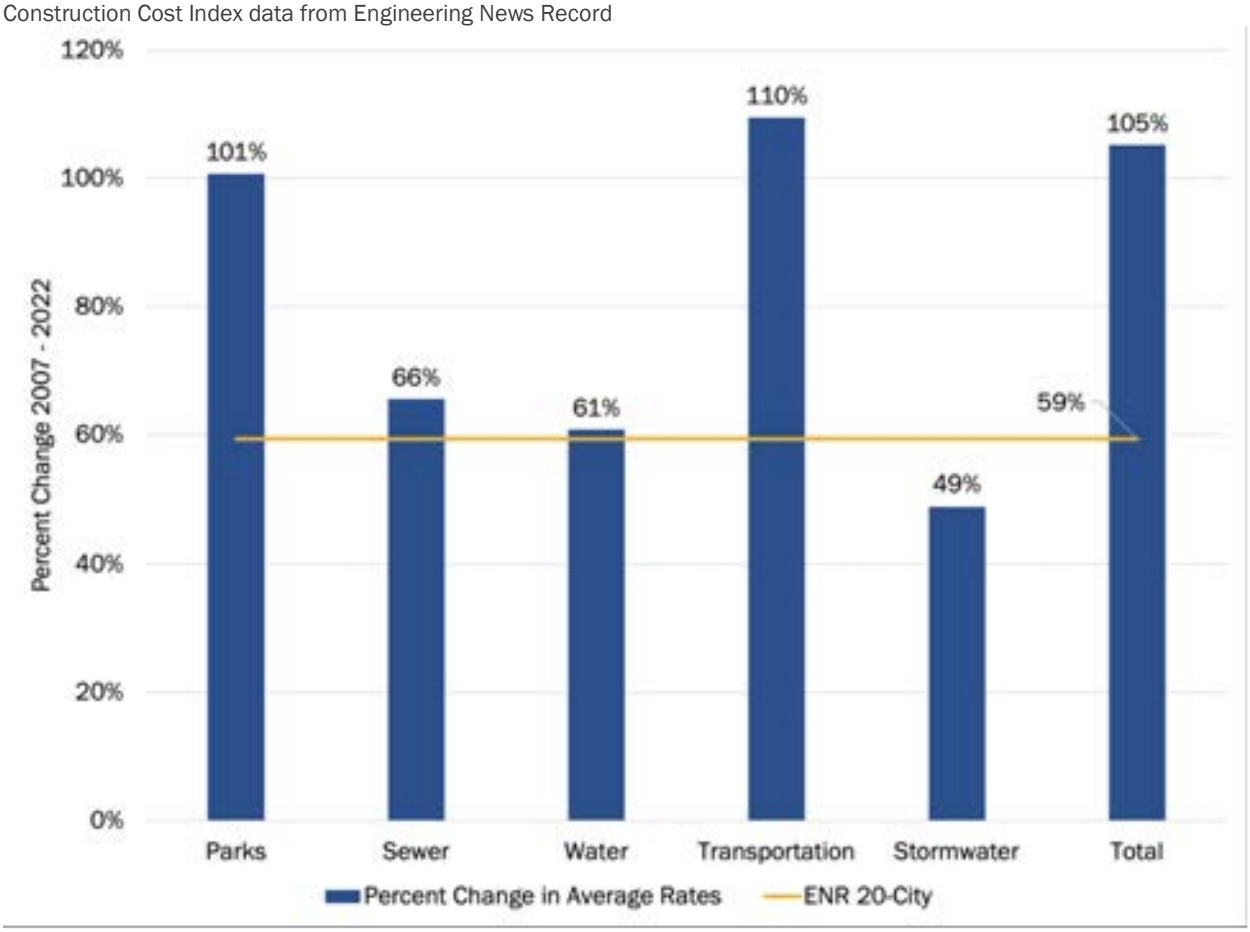


* Regional and district charges may not be consistently reported in the 2007 LOC data, which could result in an underestimate of average fees in that data.

[127] As noted above, while the 2020 data from the HBA of Metro Portland provides SDC rates for multifamily, the data does not attempt to provide estimated SDCs for an example project and may not reflect all the adjustments that would apply to a given project. For example, water SDC rates are listed for the same meter size as listed for single-family development, which is typically not the case.

Exhibit 24. Percent Change in SDC Levels by Infrastructure System for Surveyed Cities in Oregon Compared to Change in Construction Costs, 2007-2022

Source: ECONorthwest and FCS GROUP using 2007 data from League of Oregon Cities*, 2022 data from FCS GROUP, and Construction Cost Index data from Engineering News Record



* Regional and district charges may not be consistently reported in the 2007 LOC data, which could result in an underestimate of average fees in that data.

This shows that average SDC rates have increased across all infrastructure systems over the 15-year period. Most infrastructure systems have seen increases that have outpaced the increase in construction costs over the same period, in some cases by a substantial margin. As noted above, regional and district charges may not be consistently reported in the 2007 LOC data, which could exaggerate the magnitude of increases. On average, transportation and parks SDCs have increased most over the past 15 years, exceeding the increase in construction costs. This could be due to land values escalating faster than construction costs, as many parks service providers account for land costs in their SDC indexing methodology, and right-of-way acquisition costs can drive cost increases for transportation projects as well.[128] Water and sewer SDCs have

[128] While comprehensive statewide data on trends in land values is not readily available, there is evidence that land prices are escalating faster than construction costs at least in recent years and in areas experiencing strong development. For example, a review of documents related to SDC rate increases for some parks providers showed that in 2017, data from the Washington County Assessor's office (within the Tualatin Hills Park and Recreation District) showed an increase in vacant land value of 19.54 percent, compared to the ENR CCI increase of 2.15 percent. Similarly, data from Deschutes County Assessor's Office showed an increase in land values of 18.06 percent over the 12-month period ending December 2021, which was significantly higher than the ENR 20-city CCI of 7.36 percent.

roughly kept pace with construction costs, and stormwater SDCs have lagged behind construction costs. Appendix D provides tables containing the 2007 and 2022 data.

3.1.3 Comparison to National Data

A limited number of sources offer national data on impact fees. Duncan Associates' 2019 National Impact Fee Survey covers a sample of jurisdictions from many states. The Terner Center report referenced previously includes impact fee data for a number of California jurisdictions, but it does not include observations from other states.

The Duncan Associates Survey acknowledges a variety of limitations, including difficulty parsing impact fees that are referred to by different names or may be combined with other service fees, limited and non-random samples of which jurisdictions are included, and estimations of the cost of standard developer exactions for communities that use those in place of monetary impact fees. In addition, many impact fee surveys suffer from under-reporting of fees from regional service providers.[129] This appears to be an issue with the Terner Center data that makes it less appropriate to compare to Oregon data in the aggregate.

Beyond these limitations, it is difficult to draw useful comparative conclusions from national surveys because of differences in state statutes, terminology, and methodology constraints. As noted previously, Oregon's SDC law provides for water, wastewater, stormwater, transportation, and parks charges. Among neighboring states, while all authorize impact fees, there is variation in which systems are included:

- California authorizes the use of impact fees for any public facilities.[130] Survey results for California public agencies appear to under-count regional water and wastewater fees.
- In Washington, impact fees are authorized for only transportation, parks, fire, and schools,[131] while water, wastewater, and stormwater fees are authorized in a different statute[132] and are referred to general facilities charges. In surveys of impact fees, many Washington agencies report only their transportation, parks, fire, and schools impact fees, and exclude water, wastewater, and stormwater.
- Idaho also has two statutes. Impact fees[133] have been used historically for transportation and parks, although they are available for water, wastewater, and stormwater. Water and wastewater charges are typically charged under the authority provided in a separate statute.[134] These fees are generally less cumbersome to administer than "impact fees," although a 2015 supreme court case[135] essentially prohibits the inclusion of future

[129] Duncan Associates, "2019 National Impact Fee Survey," August 18, 2019.

[130] CGC 66000

[131] RCW 82.02

[132] RCW 35.92.025

[133] Authorized in IC §§ 50-10

[134] IC §§ 67-82

[135] NIBCA v. City of Hayden

facilities costs in the charge calculation—a methodology constraint not present in Oregon (or Washington or California).

These challenges undermine the value of comparing Oregon to its neighboring states in terms of total impact fee amounts. In the 2019 Duncan Associates survey, for example, cities such as Olympia and Tumwater reported no water, wastewater, or stormwater "impact fees" when in fact they have robust general facilities charges. Olympia also has a park impact fee which was not included. The totals for the five Oregon-comparable services should be $25,663.03 for Olympia and $20,119.30 for Tumwater—not the $4,830 and $3,853 shown for each, respectively.

There are also differences between states in the availability of state funding for infrastructure and the constraints on alternative local funding sources, which can lead to different levels of reliance on impact fees.

3.2 Key Factors Affecting SDC Rates

As illustrated in Section 3.1.1, SDC rates vary substantially across the state. As shown in Exhibit 25, these variations are the result of a multitude of factors including both internal decisions made by local governments and external factors that impact the relative costs of building infrastructure across the state and in different service delivery and infrastructure contexts. Internal factors include both infrastructure planning and funding decisions "upstream" of the SDC methodology that impact local governments' total infrastructure investment needs and the portion of costs that may be eligible for SDC funding, as well as decisions specific to the development of the SDC methodology and final rate-setting. Key external factors include regional construction market conditions and local construction cost factors (e.g., soils or geotechnical requirements), service provider scale and efficiency (e.g., regional vs. individual service provider), and infrastructure-specific considerations.

Exhibit 25: Factors Affecting SDC Rates
Source: Galardi Rothstein Group, ECONorthwest

This section summarizes some of the key factors that lead to differences in SDC rates across Oregon. While each factor—and its potential impact on SDC rates—is discussed individually, the collective decisions and factors are ultimately reflected in the adopted SDC rates. For example, a community with a larger, more expensive transportation system capital plan may have a similar SDC than another community with a smaller capital plan if other funding sources (e.g., voter approved taxes) are used to fund a portion of the improvements. Similarly, the impacts of different individual SDC methodology decisions may be neutralized by other decisions upstream or downstream (i.e., at the time of rate-setting). Because survey data shows that there are significant variations in SDCs across the state, this section provides some insights into what may drive those differences.

3.2.1 Broad Infrastructure Planning and Funding Decisions

Infrastructure System Plans and Capital Project Needs

As discussed in Section 1.2.2, Oregon SDC statutes allow local governments to charge SDCs for five broad types of infrastructure: water, wastewater, stormwater, transportation, and parks.

Furthermore, local governments are required to prepare a capital improvement plan or comparable plan prior to the establishment of an SDC, assuming a forward-looking "improvement fee" is to be included.

Capital planning for all five SDC-eligible infrastructure systems generally involves preparation of broader system plans (e.g., master plans, public facilities plans, or transportation system plans) to determine future investment needs and priorities based on an in-depth technical evaluation and input from regulatory agencies and the local community.

Water, sewer, and stormwater master planning efforts are largely technical exercises, where state and federal permitting and other requirements drive the need for facility design, sizing, and quantity. While discretion is involved in selecting among different technologies, siting facilities, and prioritizing improvements for these systems, some decisions are beyond local control, due to the need for state and federal regulatory compliance. For transportation, while Oregon Department of Transportation (ODOT) standards and transportation planning rule requirements can influence project design and prioritization in communities with state highway facilities, local governments generally have discretion in setting level of service standards and prioritizing improvements for city streets to align with local goals. Local governments also have discretion in planning for a park system that aligns with community-defined goals around livability and equity.

Because the system plans generally set the stage for the SDC project list, decisions made as part of the broader system planning process can impact the size and cost of the project list as the service providers seek to comply with regulations and be responsive to community stakeholders engaged in the planning process. Even if only a portion of the project costs are allocated to SDCs, a larger, more expensive project list can increase SDC levels. Developer focus groups conducted as part of this study indicate a strong perception that differences in locally established service levels and project priorities for parks and transportation facilities drive differences in SDCs for these systems in particular.

Overall Infrastructure Funding Choices

As part of their financial planning process, service providers may make decisions to utilize other non-SDC funds up front (i.e., before embarking on an SDC update) for a specific project or group of projects, which then reduces the list of potential projects that may end up on the SDC project list. For example, if there is support by the local community, a GO bond may be used to fund a recreation center or a group of high-profile transportation projects. However, given the political challenges and legal or financial limitations associated with other potential local funding sources, it can be more difficult to implement other local funding options than to maximize the use of SDCs for eligible costs, within the bounds of state law and legal precedent.

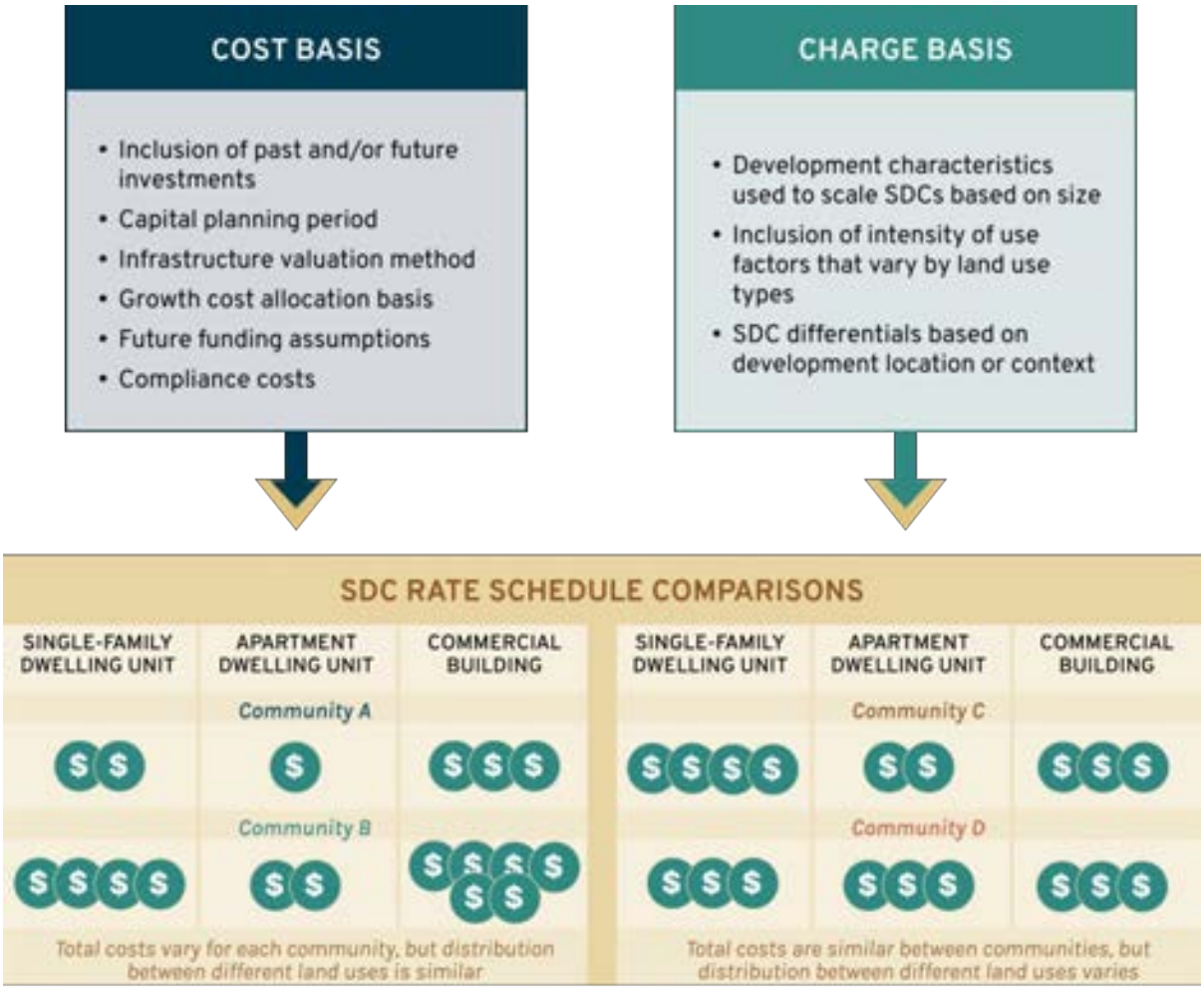
Additionally, many transportation capital plans include projects on state highways that serve as local arterials through cities. Many cities decide to include only the "local" share of such project costs, intending to leverage the participation of the Oregon Department of Transportation in funding those projects. These up-front funding decisions may have a direct impact on SDCs if they result in reduced SDC-eligible costs.

3.2.2 SDC Methodology Factors

An SDC methodology has many individual components, and within the framework of Oregon SDC law, local governments have flexibility in selecting approaches to each methodology component to balance local objectives and data availability. Methodology component choices may be grouped in two primary areas: 1) decisions related to the total infrastructure costs to be recovered from SDCs (the "cost basis"), and 2) decisions related to how the SDC costs will be allocated across different development types, sizes, and contexts (the "charge basis").

As shown in Exhibit 2, cost basis decisions generally impact overall SDC levels. A community with a higher cost per unit of growth (as is the case with Community B) has higher SDCs across all development types, compared to Community A, which is assumed to have a lower cost basis. On the other hand, decisions related to the charge basis tend to impact relative fee levels within a given development type (e.g., residential or commercial) and across development types, locations, and contexts. In the example in Exhibit 2, Community C charges a lower cost per unit for multifamily relative to single-family, while Community D charges a uniform SDC for all homes of a given type.

Exhibit 26: Example of SDC Methodology Choices and their Impact on SDC Rates
Source: Galardi Rothstein Group, ECONorthwest



This section provides a high-level summary of individual methodology components, choices, and the general impacts of each choice. However, as mentioned previously, it is the collective decisions and factors that are ultimately reflected in the adopted SDC rates, and some individual component choices may be offset by other decisions within the methodology, as well as upstream and rate-setting decisions.

Cost Basis

As mentioned previously, the "cost basis" is the total cost that the SDCs are intended to recover. Development of the cost basis involves a number of methodological decisions, beginning with selection of investments to include in the SDCs, the methods for placing a value on those investments, assumptions related to future funding sources, and basis for determining an equitable share of capacity costs for new development. Key decisions impacting the SDC cost basis are discussed below and their potential impact on overall SDC levels.

Selection of Investments to Include in SDC Cost Basis

Reimbursement, Improvement, or Combined SDC Methodology

As discussed in Section 1.2.2, an SDC methodology can include a reimbursement fee, an improvement fee, or a combination, so the first cost basis decision is whether to include existing or future system capital investments, or both. This is generally a technical decision based on whether existing facilities have capacity beyond existing development service demands (a requirement for a reimbursement fee) and whether that capacity is sufficient to satisfy future growth needs entirely, or if additional improvements are also required.

In many communities, the cost of existing facilities (per unit of service capacity) is lower than the cost of providing the same amount of capacity in the future due to greater availability of grant funding historically, new design standards which make construction of planned improvements more costly, cost inflation, and other factors. Therefore, SDCs based on a stand-alone reimbursement fee methodology are likely to be lower than SDCs that use stand-alone improvement or combined reimbursement and improvement fee methodologies.

Reducing the Size of the Improvement SDC Project List

Improvement SDCs may vary among communities due to upstream planning and funding decisions (as discussed in 3.2.1), but also internal decisions to reduce the SDC project list by including projects planned for a shorter time period or a more focused and prioritized list. As noted in *Oregon SDC Study: Summary of Service Providers* (Appendix A), some communities described using "funded" and "unfunded" project lists or working to narrow and prioritize a project list that would align with the maximum SDC amount the community was comfortable charging (often a fee level comparable with other SDCs in the region).[136]

[136] It is worth noting that projects assumed to be "unfunded" will remain unfunded (which also has implications for SDC credits as discussed in 1.6.2) if not included on SDC project list or another funding source is identified.

Assigning Costs or Values to Investments

Costs Estimates for Improvement Fees

The costs for planned projects used in the improvement fee calculation typically represent planning level estimates from system plans, brought current to the time SDCs are calculated and adopted based on a construction cost index. Future cost escalation (from the time the SDC is calculated to the time a project is constructed) is typically addressed through periodic updates to the project list or SDCs tied to a construction cost index, as allowed by statute. However, as noted in *Oregon SDC Study: Summary of Service Providers* (Appendix A), many communities indicate that their SDCs have not been indexed every year or at all since initially adopted, so variation in indexing practices is likely a factor in SDC differences.

Approach to Valuation of Existing Facilities for Reimbursement Fees

While the SDC statutes refer to "the value … or the cost of the existing facilities"[137] in calculating a reimbursement fee, a specific valuation basis is not prescribed. In fact, there are a wide range of valuation approaches used in Oregon and across the country for SDC calculation purposes. For example, the American Water Works Association M1 Manual (Principles of Water Rates, Fees, and Charges) lists four common approaches for valuation of existing system facilities for calculation of SDCs: 1) original cost, 2) original cost less accumulated depreciation, 3) replacement cost new, 4) replacement cost new less depreciation.[138]

Reimbursement fees based on original cost less depreciation tend to generate the lowest fees of the options (all things being equal), while replacement cost-based fees would tend to be higher. To the extent that local SDCs include a reimbursement component, the valuation method can impact the overall fee level and result in differences across communities.

Allocation of Costs to Growth ("Growth Share")

The determination of the portion of costs that may equitably be allocated to growth through reimbursement and improvement SDCs is primarily a technical process that involves consideration of upstream planning targets and other technical information. As discussed in Section 1.5.1, the system plans establish facility design standards and service delivery targets for each system. These targets form the basis for how system capacity and existing and future user demands are measured, which then allows for existing system facility and future improvement costs to be allocated to growth.

While there are some methodological differences in how local governments approach allocation of costs to growth, the upstream planning decisions along with other technical considerations generally have a greater influence on the allocation of costs to growth and resulting variations in SDC fees. Nevertheless, a high-level summary of the technical process is provided along with potential differences in approaches, given the importance of this methodology component to

[137] ORS 223.304(1)(a)(D)

[138] Principles of Water Rates, Fees, and Charges, Seventh Edition, American Water Works Association, Denver, CO, 2017, page 332.

development of the cost basis and because it lays the groundwork for understanding different "charge bases" (discussed later in this section).

System Capacity/Demand Measures

Measures of capacity and demand vary by infrastructure system. At a very high level, water systems must be able to deliver water to users under various demand conditions, so production and delivery facilities are generally designed based on peak water demands. Wastewater and stormwater facilities need to be able to collect and treat wastewater or stormwater discharges from users consistent with standards established by regulatory permits, so capacity and demand measures may relate to both user wastewater flows and strengths. Demand for parks is measured by people, as potential users of parks and service targets generally relate to the desired quantity of facilities per capita and in some cases access measures (e.g., a neighborhood park located within a short walking distance). Transportation systems are designed to accommodate trips of all modes of travel (e.g., auto, bike, pedestrian, transit) generated by businesses and households throughout the week and at peak hours of travel.

Determining Growth Share of Existing Facility Costs

The service needs of existing users are estimated from various data sources and compared to the capacity of existing facilities under the same demand conditions. For example, water system production data can be used to estimate the peak demands of existing users, which is then compared to the peak hydraulic capacity of various facility types (e.g., production, storage, distribution) to determine if and how much capacity is available for growth. Similar processes are used for other infrastructure systems.

Existing facilities are generally assumed to first meet the service requirements of the existing users who have paid for their construction through contribution of user fees, taxes, and other mechanisms. Any capacity beyond existing user needs may then be allocated to growth through the reimbursement SDCs. If existing facility capacity is equal to or less than existing user service requirements, then there is no available capacity for purposes of developing a reimbursement fee, which means that growth needs will be met through future system improvements. Insufficient capacity for existing users also has implications for allocation of SDC project list costs (discussed below), as a portion of planned new capacity costs may remedy existing service deficiencies.

Existing system available capacity is generally evaluated system-wide or by major system function (e.g., water production, transmission, storage). Local approaches reflect system design and other considerations.

Project Cost Allocation for Improvement Fees

There are two conditions that need to be met for SDC project list costs to be eligible for improvement fee funding: 1) the improvement expands capacity, and 2) the capacity is needed to meet the service demands of future system users. Related to the first condition, the statutes clarify that improvements are considered capacity increasing if they provide new facilities (e.g., new pump stations, parks, roads, etc.) or if they increase the level of performance or service provided by existing facilities (e.g., new technologies that provide a higher level of water or wastewater treatment, park amenities that expand the number of users that may be served, etc.).

As mentioned previously, determining what portion of new capacity costs may equitably be allocated to future system users depends on the amount of capacity needed to meet their service demands (as determined by the service delivery targets and growth projections) and whether any of the new capacity costs are related to addressing existing users service needs (either by addressing existing system deficiencies or by replacing existing facility capacity serving existing users). Again, these are generally technical decisions that can be evaluated based on information developed as part of the system plans (upstream of the SDC methodology development). However, there may be some methodological variations to apportioning costs for dual purpose improvements which may influence improvement SDC fee level.

For example, if an 8" pipe that currently serves existing system users has to be replaced by a 12" pipe to accommodate the additional service demands of future users, the share of the cost for the 12" pipe that is attributable to growth could be based on the share of future flow from future users vs. existing users, the incremental cost of installing a 12" pipe vs. replacing an 8" pipe (if the pipe is nearing the end of its useful life anyway), or the cost of a new 8" pipe (the minimum pipe size that would be required to serve future development from a separate stand-alone pipe if the original pipe is still well within its useful life and would not require replacement within the planning period but for the need for additional capacity). These different approaches can result in different growth-attributable shares of project costs.

Assumptions Related to Other Funding Sources

Future Funding Assumptions for Improvement Fees

As discussed in 3.2.1, local governments generally exclude planned improvement costs earmarked for other known sources of funding (e.g., GO bonds). However, detailed information on other funding sources like grants or developer contributions may not be available years in advance of the planned project construction. Therefore, local jurisdictions may make assumptions about other potential funding sources based on past experience (which may vary across jurisdictions), or they may assume that SDCs will cover any local match that is required for grant funding. Reductions to the cost basis for other funding sources may lead to variations in SDCs, particularly if large, high-cost projects (e.g., major road improvements, aquatic centers, new water or wastewater treatment facilities, etc.) are assumed to be funded by non-SDC revenues.

Past Funding Sources for Reimbursement Fees

As mentioned in 1.2.2, reimbursement fees must consider gifts or grants from federal or state government or private persons (i.e., these are excluded from the SDC cost basis). Therefore, local governments whose existing facilities were funded with significant support from state or federal agencies or developers, may have relatively lower fee levels than those who have had to rely more heavily on local government sources.

Assumptions About Use and Costs of Debt Financing

Assumptions about long-term debt financing may also impact the SDC levels across jurisdictions. SDC revenue may be used for repayment of indebtedness;[139] therefore, some local

[139] ORS 223.307

governments include both financing and construction costs in the cost basis for the SDCs, while other may exclude debt-funded facilities from the SDCs altogether. In other cases, the reimbursement fee cost basis may be discounted for outstanding debt principal, or a future looking present value debt service credit may be incorporated into the SDC methodology.

Compliance Costs

SDC revenue may also be spent "on the costs of complying with the provisions of ORS 223.297 to 223.316, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures."[140] This has generally been interpreted to mean that an estimate of these allowed expenditures can be added to the total cost basis of the SDC for calculation purposes.

Many local governments track a broader range of SDC administration costs, including the following which also relate to SDC compliance:

- SDC Fund management.
- Management of project lists (planning, engineering, legal).
- Developer credit calculations and tracking.

Compliance costs are another area where diverse approaches and assumptions lead to differences in overall SDC levels. The types of costs included vary from the most basic (costs associated with developing methodologies and the required annual accounting) to more comprehensive SDC processing and potentially other related costs.

Many local governments include compliance costs in the calculation of the SDC cost basis, and the compliance cost portion of the total SDC generally ranges from 1-5 percent. Other local governments exclude compliance costs from their SDC cost bases altogether. For those service providers who do not add these costs into the SDCs, revenue is either diverted from project costs or funding must come from non-SDC sources.

Charge Basis

Overview

Perhaps the largest and most visible source of methodological variation in SDCs is the choice of charge basis: the specific characteristic(s) of a development used to determine its proportionate impact on an infrastructure system in relationship to the system-specific capacity or demand measures discussed previously. Development size, type, or class (e.g., single family residential, middle housing, apartments, commercial, industrial), and location or context are all potential characteristics that may form the basis for charging SDCs, as summarized in Exhibit 27.

[140] ORS 223.307(5)

Exhibit 27. Common SDC Charge Bases by Infrastructure System
Source: Galardi Rothstein Group and FCS GROUP

System	Capacity/ Demand Measure	Development Size (Scaling Factors)	Development Type (Intensity of Use Factors)	Development Location Factors
Water	Average or peak water volumes	Water meter size, plumbing fixture units, building or dwelling area (square feet), lot size, class-specific characteristics*	Peak water demands or fire protection requirements	Infill vs. greenfield; base vs. upper pressure zones
Sewer	Wastewater flow volumes and pollutant loads	Water meter size, plumbing fixture units, building or dwelling area (square feet), class-specific characteristics*	Wastewater strength concentrations	Infill vs. greenfield
Stormwater	Stormwater quantity and quality	Impervious area, gross area (total lot size)	Water quality factors; run-off coefficients	Infill vs. greenfield
Transportation	Vehicle or person trips	Number of dwelling units, building or dwelling unit area (square feet), class-specific characteristics*	Trip rates and adjustment factors (e.g., trip length, pass-by trips)	Infill vs. greenfield; transit proximity
Parks	Persons or person hours	Number of dwelling units, building or dwelling unit area (square feet)	Persons per household; employees per square feet	Infill vs. greenfield

*Special characteristics specific to a particular land use type or class of service (e.g., number of school students, restaurant seats, vehicle fueling stations, car wash bays, etc.).

Oregon statutes do not prescribe charge bases, with a few exceptions noted in ORS 223.301.[141] Instead, local governments may select approaches that balance data and administrative considerations, and policy objectives. Charge bases have evolved over time to include additional characteristics or factors that allow local governments to promote equity, economic efficiency, and affordability objectives while still maintaining a rate structure that ties fees to impacts. However, along with the greater complexity that results from inclusion of different charge basis factors, the need arises for greater transparency, education, and tools for estimating charges for specific developments.

While the charge basis does not, in theory, impact the total amount of revenue to be collected through SDCs (for any given cost basis) overall, it does impact fee levels and revenue recovery among different development types. Therefore, when comparing SDCs across communities for a particular development typography, different charge bases can result in substantially different SDCs.

Key decisions involved in selecting a charge basis are discussed below.

[141] SDCs may not be charged based on the number of additional employees hired after a specific date without regard to new construction, new development, or new use of an existing structure by the employer or for increased use of a transportation facility that results from the production of marijuana on a property located in an exclusive farm use zone.

Characteristics Used to Scale SDCs Based on Development Size

Development size is an indicator of potential service demands or capacity needs, so an SDC charge basis includes one or more development characteristics used to estimate the potential scale of impact. The same scaling measures may apply uniformly across all development types, as in the case of water meter size or plumbing fixture units used for estimating water and wastewater demands, or the quantity of impervious area (used as an indicator of potential stormwater runoff).

In other cases, scaling measures may be specific to a type or class of development, where local or industry data establish a relationship between a size of a dwelling unit or building for commercial business, and estimated system demand (e.g., water demand, person trips, etc.). The wide range of development sizes makes the importance of scaling particularly acute for commercial and industrial customers. For example, a large, big box retail business would be expected to generate significantly more person trips than a small specialty retail store.

Scaling residential SDCs based on the size of the house (in square feet of living area or number of bedrooms) has become more common practice in in the last decade. Scaled residential SDCs may be implemented for single family and multifamily development individually or applied uniformly to all residential development (regardless of the type of dwelling). A scaling structure can lead to significant differences in SDCs for difference sizes of dwellings, as shown in the three examples in Exhibit 28. The first two examples are tiered approaches applicable to a specific type of dwelling (i.e., single family or multifamily). Example 1 tiers are based on the size of the dwelling in square feet (sq. ft.), while Example 2 tiers are based on the number of bedrooms in the dwelling.

Exhibit 28. Sample Scaled Residential Parks SDC Structures

Sources: Galardi Rothstein Group, using data from Tualatin Hills Parks and Recreation Department, 2021/22 SDC Fee Schedule, City of Bend Systems Development Charges July 1, 2022–June 30, 2023 (pg. 5), City of Eugene SDC Methodologies (Table 7)

Example	Agency and SDC Category	SDC
1.	**Tualatin Hills Park and Recreation District Single-Family SDCs per Dwelling Unit (Districtwide)**	
	Tiered (Square Feet Category) Basis	
	<1,500 sq. ft.	$9,088
	1,500-2,500 sq. ft.	$10,717
	2,501-3,500 sq. ft.	$12,217
	>3,500 sq. ft.	$13,075
2.	**Bend Park and Recreation District Multifamily Parks SDCs per Dwelling Unit**	
	Tiered (Bedroom Category) Basis	
	0 Bedroom	$4,207
	1 Bedroom	$4,636
	2 Bedroom	$7,517
	3+ Bedroom	$9,738
3.	**City of Eugene Residential Sewer SDCs**	
	Base SDC per Dwelling Unit	$485.63
	Scaled SDC per sq. ft. Living Area	$0.1177

Exhibit 28 also provides an example of an alternative scaling approach that is applicable to all residential housing (single and multifamily alike). Rather than charging a flat rate per dwelling unit within a defined tier, each additional square foot of living area is charged an additional fee on top of a base amount applied to each dwelling unit based on a regression analysis.

Intensity of Use Factors That Differentiate SDCs Based on Development Type

In addition to development size, the type of land use or class of service may be a factor in estimating system demand.

For residential development, dwelling type (e.g., single family, duplex, apartment) is a common charge basis, particularly for systems where demand for service is measured directly by people (like parks), as the average number of occupants generally differ and may be estimated for local areas based on readily available U.S. census data. Differences in the number of occupants also may drive differences in demand for other infrastructure systems such as water, wastewater, and transportation systems, where local utility billing data and national trip generation surveys show differences in average demands by dwelling type.

Single family and multifamily dwelling types are the most common factor for differentiating SDCs. However, as zoning regulations continue to evolve across the state to support a broader diversity of housing types and configurations, consideration is often given to pricing SDCs for smaller and more affordable dwelling types, based on estimated system demands and policy objectives. Examples of other dwelling types include:

- Accessory Dwelling Units (ADUs) – This practice of charging reduced SDCs for ADUs is theoretically consistent with data from a 2014 ADU survey conducted by the Oregon Department of Environmental Quality (DEQ). The DEQ survey found average occupancy of all ADUs was 1.45 persons per household, which is generally significantly lower than the average occupancy for a single-family home.
- Middle housing – As a result of House Bill 2001, cities with population over 25,000 must allow development of up to four dwelling units on properties previously restricted to single-family housing. As the density of housing increases, system demands per dwelling unit also tend to decrease (relative to single-family housing) due to lower average occupancy and smaller lot sizes which may reduce stormwater runoff and water use per unit.
- Other housing types – As with middle housing, consideration of specific demands per unit for manufactured housing, cottage cluster, and tiny homes may also be considered as more data becomes available to evaluate relative occupancy rates and system-specific demands.

As with dwelling type, the intensity of system use/demand may vary greatly across different nonresidential (commercial, industrial, and institutional) development types. Many communities charge different transportation SDCs per 1,000 sq. ft. of building area for dozens of different nonresidential development types, reflecting national data on trip generation. For example, surveys indicate that an average convenience market generates significantly more trips per 1,000 sq. ft. of building size than a small specialty retail store. Similarly, some

communities differentiate water and wastewater SDCs for different classes of nonresidential development based on volume or wastewater strength factors. For example, a restaurant generally is assumed to demand more water/discharge more wastewater volume (and pollutant loads) per 1,000 sq. ft., compared to an office building.

For parks, intensity of use considerations impact both the allocation of growth-related costs between residential and commercial development and the SDC per 1,000 sq. ft. for different nonresidential development types. On average, a resident is assumed to have a higher potential park use than a business employee based on some limited survey data and theoretical estimates that take into accounts the hours per week available for park use. The number of employees per 1,000 sq. ft. of building area also differs among nonresidential development classes, which further forms the basis for charging SDCs in many communities.

Other intensity of use factors that may help establish different SDCs by type of development include seasonal variations in water use (i.e., peak water demands), stormwater quality, and transportation trip characteristics (like trip length and pass-by trip adjustments).

SDC Differentials Based on Development Location or Context

Development location is often considered in three contexts that can drive differences in cost of service or capacity needs: 1) infill vs. greenfield areas, 2) areas requiring specialized facilities (e.g., upper water pressure zones that require storage and pumping facilities), and 3) development context (considerations around density, mixed use developments and proximity to transit may impact service demands). Location-based overlay SDCs are relatively common in greenfield areas (e.g., City of Hillsboro) or in areas of major redevelopment (e.g., City of Portland Transportation SDCs). Accessibility to public transit—as in the case of transit corridors—may have a measurable impact on the cost of providing transportation system infrastructure in urban settings, so may be reflected in the SDC charge basis and lead to significant fee levels across jurisdictions.

3.2.3 Rate-Setting: Implementing a Reduced SDC

In addition to methodological and cost differences, some local governments choose to implement SDCs at levels lower than the calculated amounts. Implementing an SDC that is less than what is calculated in the methodology is an approach that is technically and legally simple, however, it sets up a situation where the SDCs are lower than required to fund the growth-related costs. Choosing a lower SDC requires no findings or justification, though many local governments will articulate a basis for the charges in the implementing resolution.

Implementing a lower SDC typically takes one of two forms. The simple form is implementation of the SDC at the desired level (i.e., some percentage of the calculated SDC). The more nuanced form is a multi-year phase-in schedule that may (or may not) terminate at the calculated SDC. This approach provides an initial concession to developers that may have planned projects in the pipeline.

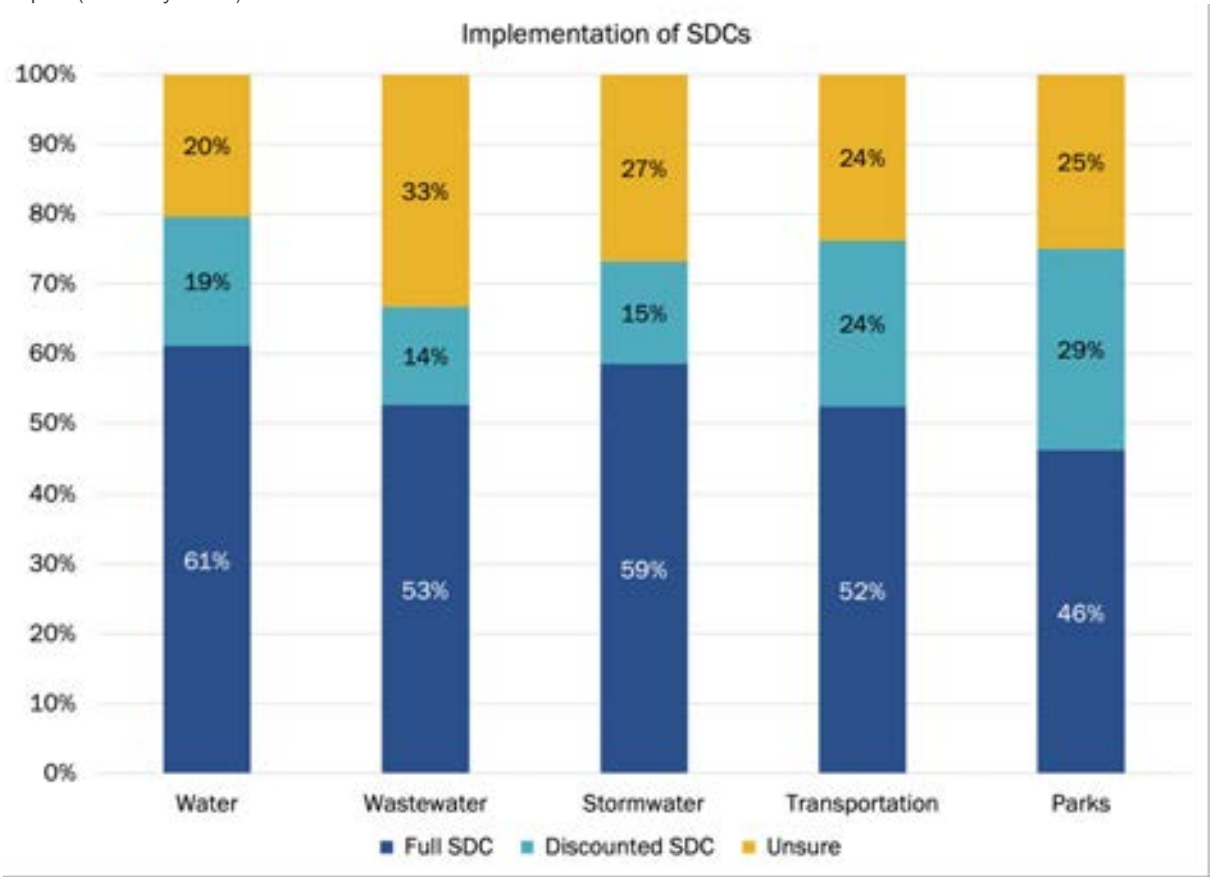
This is reflected in the *Oregon SDC Study: Summary of Service Providers* (Appendix A). Many communities noted charging less than the full amount justified in their methodology, generally

because of local elected officials' desire to remain competitive for development relative to other nearby communities, or because of concerns about the impact on housing costs and affordability. Other communities noted using phase-in periods when a change in methodology would lead to a notably higher rate. (As noted above, other jurisdictions adjust their SDC-eligible project list to achieve a lower cost basis and lower SDC rate instead.)

The LOC recently added questions on this subject to its annual SDC survey, asking whether the city adopted an SDC that was less than what was calculated in the methodology for each infrastructure system. As shown in Exhibit 29, a majority of cities report implementing the full SDC for most infrastructure systems, but 14 percent reported discounting a wastewater SDC, and 29 percent reported implementing a discounted parks SDC.[142]

Exhibit 29. SDC Discounting Among Survey Respondents

Source: FCS GROUP and ECONorthwest using data from League of Oregon Cities, System Development Charges Survey Report (February 2020)



[142] FCS GROUP analysis of data from League of Oregon Cities, System Development Charges Survey Report (February 2020). The possible responses were "yes," "no," and "unsure."

3.2.4 Underlying Cost Drivers

Cost of Capital Improvements

Regional Cost Differences

While national and even international factors impact the costs of material and supplies, regional cost differences may impact infrastructure costs and SDC levels across the state. Regional cost factors may include the following:

- Rural areas may have less access to labor and supplies, particularly during busy construction periods, which may drive-up project costs. This is particularly acute in areas where limitations in affordable workforce housing further limit the pool of local contractors.
- Land values vary significantly.
- Differences in geology impact costs of grading and excavation.

The rising cost of labor has created upward pressure on project costs for all types of projects throughout the state. However, Central and Eastern Oregon seem to be impacted disproportionately because of a shortage of local contractors. This shortage limits the number of bids received for a project, and the limited number bidding contractors increases the pricing power of those who do bid.

Infrastructure-Specific Cost Drivers

Different kinds of infrastructure projects incur different kinds of costs, and different kinds of costs are subject to different market forces. Examples of specific cost factors by infrastructure system include:

- Pipe is a major cost driver of water, wastewater, and stormwater projects, and the cost of pipe has risen dramatically in recent years.[143]
- Land is a significant cost factor for many park and transportation infrastructure projects, and land values in many areas have risen substantially more than construction cost indices in some years.[144]

Beyond the costs of materials and land, infrastructure systems may be impacted by varying types of regulatory requirements that result in more costly facility designs (e.g., seismic resiliency standards and water and wastewater treatment requirements).

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[143] According to data reported by the Bureau of Labor Statistics the producer price index for plastic construction products (primarily, PVC pipe) increased almost 30 percent in 2021 (January to December).

[144] For example, in 2017, data from the Washington County Assessor's office (within the Tualatin Hills Park and Recreation District) showed an increase in vacant land value of 19.54 percent, compared to the ENR CCI increase of 2.15 percent. Similarly, data from Deschutes County Assessor's Office showed an increase in land values of 18.06 percent over the 12-month period ending December 2021, which was significantly higher than the ENR 20-city CCI of 7.36 percent.

For water SDCs, securing new and expanded sources of supply are a significant cost component in most SDC project lists. Available water sources vary significantly across the state and the cost of developing new sources vary based on the type, location, and other factors.

Cost Escalation and Timing of Indexing Rates

As described in Section 2.1.2, construction costs have escalated rapidly in the past two years as measured by the ENR Construction Cost Index (CCI) (both the 20-city average and Seattle indices). Many local governments use one of these indices to adjust their SDCs each year in accordance with statute. However, these increases may not yet be incorporated into the SDCs shown in Appendix D, as many cities adjust SDCs annually, but the timing of updates and the timeframes used to calculate the index vary.

Service Delivery Structure

SDC variations across the state may reflect differences in service delivery due to economies of scale for different types of service providers. The cost of producing a gallon of water or treating a gallon of wastewater may be less for large regional utilities compared to single-utility service providers.

Part 4: SDCs and Housing Costs

Primary Contributors: ECONorthwest

4.1 Overview

Part 4 of the report focuses on the relationship between SDCs and housing costs, including:

- How and to what extent SDC costs are passed on to housing consumers, and which other entities absorb those costs ("**SDC cost incidence**").
- How **SDC costs compare to other costs of housing development**, including land, labor, and materials for construction, permitting, and development review costs, carrying and financing costs, cost of building on-site infrastructure (where applicable), etc., and how this varies for different types of housing.
- How and to what extent **SDC costs affect overall housing costs** and the **housing options** delivered by the private market, including **differential impacts** for housing at different sizes and price points.
- How SDC cost incidence varies for **market-rate and affordable housing** development.

The findings in Part 4 draw on a combination of published literature (both theoretical and empirical studies); case studies of housing development under varying SDC rate structures; analysis of a range of hypothetical housing developments across different market conditions to show how SDCs impact housing types differently; and interviews with housing developers and homebuilders with experience building housing across Oregon, including single-family homebuilders and multifamily developers working in different market niches, and developers of affordable housing.

4.1.1 How SDCs Affect Development Outcomes: Overview

SDCs affect development outcomes in two primary ways:

- SDCs fund infrastructure that is needed to support growth, which can add value to development, or make development possible in newly developing areas or areas without sufficient infrastructure.
- SDCs are a cost imposed on development, which increases the cost of building new housing.

Both factors can influence housing costs and housing production. Section 2.2 addressed the value and benefits of SDCs to development. Sections 4.2 to 4.5 address SDCs as a cost that impacts housing development.

4.2 SDCs as a Cost in Housing Development: Conceptual Framework

4.2.1 Introduction

Who Pays? An Introduction to Cost Incidence

SDCs are one cost among many that developers typically pay as part of building housing. Like the other costs of housing development (e.g., land, construction labor and materials, design fees, financing costs, etc.), these costs are typically paid by developers initially and factored into their financial decisions. Although developers initially pay SDCs, they can recoup at least a part of the cost by passing on the cost to others involved in the housing development process or transactions. Thus, it is important to ask not only who pays SDCs, but who ultimately incurs the cost. This economic concept is referred to as **cost incidence**. Cost incidence describes who ultimately incurs the cost, which can be split among parties, or incurred entirely by one party.

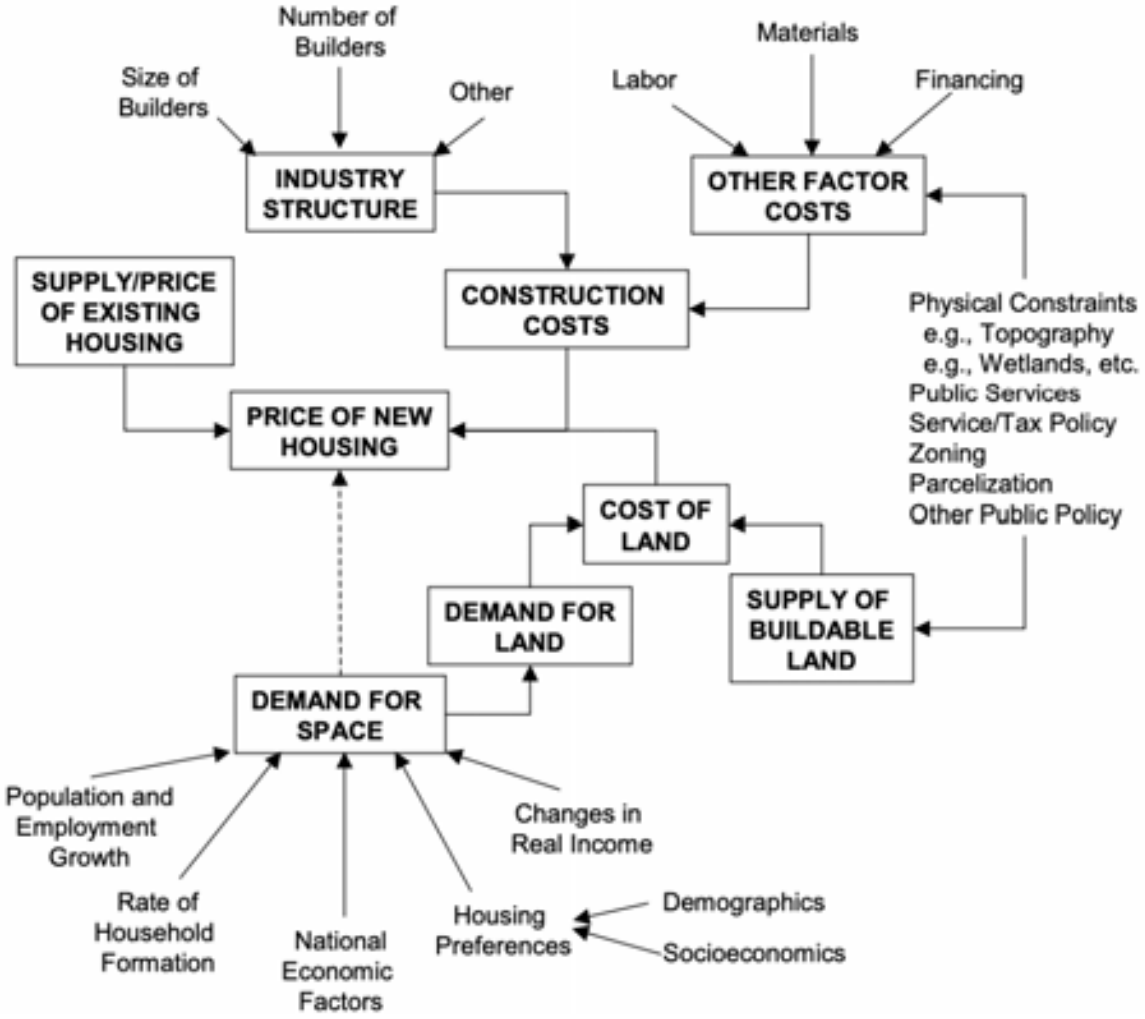
Housing Development 101

Understanding cost incidence in housing markets requires an understanding of housing development. Market-rate housing development is a business, and, like other businesses, must generate a financial return to operate. Generally, market-rate development will not occur unless the expected revenues from the project exceed the expected costs by a sufficient margin to create financial returns for developers, lenders, and investors that justify the risk of their investment. Developers must identify sites and development products that they expect to be financially feasible.

SDCs are one of many costs that developers take into consideration when determining whether a project is feasible, which is part of a broader decision-making process that considers density, location, design, and market conditions along with development costs. Exhibit 30 illustrates the different factors that feed into overall housing cost and price. SDCs are one of many jurisdictional policies and practices that affect development costs, including: speed and complexity of permitting; zoning regulations; and other direct costs such as permit fees and construction excise taxes. Developers often have an estimate of their SDC costs prior to securing land and financing, but the accuracy of this estimate can vary with the timing of the land purchase, the complexity of the development, and how much SDC rates change during the pre-development period. Developers need to weigh SDCs and other cost inputs against the sales prices or rents they are expecting to achieve on each project. Because SDCs costs are outside the developers' control, they must make choices about other aspects of the development to bring total costs and prices or rents into alignment.

Exhibit 30. Detailed Model of Housing Cost and Price

Source: ECONorthwest, originally published in "Cost Components of Housing"[145]



For affordable housing developers, whose revenues are constrained to keep rents or sales prices affordable at specific income levels, and who are often (though not always) nonprofit organizations, SDCs are also one cost among many that must be covered either by the project's limited revenues or by other sources to cover any funding gaps. As with market-rate development, affordable housing developers must find ways to balance their costs against their combined revenues and subsidies, but their options are more limited. When costs are too high, they may modify the project to reduce costs, seek out additional sources of subsidy (though these are often competitive and higher per-unit costs can make projects less likely to receive the funding they need to move forward), or, in limited cases, adjust the targeted affordability levels to the extent that the funding sources allow.

[145] Nick Meltzer, Bob Parker, Rebecca Lewis & Sadie DiNatale, University of Oregon, Memorandum to HB 4079 Rulemaking Advisory Committee (RAC), October 20, 2016, page 3.

Other Drivers of Housing Costs and Affordability

As illustrated in Exhibit 30, the prices that consumers experience in the housing market are a function of both supply and demand factors. There is strong evidence whether and to what extent housing production keeps up with demand has a pronounced effect on the pace of housing price and rent increases.[146] The cost to build new housing affects both the minimum sale price or rent that is required to make development feasible and the amount of housing entering the market. SDCs, as one among many factors that influence the cost of producing housing, play a role in broader market factors that determine home prices and rents.

4.2.2 Economic Theory on Cost Incidence of SDCs

Economic theory on impact fees suggests that impact fees "shift the burden of financing new infrastructure from the community at large to the owners of developable land, developers, or buyers of new homes."[147] Landowners may receive lower offers for their land, developers and their investors may receive lower financial returns, and/or homebuyers and renters would either pay more for housing or receive lower-quality housing.

How additional costs or taxes are distributed among buyers and sellers depends on each party's relative sensitivity to prices. Economic theory suggests the party with fewer alternatives is less sensitive to change in price and would bear a greater portion of costs (absorb more of the costs) when additional costs are incurred. For example, the incidence is higher for consumers on tobacco and gas purchases when taxes increase because they have few substitutes (choices), while the producers bear less of the increased costs because they can find new customers and markets.[148, 149]

Similarly, the theoretical impacts of SDCs can be understood in terms of alternatives and price sensitivity. Whether and by how much developers can pass on the cost of SDCs depends on market contexts.

- Because land's location is fixed, **landowners** have few alternatives other than waiting for new offers from developers or policy changes that would improve the value of the land. The cost incidence for landowners depends on the availability of other developable land within the same market and how much SDCs vary between comparable pieces of

[146] See, for example, Up for Growth, "Housing Underproduction in Oregon," January 28, 2019; Jared Bernstein et al, "Alleviating Supply Constraints in the Housing Market," *The White House Council of Economic Advisers*, September 1, 2021 (https://www.whitehouse.gov/cea/written-materials/2021/09/01/alleviating-supply-constraints-in-the-housing-market/); and Josh Lehner, "Construction, Housing Supply, and Affordability," *Oregon Office of Economic Analysis: Oregon Economic News, Analysis and Outlook*, February 15, 2022 (https://oregoneconomicanalysis.com/2022/02/15/construction-housing-supply-and-affordability).

[147] Forrest E. Huffman, Arthur Nelson, Marc Smith, and Michael A. Stegman. 1988. "Who Bears the Burden of Development Impact Fees?" *Journal of American Planning Association*, 54(1): 49-55.

[148] William N. Evans, Jeane S. Ringle, and Diana Stech. (1999). "Tobacco Taxes and Public Policy to Discourage Smoking." *Tax Policy and the Economy* 13, 1-56.

[149] Joseph J. Doyle and Krislert Samphantharak. (2008). "$2.00 Gas! Studying the effects of a gas tax moratorium." *Journal of Public Economic* 92, 869-884.

developable land. If developers have factored SDCs into their land budgets (the price they are willing to pay for land) before they acquire a property, it will constrain the price landowners are able to obtain for their land. So, landowners who sell at a lower price than similar locations with lower SDCs, are bearing some of the cost. Alternatively, they may choose not to sell.

- **Homebuyers and renters** are generally tied to a given regional housing market and sometimes to a specific submarket within the region based on employment, ties to family members or a school district, or other factors.
  - In tighter housing markets (or "sellers' markets"[150]), homebuyers and renters have fewer housing options; theory suggests they would bear a greater share of costs when there is strong competition for limited housing units. For example, in exclusive or highly desirable communities within a metropolitan area, studies show that the strength of the competition would allow developers to pass on more of the added costs.[151]
  - In communities with many similar options for new housing, the cost incidence is expected to be lower for homebuyers because they have many choices within a reasonable distance. Studies show this pattern in communities around a dense metropolitan area where households would be willing to consider housing in multiple nearby cities.[152]
- **Investors, lenders, and developers** are unlikely to absorb SDCs by accepting lower returns except in very usual circumstances or when SDC costs increase unexpectedly during development and cannot be passed on to others. Investors and lenders usually have other options to invest in across multiple markets and will avoid areas that generate lower risk-adjusted returns. Studies show that **developers** are less likely to absorb added costs in lightly regulated, fast-growing cities where they can quickly adjust their business strategies to target different housing markets.[153] However, developers are less likely to pass on the cost in more competitive markets with many developers and few development opportunities. When they are not able to achieve the expected prices or rents and financial returns fall below the expected rates, the developers absorb some of the cost of SDCs (as well as all a share of the other costs).

[150] Market where there are very few options for new housing relative to strong preferences and ability to pay for them.

[151] Huffman, Nelson, Smith, and Stegman.

[152] Richard K. Green, Stephen Malpezzi, and Stephen K. Mayo. 2005. "Metropolitan-Specific Estimates of the Price Elasticity of Supply of Housing, and Their Sources." *American Economic Review*, 95(2): 334-339.

[153] Greem, Malpezzi, and Mayo.

4.2.3 How SDCs Affect Development Decisions

Overview

Developers may balance costs and revenues in a variety of ways to adjust to the cost of SDCs, as described below. Which of these options are viable and which are most likely depends on timing, market conditions, and other factors, as summarized below. (As a reminder, this discussion focuses on how the cost of SDCs affects development decisions, while Section 2.2 discusses ways that the infrastructure funded by SDCs affects development.)

Exhibit 31. Summary of Potential Developer Actions to Cover the Cost of SDCs
Source: ECONorthwest

Developer Action	Limitations and Consequences
Seeking lower-cost land to build on or negotiating a lower price with the landowner	If SDCs are known early in the development process so that a developer can negotiate for a lower land price, and if there are many options for developable land, the cost incidence is likely to be greater for the landowners who would accept a lower price. Other landowners may not accept a lower price, choosing to hold off on selling their land, and absorbing some of the influence of higher SDCs through the delay. If land is already acquired or cannot be negotiated further, a lower land price is no longer an option.[154]
Seeking efficiencies on design and construction to lower cost Adjusting unit size, finishes, and/or amenities to command higher sales prices or rents Raising the asking prices or rents	If SDCs are known before the housing design and finishes are determined or finalized, developers may choose to build smaller units, limit some aesthetic features or amenities, or use lower-cost building materials or processes (which could increase operating or maintenance costs over time). However, cost-saving decisions need to be balanced with households' demand for quality. Alternatively, developers can build larger units (for single-family homes), use higher quality products, or add amenities to justify higher prices and rents that can cover the cost of added features along with the cost of higher SDCs. The cost-saving approach could marginally increase the housing supply for lower-income households, while the quality-enhancing approach could marginally increase the housing supply for higher-income households. In both cases that change the value proposition, the cost incidence would fall, at least in part, on housing consumers, through lower value for their money or less availability of lower-cost housing options. Raising the asking price or rent for the finished housing without changing the design or features—which passes costs more directly to housing consumers—is a viable option only if there is sufficient demand among buyers and renters

[154] Understanding cost incidence of SDCs within a land transaction is complicated by various business models and landownerships that exist. A vertically integrated developer that is also a long-term landowner would bear a greater portion of SDCs (at least within the context of land transactions) since SDCs would not be incurred until well after land acquisition. Business models that specialize in taking undeveloped land and making them "ready for development" by obtaining regulatory approvals (e.g., for new uses and lot divisions) could incur a relatively smaller cost incidence even in a market with many buildable lands because their "development-ready" lands offer more valuable and rare opportunities for developers.

Developer Action	Limitations and Consequences
	of newly constructed housing, compared to supply that lower-cost options are not readily available.
Lowering expectations for financial returns	Because developers and investors will typically not pursue a development project if expected financial returns do not meet a particular threshold that justifies the risk of the investment, there are limited situations where SDCs will translate to lower return expectations. This is particularly true for investors and lenders who operate nationally—if one area offers lower risk-adjusted returns than other market areas, they will tend to place funds in areas that offer higher returns relative to their risks. However, SDCs can impact financial returns for market-rate housing development when they are significantly different than initial expectations. Most developers allow for some contingency funds to absorb unexpected cost increases because there is uncertainty in development and costs and revenues are often different from what is projected. However, once development is underway, developers have fewer options for adjustments to bring revenues and costs in line. Thus, when costs (including SDCs) unexpectedly increase during a project, developers must absorb those costs or make adjustments elsewhere if they still can. If unexpected cost increases are attributable to a policy choice by a public agency or local government, it can erode trust in that public agency, impact the feasibility of subsequent phases of development, and in some cases make developers less likely to build in that jurisdiction in the future.
Delaying or abandoning the development	If developers are not able to balance the costs and revenues, the development may not move forward, or may be put on hold. If higher SDCs result in less or slower housing production, pushing up the overall price of housing due to a supply/demand imbalance, its undesirable impact would be shared among all prospective buyers and renters of housing, new or existing, while existing homeowners would benefit from the higher housing prices.

Findings From Developer Interviews

As captured in Appendix B, developers described a range of responses to SDC costs:

- Developers can rarely move a project forward that doesn't meet investor and lender return expectations. If SDCs contribute to making a project financially infeasible, the project will not be able to attract funding to move forward to construction. (See additional discussion in Section 4.3.4.)
- Developers tend to specialize in certain types and forms of housing (e.g., single-family vs. multifamily, mixed-use infill vs. suburban garden apartments), and report that they primarily respond to the market when choosing what to build. SDCs are generally not a major factor in determining what housing type a given developer will build or what market segment they will target (e.g., entry-level vs. luxury homes) except where the difference in SDCs is substantial or where the developer is flexible and the market is similarly strong for multiple housing options. However, developers may adjust their offering at the margins in response to SDCs, such as by building somewhat larger or smaller homes. Over time, if certain housing types or products become easier to build

(e.g., middle housing being authorized in many new areas) and/or more financially viable (e.g., increasing demand for walkable infill development), developers may adjust their business models to respond; SDCs can contribute to (or inhibit) those trends, but they are unlikely to be the sole reason for them.

- Land developers noted that SDCs are factored into homebuilders' pro forma calculations when they purchase lots to build on, which means they can affect the price/value of finished lots. However, some other developers noted that they tend to build on land they have owned for many years, and SDC costs do not factor into the land value or price.
- Many developers and builders report that SDCs are one of several factors when considering where to build. (Others, which can outweigh the importance of SDCs, include market conditions, land costs, and permitting speed/staff responsiveness.) When SDC costs are out of line with market conditions (i.e., achievable rents or sales prices are too low to allow developers to recoup the cost of SDCs), developers may look elsewhere. If there are other options in the area with lower SDC costs and comparable market conditions and land costs, developers may choose those areas instead. However, when there are few good alternatives, developing somewhere else isn't an option. In this situation, developers must find other ways to make development pencil or not pursue development at all.
- Most developers noted that the market determines what prices/rents are possible, but several gave examples where high SDCs caused them to push the upper limits of what the market would accept to achieve feasibility.
- Developers budget for SDCs and may plan for escalation to some extent and/or carry a contingency for increases, but dramatic and unexpected changes to SDCs, or lack of clarity about SDC rates up front, can mean money taken from other parts of the project or more total costs to cover.
- Because rents are fixed based on income for affordable (income-qualified, rent-restricted) housing development, developers of regulated affordable housing do not have the option to pass it on through rents. Costs are generally factored into funding applications to the extent they are known early. Affordable housing developers were more likely to rely on cost-savings and value engineering to balance SDC costs after funding is secured.

4.3 SDC Costs in Context: SDCs as a Share of Development Costs

SDCs are one cost among many that developers typically pay as part of building housing (e.g., land, construction labor and materials, design fees, financing costs, etc.). While most development costs (e.g., raw materials, financing, and specialized labor) are determined by a regional, national, or international markets, SDCs are determined at a local level through a governmental process, and they do not necessarily track other development costs.

To understand what portion of development costs SDCs comprise, ECONorthwest considered several different types of information:

- National data on costs to develop single-family and multifamily housing, including impact fees as one component of costs (Section 4.3.1)
- Oregon SDC rate data (from Section 3.1.1) compared to typical market-rate housing development costs in the state, accounting for variation by housing type and variation in other cost factors across several market areas in the state (Section 4.3.2)
- Data on SDCs and total development costs for example affordable housing developments in Oregon (Section 4.3.3)

4.3.1 National Data on Impact Fees Relative to Housing Costs

The National Association of Home Builders (NAHB) Construction Costs Surveys offer a national summary of impact fees and other development costs for single-family housing. NAHB collected construction cost data from builders since 1998 to understand the trends in various cost components of single-family housing. The breakdown of costs includes finished lot cost, total construction cost, financing cost, overhead and general expenses, marketing cost, and sales commission. Impact fees are itemized as one component of the costs, specifically a component of total construction cost. Impact fees were separated from other development fees, such as building permit fees and water and sewer fees and inspection costs.

The NAHB survey data shows that impact fees alone are a very small portion of total costs for single-family housing at the national level, **0.88 percent** of total costs.[155] Water and sewer fees and inspection costs are about as large. Impact fees as a share of total costs ranged between 0.41 percent and 0.96 percent in past surveys. The average impact fee in 2019 was 1.30 percent of construction costs (which do not include other development costs) and 0.80 percent of average sales price (which includes all development costs and developers' profit margin).

These findings, however, are underestimates of typical SDC share of total costs for three reasons.

[155] Carmel, Ford. *Cost of Constructing a Home*. NAHB Economics and Housing Policy Group. January 2, 2020.

1. The national average amount for impact fees reported in the NAHB survey may not be representative of a true national average. In addition to general issues related to sampling variability with a nonrandom sample, the sample in the NAHB survey would have included communities with and without impact fees. Thus, the calculated estimate is likely weighted downward by many observations of communities without impact fees. In contrast, the average numbers cited elsewhere in this report are averages only of places that charge impact fees.
2. It is unclear which impact fees are included in the self-reported SDC amounts. Some water and sewer impact fees may have been classified by respondents as water and sewer fees and inspection costs (a separate line item in the listed costs), some of which may capture water and sewer impact fees.
3. The estimate for SDC share of total costs is low because the reported average finished area of the home is 2,594 sq. ft., resulting in relatively high total costs. Impact fees would likely account for a larger share of the prices and costs for smaller units, which tend to have lower construction costs on a per-unit basis.

Another survey by NAHB and the National Multifamily Housing County (NMHC) in 2022 contains information on impact fees for multifamily projects. Fees charged when building construction is authorized, which could include impact fees and other fees (e.g., building permit fees), accounted for about **4.4 percent** of total costs across all multifamily properties, on average.[156] This suggests that the impact fee share of total development costs is likely somewhat less than 4.4 percent, on average, though no data is available to disaggregate these costs further to identify the share specifically from impact fees, and the survey included another cost category where impact fees may have been reported, making it more difficult to estimate the share from impact fees specifically. In addition, like the NAHB single-family data, the data behind this national average likely includes projects from communities both with and without impact fees and may be lower as a result.

The two surveys provide reference points on impact fee share of development costs across the U.S., but their limitations make them less useful to understand SDCs as a share of housing development costs in Oregon.

4.3.2 SDCs and Development Costs in Oregon

Data Sources

SDC levels, other development costs, and housing prices vary by housing type and region. There is no centralized data set that allows us to calculate SDCs as a percentage of development costs across a representative sample of completed market-rate housing development projects across Oregon. As a result, to understand the variation in SDC share of total development costs,

[156] Paul Emrath and Caitlin Sugrue Walter. Regulation: 40.6 Percent of the Cost of Multifamily Development. NAHB and NMHC. June 8, 2022.

ECONorthwest compared various SDC amounts to typical development costs across a range of housing types and a range of market conditions in different parts of Oregon.

- **SDC costs** for single-family detached housing referenced in this section are based on the 2022 data collected by FCS GROUP discussed in Section 1.4.1. The average SDC in the data was about $15,050. As described in Section 1.4.1, the estimated typical SDCs for multifamily units are roughly 66 percent of the single-family SDC amount. Due to insufficient data for townhouses, ECONorthwest estimated typical SDCs for townhouses at 90 percent of the single-family SDC amount, based on a review of several examples and the consultant team's professional experience.
- **Construction costs** are based on interviews with housing developers primarily operating in the Portland Metro region and reflect differences based on housing type and unit sizes. They are adjusted for each market area using national publications that provide regional cost indices.[157]
- **Land costs** are based on research of recent land transactions in each market area.

SDCs as a Share of Costs for a Typical Single-Family Dwelling in Oregon

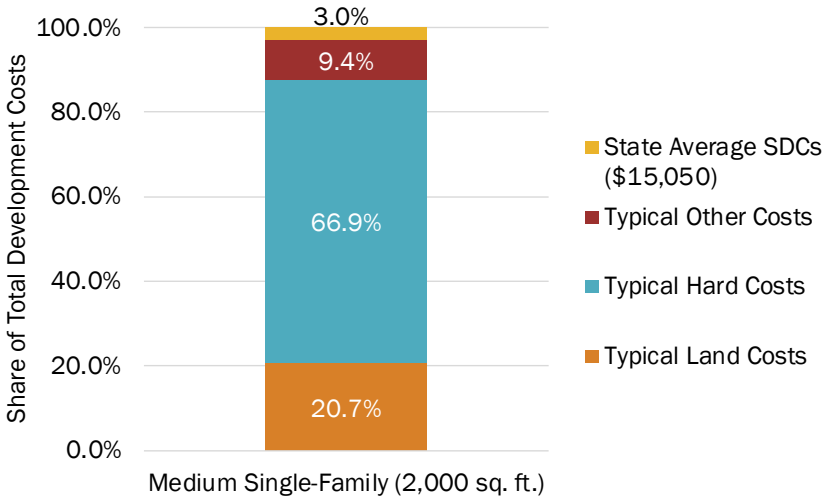
ECONorthwest's analysis suggests that the average SDC rate for single-family housing in Oregon (roughly $15,050 according to the 2022 data by FCS GROUP) would make up about **3.0 percent** of the total development costs of a typical, newly built, medium-sized single-family dwelling in a moderate-cost region in the state (e.g., the mid-Willamette Valley) as shown in Exhibit 32.[158] In comparison, land costs would make up an estimated 20.7 percent of total development costs, construction "hard" costs (labor and materials) about 66.9 percent, and other costs (e.g., financing, permit fees, design and engineering, survey, etc.) about 9.4 percent.

[157] RSMeans City Cost Index and the 2022 National Building Cost Manual, 46th Edition

[158] The example "Medium Single-Family Dwelling" assumes a 2,000 square-foot (sq. ft.) unit, a two-car garage, density of 6.7 units per acre, and development costs of $479,000 per unit, excluding the SDC amount.

Exhibit 32. Components of Development Costs of Medium Single-Family Dwelling in a Moderate-Cost Area

Source: ECONorthwest



Variation in SDC Share of Costs by Housing Type

This section focuses on how SDCs costs would vary as a percentage of total development costs for a variety of housing types, using SDC and cost assumptions that approximate statewide averages. However, costs and specific SDC rates vary by city, and the findings below do not represent all communities.

To demonstrate how the SDC share of total development costs can vary across housing types, ECONorthwest evaluated six different example housing types that are found commonly across much of the state, as shown in Exhibit 33. These housing types illustrate the directional pattern of the relationship between SDCs and other development costs. ECONorthwest approximated typical construction and land costs for these housing types in different parts of the state. Among the housing types included in this analysis, the cost to build each unit tends to be lower for densely built housing types that require less land per unit and tend to have smaller unit sizes.[159] More detail on the example housing types and their typical development costs across markets are available in Appendix F.

[159] This pattern does not apply to high-rise multifamily construction in which higher-density multifamily housing can have higher per-unit costs than lower-density multifamily housing due to higher construction costs associated with materials used for high-rise buildings.

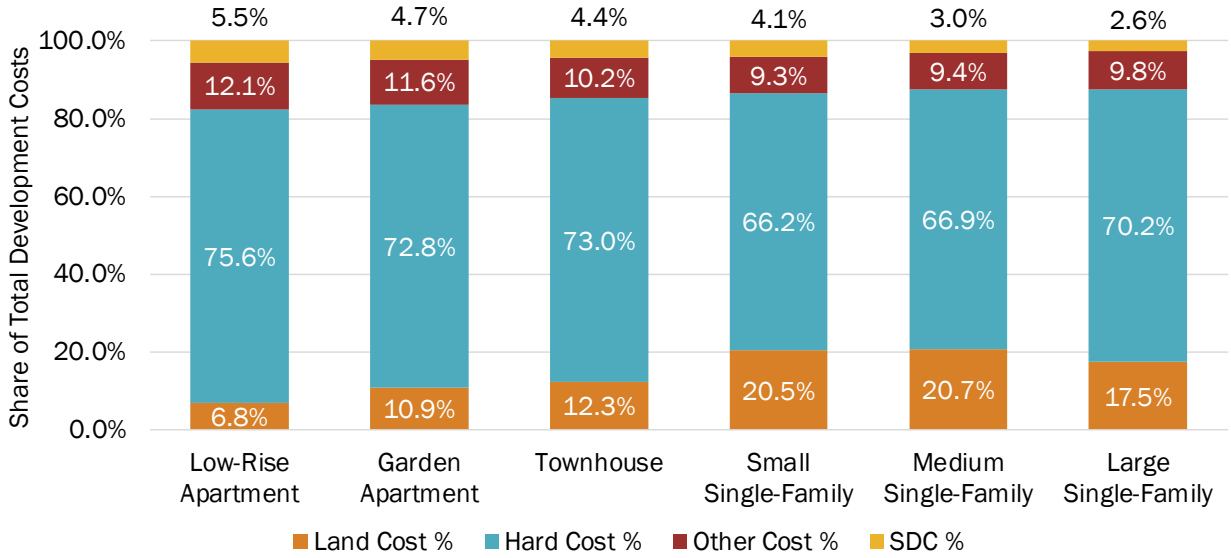
Exhibit 33. Evaluated Example Housing Types
Source: ECONorthwest

Example Housing Type	Building Height (Floors)	Density (Units per Acre)	Average Unit Size (Square Feet)	Parking
Low-Rise Apartment	3	55.0	738	1.0 Stalls per Unit (surface parking)
Garden Apartment	3	30.0	811	1.5 Stalls per Unit (surface parking)
Townhouse	2	18.2	1,500	Single-Car Garage
Small Single-Family	2	9.1	1,550	Single-Car Garage
Medium Single-Family	2	6.7	2,000	Two-Car Garage
Large Single-Family	2	6.7	2,650	Two-Car Garage

Exhibit 34 shows the share of total development costs that a given SDC amount could make up across housing types of different densities. Even with the adjustments to assumed SDC rates to reflect typical differences between single family, multifamily, and townhouse SDCs, **SDCs make up a greater portion of total development costs for housing types with lower per-unit construction costs when they are applied per unit.** For example, for the Low-Rise Apartment housing type—the highest density housing type in Exhibit 34—a $9,933 per unit SDC would make up about 5.5 percent of the total development cost. For the Large Single-Family housing type—the lowest density example—a $15,050 per unit SDC would make up only about 2.6 percent of the total development cost. Thus, SDCs make up a greater portion of more densely built housing types included in the analysis.

Other development costs range from 6.8 percent to 20.7 percent for land costs (a higher share for lower-density housing types), from 66.2 percent to 75.6 percent for hard costs (a higher share for higher-density housing types), and from 9.3 percent to 12.1 percent for other costs (generally higher for higher-density housing types).

Exhibit 34. Components of Development Costs in a Moderate-Cost Area, by Housing Type
Source: ECONorthwest



Notes: Assumes $15,050 per unit SDC for single-family, $13,545 per unit for townhouse, and $9,933 per unit for apartments.

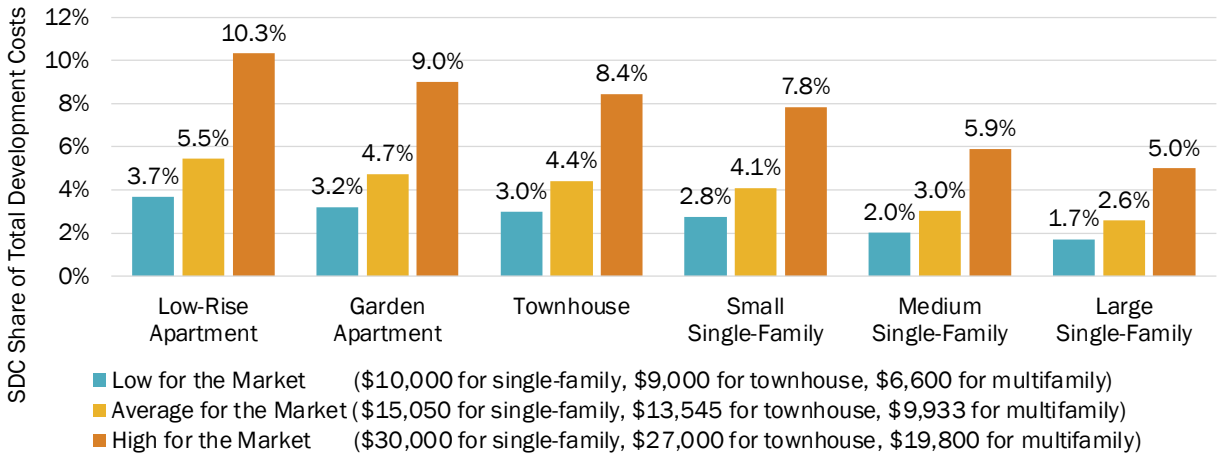
Variation in SDC Amounts in the Same Market

This section addresses how SDCs as a share of total development costs can vary for the same housing type and in the same market when SDCs vary between communities.

A geographic region can share similar market conditions, construction costs, and typical land costs, but different developments could be subject to different SDC rates when there are multiple jurisdictions in the same market or when a given jurisdiction differentiates rates geographically. For example, a city in a moderate-cost area could have an SDC amount close to the state average ($15,050 per single-family unit), but another city in the same area could have an SDC amount that is much lower or higher (e.g., as low as $10,000 or as high as $30,000 per single-family unit, given the observed variation in the FCS GROUP data[160]).

Exhibit 35 illustrates the impact of these variations on the SDC share of total development costs. **The variation in SDC rates across cities within the same general market area means the SDC share of total development costs can also vary widely.** In the example shown in Exhibit 35, the variation can be between 1.7 percent and 5.0 percent for a Large Single-Family housing type and between 3.7 percent and 10.3 percent for a Low-Rise Apartment housing type.

Exhibit 35. SDC Share of Development Costs in a Moderate-Cost Area, By Housing Type, By SDC Amount
Source: ECONorthwest



This illustrative example also shows that the difference in SDC rates has a more pronounced effect on lower-cost housing types. For example, for the Large Single-Family housing type, SDC share of development costs could be 5.0 percent with a high SDC and 2.6 percent with a low SDC. In contrast, for the Low-Rise Apartment housing type, SDCs could be between 3.7 percent and 10.3 percent of development costs.

[160] These SDC amounts are based on the 2022 survey results by FCS GROUP, after further segmenting the data into different market context areas.

Variation in SDC Structure

This section explores the importance of SDC structure. Specifically, it compares SDCs that are applied per unit (adjusted by housing type) to SDCs that are scaled by unit size, as discussed in "Characteristics Used to Scale SDCs Based on Development Size" on page 58.

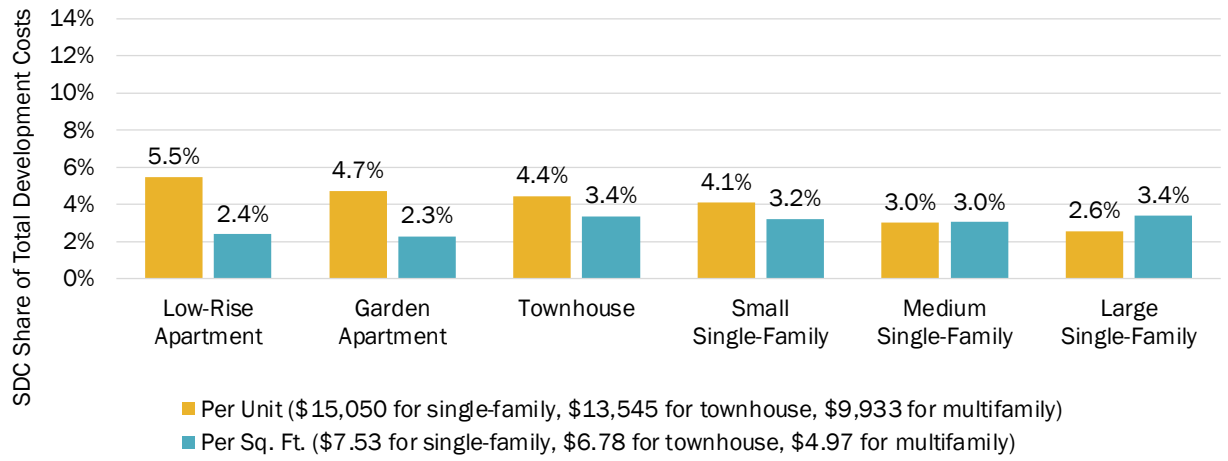
Many SDC rates are applied on a per-unit basis, and their structure partly drives the variations across housing types. When SDCs are applied per-unit, SDCs make up a smaller portion of total costs for housing types with larger unit sizes and higher development costs.

In contrast, applying SDCs per square foot of building area can remove the relationship between density and the share of costs that SDCs make up. (More on the scaling structure is discussed in Section 1.5.3.) Exhibit 36 shows that if SDCs were applied linearly per square foot,[161] it would produce a lower variation in SDC share of costs. Across the housing types, SDCs as a share of development costs could range between 2.3 percent and 3.4 percent with a linear per-square-foot SDC rate.

The per-square-foot SDC rate in Exhibit 36 is selected for illustrative purposes and is calculated by dividing the $15,050 per unit fee by 2,000 sq. ft. unit size of the Medium Single-Family housing type. The rate for Townhouse is 90 percent of the rate for single-family. The rate for Low-Rise Apartment and Garden Apartment is 66 percent of the rate for single-family.

When SDCs are scaled to unit size, the SDC share of development costs is more consistent across housing types. Compared to SDCs that are applied per unit, scaled SDCs result in lower SDC share of development costs for lower-cost housing types with smaller units. This shows that the variation in SDC share of total development costs can depend on not only the housing type but also the SDC structure.

Exhibit 36. Comparison of SDC Structures and SDC Share of Development Costs in a Moderate-Cost Area, by Housing Type
Source: ECONorthwest



[161] It is unlikely that all SDCs would be appropriate to scale in this way, but it is presented here to illustrate the general point about the impact of scaling by unit size compared to fixed per-unit SDC rates.

Variation by Market Context

This section explores how SDC share of development costs can vary between market areas, which have different SDC amounts and different development costs.

To illustrate the variation in SDC share of development costs across the state, ECONorthwest estimated typical development costs in seven parts of the state and compared them to a typical SDC amount in each region. The seven market context areas generalized market and cost conditions based on geography, market factors, and development cost factors. They are broad categories that reflect typical housing prices and construction costs across the cities that fall within each geographic region. The values used for each geographic market are not intended to represent a specific city, and average housing prices and costs vary by city. Rather, the values are representations of likely values observed across many parts of the geographic market. The market context areas are:

1. **Willamette Valley**: Larger cities along Interstate 5, with some similar housing options within a local housing market. Does not include cities in the Portland Metro area.
2. **Small Cities**: Smaller cities along Interstate 5 or remotely located in eastern Oregon. Relatively stagnant growth, lower demand, and lower land costs are observed in comparison to other market context areas.
3. **Coast**: Coastal cities with many vacation rentals and second homes.
4. **Metro Low**: Suburban cities and neighborhoods in the Portland Metro area with moderate demand for new housing and limited production of new housing.
5. **Metro Mid**: Suburban cities and neighborhoods in the Portland Metro area with relatively strong demand for new housing and, sometimes, large tracts of planned developments.
6. **Metro High**: More exclusive neighborhoods in the Portland Metro area with higher prices and relatively few options for new housing.
7. **Cascades**: Cities east of the Willamette Valley that experienced a strong level of housing demand and production in recent years.

For this section of the report, the findings from the analysis of the seven market context areas are summarized into three market types that typify the lower, middle, and upper points of the analyzed markets. A full analysis for all market areas is available in Appendix F. The three market types presented in this section are:

- **Low-Cost Market** that typifies small cities in eastern Oregon with relatively stagnant growth, lower housing demand, and lower land costs in comparison to other markets.
- **Moderate-Cost Market** that typifies large cities along Interstate 5 and south of the Portland Metro area.
- **High-Cost Market** that typifies a subset of suburban cities in the Portland Metro area with strong demand for new housing.

Exhibit 37 shows the typical SDC amounts estimated for each market and for different housing categories.[162] The townhouse SDCs are assumed to be 90 percent of the single-family SDCs, consistent with analysis above. The multifamily SDCs are assumed to be 66 percent of the single-family SDCs, consistent with analysis above.

Exhibit 37. Selected SDC Rates for Analyzed Markets

Source: ECONorthwest

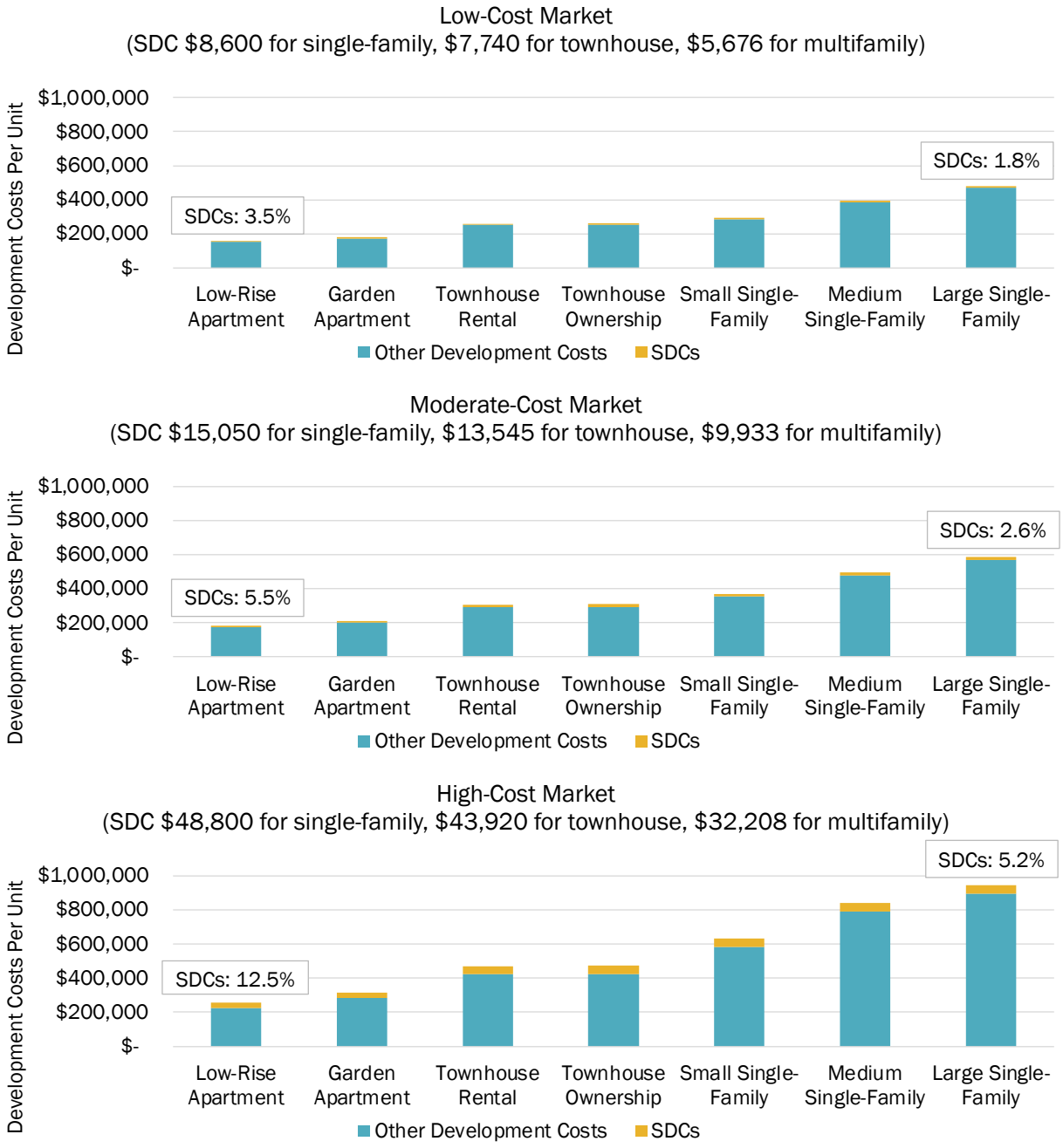
	Low-Cost Market	Moderate-Cost Market	High-Cost Market
Single-Family SDC	$8,600	$15,050	$48,800
Townhouse SDC (90%)	$7,740	$13,545	$43,920
Multifamily SDC (66%)	$5,676	$9,933	$32,208

Exhibit 38 illustrates the findings from analysis. Given the estimated SDCs and other development costs, the analysis shows **the variation in SDC share of total development costs can also depend on the market.**

- SDCs could make up between 1.8 percent of single-family development costs to 3.5 percent of multifamily development costs in Low-Cost Market.
- SDCs could make up between 2.6 percent of single-family development costs to 5.5 percent of multifamily development costs in Moderate-Cost Market.
- SDCs could make up between 5.2 percent of single-family development costs to 12.5 percent of multifamily development costs in High-Cost Market.

[162] The typical SDC amounts in Low-Cost and High-Cost Markets are rounded numbers of the average of reported SDC amounts in the 2022 survey of SDCs by FCS GROUP for cities that typify the market contexts described. The statewide average is used as the typical SDC amount for the Moderate-Cost Market, consistent with all analysis and charts in this section.

Exhibit 38. SDC Share of Development Costs Across Housing Types and Markets
Source: ECONorthwest



4.3.3 SDCs as a Share of Affordable Housing Development Costs

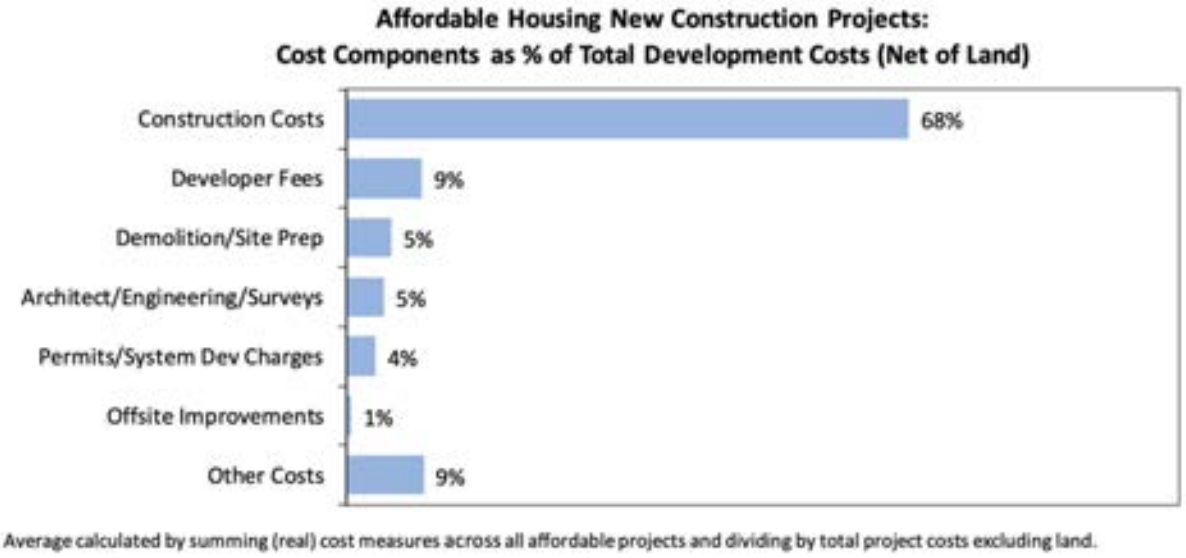
Affordable Housing Costs in Oregon

ECONorthwest reviewed the Affordable Housing Cost Study prepared for OHCS in 2019 to understand the relative cost of SDCs in comparison to other factors in affordable housing development. The report analyzed project cost data from over 200 regulated affordable multifamily housing projects built from 2001-2017, spread throughout urban and rural areas of Oregon with a range of size, unit mix, and total project cost. The study used a regression model

to test the relationship between different variables in affordable housing development and total project costs over this large sample.

In reviewing the breakdown of different cost factors associated with new affordable multifamily development, the report's data combines permit fees with SDCs as a single variable in many cases. This does not allow for differentiation between other types of charges (like planning and building permit fees) but does provide context for their relative importance in construction. Exhibit 39 shows that overall, the permits and SDCs accounted for about 4 percent of development costs (excluding land) on average. The report also notes that as of 2019, SDCs average more than $8,000 per affordable housing unit on average across the state.[163]

Exhibit 39. Breakdown of Affordable Housing Development Costs in Oregon (Excluding Land)
Source: Blue Sky Consulting Group, OHCS Affordable Housing Cost Study



Although permit fees and SDCs were estimated to account for a relatively low share of total costs overall, the study also showed that these costs grew to a greater extent between 2000 and 2017 than any of the other components. Exhibit 40 shows that affordable housing costs associated with permits and SDCs increased by an average 8.9 percent per year, more than twice as much as any other cost category.

[163] Blue Sky Consulting Group, "Affordable Housing Cost Study: Analysis of the Factors That Influence the Cost of Building Affordable Housing in Oregon" (Oregon Housing and Community Services, June 27, 2019).

Exhibit 40. Growth in Cost Components for Affordable Housing Over Time
Source: Blue Sky Consulting Group, OHCS Affordable Housing Cost Study

	Avg Real Cost per Unit*		Change	Change	Annual
	2000-'03	2014-'17	($)	(%)	Pct Change
Construction Costs	116,347	167,277	50,930	44%	2.6%
Developer Fees	14,413	23,927	9,514	66%	3.7%
Demolition/ Site Prep	9,871	13,876	4,005	41%	2.5%
Architect/ Engineering/ Surveys	8,769	10,317	1,548	18%	1.2%
Permits/ System Dev Charges	3,659	12,020	8,361	228%	8.9%
Other Costs	16,902	20,718	3,816	23%	1.5%
TOTAL COSTS NET OF LAND	**169,962**	**248,137**	**78,175**	**46%**	**2.7%**

** Costs represent 4-year moving average and are converted to real (2019) dollars using CPI.*

The report evaluates a range of possible cost factors influencing the cost of affordable housing development. A regression analysis suggested that the key factors that drive development costs for affordable multifamily housing include:[164]

- **Project characteristics** including type and size, as larger buildings and units tend to drive up costs.
- **Local factors** like community opposition and low availability of labor, which can result in expenses for additional public meetings and competitive wages.
- **Economies of scale,** which can reduce the cost per unit, but are effectively limited for certain projects based on the cap on the amount of Low Income Housing Tax Credits (LIHTC) available.
- **Building quality and durability** can increase costs for high quality developments but can lower ongoing maintenance and repair costs.
- **Land costs,** which varied across the state and by local census tract characteristics like income level and population density.

This list does not call out local fees explicitly, though they may be encompassed within "local factors." While this might suggest that SDCs are not a major driver of affordable housing development costs in Oregon compared to all the other factors evaluated, the report does call out the pace of increases as a key finding.

Case Study: SDCs Paid by Affordable Housing Development in Hillsboro

ECONorthwest summarized the amount that affordable housing developments in the City of Hillsboro have paid in SDCs over the past 10 years in a memorandum to the City of Hillsboro as part of their consideration of SDC exemptions.[165] The City does not offer SDC exemptions today,

[164] Blue Sky Consulting Group, "Affordable Housing Cost Study: Analysis of the Factors That Influence the Cost of Building Affordable Housing in Oregon" (Oregon Housing and Community Services, June 27, 2019).

[165] ECONorthwest, "Progress Report of Hillsboro Affordable Housing Tools and Evaluation of Additional Tools," prepared for the City of Hillsboro, April 12, 2022.

nor do Washington County or Clean Water Services (CWS), which also charge SDCs for projects in Hillsboro.

Exhibit 41: SDCs for Recent Affordable Housing Developments in Hillsboro
Source: ECONorthwest summary based on data provided by the City of Hillsboro; OHCS[166,167]

	Willow Creek Crossing	Orchards at Orenco II	Orchards at Orenco III	Alma Gardens	Nueva Esperanza	Total
Year Funded	2018	2015	2017	2013	2022	
Units	120	58	52	45	150	425
Parks SDC (City of Hillsboro)	$644,410	$258,158	$267,748	$175,950	$958,800	$2,305,066
Water SDCs (City of Hillsboro)	$0	$54,430	$55,350	$45,380	$88,280	$243,440
Sewer & Stormwater SDCs (CWS)	$663,084	$289,282	$283,104	$212,150	$912,750	$2,360,370
TDT (Washington County)	$663,960	$304,906	$281,580	$94,365	$944,400	$2,289,211
SDC total	**$1,971,454**	**$906,776**	**$887,782**	**$527,845**	**$2,904,230**	**$7,198,087**
Total SDCs per Unit	$16,429	$15,634	$17,073	$11,730	$19,362	$16,937
Total Development Costs	$31,523,563	$13,547,334	$14,860,640	$9,273,520	$53,954,156	$123,159,213
SDCs as a % of Total Development Costs	**6.3%**	**6.7%**	**6.0%**	**5.7%**	**5.4%**	**5.8%**

In total, over $7 million of affordable housing funding has gone towards SDCs over the past 10 years for projects within the City of Hillsboro alone. This represents **nearly 6 percent of the total development costs** on average.

Note that these example projects are located outside the South Hillsboro area, which has additional area-specific SDCs. Apartment projects located in South Hillsboro, including affordable housing development, are subject to over $17,800 in additional SDCs (as of 2022).[168] Using Nueva Esperanza as an example, since it is currently under construction, the total SDC cost if it had been located in South Hillsboro would have been over $5.5 million, or over $37,000

[166] Oregon Housing and Community Services, https://www.oregon.gov/ohcs/development/Documents/applicants-recipients/4-percent-lihtc-affordable-housing.pdf

[167] Oregon Housing and Community Services, https://www.oregon.gov/ohcs/development/Documents/applicants-recipients/LIHTC-Statewide-List.pdf

[168] City of Hillsboro, "Citywide Fees and Charges," August 2022, page 44-45. SDC rate assumes property is not part of the Local Improvement District (LID) for the area, which applies some infrastructure costs in the form of an LID assessment rather than a supplemental SDC.

per unit—close to 10 percent of the total costs (even after accounting for the increase in total costs due to higher SDCs).

4.3.4 SDCs Compared to Other Development-Related Costs

Overview

As noted previously, SDCs are just one of many costs of housing development. HB 3040 directed the study to include a comparison of SDCs to "other housing cost drivers, including, but not limited to, the costs of land, labor and materials, utility rates, the costs of infrastructure and costs associated with regulatory compliance." In comparing other cost drivers to SDCs, it is important to consider not only the magnitude of the costs but also the level of public sector influence over those costs, which varies among the cost drivers listed. It is also important to note that the total cost impact of a given input to housing development depends both on the unit costs of that input and the amount needed (e.g., the cost of a given amount of land and the amount of land required per unit). While it is beyond the scope of this report to conduct a detailed analysis of how each of these cost factors has changed over time and the extent to which the public sector can increase or decrease the costs or their impact on housing, this section provides a high-level summary of how market forces and public-sector policies and regulations can affect these costs and the available data on their relative contribution to the cost of housing development or to housing costs more generally.

Land

Land Cost Factors

As illustrated in Exhibit 30 (page 67), the cost of land in the context of housing development is affected by a combination of the supply of buildable land that is available and suitable for residential development, and demand for land based on overall growth drivers. As discussed further in Section 4.2.3, expected costs associated with developing the land (including providing infrastructure) and projected revenues from development also affect the market price for land. Local governments have an influence on land supply (e.g., through setting urban growth boundaries), land use regulations, and infrastructure investments and requirements, all of which can affect land cost to some extent. Local regulations also impact how much land is required for a given housing development through minimum lot size, maximum density, and other development standards.

Land Costs as a Share of Development Costs

Land costs are included in the estimates described in Section 4.3.2. ECONorthwest's analysis suggests that land costs likely account for roughly 7 to 21 percent of total development costs for typical market-rate housing development in Oregon, depending on the housing type.

The 2019 study of affordable housing costs in Oregon referenced earlier found that "land costs as a percent of total project cost ranged from as little as 2 percent to as much as 15 percent. On

average, land costs accounted for slightly less than 7 percent of total project costs."[169] This data was drawn from a sample of affordable housing new construction projects with arms-length land transactions. It cited an average of $17,000 in land costs per unit and a median of $14,000 per unit (in 2019 dollars).[170] The study noted that land costs were lower in rural areas than in non-rural areas.[171]

This is generally somewhat higher than SDC's share of development costs. However, this varies by region and by community. In a recent opinion piece, Habitat for Humanity of Metro Portland noted that "when Habitat for Humanity develops housing in [the Portland] region, permitting fees plus 'System Development Charges' paid to local jurisdictions generally exceed the market-rate cost for land."[172]

Construction Labor and Materials

Construction Labor and Materials Cost Factors

The cost of construction labor is affected by labor supply factors (including availability of other employment opportunities, availability of training programs to build relevant skills, and licensing requirements), labor demand factors (including amount of construction taking place at any one time), regional cost of living, and government regulations including minimum wage standards and prevailing wage requirements. Government regulations can also affect the amount of construction labor required through design standards, building codes, and worker health/safety regulations.

The cost of construction materials (e.g., lumber, concrete, steel, but also plumbing fixtures and appliances) is largely set through commodities markets based on broader supply and demand trends, though limited availability of certain materials in smaller markets can increase materials costs in specific areas. Local regulations have little impact on the unit cost of materials, but they can affect the amount and type of materials required through design standards and building codes.

Construction Labor and Materials as a Share of Development Costs

The costs of labor and materials ("hard costs") are included in the estimates described in Section 4.3.2. ECONorthwest's analysis suggests that hard costs likely account for two-thirds or more (66 to 76 percent) of total development costs for typical market-rate housing development in Oregon, depending on the housing type.

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[169] Blue Sky Consulting Group, "Affordable Housing Cost Study: Analysis of the Factors That Influence the Cost of Building Affordable Housing in Oregon" (Oregon Housing and Community Services, June 27, 2019), page 37.

[170] *Ibid.*, page 34.

[171] *Ibid.*, page 38.

[172] Sam Diaz, Kim McCarty and Steve Messinetti, "Opinion: Undoing urban growth boundary isn't the answer to our housing crisis," *The Oregonian*, December 4, 2022. https://www.oregonlive.com/opinion/2022/12/opinion-undoing-urban-growth-boundary-isnt-the-answer-to-our-housing-crisis.html.

In the 2019 study of affordable housing costs found that construction costs (including labor and materials for building construction) accounted for 68 percent of total development costs (excluding land), as shown in Exhibit 39 on page 83.

This is much higher than the cost of SDCs as a share of housing development costs, but the degree to which the public sector can impact these costs is less (see Regulatory Costs beginning on page 89).

Infrastructure Costs

Infrastructure Cost Factors

Infrastructure costs in this context refers to costs for improvements made directly by the developer that are not eligible for SDC credits. This could include local streets and water/wastewater lines within a subdivision, sidewalk improvements for an infill development, or off-site improvements required as a condition of development (e.g., intersection improvements, crosswalks, etc.). The factors driving the unit costs of infrastructure are discussed in Section 2.1.2 beginning on page 22. Total direct infrastructure costs borne by a given development are also driven by the availability and adequacy of infrastructure nearby, local government standards related to infrastructure design and construction (e.g., required street cross-sections and engineering specifications for streets and utilities), and local government policies and regulations that determine what improvements are required for a development (e.g., traffic impact assessments, frontage improvement requirements).

Infrastructure as a Share of Development Costs

There is no comprehensive data on these costs, and it is difficult to estimate "typical" costs for residential development across the state, given that direct infrastructure costs are highly variable between different developments depending on their context. Some infill projects may have no infrastructure costs, while major greenfield developments or large-scale redevelopment projects may require extensive new infrastructure construction and/or upgrades to existing facilities. The extent to which infrastructure costs can be defrayed through SDC credits also varies, as discussed further in Section 5.3.

As one way of estimating direct infrastructure costs for a simple single-family subdivision that does not require major street extensions or off-site improvements, ECONorthwest analyzed typical local street improvements costs using unit cost estimates used by various cities on recent infrastructure funding and analysis projects.[173] The estimated costs ranged from about $23,800 to $41,100 per unit. (The higher estimate is from a smaller city and includes extending utility lines within the street.) In comparison, the average SDC per unit for single-family development ranges from $8,600 in a low-cost market to $15,050 in a moderate-cost market to $48,800 in a high-cost market, as shown in Exhibit 37 on page 79.

[173] The analysis assumes 50-foot-wide lots on a double-loaded street meeting the narrowest street design for which costs were available. Unit costs were derived from analysis related to Beaverton's South Cooper Mountain, South Hillsboro, and an analysis of infrastructure needs associated with vacant land in Newport.

The 2019 Affordable Housing Cost Study did not isolate the cost of infrastructure improvements specifically, but it did estimate costs for "Offsite improvements" and for "Demolition/Site Prep." Given that the projects included in the analysis are all multifamily, for which utility extensions and circulation from a main road are generally provided through the site on private land rather than in public right-of-way, a portion of the cost of extending infrastructure through the site may be included in the "Demolition/Site Prep" category. "Offsite Improvements" is likely to be mostly attributable to infrastructure improvements, though this category is not further defined in the report. As shown in Exhibit 39 on page 83, offsite improvements were estimated at roughly 1 percent of total development costs (excluding land), on average, for affordable housing new construction statewide.[174]

ECONorthwest also reviewed several example pro formas provided by OHCS from recent affordable housing projects. These pro formas showed off-site costs accounting for roughly 1 to 2 percent of total development costs (including land). The pro formas grouped on-site utility extensions with other on-site and site preparation costs, but one included a note indicating a specific amount for on-site utilities, which, for that specific project, accounted for roughly an additional $11,000 per unit, and 4 percent of total development costs. (For that example project, SDCs were just over $3,000 per unit and roughly 1 percent of total development costs.)

Taken together, the limited available data suggest wide variation in direct infrastructure costs across different housing projects, which can be more or less than the costs of SDCs.

Regulatory Costs

Regulatory Cost Factors

The cost of regulatory compliance is difficult to measure for several reasons. First, there are many ways to define the costs of regulations, some broader than others. Second, even if there is a consensus on the categories of regulatory costs to track, measuring them can be challenging. Potential categories within regulatory costs include:

- **Permitting and compliance costs**: There are costs directly attributable to demonstrating compliance with government regulations (e.g., permit fees, inspections, environmental testing or evaluations, the cost to prepare permit applications and special studies, the cost to prepare for and attend public meetings if required). Some of these are easy to measure (e.g., permit fees), while others may be a hidden component of other costs (e.g., preparing permit applications may be included in an architect's fee).
- **Delay-imposed costs:** Regulations can increase the time it takes to complete a development, which can impact financing/interest costs and other development costs (e.g., costs associated with having adjacent streets closed or modified, the cost of having contractors or equipment on site). Delay due to permitting processes can also mean delayed cash flows or unproductive capital, although the time value of money can differ

[174] Blue Sky Consulting Group, "Affordable Housing Cost Study: Analysis of the Factors That Influence the Cost of Building Affordable Housing in Oregon" (Oregon Housing and Community Services, June 27, 2019).

from person to person, developer to developer, and city to city. These costs are rarely itemized specifically, though they can be estimated.

- **Standards-related costs:** Regulations can also impact the cost of other inputs to development, including land, construction labor and materials, infrastructure, and engineering/design fees by setting minimum standards that a development must meet, as noted in the prior subsections. The extent to which regulations *do* impact the cost of other inputs depends on how different the requirements are from what developers would choose to do (or what lenders, investors, or end users would demand that they do) absent the regulations, which varies depending on the context and can be difficult to ascertain.

Like SDCs, in a full evaluation, the costs of these requirements should be weighed against the benefits to public safety, health, environmental quality, and community well-being, but such an evaluation of trade-offs is beyond the scope of this study.

Regulatory Costs as a Share of Development Costs

National Estimates of Regulatory Impacts on Multifamily Development Costs

A recent and oft-cited study of regulatory costs by NAHB and NMHC estimated that as much as 40.6 percent of multifamily development costs are due to the cost of regulatory compliance, based on a survey of 49 developers across the country. The survey asked respondents about how much various factors contribute to total development costs for a typical project.[175] A breakdown of the specific cost components included in this total is shown in Exhibit 42.

[175] Paul Emrath and Caitlin Sugrue Walter. Regulation: 40.6 Percent of the Cost of Multifamily Development. NAHB and NMHC. June 8, 2022. https://www.nmhc.org/globalassets/research--insight/research-reports/cost-of-regulations/2022-nahb-nmhc-cost-of-regulations-report.pdf

Exhibit 42: Average Regulatory Costs as a Share of Total Multifamily Development Costs Nationally
Source: NAHB and NMHC[176]

	Share With the Regulatory Cost	Regulation as a Percent of Total Development Cost	
		Average When Present*	Average Across All Properties
Cost of applying for zoning approval	93.9%	3.4%	3.2%
Costs when site work begins (fees, required studies, etc.)	98.0%	8.7%	8.5%
Dev. requirements (layout, mats, etc.) beyond the ordinary	91.8%	5.8%	5.4%
Cost of land dedicated to the goverment or left unbuilt	51.0%	4.7%	2.4%
Fees charged when building construction is authorized	95.9%	4.6%	4.4%
Costs of affordability mandates (e.g., inclusionary zoning)	38.8%	6.9%	2.7%
Changes to building codes over the past 10 years	100.0%	11.1%	11.1%
Complying with OSHA/other labor regulations	93.9%	2.7%	2.6%
Pure cost of delay (if regulation imposed no other cost)	95.9%	0.5%	0.5%
TOTAL COST OF REGULATION	**100.0%**	**40.6%**	**40.6%**

* The base is different for every percentage in this column, so the line items are not additive.

- **Permitting and compliance costs** such as the cost of applying for zoning approval (including costs of traffic impact studies or other required studies), fees and required studies when site work begins (which can include hook-up or impact fees in some cases), and fees charged when building construction is authorized (though this can also include impact fees) total an estimated 16.1 percent of total development costs on average.[177] ("Soft costs," which include these costs as well as design, financing, legal, and insurance costs, typically account for 20 to 35 percent of total development costs.)
- **Delay** is estimated to account for 0.5 percent of total development costs based on typical construction timelines and loan terms combined with survey results regarding the typical timing associated with various stages of development.[178]
- **Standards-related costs**, including development requirements beyond the ordinary, the cost of land dedications, changes to building codes, and complying with labor regulations were estimated to total 21.5 percent of development costs, with building code changes representing the largest share of these costs.[179]

The study also estimated cost impacts associated with inclusionary zoning/affordable housing requirements, but it is unclear whether this reflects fee-in-lieu costs or other costs associated with these programs.

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[176] Paul Emrath and Caitlin Sugrue Walter. Regulation: 40.6 Percent of the Cost of Multifamily Development. NAHB and NMHC. June 8, 2022. https://www.nmhc.org/globalassets/research--insight/research-reports/cost-of-regulations/2022-nahb-nmhc-cost-of-regulations-report.pdf.

[177] *Ibid.*

[178] *Ibid.*

[179] *Ibid.*

Prevailing Wage

Governments can require its contractors and grant awardees to satisfy certain labor standards and wage requirements. U.S. Department of Labor determines federal prevailing wage rates and Oregon Bureau of Labor and Industries determines Oregon's prevailing wage rates.

Estimates of the cost impact of prevailing wage requirements have largely focused on affordable housing development. Some affordable housing developments are subject to prevailing wage requirements while others are not, as described in the excerpt below. According to a 2015 study by the Meyer Memorial Trust:

> *Work Group experts generally agreed that meeting BOLI requirements added about 10 percent to the hard costs of a project. However, in the case of a mixed-use project including ground floor commercial uses, BOLI typically holds the entire project to the significantly higher commercial BOLI wages (in effect, treating a three-story stick-built apartment building the same as a high-rise office building made of steel and concrete). Commercial BOLI rates can add as much as 20 percent to construction costs over a non-prevailing wage project.*[180]

An academic study from 2005 found that prevailing wage requirements increase the costs of constructing affordable housing by 9 to 37 percent.[181] Even if these cost increases are only on the construction "hard costs," they may exceed the cost impacts associated with SDCs in cases where prevailing wage requirements apply.

Study of Cost Savings From Regulatory Changes

In an analysis for the City of Seattle, ECONorthwest developed a model that showed sensitivity of housing affordability to various regulatory changes, including reducing permitting time, removing a retail frontage requirement. The study estimated that reducing permitting time from 24 to 12 months for multifamily development and from 18 to 9 months for townhouse development could reduce the rents and sales prices required to make development feasible by roughly 4 to 6 percent. It also showed potential for roughly a 1 percent reduction in rents and sales prices from removing a ground-floor retail requirement. The study also considered changes to impact fees and suggested that substantial reductions to permitting time could have a greater impact than a $4,700 to $6,000 difference in impact fees.[182]

Comparison to SDCs

While the available data is limited and the cost impacts are harder to accurately measure, these studies suggest that other permitting and compliance costs (e.g., fees, inspections, cost to prepare applications, etc.) and certain development or labor regulations (e.g., prevailing wage requirements) can impact total development costs by a similar order of magnitude as SDC costs,

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[180] Meyer Memorial Trust, *The Cost of Affordable Housing Development in Oregon*, Executive Summary, October 2015, page 20.

[181] Sarah Dunn, John M. Quigley, and Larry A. Rosenthal. (2005) "The Effects of Prevailing Wage Requirements on the Cost of Low-Income Housing." ILR Review, 59(1), 141-157.

[182] *Seattle Affordable Middle-Income Housing Advisory Council: Policy Recommendations to Mayor Jenny A. Durkan*, January 2020. Analysis by ECONorthwest.

and that permitting speed can affect total costs, though the magnitude may be less or more than the impact of SDCs.

Construction Excise Tax

Jurisdictions in Oregon are allowed to assess a Construction Excise Tax (CET) on new residential and non-residential developments as a means of funding affordable housing strategies. Though a variety of CETs exist, a CET can be imposed at no greater than 1 percent of a building's permit value for residential development. Permit value is typically an approximation of construction hard costs and much less than the total development costs. Therefore, CETs make up less than 1 percent of total development costs for residential developments in jurisdictions that elect to adopt a CET, which will generally be less than the impact of SDCs.

Utility Rates

Unlike the other cost factors identified in the legislative directive for this study, utility rates do not affect the cost of housing development. Instead, they affect households' on-going monthly costs. Thus, while both SDCs and utility rates are related to funding for infrastructure and to broader affordability concerns, their impacts are observed in different ways. Utility costs are generally paid by residents directly (except in some cases with apartments that have shared meters, where water costs are included in rent). SDCs are generally not paid by residents directly and have more nuanced impacts on housing production and affordability including how much new housing gets built, where it gets built, and what sizes/types of housing the market can deliver.

Typical utility costs and the share that is attributable to capital improvement costs are discussed in Section 2.1.4, and affordability impacts of utility cost increases are discussed in Section 2.2.4.

A 2021 survey of local jurisdictions by LOC offers a summary of the size of some utility rates and how they vary across the state. Survey responses from 105 jurisdictions show that monthly water and wastewater utility bills[183] can add up to between $65.89 and $129.39, with the average at $99.32. Utility rates vary less by region than SDCs do, and they do not follow the same geographic patterns (see Section 3.1.1). The estimated utility bills in the survey data are higher for coastal regions, for example, than they are for the Portland metropolitan area. In contrast, the highest SDCs are generally observed in the Portland metropolitan area.[184]

Over 20 years, water and wastewater utility bills can add up to about $17,000 to $33,000 in today's dollars, depending on the region.[185] These values are somewhat higher than the

[183] For a hypothetical customer who used 5,000 gallons (6.684 CCFs) of water and has a ¾" meter size.

[184] Aljets Consulting. *2021 Water Rates Survey Report*. December 2021. League of Oregon Cities.

[185] ECONorthwest calculated the present value using an assumed 5 percent annual inflation rate for utility expenses (based on information from Section 2.1.4) and a 4 percent discount rate to account for time value of money. For reference, the yield on U.S. 10 Year Treasury was about 3.8 percent and the yield on U.S. 20 Year Treasury was about 4.1 percent in the fall of 2022.

estimated median SDC amount (just over $15,000), though the 20-year value of water and wastewater bills is not a perfect comparison to SDCs, and utility rates are largely covering the cost of operations, maintenance, and system modernization, as discussed in Section 2.1.4, which SDCs generally cannot pay for.

4.4 Impact of SDCs on Financial Feasibility of Market-Rate Residential Development

4.4.1 Testing Impacts Across the State

Approach

To understand the financial impact SDCs can have on development feasibility and the relationship between SDCs and development outcomes, ECONorthwest constructed pro forma models that are sensitive to change in input costs. A more detailed methodology is included in Appendix F.

The key measure of development financial feasibility used to demonstrate the marginal impact of SDCs is **expected returns** of for-profit developers of market-rate housing. (Impacts of SDCs on affordable housing developers are addressed in Section 5.2.2.) If a change in SDCs results in a decrease in the expected returns, developments are less likely to occur.

Although there are many methods to calculate and measure investor returns, the metric selected for this study is internal rate of return (IRR). IRR is a commonly used financial metric in the real estate industry to estimate the profitability of real estate investments. Although expected IRR can vary based on the type of development, location, market contexts, and investor-specific considerations, it is typically between 15 percent and 25 percent. Therefore, a one percentage point change in IRR may be within a margin of error and not impact development decisions, but a change of five percentage points is likely to have an impact.

As noted above, the impact of SDCs on housing can vary across geographic markets and housing types in Oregon. To isolate the potential impact of SDCs on housing development feasibility, ECONorthwest used a pro forma analysis that reflects market and cost differences across the state, using seven market context areas discussed in Section 4.3.2, beginning on page 80. The analysis measured the marginal impact of higher vs. lower SDC amounts on financial feasibility, based on the sensitivity of developers' expected returns to changes in SDCs. (More detail on the analysis is discussed in Appendix F.)

Findings

Although specific site or economic conditions will influence development outcomes for any given development, the analysis suggests some generalizable takeaways.

- The marginal impact of SDCs on development feasibility is greater for lower-cost and higher-density housing developments. Because SDCs often make up a greater portion of total development costs in a housing development that is less costly to build on a per-unit basis, a fixed change in SDCs has a greater marginal impact on lower-cost (and higher-density) housing types. This relationship is generally true across markets. For example:

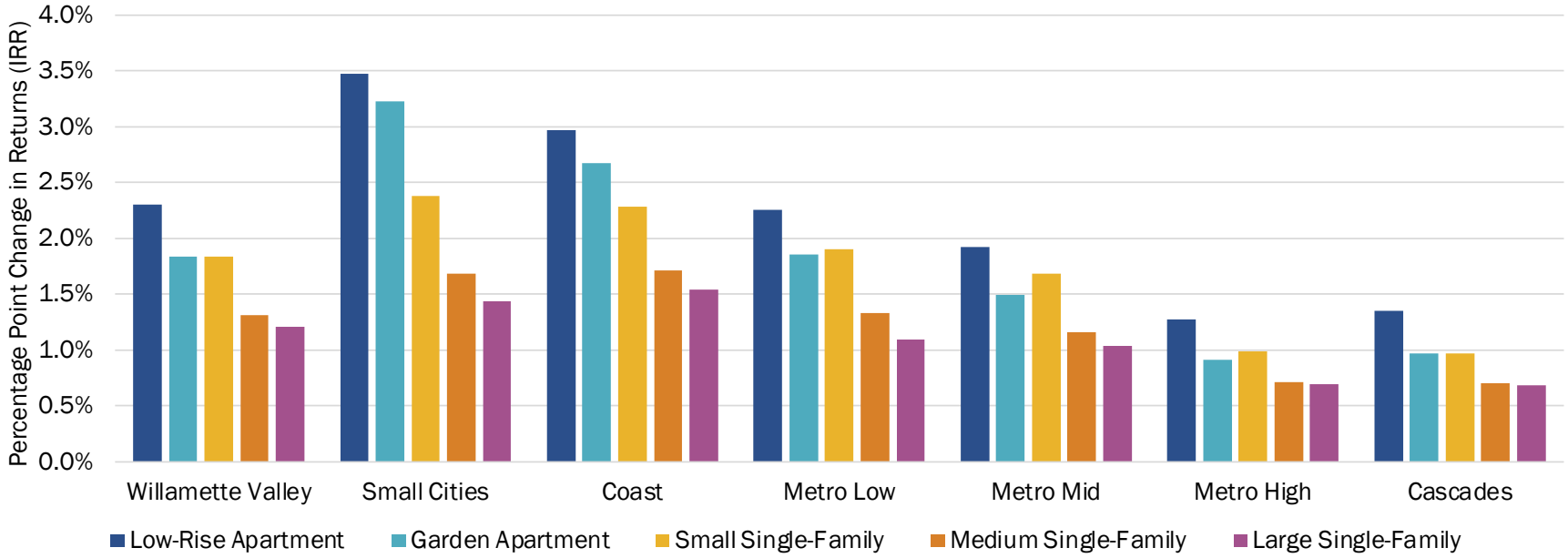
- A $10,000 change in fee would have a greater marginal impact on the financial feasibility of Small Single-Family housing than on Large Single-Family housing (see Exhibit 43).
- A $6,600 change in fee would have a greater marginal impact on the financial feasibility of Low-Rise Apartment housing than on Garden Apartment housing (see Exhibit 43).

- Similarly, the marginal impact of SDCs is greater in markets where it is less costly to build. Because a fixed SDC amount makes up a greater portion of total development costs in markets with lower land costs, a change in SDCs has a greater marginal impact on the types of housing markets can deliver in markets with lower costs for land and construction.
  - For example, a $10,000 change in fee for a single-family unit would have a greater marginal impact on financial feasibility in a small city outside a metropolitan area than inside a metropolitan area where land and housing prices are relatively expensive (see Exhibit 44).

A key limitation of the results shown in Exhibit 43 and Exhibit 44 is the simplifying assumption that SDCs could vary by the same amount across all market context areas. While the assumption is useful for demonstrating the directional relationship between SDCs and development feasibility, it does not account for the fact that SDCs vary widely across markets. For simplicity, the analysis uses a constant amount of change in SDCs across all market areas.

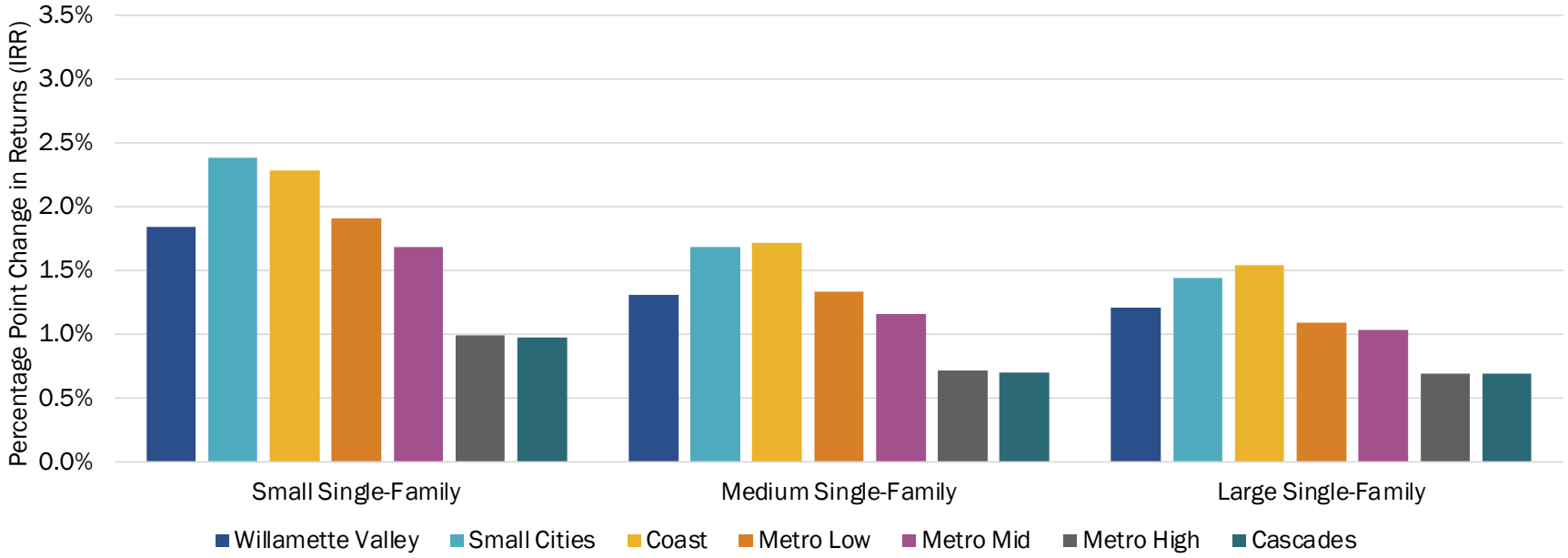
Exhibit 43. Marginal Impact of Change in SDCs on Development Feasibility by Housing Type and Market Context Area

Source: ECONorthwest



Note: A $10,000 change is modeled for single-family housing types. A $6,600 change is modeled for apartment housing types. Section 1.4.1 explains multifamily SDCs are about 66 percent of single-family SDCs, on average.

Exhibit 44. Marginal Impact of $10,000 Change in SDCs on Single-Family Development Feasibility by Unit Size and Market Context Area
Source: ECONorthwest



4.4.2 Findings From Developer Interviews

The patterns noted above are generally consistent with findings from developer interviews.

- In some cases, SDCs are enough to make a project infeasible, especially for very cost sensitive housing types. Entry-level homes are cost-sensitive, including middle housing. Attached product can sometimes cost more to build than a single-family home and often sells for less relative to a detached house. Multifamily can also be affected by high SDCs if they are disproportionate to other costs.
- When SDCs are low compared to other costs, they have little impact on development feasibility.

SDCs are not typically an important factor for high end housing types, such as custom homes, because they represent a small portion of the cost, and high-income/wealthy buyers tend not to be cost-sensitive.

4.5 Relationship Between SDCs and Home Prices

This section summarizes various sources of data and research regarding the relationship between SDCs and home prices, including peer reviewed literature, Oregon-specific case studies, and data on home prices compared to SDCs in communities across the state.

4.5.1 Evidence From Empirical Literature

Overview and Limitations

The effect of impact fees on various housing market outcomes has been analyzed empirically in numerous studies within the context of specific cities and states in the U.S. However, findings from the empirical research should be interpreted carefully for a few reasons:

- Although the empirical research utilized commonly used statistical models to understand the relationship between impact fees and cost incidence, they failed to establish a definitive causal relationship. Observed changes in prices or housing production in places with impact fees could be due to the impact fees increasing housing costs or other reasons, including reduced production of new entry-level homes, lower overall housing production, a higher level of amenities and services in places with higher SDCs, a greater willingness to impose high impact fees in places with strong housing markets, or other factors. Thus, the results of the studies mentioned are interpreted as correlations rather than definitively establishing causal relationships.
- None of the studies were conducted in Oregon, which has a unique growth management planning system that affects housing markets. While some places included in the research could resemble a city in Oregon, there is no generalizable takeaway from the empirical studies that would be applicable across Oregon.
- There are many variations in the outcome variables of the empirical research. While all studies on housing prices looked at the prices for newly constructed, single-family units, some also included the data for existing units or multifamily units. Other studies looked instead at land prices, which could be differentiated as either undeveloped (vacant) land or developed land. The applicability of each research's findings depends on the data that is used.

Summary of Studies, Approach, and Findings

Exhibit 45 is a summary of key information presented in academic research that studied the relationship between impact fees and the housing market. A more detailed summary is available in Appendix G. The 15 summarized studies provide a snapshot of the existing range of research that exists, but they are not a comprehensive list of impact fee studies. The key takeaways are:

- Most studies measured the relationship between impact fees and housing prices (for new homes only or for all homes in an area). These studies consistently found higher home prices in areas with impact fees. The differential in housing prices ranged from 25 percent to 300 percent of the value of the impact fee.
- A few studies analyzed the relationship between impact fees and land prices. While the economic theory discussed in Section 4.2.2 suggests that land prices should be lower in areas with impact fees, studies were mixed on this point.
- A few studies analyzed the relationship between impact fees and housing production. Most of these observed a negative relationship—higher impact fees were associated with less housing production—although one found the opposite.
- More recent studies that attempted to distinguish the effects of different types of impact fees found that not all impact fees have the same effect.
- There are no studies that measured the potential effect of removing impact fees, providing no direct evidence to suggest taking away existing impact fees could reduce housing prices.

Exhibit 45. Summary of Empirical Studies on Impact Fees

Source: ECONorthwest

Author(s) (Publication Year)	Observed Relationship to Housing Prices	Observed Relationship to Housing Production	Observed Relationship to Land Values
Delaney and Smith (1989)	(+)	N/A	N/A
Singell and Lillydahl (1990)	(+)	N/A	N/A
Skaburskis and Qadeer (1992)	N/A	N/A	(+)
Dresch and Sheffrin (1997)	(+)	N/A	N/A
Skidmore and Peddle (1998)	N/A	(–)	N/A
Baden and Coursey (1999)	(+)	N/A	N/A
Mayer and Somerville (2000)	N/A	(–)	N/A
Mathur, Waddell, and Blanco (2004)	(+)	N/A	N/A
Ihlanfeldt and Shaughnessy (2004)	(+)	N/A	(–)
Evans-Cowley, Forget, and Rutherford (2005)	N/A	N/A	(+)
Burge and Ihlanfeldt (2006)	N/A	(+)	N/A
Mathur (2013)	(+)	N/A	N/A
Burge (2014)	N/A	N/A	(–)
Bae, Kwon, Coutts, Park, and Feiock (2015)	N/A	N/A	(+)

Key: (+) = Positive correlation between impact fees and the variable in question; (–) = Negative correlation between impact fees and the variable in question. N/A = variable not addressed in study in question.

While none of the studies can clearly establish causality, some authors assert that the observed relationship between impact fees and housing prices primarily reflects the value of the infrastructure funded by the impact fees: that the higher prices of new housing reflect the desirability of the newly built infrastructure, rather than the cost of it. They posit that the added cost of impact fees can be counterbalanced by the positive effect they have on infrastructure services.[186, 187] The added benefits are reflected in higher housing values through an economic concept called "capitalization."[188, 189] Thus, according to the view of capitalization theory, the higher housing prices of dwellings with SDCs reflect a properly functioning economic market in which the long-term benefits of impact fees are measured in today's market prices.

Other studies focus more on costs being passed on to housing consumers, either directly or indirectly.

4.5.2 Oregon Case Studies and Data

To evaluate whether the relationship observed consistently in the literature—showing higher housing prices in areas with impact fees—holds in Oregon, ECONorthwest analyzed available statewide data (at a simplified level) and more detailed data from two case studies. The first case study compared trends in housing prices to trends in SDC fees in one community. The second case study compared housing prices in similar areas but with different SDC rates. These analyses are current and Oregon-specific, but they do not control for all variables that could affect housing prices and they cannot establish causation.

SDC Rates vs. Average Housing Values by Community

ECONorthwest compared single-family SDC rates from the 2022 SDC rate data collected by FCS GROUP to June 2022 single-family housing values from Zillow. The simplified approach did not include other variables that could relate to SDC rates and/or housing values, such as population, population growth rate, infrastructure quality, access to jobs or amenities, buildable land supply, political attitudes towards growth, and other development costs. Moreover, the housing value data includes all single-family units, so the data do not specifically identify a relationship between SDCs and prices of *new* housing.

Exhibit 46 shows that higher SDCs tend to be associated with higher average housing values. The relationship has a moderate correlation (R-squared of 0.3309), without controlling for other variables. The observed correlation does not indicate causality. The relationship could reflect

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[186] Arthur C. Nelson and Mitch Moody. 2003. Paying for Prosperity: Impact Fees and Job Growth. Brookings Institution Center on Urban and Metropolitan Policy.

[187] Vicki Been. 2004. "Impact Fees and Housing Affordability." *Cityscape: A Journal of Policy Development and Research*, 8(1): 139.

[188] John Yinger. 1998. "The Incidence of Development Fees and Special Assessments." *National Tax Journal*, 51(1): 23-41.

[189] Jennifer S. Evans-Cowley and Larry L. Lawhon. 2003. "The Effects of Impact Fees on the Price of Housing and Land: A Literature Review." *Journal of Planning Literature*, 17: 351-359.

the impact of SDCs on housing development costs and development feasibility. It could also reflect (a) a greater willingness to impose higher SDCs in areas with higher housing prices and stronger housing markets, (b) higher infrastructure quality driving both higher SDCs and higher housing values, or (c) other factors at play that happen to be related to both SDCs and housing prices (e.g., higher land and construction costs). The relationship appears to be stronger in areas with low and moderate housing values, and weaker in areas with high home values—there is a much greater range of SDC rates in communities with average housing values above roughly $600,000 compared to the range for communities with lower housing values.

Exhibit 46. SDCs and Estimated Housing Values in Selected Oregon Cities
Source: ECONorthwest using data from FCS GROUP and Zillow Home Value Index (ZHVI) of Single-Family Units

The data comparing SDC rates and housing values in Oregon also suggests implications for how SDCs may affect housing development. ECONorthwest's analyses in Section 4.3.4 and developer input suggest that SDCs may have different impacts for communities that fall on different parts of this chart. As illustrated in Exhibit 47:

- Communities with below-average home values and average to above-average SDC rates could see greater impacts of SDCs on development potential. There appear to be only a few communities among the sample set where this could be a concern.
- Communities with above-average home values and above-average SDCs may not be inhibiting all housing development, but may be exacerbating challenges for lower-cost housing, particularly in places where SDCs are the highest. These areas could also potentially see a greater share of SDC costs passed through to homebuyers given the strength of the market demand.

- In communities with above-average home values and below-average SDCs, SDCs are probably not a major factor driving home values, and lower SDCs may not translate to lower home prices.
- In communities with below-average home values and below-average SDCs, SDCs may not be enough to substantially impact development feasibility, and market conditions may make development challenging with or without SDCs.

Exhibit 47. SDCs and Estimated Housing Value in Oregon Cities, By SDC Level
Source: ECONorthwest using data from FCS GROUP and Zillow Home Value Index (ZHVI) of Single-Family Units

Case Study: Trends in SDCs and Sales Prices in Bend, Oregon

To observe the potential relationship between SDCs and sales prices in Bend, Oregon, ECONorthwest compiled data from various sources. Data from 2005 to 2019 comes from previous work by Oregon's Office of Economic Analysis to compare Bend's Parks SDC rate and total SDCs to typical prices of new construction units. ECONorthwest updated the data for more recent years.

As shown in Exhibit 48, the total SDC in FY 2022 is about 220 percent higher than the level in FY 2005. During the same time, housing prices increased by about 190 percent.

However, and more importantly, the rate of change is different. The total SDC increased every year, but it increased faster before FY 2010 and after FY 2018. In contrast, the median housing

price in Bend is more cyclical and experiences greater swings. It increased at an even greater pace than SDCs in FY 2006 and FY 2007, dipped for almost six years, recovered for seven years, and then experienced a very large increase since FY 2020. The comparison shows housing prices are more volatile and likely to be influenced by many other factors beyond SDCs.

Exhibit 48. Percent Change in Single-Family SDCs and Median Housing Price in Bend, Oregon, Since Fiscal Year 2005

Source: ECONorthwest using data from Oregon Office of Economic Analysis, Central Oregon Association of Realtors, City of Bend

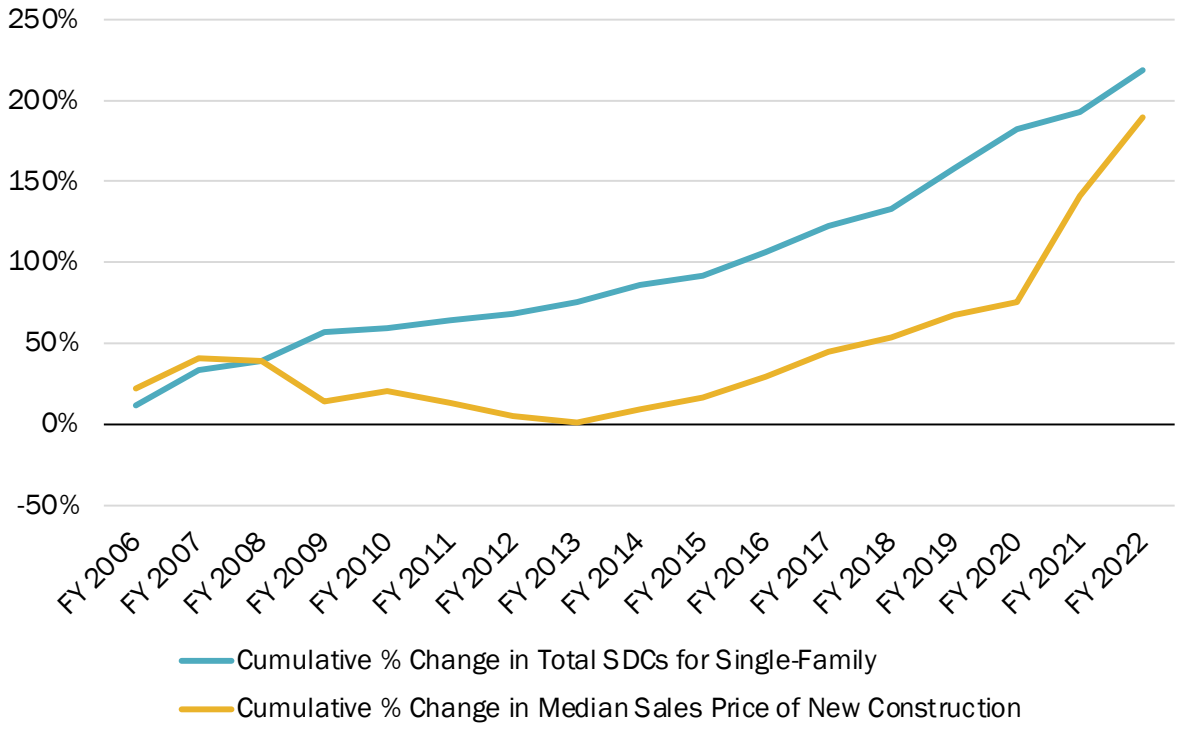
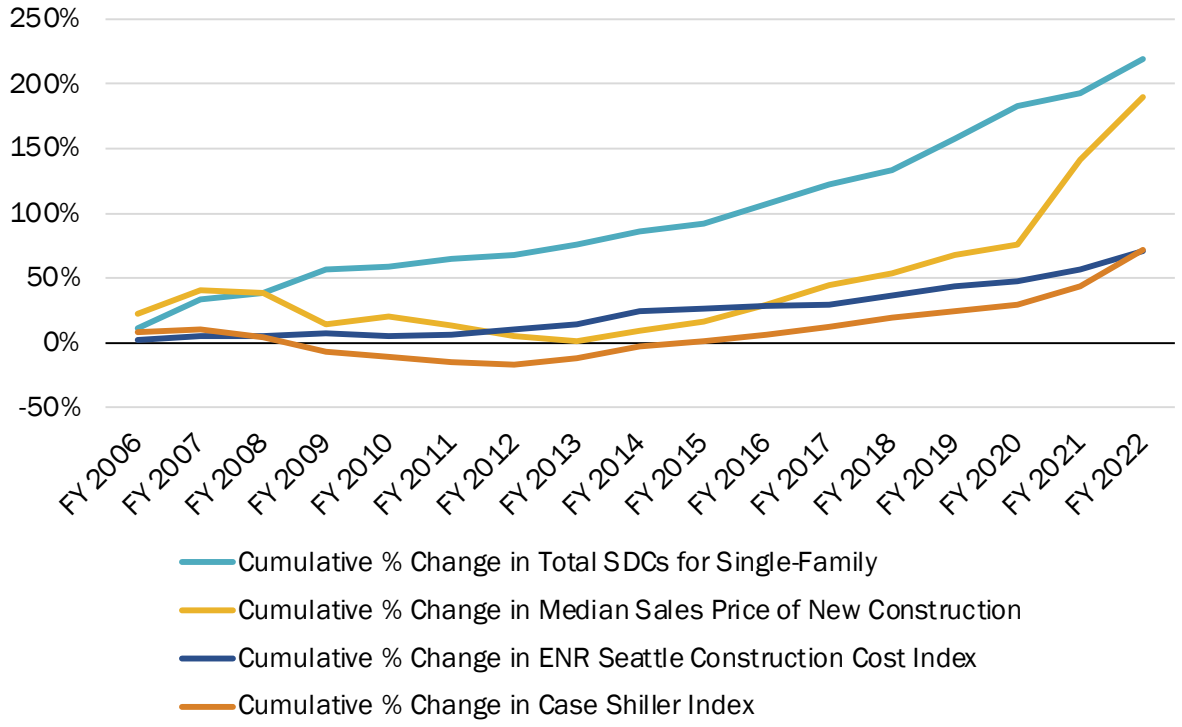


Exhibit 49. Percent Change in Bend Single-Family SDCs, Bend Median Housing Price, ENR Construction Cost Index, and Case-Shiller Index Since Fiscal Year 2005

Source: ECONorthwest using data from Oregon Office of Economic Analysis, Central Oregon Association of Realtors, City of Bend, Engineering New-Record, Federal Reserve Bank of St. Louis



Bend's SDCs and median sales prices are more likely to be driven by regional or national factors. Exhibit 49 shows Engineering News-Record (ENR) Construction Cost Index for Seattle[190] has a closer trend to Bend's SDCs than the median sales price does; the SDCs and the ENR Seattle Construction Cost Index move steadily upward without falling. It also shows that the Case Shiller Index, a national benchmark for single-family housing prices, has a closer trend to the median sales price than the SDCs do; the median sales price and the Case Shiller Index fall from FY 2008 to FY 2012 before starting to recover.

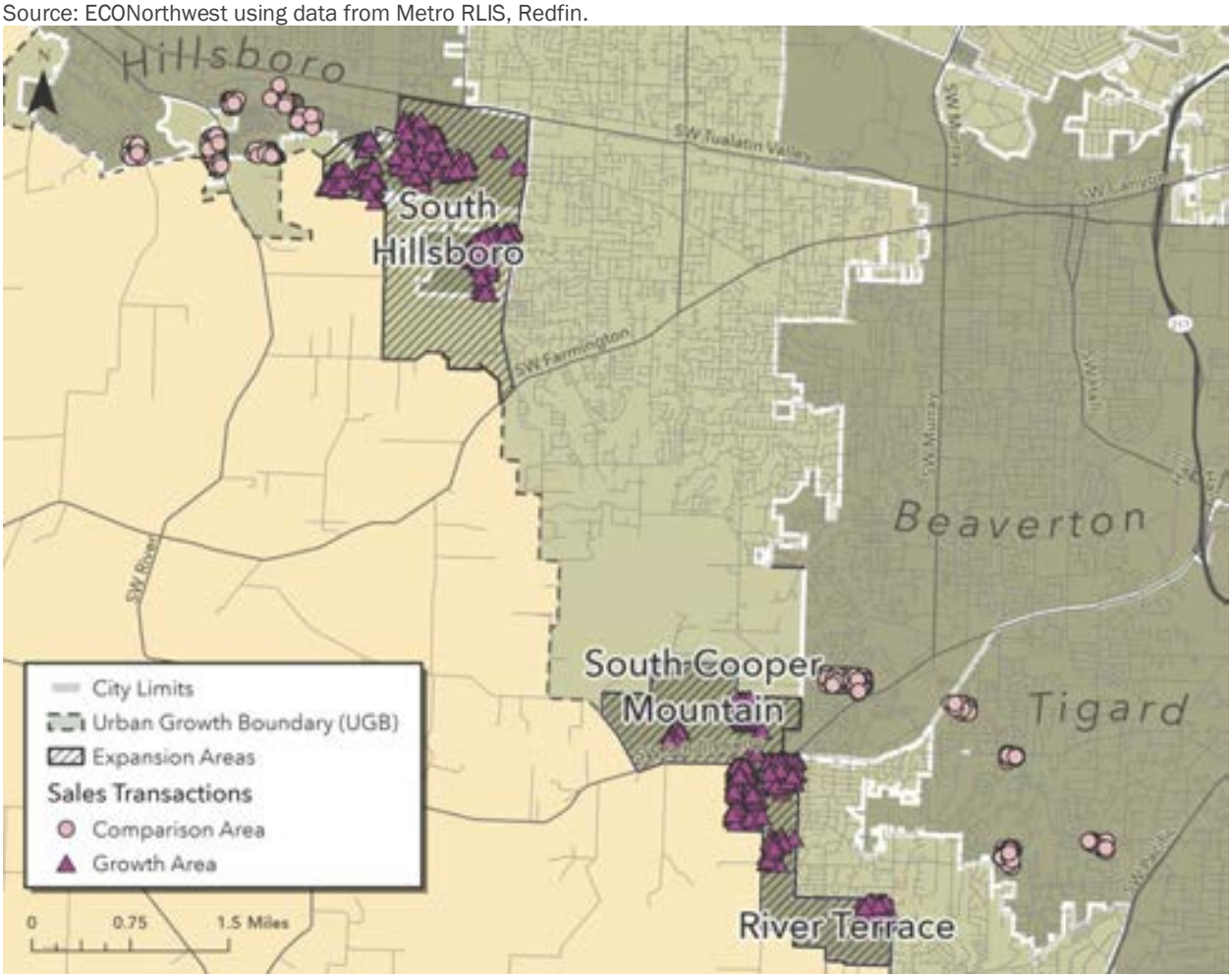
The correlation coefficient between SDCs and median sales prices in Bend is 0.82. In contrast, the correlation coefficient between SDCs and the ENR Seattle Construction Cost Index (CCI) is 0.98 (likely due to use of ENR CCI data for 20-cities to index SDC rates), and the correlation coefficient between Bend new construction home prices and the Case Shiller Index is 0.96. This suggests that within a given jurisdiction, home price trends are affected much more by broad housing market trends than by changes in SDC rates.

[190] Seattle is the closest city to Oregon in the markets tracked by ENR.

Case Study: SDCs vs. Home Prices in Planned Developments in Oregon

ECONorthwest identified several recent developments in Washington County that provide an opportunity to examine an example of the relationship between SDCs and housing prices at a more granular level. Each development faced different SDC costs, but all compete within the same subregional housing market. This analysis considered three areas that were recently brought into the Portland Metro urban growth boundary (UGB): South Cooper Mountain in the City of Beaverton, South Hillsboro in the City of Hillsboro, and River Terrace in the City of Tigard. Within these areas, ECONorthwest collected data on sales transactions for newly built homes and SDC rates to analyze whether there is a relationship between the SDC rates and home prices. ECONorthwest also considered development in adjacent subdivisions that were not part of these growth areas but were in one of the three jurisdictions and the same subregional housing market. These "comparison" developments were built in a similar span of time to the development in the growth areas, which allows for a statistical analysis of the impact of SDC on development outcomes within a similar set of market conditions. Exhibit 50 shows the locations of the three study areas and the analyzed properties. Appendix H includes more detail on the three areas.

Exhibit 50. Washington County Urban Growth Areas and Housing Observations
Source: ECONorthwest using data from Metro RLIS, Redfin.



Each of the urban growth areas has both standard citywide SDCs and supplemental area-specific SDCs to support new infrastructure development needed for each growth area. Additionally, developments in all three jurisdictions are subject to SDCs for sanitary sewer and stormwater imposed by Clean Water Services (CWS) and SDCs for transportation imposed by Washington County. Exhibit 51 summarizes the SDCs applied to single-family construction in South Cooper Mountain, South Hillsboro, and River Terrace ("growth areas") and the standard citywide rates applicable to adjacent developments that are not part of the growth area. Appendix H includes more detail on the SDCs.

Exhibit 51. System Development Charges for Detached Single-Family Housing, 2021
Source: ECONorthwest using data from City of Beaverton, City of Hillsboro, City of Tigard, and Washington County.

	Beaverton		Hillsboro		Tigard	
	Standard	South Cooper Mountain	Standard	South Hillsboro	Standard	River Terrace
Total SDCs	$37,940	$46,767	$33,905	$53,030	$43,809	$47,640
Difference from standard SDCs for Growth Areas	--	+23%	--	+56%	--	+9%

As shown in Exhibit 51, Hillsboro's standard citywide SDCs are the lowest among the three studied areas (about $34,000), but its supplemental SDCs are the largest (about $19,000). In contrast, Tigard has the highest standard citywide charges (about $44,000), but it has the lowest supplemental SDCs (about $4,000). Note that the supplemental SDCs were largely used to distribute costs for area-specific facilities such as collector roads and local parks among property owners within the growth area. Developers who made the improvements generally received SDC credits for at least a share of those costs.

Using the data from sales transactions for new homes in these areas and the information on SDC rates, ECONorthwest constructed a linear regression model to test for a relationship between SDC rates and housing prices after controlling for other factors such as year built, year sold, home size, and lot size that are available in the sales transaction data or the tax lot data. (See Appendix H for methodology.)

The regression model showed that SDC rates are positively correlated with housing prices—that is to say, that higher housing prices were observed in places with higher SDCs—after controlling for building size, lot size, number of bedrooms and bathrooms, year built, and year sold. The model suggests that the observed difference in housing prices is greater than the difference in SDCs. Every $10,000 in SDCs was associated with about $7 greater per-square-foot price of newly built housing—about $16,800 for a 2,400-square-foot single-family unit. This is illustrated graphically in Exhibit 52 for different SDC amounts. For example, when comparing a 2,400-square-foot single-family unit with SDCs that total $35,000 to an identical unit with SDCs that total $45,000, the $10,000 difference in SDCs is associated with $16,800 greater housing price.

Exhibit 52. Estimated Sale Prices of a Typical 2,400-Square-Foot Single-Family Housing Unit Associated with Varying SDC Levels

Source: ECONorthwest

There are several important limitations to keep in mind with this finding:

- A linear model was applied, but many of the underlying factors affecting price likely have nonlinear effects on housing prices. For example, an additional 100 square feet of living area is more valuable for a small home than a large one. More complex (but still imperfect) models attempt to capture more of this nonlinearity.
- Actual SDC rates paid for each unit are not known; instead, ECONorthwest estimated the likely SDC amounts associated with each unit based on the jurisdiction, whether it

was within a growth area with supplemental SDCs or not, and the year the home was built.[191]

- As noted previously, a positive correlation does not mean that higher SDCs **cause** higher home prices. There are several other possible explanations for this relationship, which are discussed below.
- Many of the factors that influence home prices are not captured in the available data (e.g., finish quality and design, neighborhood features, views, etc.). If these factors are also correlated with SDCs, the model would be over-estimating the relevance of SDCs by capturing the influence of some of these factors instead. An alternative regression model that compared home prices in the expansion areas to those in the comparison areas (without controlling for differences in SDCs) showed a positive relationship between home prices and location in an expansion area, with a similar level of statiscal reliability as the SDC model. (See Appendix H for details.) Developer interviews also suggest this could be a factor, as discussed below.

While this case study does not show why SDCs correlate with higher housing prices, the additional price effect beyond the amount of the SDCs themselves observed in this analysis could support the interpretation that higher SDCs can increase costs beyond the direct cost of the SDC itself. Financing costs are one possible explanation for this type of pattern, as discussed in Section 5.1.3.

Findings From Developer Interviews

Interviews with developers involved in one or more of these areas suggest that some growth areas needed more expensive amenities—from home features to streetscape materials and green space design—to appeal to buyers and capture much of the demand for housing in this part of the region at the higher prices that make development feasible. Adding value to the home with these amenities offsets higher development costs due to SDCs and other infrastructure/land development costs and may have contributed to a price premium beyond direct SDC costs.

Developers were also heavily involved in creating the infrastructure funding plans for each of the growth areas. This allowed them to influence the supplemental SDC rates (to some extent) and to anticipate in advance of development what the total SDC costs might be. Because the amount of new infrastructure needed often makes land development in a new growth area expensive, developers may have known early on that housing in these areas would need to command some premium compared to other areas with lower infrastructure needs. This would suggest that the total amount of infrastructure needed along with the need to capture substantial demand from higher-income households may have driven a difference in housing prices.

[191] SDCs paid at time of development were estimated by adjusting FY 2021 rates to the year before the unit was completed, using the *Engineering News-Record*'s Construction Cost Index for Seattle. This index is the method each of these Washington County jurisdictions uses to adjust their SDC rates each year.

Part 5: SDC Administrative Policy Implications

Primary Contributors: Galardi Rothstein Group, ECONorthwest

5.1 Timing of SDC Assessment and Collection

5.1.1 Requirements and Current Practices

Issues related to timing include both the timing of the initial fee determination or assessment and collection of payment. In some cases, fee assessment and collection occur at the same time; however, collection policies may provide for deferral of payment to a later point in the development process or financing the SDCs over a period of time.

Statutory Requirements

As part of the definition of an SDC, ORS 223.299(4)(a) provides that SDCs must be "assessed or collected at the time of increased usage of a capital improvement or issuance of a development permit, building permit or connection to the capital improvement." This provision implies ten distinct options for the timing of the assessment and collection of SDCs, as shown in Exhibit 53. Taken together, the statutes provide a high degree of flexibility for local governments to choose the timing for assessing and collecting SDCs.

Exhibit 53. Timing Options, Earliest to Latest
Source: FCS GROUP, based on ORS 223.299(4)(a)

Option	Assess	Collect
1	Issuance of development permit	Issuance of development permit
2	Issuance of development permit	Issuance of building permit
3	Issuance of building permit	Issuance of building permit
4	Issuance of development permit	Connection to the capital improvement
5	Issuance of building permit	Connection to the capital improvement
6	Connection to the capital improvement	Connection to the capital improvement
7	Issuance of development permit	Increased usage of a capital improvement
8	Issuance of building permit	Increased usage of a capital improvement
9	Connection to the capital improvement	Increased usage of a capital improvement
10	Increased usage of a capital improvement	Increased usage of a capital improvement

Notes: Reference to "increased usage of a capital improvement" is assumed to occur at occupancy.

Oregon Revised Statutes 223.208 also authorizes (but does not compel) local governments to provide financing of SDCs under the provisions of the Bancroft Bonding Act. These provisions allow local governments to provide loan-like financing of SDCs. Provider financing programs vary in terms of the type of development eligible, maximum financing term, interest rates charged, and program application fees and other requirements.

Survey Responses and Testimony

As part of its most recent survey on SDCs, LOC asked its members to provide information on any policies or practices related to "timing or payment accommodations." Exhibit 54 summarizes cities' responses.

Exhibit 54. Sample SDC Payment Timing Policies and Practices
Source: FCS GROUP, based on League of Oregon Cities, System Development Charges Survey Report (February 2020), pages 119-128.

City	SDC Payment Policy
Cornelius	SDC payments "delayed until a later date, such as the time of occupancy."
Forest Grove	"Payments delayed have been for non-profit housing developments to allow the project to occur. Delayed payments are due prior to the issuance of certificate of occupancy."
Lafayette	"Allowed a payment plan for SDCs as required by statute."
Madras	"We will allow deferrals on payments up to 9 months or Certificate of Occupancy (whichever comes first)."
Medford	SDC payments "delayed until a later date, such as the time of occupancy." A payment plan ("called bancrofting") is also available.
Milwaukie	"Bancroft financing over a ten-year period or less."
Newport	"Installment plan is an option to allow payment to be financed over time."
Pendleton	SDC payments "delayed until a later date, such as the time of occupancy."
Redmond	"Delaying collection of SDCs to occupancy" is available in enterprise zones.
Sherwood	SDCs can be deferred to occupancy if the transportation and/or parks SDC is greater than $50,000.
Veneta	SDC payments "delayed until a later date, such as the time of occupancy" for affordable housing.
West Linn	SDCs can be financed under the provisions of the Bancroft Bonding Act.
Wilsonville	SDC payments "delayed until a later date, such as the time of occupancy."
Winston	SDCs can be financed over ten years with semi-annual payments.

In some cases, payment accommodations vary based on the type of development (for example, multifamily and affordable housing).

5.1.2 Timing Implications for Service Providers

Much of the written testimony provided on House Bill 3040 responds specifically to the proposed amendments that related to the timing of SDC payments. Many service providers raised concerns about an increase in administrative costs and increased risk of nonpayment. Some testimony points to particular concerns around the potential for deferring SDCs until time of sale rather than certificate of occupancy, because local governments are not involved in the sale transaction. (See Appendix I for a summary of relevant testimony.)

Focus groups echoed this. As noted in *Oregon SDC Study: Summary of Service Providers* (Appendix A), the effort (and cost) required to collect SDCs varies with the public agency's leverage at different points in the development process. For most public agencies, their moment of maximum leverage is when building permits are issued. If full payment of SDCs is a requirement for obtaining building permits, the public agency need not worry about enforcing payment, because developers are unlikely to begin work before building permits have been issued. While development is required to obtain a certificate of occupancy when the building is constructed prior to its use, some service providers expressed concern that the public agency's leverage is greatly reduced at this stage, out of concern that some developers may forego the certificate of occupancy in order to avoid the fee. Other service providers noted that they make scheduling a final inspection contingent on the SDCs being paid, which has avoided these issues.

Based on follow-up correspondence with several jurisdictions that offer (or previously offered) deferral to certificate of occupancy, deferral programs have had mixed results in different communities. All noted an increase in administrative effort, but the magnitude ranged from less than an hour of staff time per application to multiple hours for multiple staff, depending on permitting systems and deferral program requirements. The most challenging non-payment issues reported were linked to commercial development, though some reported needing to follow up with residential developers when payment was due (e.g., if there was a time limit on the deferral in addition to a trigger at certificate of occupancy). Several reported little use of the program, while others see (or saw) substantial usage.

Some service providers are also concerned about the timing of revenues relative to the need for expenditures. In many cases, infrastructure needs to be constructed and land acquired in advance of when service to new development will be required. Delay in collection of SDC payments to later in the process may impact service levels or require other upfront funding sources. Focus groups with service providers suggest that the importance of timing of SDC collection varies among service providers. Some types of projects (e.g., park land acquisition in a new urban growth area) are highly sensitive to timing. Some agencies use SDC revenues to pay a portion of debt service on prior capital improvements and expend revenue quickly after it comes in. Others collect revenue for several years prior to funding projects and are less impacted by collecting funds later. Several service providers noted that the uncertainty inherent in SDC collections means that they cannot rely too heavily on revenue they have not yet collected, regardless of when the fees are collected during the development process.

Public agencies can also maximize interest earnings (to be used for future project costs) and minimize additional administrative costs by collecting SDCs early in the process. However, the financial value of the added interest earnings may be inconsequential. Although SDC revenues can be (and often are) used to help make debt payments, those payments must be made regardless of SDC revenue, so there is no change in interest payments or earnings based on when SDCs are received. However, for communities that are using SDC revenues for pay-as-you-go projects, there could be short-term interest earnings. Assuming an annual interest rate of 3 to 4 percent in a money market account, the financial impact of deferring by 2 years would be roughly 6 to 8 percent of the SDC amount.

5.1.3 Timing Implications for Developers

When a developer must pay SDCs can impact financial feasibility, because SDCs add costs before the value of the development is fully realized. The earlier that SDCs are paid, the longer the developer must "carry" the costs. The total cost of SDCs to developers includes not only the SDC amount but also the added interest payments associated with it if it needs to be financed over the construction period.

The size of the "carrying cost" of SDCs depends on loan terms and the duration of the development. For a construction loan, which is taken out prior to the construction of the project and paid back, refinanced, or converted to a long-term ("permanent") loan after construction is

completed, interest rates are typically higher than they are for permanent loans on completed buildings, because there is less collateral to secure a loan.

The carrying cost can be calculated as the compounded interest rate on a loan. Although the carrying costs can vary based on specific project or developer characteristics and financing opportunities, typical rates range from 8-10 percent and the construction loan can last for 1 to 3 years. For example, if a construction loan has an annual interest rate of 8 percent and the loan is borrowed for 2 years of construction period, the monthly compounded interest cost is 16.64 percent of the SDC amount. If the entire SDC amount is financed, the total cost of SDCs to the developer would be 116.64 percent of the SDC amount. The interest cost would rise to 21.00 percent if the annual interest rate is 10 percent (for 2 years), and it would rise to 25.97 percent if the loan period is 3 years (at an 8 percent interest rate).

A delayed or deferred payment of SDCs would reduce the carrying costs and reduce the total cost of housing development at the margin. The likely impact is greater for projects that take longer to build and greater for developers that are less creditworthy and would borrow at a higher interest rate.

For developers who opt to pay SDCs from working capital rather than adding them to the construction loan, developer interviews suggest that there is still an opportunity cost associated with tying up the developer's available funds. Some suggested that this up-front cost means less money is available to pay for other pre-development and early construction costs that can accelerate project delivery.

While many developers pointed to timing of SDC payment as a factor that impacts their developments, others expressed indifference at when the cost is paid and whether it is financed, given that the construction loan is generally capped at a fixed percentage of total project costs, and the same amount will need to be financed either way.

5.2 SDC Exemptions and Waivers

5.2.1 Requirements and Current Practices

SDCs may be exempted for certain developments or redevelopment in cases where system impact is deemed negligible (in some cases of redevelopment or for specific development types). Exemptions or waivers may also be provided because of local policy objectives.

Exemptions Based on Negligible Impact

Redevelopment is generally exempt from SDCs unless the new use is estimated to place greater demand on the infrastructure system. System-specific exemptions may include:

- Parks – hospice or other end of life care facilities
- Water and sewer – ADUs that do not require an additional water meter

Exemptions or Waivers Based on Policy Objectives

Waivers (permanent or temporary) and exemptions have also been implemented by some local governments for developments like childcare facilities, ADUs, and economic development projects that are in enterprise zones or meet a target level of new job creation. Some communities also offer exemptions or waivers for affordable housing development, which are discussed in greater detail below.

Affordable Housing Exemptions or Waivers[192]

There are differing views on the validity of SDC waivers or exemptions for any purpose that is unrelated to a reduced demand for system capacity. Some experts are of the opinion that it is inconsistent with ratemaking principles to grant SDC adjustments or exemptions for reasons that are not cost-based. Others point to modern rate-making principles that integrate affordability and equity considerations.[193] Oregon's SDC Act does not explicitly address exemptions for affordable housing (or for any other class of development), as it says little about how SDCs should be calculated for specific developments (see Section 1.2.2). Other parts of state statute make clear that jurisdictions may offer whole or partial SDC waivers in exchange

[192] Most communities that do not charge SDCs for affordable housing describe this as an "SDC Exemption". Some make a distinction between "waivers" given on a case-by-case basis and "exemptions" that are set in policy. Others use these terms interchangeably. Throughout this document, when referring to programs that do not collect SDCs from affordable housing, both terms are used to mean policy-based exclusions that are applied consistently to all qualifying projects, unless a budgetary limit is set.

[193] See for example, "Affordability and Equity Considerations for Rate-Setting" (Eric Rothstein, Stacey Isaac Berahzer, Joe Crea, and Michael Matichich for *Journal AWWA*, September 2021) which argues that water, wastewater, and stormwater service providers have a social responsibility to ensure universal, affordable access to services, as part of their rate-setting framework.

for local affordability requirements,[194] but some experts recommend that agencies should "backfill" any foregone SDC revenue with resources external to the SDC fund to ensure the agency can complete necessary infrastructure projects and avoid compromising equitable share protection for other SDC payers. (Nationally, 14 of the 26 states that have explicit impact fee enabling statutes require impact fees to be waived for qualifying affordable housing developments. Five of these require fees to be paid from an unrelated funding source; nine enable—and require—waivers without making up the lost revenue.[195]) A Construction Excise Tax (CET) is one option available to local governments to backfill lost SDC revenue from exemptions for affordable housing.[196]

Oregon communities that offer SDC exemptions for affordable housing include Portland, Bend, Tigard, Eugene, Salem, Lake Oswego, Ashland, McMinnville, Florence, Newberg, and Forest Grove. Most service providers that offer SDC exemptions/waivers for affordable housing limit it to regulated/income-restricted affordable housing. Some cities and service providers have set a cap on the amount of waivers (number of units or dollar amount) they will issue for a given time period, but most do not backfill foregone revenue from other sources.[197] (Section 5.2.2 describes specific example policies and their results.)

In communities that have not implemented affordable housing exemptions/waivers, staff sometimes expressed concerns about monitoring and enforcement over time. Many raised questions about where replacement funding would come from. In some cases, revenue from construction excise taxes is used to offset lost SDC revenue from affordable housing exemptions.

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[194] ORS 197.309 indicates that SDCs may be waived for qualifying affordable multi-family housing and lists such waivers as one of several "incentives" that jurisdictions must choose among if they impose local affordable housing set-aside requirements ("inclusionary zoning").

[195] Newport Partners and Virginia Polytechnic Institute and State University, *Impact fees & Housing Affordability: A Guide for Practitioners*, prepared for the U.S. Department of Housing and Urban Development Office of Policy Development and Research, June 2008. https://www.huduser.gov/portal/publications/impactfees.pdf

[196] Construction Excise Taxes also increase the cost of housing development, but scale with permit value, making them inherently more progressive than SDCs. Affordable housing is also automatically exempt from CETs under Oregon law.

[197] ECONorthwest research and City of Lake Oswego Council Report: Review of System Development Charge for Affordable Housing, December 21, 2021, Agenda item Number 5.2. https://www.ci.oswego.or.us/WebLink/DocView.aspx?id=1911236&dbid=0&repo=CityOfLakeOswego&cr=1

5.2.2 Impacts on Affordable and Lower-Cost Housing Development

Benefits for Regulated Affordable Housing Development

Based on past interviews by ECONorthwest with affordable housing providers related to local measures to support regulated affordable housing development, there are two main benefits of SDC exemptions, based on their reduction to development costs:

- **Less funding from state, federal, or local sources is needed to make a given affordable housing development financially feasible**. This can mean less time and effort spent securing gap financing, particularly for smaller projects and those not using typical funding sources (see details below).
- **Lower costs help projects score better for competitive funding opportunities**, which often score projects based, in part, on costs per unit.

The impacts and benefits of exemptions vary somewhat depending on the specific funding sources and project scale, as summarized below.[198]

- **Low Income Housing Tax Credit (LIHTC) projects**: SDCs are included as an eligible cost in calculating tax credit equity for a given project, which means that waiving SDCs reduces development costs but also reduces the amount of equity available to the project to some extent. (Tax credit equity typically covers roughly 30-70 percent of project costs depending on the specific tax credit program, with the balance coming from loans or gap financing.) While exemptions are still beneficial, and interviews with affordable housing developers suggest that they can make a difference in making projects work, only a portion of the savings translates into reduced need for gap financing or debt. However, some LIHTC funding that is awarded competitively includes a scoring system related to a project's cost-effectiveness relative to similar projects, so reducing or eliminating SDC costs can help achieve a higher score by reducing the cost per unit.[199]
- **Other competitive state funding sources**: Many state funding programs for affordable housing have limits on the amount of funding per unit and projects needing less subsidy per unit are scored higher.[200] For these projects, all cost reductions are helpful and benefit the project on a dollar-for-dollar basis.

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[198] ECONorthwest, "Progress Report of Hillsboro Affordable Housing Tools and Evaluation of Additional Tools," prepared for the City of Hillsboro, April 12, 2022.

[199] Oregon Housing and Community Services, "NOTICE OF FUNDING AVAILABILITY (NOFA) #2022-5: Affordable Rental Housing Projects with 9% Federal Low Income Housing Tax Credits," https://www.oregon.gov/ohcs/development/Documents/nofa/2022/LIHTC9-NOFA-2022-5-v1.1.pdf

[200] Examples include the LIFT program (https://www.oregon.gov/ohcs/development/Documents/nofa/2022/2022-2-LIFT-Rental-NOFA.pdf) and the General Housing Account Program (https://www.oregon.gov/ohcs/development/Documents/nofa/2021/VETS-21/2021-Vets-NOFA.pdf).

- **Small projects and other funding sources:** Smaller affordable projects that may have many smaller funding sources tend to be more sensitive to development cost per unit because of the difficulty of securing funding. This can include affordable middle housing development, some affordable homeownership projects, and other small, innovative projects. For these projects, the primary concern is closing the gap between project costs and what the affordable units will generate in revenue, and waiving SDCs can offer a substantial benefit.

From a statewide perspective, reducing cost per unit should mean the ability to fund more housing units with the same pool of funds. This is likely true in practice at least to some extent, though the total amount of affordable housing funds going towards SDCs is not being tracked at present, and there are many other factors driving the cost of building affordable housing (see Section 4.3.3). Given the estimates in Section 4.3.3, SDCs represent a small share of overall affordable housing costs; however, given the number of new affordable housing units funded by OHCS each year, the total SDC-related expenditures associated with affordable housing development are likely substantial. From 2016 through the end of 2021, OHCS approved nearly 13,000 new construction affordable rental housing units for funding. Of these, roughly 7,100 are located in 11 communities with known SDC exemption programs for affordable housing (see list in Section 5.2.1).[201] While the SDCs charged for those projects have not been specifically tracked, at the estimated average total SDC rate for multifamily housing statewide (close to $10,000 per unit[202]), this would mean roughly $71 million in SDC savings (in today's dollars) from jurisdictions offering exemptions, and roughly $59 million (in today's dollars) spent on SDCs in jurisdictions that do not offer exemptions across six years of projects.

On the other hand, if the funding not provided for SDCs needs to be made up from other state, federal, or local sources, then exemptions shift that cost from one funding source to another. Funds for both affordable housing and local infrastructure investments are in short supply relative to needs.

Case Studies: Impacts of SDC Exemption Programs

The case studies that follow offer evidence of strong participation by affordable housing developers in local SDC exemption programs, and of cost savings for those developments. As noted above, However, it is difficult to measure the extent to which the SDC exemptions have changed the amount or type of affordable housing development that has occurred in those communities.

[201] Oregon Housing and Community Services, "Affordable Rental Housing Draft Dashboard," updated December 4, 2022. https://public.tableau.com/app/profile/oregon.housing.and.community.services/viz/AffordableRentalHousingDraftDashboard_16154170714140/Story1

[202] While the Affordable Housing Cost Study estimated an average of $8,000 per affordable housing unit for SDCs statewide, this includes projects with and without SDC exemptions.

In addition, sometimes SDC exemptions for affordable housing units can incent developers who primarily build market-rate housing to build some units at a defined price point or income affordability level to qualify for the exemption. Based on developer interviews and focus groups, the SDC exemptions have been essential to market-rate developers' ability to produce housing at a lower price point, even if these units may not remain affordable over the long-term to the same extent they generally do with more traditional affordable housing development.

Bend Exemptions for Affordable Housing

About the Program

Since December 2017, the City of Bend has offered SDC exemptions to all rental and for-sale housing affordable to households making 80 percent or less of area median income (AMI) through a deed restriction.[203] The City's Affordable Housing Advisory Committee has the authority to approve exemptions on City water, sewer, and transportation SDCs, and can also recommend exemptions for parks SDCs levied by the Bend Park and Recreation District. Upon approval, the exemptions are structured as a forgivable loan at 3 percent annual interest, with no payments due as long as the property remains affordable for at least five years. If the affordability restrictions are removed within five years of the project's completion, the SDCs become payable, with interest, by the original applicant.[204]

Program Impacts

Between 2016 and 2021, Bend granted exemptions on 577 units of affordable housing, for a total value of $5.2 million (Exhibit 55). Nearly all of these exemptions have been granted to nonprofit developers of affordable housing.

Exhibit 55. City of Bend Affordable Housing SDC Exemptions, 2016–2021
Source: ECONorthwest, using data provided by City of Bend

Housing Type	Units	City SDCs Exempted	Parks SDCs Exempted
Single-Family	140	$1,112,517	$205,628
Multifamily	407	$3,731,480	$2,017,896
Other (incl. shelters)	30	$383,670	$165,520
Total	**577**	**$5,227,666**	**$2,389,044**

For the few projects by market-rate developers in Bend that have been granted SDC exemptions to date, the program achieved only short-term affordability. One example is Revere Avenue Renaissance, a 12-unit development of five market-rate townhomes, one affordable townhome, and six one-bedroom rental apartments affordable at 60 percent of AMI. The seven affordable units were granted SDC exemptions by the Bend City Council in 2015; the project also received funding from the City's Affordable Housing Fund.[205] Three years after completion, the affordable townhome and rental units were sold at market rate as an investment property.[206]

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[203] Prior to December 2017, the City Council granted SDC exemption requests on a case-by-case basis.

[204] City of Bend, Municipal Code Chapter 12.10.120 (https://bend.municipal.codes/BC/12.10.120)

[205] City of Bend, "Request for Proposals for System Development Charge Exemptions: Program Year 2015." https://bend.granicus.com/MetaViewer.php?view_id=9&clip_id=359&meta_id=13633

[206] Zillow sales listing (https://www.zillow.com/homedetails/135-NW-Revere-Ave-Bend-OR-97703/250781754_zpid/)

Given City policies, the property owner would most likely have been required to repay both the SDCs and Affordable Housing Funds with interest at that time.

Portland Exemptions for Affordable Homeownership

About the Program

The City of Portland offers SDC exemptions for affordable rental and for-sale housing through several different programs. Exemptions are available for affordable rental units as part of the City's Inclusionary Housing policy, which applies to developments with 20 or more units.[207] Another program grants exemptions for rental housing affordable at 60 percent of median family income for developments not subject to Inclusionary Housing requirements.[208] Portland also offers SDC exemptions for affordable homeownership, linked to the City's Home Ownership Limited Tax Exemption (HOLTE) program. The focus here is on the homeownership SDC exemption because its link to a tax abatement program means that there is more data available regarding its usage and to consider its potential as an incentive for market-rate developers to build affordable homes.

For-sale homes qualify for the exemptions on water, sanitary sewer, transportation, and parks SDCs if they are new construction, have at least three bedrooms, and have a sale price no more than $430,000.[209] Exemptions are applied at the time of permitting, before construction begins, but must be verified when the house is sold. Qualifying buyers for affordable units must have an income no greater than 100 percent of median family income, adjusted for household size. If a project that applied for SDC exemptions is sold above the price cap, or to a non-qualifying buyer, the SDCs must be paid, with interest and fees.[210]

Program Impacts

In addition to some City data on SDC exemptions for homeownership, the impact of these exemptions can be approximated based on data from the HOLTE program, which has the same income and sale requirements.[211] In practice, all HOLTE-eligible properties also receive SDC exemptions.

In the most recent City report on HOLTE from fiscal year (FY) 2017–2018, 59 eligible properties sold within the 2017 price limit of $350,000 or the 2018 limit of $375,000 (Exhibit 56). Among the

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[207] In Portland's Central City, the SDC exemptions apply to all residential units when the Inclusionary Housing requirements are met.

[208] Portland Housing Bureau, "SDC Exemption Program for Rental Projects," https://www.portland.gov/phb/sdc-exemption/rentals.

[209] Projects located within City-designated transit corridors qualify with two bedrooms. See: https://www.portland.gov/phb/holte/property-eligibility#toc-two-bedroom-eligibility-areas

[210] Portland Housing Bureau, "SDC Exemption for Home Ownership," https://www.portland.gov/phb/sdc-exemption/home-ownership; Portland Housing Bureau, "Homebuyer Opportunity Limited Tax Exemption (HOLTE) Program," https://www.portland.gov/phb/holte.

[211] HOLTE is a 10-year tax abatement program. The City limits approvals to 100 units per year.

59 properties produced through the program in FY 2017-18, nearly half (29) were built by for-profit builders.[212]

Exhibit 56. Average Sale Price of HOLTE-Qualified Homes, 2017–2018
Source: ECONorthwest, using data from City of Portland[213]

Geographic Area	Total Units	Average Sales Price	Units (For-Profit Builders)	Average Sales Price (For-Profit Builders)
North Portland	1	$349,950	1	$349,950
Northeast Portland	11	$357,625	2	$362,500
Southeast Portland	47	$316,295	26	$335,679
Southwest Portland	-	-	-	-
Total	59	$324,571	29	$338,021

By 2018, there were more than 1,200 active HOLTE properties in Portland, down from 1,346 the prior tax year due to the tax exemption expiring.[214] This suggests that more than 1,300 units were built under the program from its inception through 2018.

A more recent City report provides data on the units produced through the SDC exemption and HOLTE program between 2016 and 2019 and the income levels of the buyers, as shown in Exhibit 57. Participation increased in 2019, with the increase mostly in units purchased by households earning over 80 percent of AMI.[215] These units are more likely to have been produced by for-profit builders, and are not subject to lasting affordability restrictions, but must meet the maximum sales price and buyer income requirements for the program.

[212] Portland Housing Bureau, *Residential Property Tax Exemption Programs 2017-18 Annual Report*, https://www.portlandoregon.gov/phb/article/739936

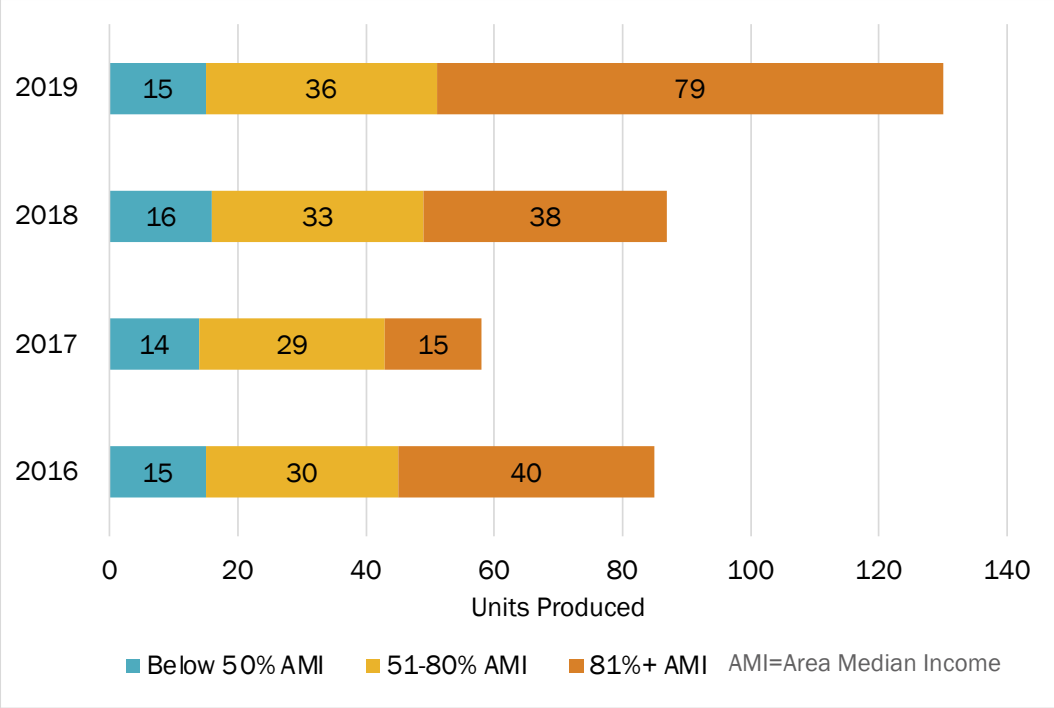
[213] *Ibid.*

[214] *Ibid.*

[215] Portland Housing Bureau, City of Portland, "State of Housing 2020," December 2020. https://www.portland.gov/sites/default/files/2021/phb-soh-2020-web-part-4.pdf

Exhibit 57. Units Produced by Buyer Income as a Share of Area Median Income for Portland's Homeownership SDC Exemption, 2016–2019

Source: ECONorthwest, using data from City of Portland[216]



Between 2016 and 2019, the number of units built using HOLTE and SDC exemptions was less than the City's annual 100-unit cap,[217] despite the fact that the cap was reached within roughly 6 months in fiscal year 2017-18.[218] This is likely because some properties approved for the exemption are ultimately not sold to a qualified buyer or do not meet other transaction criteria and do not receive the exemption. There is less data available on the units that are initially approved for the program but ultimately do not qualify for the exemption, but some recent sales transactions and input from developers familiar with the program suggests that some sell for more than the maximum sale price under the program, though they may still be lower-cost than other new homes.

There are a number of examples of homes built by market-rate developers under the HOLTE program that have offered a lower price to qualifying buyers than to other buyers, passing on the SDC savings directly.[219] This was also noted in developer focus groups. This shows that the

[216] Portland Housing Bureau, City of Portland, "State of Housing 2020," December 2020. https://www.portland.gov/sites/default/files/2021/phb-soh-2020-web-part-4.pdf

[217] *Ibid.*

[218] Portland Housing Bureau, *Residential Property Tax Exemption Programs 2017-18 Annual Report*, https://www.portlandoregon.gov/phb/article/739936

[219] Based on a review of recent sales transactions where the HOLTE program is mentioned in the listing.

SDC exemption is, at least some cases, directly translating to lower home prices and supporting production of lower-cost housing that is affordable to moderate-income households.

5.3 SDC Credits

5.3.1 Statutory Requirements

As discussed in Section 1.2.2, the Oregon SDC statutes require local governments to provide credits for "qualified public improvements" (QPIs). The required credit is only for the improvement fee charged for the type of improvement being constructed. Furthermore, for onsite QPIs[220], the required credit is only for the portion of cost that exceeds the local government's minimum standard facility size or capacity needed to serve the particular development project or property."[221]

The statutes provide flexibility to local governments to provide greater credits by providing credit beyond the improvement fees that would have otherwise been imposed, allowing for the transferability of credits, or providing credits for a capital improvement not identified in the SDC capital project list.

5.3.2 Credit Implications for Service Providers

Credit policies differ across providers in terms of project eligibility, creditable costs, and transferability. Service providers indicate that credits provide important incentives to construct needed infrastructure, particularly in green field areas. Furthermore, developers may be able to construct projects at lower costs than would be incurred by the local government. Local credit policies reflect the need to balance infrastructure needs and project flexibility with revenue sufficiency and capital project prioritization.

As discussed previously, some jurisdictions enact SDCs that are based on a fiscally-constrained project list in order to keep the fee levels lower than they otherwise would be. Limiting credits to projects on the adopted SDC project list may provide local governments with greater control over the timing and prioritization of projects. The greatest risk to capital improvement project control may result from extension of credits to projects that are not on a fiscally-constrained project list, as there would be no disincentive to developers to build these projects. Foregoing SDC revenue in exchange for a developer-constructed facility that is not included in the SDC means that less funding for projects that are on the project list and may be higher priority.

For determination of the creditable amount, the statute differentiates between onsite and offsite improvements, where the required credit for improvements on or contiguous to the development property (onsite improvements) are limited to the portion of costs that exceed "the local government's minimum standard facility size or capacity needed to serve the particular

[220] Improvements that are located in whole or in part, on or contiguous to property that is the subject of development approval.

[221] ORS 223.304(5)

development project or property."[222] This differentiation has potential implications for development of the SDC project list and calculation of the SDC cost basis. If certain project types (e.g., local streets and water utility mains sized for local needs or minimum standards only) are assumed to be funded directly by developers without eligibility for SDC credits, then they are excluded from the SDC calculations.

In cases where calculated credits do not fully compensate a developer for all eligible QPI costs, the statutes provide for application of credits "against improvement fees that accrue in subsequent phases of the original development project." In some cases, local governments will also allow developers to transfer credits to other developments or developers. However, expansion of a credit program may require additional administrative costs owing to the need to track projects and reimbursements over time and across developers.

5.3.3 Credit Implications for Developers

Like SDCs, infrastructure constructed as a condition of development approval is a cost to developers that needs to be factored into calculations to determine project feasibility. To the extent that the required infrastructure exceeds the capacity needed to serve the development, SDC credits provide a mechanism to reimburse the developer for this additional cost.

SDC policies vary across local governments, and the level of specificity in published SDC and credit policy information also varies, which may make it difficult for developers to have a clear estimate up-front of the total cost burden. This is particularly the case when (as the statute requires) credits are limited to the improvement fees levied on the new development, given the complexities of some charge bases.

In conversations with developers, many noted the importance of SDC credits, and several identified concerns or opportunities for improvement in how they are administered, as summarized below (see Appendix B for details):

- Several developers expressed frustration with the lack of certainty regarding SDC credits, often due to lack of clarity about what share of costs are attributable to excess capacity.
- Carrying costs can erode the value of the credits, because the developer is paying for infrastructure up front and has to pay interest on those costs.
    - In some cases, jurisdictions require developers to pay SDCs up front even if they are building infrastructure that will qualify for credits, and then reimburse or refund the credit eligible share at the end. This particularly increases carrying costs.

[222] ORS 223.304 (5)(a)

- Some noted that allowing SDC credits to be transferred to future development on other sites makes them more valuable and can allow developers to take on larger infrastructure projects.

5.4 Program Information and Transparency

5.4.1 Statutory Requirements

As discussed previously, prior to 2021, statutory requirements related to annual SDC program accounting and information sharing were limited to annual revenue and expenditure accounting and making the methodology available to interested parties 60 days in advance of a public hearing. With respect to annual reporting, the specific requirements are as follows:

> *The local government shall provide an annual accounting, to be completed by January 1 of each year, for system development charges showing the total amount of system development charge revenues collected for each system and the projects that were funded in the previous fiscal year. The local government shall include in the annual accounting: (a) A list of the amount spent on each project funded, in whole or in part, with system development charge revenues; and (b) The amount of revenue collected by the local government from system development charges and attributed to the costs of complying with the provisions of ORS 223.297 to 223.316.*

With the passage of House Bill 3040 in 2021, public agencies must now meet the additional informational requirements codified in ORS 223.316. Specifically, any local government that imposes one or more SDCs must publish on its website or by alternate accessible means (free of charge), the following information:

- The current SDC fee rates for each type of development.
- Details of the methodology used to determine SDC fee rates.
- A list of capital improvement projects that will receive funding from system development charge fee revenue.
- Contact information for a local official responsible for answering questions about system development charges.[223]

Even before the most recent changes to the statutes, many local governments made significant efforts to make information related to SDCs readily available and understandable. Service providers use a wide variety of tools and practices, and the cost and level of effort required to manage these programs similarly varies. Some local governments have dedicated staff that manage one or more aspects of the SDC program, while others need to rely more heavily on outside consultants.

As with other elements of the SDC program, a local government must balance the administrative requirements and costs associated with the development of educational tools

[223] ORS 223.316

and transparency measures—which may impact SDC fee levels by increasing program compliance costs—with the desire for enhanced public understanding and transparency.

5.4.2 Common Practices and Local Jurisdiction Perspectives

In considering program transparency best practices, it is important to consider points in the process where information is developed and how that information may be shared most efficiently and effectively to different audiences.

Methodology Development and Adoption

Service providers note that developing a SDC methodology is a significant undertaking. This is particularly true for agencies that desire a high level of stakeholder engagement in the process. Some providers indicate involvement of a standing or ad hoc committee in the development of the SDC methodology and project list. Involvement of stakeholders in the process helps some communities to evaluate the various methodological options to reflect local policy objectives and priorities. A number of service providers noted the importance of stakeholder engagement in the development of the SDC project list, to ensure investment in infrastructure is equitably distributed across the service area.

As discussed previously, the statute has had a long-standing requirement that an SDC methodology must be made available to interested parties at least 60 days in advance of the first public hearing. Most service providers typically go beyond this requirement by making methodology reports available more broadly on public websites and in public buildings (e.g., city hall or public library). Furthermore, because methodology reports are generally technical documents, many jurisdictions provide summary information in the form of fact sheets, frequently asked questions, and presentation graphics, in an effort to make the information more accessible to the general public.

While the general public may best be served by information at a summary level in order to understand the context of SDCs in infrastructure funding, it is critical that those paying the fees have a more in-depth understanding of the basis for the charges and be able to estimate the impact that the fees and other program policies will have on their development project. In this case, best practices include providing detailed fee schedules and administrative policies and procedure documents, and "SDC calculators" that help more accurately estimate SDC charges based on specific development characteristics.[224]

[224] For example, see City of Gresham fee calculate (https://greshamoregon.gov/SDC-Calculator/#!/) that allows a developer to enter data about a development project directly on the city's webpage and then see the calculated charges. The City of Corvallis (https://www.corvallisoregon.gov/ds/page/permit-fees) offers a similar tool.

Ongoing Reporting and Information Sharing

SDC Schedules

Once the SDC methodology and project list have been adopted, fee levels may change over time due to application of inflationary indices, phase-in plans, or changes to project list costs. Updated SDC schedules need to be readily available on the website through one or more mechanisms such as a comprehensive agency-wide fee schedule, dedicated SDC portion of the website, or on individual infrastructure department pages.

Project Lists

Project lists should be reviewed and updated periodically (e.g., in conjunction with capital improvement plan updating) and any modifications documented. The SDC statutes allow for the project list to be updated at any time, and formal notification of changes is only required if the SDC is to be increased. It is not uncommon for changes to be made to the project list without a need to increase the SDC (as in the case of replacing a lower priority project with a higher priority project of similar cost). While not required by statute, some local governments will formally adopt the new project list by resolution to increase transparency and facilitate internal tracking.

Annual Accounting

The level of information included in annual SDC accounting varies across jurisdictions. Generally, total annual SDC revenue is tracked and readily available by infrastructure system. In some cases, revenues by SDC component (reimbursement, improvement, and compliance) are accounted for individually, as each has different limitations on eligible expenditures.[225]

Service providers participating in focus groups indicate some reporting challenges with the level of detail available for project expenses. While reporting of annual project expenses is generally straightforward, projects that span multiple years are more complicated to report and track due to differences in internal project numbers used for identifying a project as it moves from SDC project list to the capital budget and then finally to a fixed asset.

Though not required by statute, some service providers prepare annual accounting reports and send them to interested stakeholders.

[225] Reimbursement fee revenue may be spent on any capital cost associated with the system for which it was collected, while improvement fee revenue is limited to SDC-eligible costs on the project list, and compliance-related expenditures must be accounted for separately.

5.4.3 Implications for Development and Developer Perspectives

SDC Rate Information and SDC Estimates for Specific Developments

As described in the developer focus group summary in Appendix B, many developers highlighted the importance of knowing how much the SDCs would be in advance. Several developers noted issues with major changes to SDCs during the pre-development and development period. Some set money aside specifically to address fee increases, but there are fewer options to adjust to cost-increases that occur later in the development process. Certainty on SDCs is particularly important for affordable housing development. When SDC costs increase unexpectedly, it can be very hard to find additional funding or cost-savings in other areas at the last minute when funding amounts have been set in advance.

Multifamily developers also highlighted challenges with estimating SDCs early in the development process because they can vary depending on the unit configurations (e.g., number of bedrooms and bathrooms) and site layout (e.g., impervious surface), which may not be known until late in the process. Developers who build middle housing (e.g., duplexes, triplexes, fourplexes, townhouses, and cottage clusters) also noted that many jurisdictions do not have separate SDC rates for middle housing. It can be difficult to determine which SDC rates should apply to a middle housing development when housing type definitions are not clearly listed in published SDC rate or methodology documents.

Part 6:Conclusions

This study responds to a legislative request for a comprehensive review of Oregon's historical and current policy and practice for implementing system development charges, with a particular focus on their interaction with housing affordability. While it is beyond the scope of the study to make recommendations, its findings can help inform future policy discussions.

For several decades, SDCs have provided a consistent mechanism for growth to pay for growth in Oregon. Today, SDCs are an essential part of funding the infrastructure needed for growth given limitations on other funding mechanisms and growing infrastructure needs and costs. A shift away from SDCs at the local level could have unintended consequences by increasing reliance on mechanisms like utility rates or user fees (which can burden low-income households) and direct developer exactions (which can make it more difficult to allocate costs among multiple parties), or by delaying needed infrastructure projects.

At the same time, the state faces a housing affordability crisis. It has become increasingly clear that housing production is essential for keeping prices and rents from escalating out of reach of most households. SDCs can be essential to funding the infrastructure needed to enable new development, but also contribute to the cost of building housing. While SDCs are just one among many cost drivers for housing development, they disproportionately impact lower-cost housing, including entry-level homes, middle housing, and smaller housing units, exacerbating other cost and market factors that make these types of housing harder to build. In communities with demand for high-end housing, SDCs can tip the scales further in favor of higher-cost housing development; in those without demand for high-end housing, they can create one more barrier to housing production overall. SDCs also increase the amount of state, federal, or local funding needed to make affordable housing development possible. It remains appropriate and important for growth to contribute proportionately to growth-related costs. Designing and using SDCs to accomplish this goal while balancing the need to build a broad range and abundant supply of housing requires a nuanced approach.

Jurisdictions have—and value—the flexibility to establish SDCs that reflect their local cost conditions, system needs, funding and policy priorities, and development context. They also have options to design SDC rate structures that reflect differences in impacts by type or size of housing unit, to allow SDCs to be paid later in the housing development process, and to offer reductions or exemptions for affordable housing. Successful programs in some Oregon communities suggest that these measures can benefit housing production and affordability to some extent while retaining SDCs' core function as a funding mechanism for the infrastructure that enables growth to continue. Broader adoption would require overcoming common concerns, such as revenue loss and legal uncertainties for exemptions, and administrative costs and nonpayment risks associated with deferring SDC payments, some of which the state could help address. At the local level, jurisdictions making updates to SDCs, housing policy, or infrastructure funding strategies could consider some of these measures for implementation, learning from the experience of other jurisdictions to craft successful programs. The magnitude

of the benefits from these programs can be hard to measure, but this report suggests they can make a difference for some of the developments that are most sensitive to SDC costs.

Because there are legal limits to jurisdictions' ability to align SDCs with housing cost, a bigger shift in how SDCs affect housing production and affordability would require targeting alternative funding sources towards SDC and infrastructure costs associated with affordable and lower-cost housing development. If the alternative funding sources have less impact on these housing types and on lower-income households generally, this could help level the playing field for these types of housing without undermining the purpose and value of SDCs or increasing cost burden on low-income households in other ways.

Acronyms and Glossary

Acronyms

ADUs – Accessory Dwelling Units

ARRA – American Recovery and Reinvestment Act

CAA – Clean Air Act 1970

CWA – Clean Water Act of 1972

CBO – Congressional Budget Office

CCI – Construction Cost Index

CPI – Consumer Price Index

ENR – Engineering News Record

ERUs – Equivalent Residential Units

FHA – Federal Housing Association

GO bonds – General Obligation bonds

HBA – Homebuilders Association

HOLTE – Home Ownership Limited Tax Emption Program

LOC – League of Oregon Cities

LIHTC – Low Income Housing Tax Credit

NAHB – National Association of Home Builders

NMHC – National Multifamily Housing County

OBOA – Oregon Building Officials Association

OMB – Office of Management and Budget

ORS – Oregon Revised Statutes

Glossary

Adjudicative Exactions – exactions specific to an individual parcels determined through a property-specific decision process

Affordable Housing – income and/or rent-restricted housing that is affordable to households earning a certain income level

Area Median Income (AMI) – also known as Median Family Income (MFI), this is an estimate of the median income for a given metropolitan area adjusted by household size, produced annually by the U.S. Housing and Urban Development (HUD) as the basis for affordable housing projects' income limits, rent limits, and loans

Assessed Value – the taxable value of a property

Asset – facility or structure that is part of the infrastructure system

Capacity – the amount of demand that an infrastructure system or facility can accommodate

Capital Improvements – major improvements to public facilities (excluding routine maintenance), including water supply, treatment, and distribution; wastewater collection, transmission, treatment, and disposal; drainage and flood control, transportation; and/or parks and recreation (see ORS 223.299 for the statutory definition)

Carrying Costs – costs of owning a property, including property taxes and interest financing costs

Certificate of Occupancy – a document verifying that all inspections have been completed for a new building and that the structure meets the applicable codes

Charge Basis – how SDC costs will be allocated across different development types, sizes, and contexts

Compliance Costs – the costs of complying with SDC statutes, including the costs of developing SDC methodologies and providing an annual accounting of SDC expenditures, and potentially other costs related to SDC administration

Cost Basis – the pool of eligible infrastructure costs to be recovered from the SDC

Cost Incidence – which party or parties ultimately incur a given cost

Depreciation – reduction in value of an asset or structure over time

Equity (financial) – ownership investment in real estate; the difference between the value of an asset and the debt on the asset

Equity (distributional) – fairness and justice in how costs and benefits are allocated

Essential Nexus – a concept established by the U.S. Supreme Court in *Nollan v. California Coastal Commission*[226] as a test for the validity of an exaction: whatever is being required (exacted) as a condition of development approval must be clearly and closely related to the impact of the proposed development

Exaction – a requirement the local government for proposed development to provide some form of contribution or payment as compensation for impacts of the development on infrastructure systems or public goods

Excess Capacity – a share of the capacity of an infrastructure facility that exceeds the needs of a given development

Financial Feasibility – a determination of whether a project's value or revenues will justify the costs to construct it, given the expected level of risk

Fixture Units – a unit of measure of plumbing (water or wastewater) demand, calculated based on the plumbing code

Hard Costs – construction labor and material costs

Housing Affordability – households' ability to find housing within their financial means, with or without public support or restrictions in place, across a range of income levels. This is commonly measured based on spending no more than 30 percent of gross income on housing (rent or mortgage, plus utilities)[227]

Housing Production – new housing development or other increases to the supply of housing units

Impact Fees – legislative monetary exactions adopted by a governing body and applied consistently to development applications

Improvement Fee – an SDC fee for costs associated with capital improvements to be constructed

Infrastructure Systems Plans – master plans or public facility plans for a given infrastructure system (e.g., parks master plans, transportation system plans, water or wastewater system master plans, or stormwater master plans)

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[226] Nollan v. California Coastal Commission, 483 U.S. 825, 837 (1987)

[227] The 30 percent standard is widely used but simplistic. See discussion and additional context related to defining affordability and affordable housing in the following memorandum:

Nick Meltzer, Sadie DiNatale, Bob Parker & Rebecca Lewis, University of Oregon, "Definitions of Affordable Housing," to the Department of Land Conservation and Development and the HB 4079 Rulemaking Advisory Committee (RAC), September 19, 2016. https://www.oregon.gov/lcd/UP/Documents/UO-Defining_Affordability.pdf

Internal Rate of Return (IRR) – a commonly used financial metric in the real estate industry to estimate the profitability of real estate investments as discount rate measured in percentage points

Level of Service (LOS) – a way of defining the quality or amount of service provided by a given infrastructure system or facility

Local Jurisdictions – cities, counties, or special districts

Local Option Levies – a special voter-approved property tax levy outside the limitations on permanent property tax rates under Oregon's property tax system

Lower-Cost Housing – market-rate housing (without income or rent/price restrictions) that offers lower sale prices or rents than most new housing in a given area and typically also has lower development costs

Market Context Area – generalized geographies capturing differences across the state in housing market factors and development cost factors

Market-Rate Development/Housing – housing in which prices or rents are (or can be) based on market demand and willingness to pay rather than meeting a defined level of affordability

Measure 5 – an Oregon ballot measure from the early 1990s that introduced property tax rate limits and cut tax rates

Measure 50 – an Oregon ballot measure from the late 1990s that cut taxes, introduced assessed value growth limits, and replaced most tax levies with permanent tax rates

Middle Housing – duplexes, triplexes, quadplexes, townhouses, and cottage clusters

Monetary Exactions – requirements by local governments that developers pay money as a condition of development approval

Multifamily Residence/Dwelling – a property with multiple dwelling units on a common lot, excluding middle housing (the dwelling units may be occupied by families or nonfamily households)

Nominal Dollars – dollar value based on the year of expenditure, unadjusted for inflation

Original Cost – the cost of building a facility at the time it was built

Pro Forma – a financial model that estimates the feasibility of a new real estate development based on the building's financial performance

Qualified Public Improvements (QPIs) – according to ORS 223.304(4): "Qualified public improvements are improvements required as a condition of development approval, identified in the SDC capital project list, and either: a) Not located on or contiguous to property that is the

subject of development approval; or b) Located in whole or in part on or contiguous to property that is the subject of development approval and required to be built larger or with greater capacity than is necessary for the particular development project to which the improvement fee is related."

Ratemaking Principles – not defined in statute, but generally considered to include establishing fee levels consistent with the costs of providing the service and recovering costs from system users in proportion to their use or impact; however, modern interpretations argue that water, wastewater, and stormwater service providers have a social responsibility to ensure universal, affordable access to services as part of their rate-setting framework

Rate-setting – methodology and policy decisions associated with establishing an SDC rate and fee structure

Real Market Value – an estimate of the market value of a property in an arms-length sales transaction

Reimbursement Fee – a fee for costs associated with capital improvements already constructed, or under construction when the fee is established, for which the local government determines that capacity exists[228]

Replacement Cost – the cost to replace an existing asset with a similar asset at current construction costs

Rough Proportionality – a concept established by the U.S. Supreme Court in *Dolan v. City of Tigard*[229] as a test for the validity of an exaction: the amount of the exaction must be roughly proportionate to the magnitude of the impact that the exaction is intended to address

Scaling Factors – development characteristics that relate to potential system impact used to set SDC rate structures to account for those differences in impacts

Service Providers – local jurisdictions (cities, counties, or special districts) that build and operate water, wastewater, stormwater, transportation, or parks systems

Single-Family Residence/Dwelling – a single detached dwelling unit on its own lot (the dwelling unit may be occupied by a family or a nonfamily household)

Soft Costs – development costs excluding the direct cost of construction, such as design and engineering, project management, financing, permits, and fee costs

Special Districts – a form of local government that provides specific public services

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[228] ORS 223.299(3)

[229] Dolan v. City of Tigard, 512 U.S. 374 (1994)

System Development Charges (SDCs) – impact fees established and administered consistent with Oregon's SDC Act

SDC Act – State statute (ORS 223.297 to 223.316) that regulates SDCs, first passed in 1989

SDC Credits – credits against SDC fees for construction of a qualified public improvement

SDC-eligible Projects – capacity-increasing projects that are included in an infrastructure system plan project list

SDC Methodology – documentation of an SDC calculation in compliance with the SDC Act

SDC Exemptions or Waivers – policies to not to charge a certain type or category of development an SDC. Most communities that do not charge SDCs for affordable housing describe this as an "SDC Exemption". Some make a distinction between "waivers" given on a case-by-case basis and "exemptions" that are set in policy. Others use these terms interchangeably. Throughout this document, when referring to programs that do not collect SDCs from affordable housing, both terms are used to mean policy-based exclusions that are applied consistently to all qualifying projects, unless a budgetary limit is set

Tax Levies – taxes established to provide a specific amount of tax revenue

Total Development Costs – the full cost of a development project, including construction labor and material, land costs, and "soft costs" such as design and engineering, project management, financing, permits, and fees

Townhouse – units that share common walls with each unit on an individual lot or parcel

Trip Ends – the beginning (origin) or end (destination) of a one-way trip

User Fees – fees local governments charge for the use or ongoing availability of government services like parks, streets, public safety, and others

Water Resources – According to the Congressional Budget Office, water resources include "water containment systems (dams, levees, reservoirs, and watersheds) and sources of freshwater"[230]

Water Utilities – According to the Congressional Budget Office, water utilities include "supply systems for distributing potable water as well as wastewater and sewage treatment systems and plants" [231]

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[230] Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2014," March 2015, page 3.

[231] *Ibid.*, page 3.

Working Capital – the available financial resources that a company can readily use to pay near-term costs

Appendices

Appendix A. Summary of Input from Service Providers

Contributors: ECONorthwest, Galardi Rothstein Group, FCS Group

ECONorthwest, along with consultants from the FCS Group and the Galardi Rothstein Group, conducted seven focus groups for large cities and small cities, special districts, parks providers, and the Portland Bureaus. The focus groups are important for understanding the varying perspectives on the importance of SDCs for infrastructure funding, factors driving SDC setting, timing of collection, and considerations related to measures to reduce the impact of SDCs on housing.

Questions Asked

Below is the set of questions used to help guide the focus groups.

1. **Role of SDCs in Funding Infrastructure:** How important are SDCs to your jurisdiction/district?
2. **SDC Rate Increases vs Cost Escalation:** Are you indexing your SDCs based on changes in construction costs or other measures? Has that been enough for them to keep up with increases in actual project costs over time?
3. **Actual Rates and Factors Influencing Rate Setting:** Is your organization currently charging the maximum that your methodology supports? If not, why not? What are some of the top factors that influenced your organization's most recent SDC setting decisions?
4. **Equity Considerations:** How and to what extent did equity considerations factor into your rate-setting decisions? If it did, how did you address equity in the rate-setting process and in evaluating equitable outcomes?
5. **Strategies to reduce impacts of SDCs on housing:** Some communities and districts are considering measures to reduce the impact of SDCs housing affordability. Does your organization currently have any affordable housing measures in place? If so, how are they working? If not, what concerns do you have about implementing them?
6. **Timing:** How does the timing of SDC collection compare to when you need to build facilities? To what extent does the specific timing within the development process (e.g., certificate of occupancy vs. building permit) affect your organization's ability to build facilities when they are needed? Do you have other concerns related to the timing of when SDCs are paid?
7. **Transparency Requirements:** As you may know, HB 3040 also included a requirement to make information about SDCs including rates, methodology, and the project list available to the public via a website (unless the jurisdiction/district does not have a website). Has addressing this requirement been a challenge? Does your jurisdiction/district have any additional tools to provide information to the public regarding SDCs?

8. **Questions for us / other thoughts** *(if time permits)*: Do you have questions for OHCS or the consultant team about the study? Are there other things you are concerned about related to SDC requirements?

Jurisdictions That Attended

Cities			
Wilsonville	Newport	Eugene	Bend
Lebanon	Tigard	Albany	Forest Grove
Redmond	Wilsonville	Medford	Beaverton
Hillsboro	Redmond	Springfield	Falls City
Lake Oswego	Newberg	Tualatin	Sherwood
Sisters	Gladstone	Klamath Falls	Vale
Cornelius	North Bend	McMinnville	Ashland
Warrenton	Cannon Beach	Oregon City	Millersburg
Sherwood	Stayton	Banks	Banks
Hood River	Philomath	Pendleton	Independence
The Dalles			

Special Districts and Counties			
Tualatin Valley Water District	Roseburg Urban Sanitary Authority	Clean Water Services	Washington County
Twin Rocks Sanitary District	Canby Utility	Sunrise Water Authority	Oak Lodge Water Services
Metropolitan Wastewater Management Commission	Washington County	Rockwood Water People's Utility District	Harbor Sanitary District
Clackamas County	Jackson County Roads	Rogue Valley Sewer Services	Housing Authority of Clackamas County

Clackamas Water Environment Services	Hood River County	West Slope Water District	Eugene Water & Electric Board
Parks and Recreation Districts			
Willamalane Park and Recreation District	North Clackamas Parks and Recreation District	Hood River Valley Parks & Recreation District	Wilsonville Parks and Recreation
Tualatin Hills Park & Recreation District	Bend Park and Rec District	City of Albany Parks & Recreation	Clackamas County Parks
Crook County Park & Rec District - Prineville, OR	Portland Parks & Recreation	Metro Parks and Nature	Oregon Recreation & Park Assoc
Clackamas County	Lane County Parks	Sunset Empire Park & Recreation District	Northern Wasco County Parks and Recreation District
Corvallis Parks and Recreation Department	Medford Parks & Recreation		

Summary of Stakeholder Feedback and Themes

The balance of this memorandum summarizes feedback from the focus groups by topic and theme. Paraphrased statements from attendees are shown in *italics*. Where relevant, the type of service provider making the statement in question is indicated in brackets (e.g., *[small city]*).

Themes	Stakeholder Feedback
Role of SDCs in Funding Infrastructure	
Critical funding source for infrastructure in communities experiencing growth	• Some jurisdictions would not be able to make land available for development within the UGB without SDCs to extend infrastructure. • Some Metro jurisdictions use specific SDCs or higher SDC rates in high-growth areas. ○ In many new growth areas, service providers have evaluated how the areas needed to be served from a parks and recreation standpoint and added area specific supplemental SDCs. This method has been successful, as developers see the market value in parks and recreation facilities. • Several small cities noted they had not experienced a lot of growth occurring and little SDC revenue, but more recently there have been more developments that have brought in more SDCs and there's more need for capacity-increasing projects to support growth. • Some in larger cities feel there is a disconnect between for-profit developers and jurisdictions when developers want to reduce or waive the SDCs jurisdictions rely on to help pay for infrastructure investments that facilitate housing development.
SDCs prevent over-reliance on user fees and utility rates to cover cost of new capacity	• Public utilities rely on political/public support for raising capital (unlike investor-owned utilities). SDCs are key to messaging that growth is paying for growth, and utility rate increases are for meeting other capital and operating needs. • Some believe user fees should only be used for maintenance and operations of existing facilities, as cities do not want to burden existing users with helping to pay for new development (through an increase in user fees). • Would need to replace revenue with large utility rate increases, new fees (transportation), and GO bonds (parks). Equity issues from redistribution of growth-related costs.
Critical for funding large infrastructure like major sewer interceptor, water and sewer plants	• A number of water/sewer service providers noted the importance of SDCs in helping pay for major projects, that may not have happened without them. While not the sole source, they often contributed a meaningful amount or helped pay debt service.

Themes	Stakeholder Feedback

SDC credits for improvements built by developers are an important component of SDC expenditures in some communities	• For larger developments and greenfields, credits play an important role, especially in larger cities.
	  ○ Jurisdictions have seen a number of capacity expanding infrastructure projects being built by developers then getting SDC credits.
	  ○ Some report not charging parks SDCs in expansion areas because developers typically opt to build the park and get credits instead. Will also issue transportation credits for oversized facilities. This is less common outside of expansion areas.
	• SDC credits sometimes provide cost savings when developers build infrastructure.
	  ○ Jurisdictions or providers (particularly parks districts) have worked more with developers to deliver infrastructure need for their developments at better rates with economies of scale, and then receive SDC credits.

Revenues can be limited in places with slow growth	• Communities experiencing mostly infill may get less SDC revenue.
	  ○ *Most development consists of tear-down/rebuilds and no SDCs are collected because usually get credit for previous development.*
	  ○ *Would love to rely on SDCs for capital improvements but landlocked—little expansion room, no empty land in town, only comes from infill or teardown and build more housing.*

There are other funding options beyond SDCs and utility rates, but they are limited	• Tax limitations in Oregon have had particularly acute impact on parks and transportation funding.
	  ○ *Areas with enterprise zones and Urban Renewal districts further limit revenue.*
	• Urban renewal more and more relied on to fill gaps, capturing revenue from other districts
	• Some jurisdictions use general fund allocations or special property tax levies to supplement SDCs
	  ○ Larger cities have supplemented SDCs with discretionary allocations from the General Fund, but very limitedly.
	  ○ One county has a voter-approved tax they levy to help pay for county road projects on major arterials.
	• One community with a tourism-based economy adopted a prepared food tax.
	• A few communities have implemented utility fees for transportation and parks to pay for maintenance and improvements.

Themes	Stakeholder Feedback
	○ But for parks, this now gets stretched to cover things like ROW and greenways in addition to the parks • State and federal funds are more limited now than in the past • It can be a struggle to fund parks and transportation projects the most, because they often do not collect user fees like water, sewer, and stormwater
SDCs are key to leveraging other funds	• Parks providers noted they often leverage SDCs as grant matching dollars to close gaps and have few other sources available as a local match. Many jurisdictions also noted using SDCs as local match for transportation projects.
SDC revenue is volatile year to year, and varies as a share of capital funding	• Portion of infrastructure funding from SDCs varies from year-to-year due to various factors including the rate of growth and the type of improvements being constructed.
Lack of funding for operations and maintenance can limit use of SDCs	• SDCs cannot be used for maintenance or operations of existing facilities. • Hard to justify building more facilities when struggling to fund existing facilities ○ Some jurisdictions do not feel like it is feasible to expand without an adequate and stable source of revenue for maintenance and operation.
Some small cities do not charge SDCs at all	• Reasons why small cities are not collecting SDCs: ○ Little development (which requires less infrastructure development) ○ Political concerns ○ Developers required to install infrastructure ○ Voter approval required by local policy in some communities

Themes	Stakeholder Feedback
Methodology Choices and Cost Allocation	
Infill and denser developments are sometimes, but not always, less costly to serve	• New density requirements create capacity issues with infill development, such that it may be more. expensive to serve due to the need to upsize existing infrastructure in a developed area o Waiving or reducing SDCs for higher density housing can be problematic since those housing types are more reliant on parks. • Infill may have lower transportation impacts, so some jurisdictions offer discounts for denser developments or to areas with better access to transit or that are more walkable.
Infill areas may need a different approach	• Some jurisdictions are changing approach to fund upgrades to existing facilities that expand capacity and may also replace existing aging infrastructure. o Areas experiencing more infill development than greenfield development may need a different way of defining LOS and growth capacity—specifically, improvements that increase capacity through more efficient use of existing facilities versus building new facilities.
Some service providers have implemented or are working on a tiered approach for residential SDCs based on unit size	• Tiered fees are typically based on local data showing reduced household size, trips, or other measures of impact. o Some researched how occupancy changes by square footage, showing there was less impact when fewer people lived in a unit. • Others are considering making this shift, or in the process of working on it.
Many expressed concerns about a "one size can fit most" approach	• Service providers value local discretion in SDC methodology and policy. o Some felt that the nuance of affordability and quality of life people get from infrastructure investments is best dealt with at the local level.

Themes	Stakeholder Feedback
Cost Recovery	

Many are not charging the maximum amount supported by methodology	• Many communities made policy choices to charge less than the full SDC determined by methodology and project list.
	  ○ Some policy makers are hesitant to levy the maximum amount the methodology would support to stay competitive or support affordable housing development.
	  ○ Decision-makers often want to see how proposed SDC rates compare to other jurisdictions in an effort to not be the highest.
	• Some small cities in particular have avoided setting SDCs rates at the maximum their methodology supports in order to remain competitive.
	  ○ *Needed to stay below "closest neighbor of similar size."*
	  ○ *More important not to create disincentives to development, remain competitive with other similar communities.*
	• Some adjust project lists rather than reducing SDC rates from max to keep SDC rates lower.
	  ○ Use of funded and unfunded project lists, or SDC project lists established based on viable SDC rate.
	  ▪ *Not all projects made it onto funded list. Created kind of a target max SDC that they would charge, prioritized project to that amount.*
	• Some phase in SDC rate increases over multiple years to avoid making big jumps.
	  ○ Large increases sometimes prompted phase-in periods.

Other cities and service providers charge the full amount or have made bigger increases	• Some communities have a policy inclination that growth should pay for itself and charge max SDC rates. • Others have caught up more recently (after keeping SDC rates artificially low for many years), and come to recognize a greater/urgent need for infrastructure upgrades.

Themes	Stakeholder Feedback

Most (but not all) service providers index SDC rates	• Many use Engineering News Record (ENR) Construction Cost Index (CCI), either the 20-City average or the City of Seattle index, but the timeframes vary and this can change the outcome.
	• Parks providers often also account for changes in land costs.
	• A few do not index SDC rates.
	  ○ Some only increase SDC rates when they believe there's a viable justification.
	  ○ *Calculate every year—effectively renew methodology every year, no cost escalator. Not that much work – have staff capacity [in a large city] to do it in house.*

SDCs not keeping pace with rising costs due to a variety of factors	• Inconsistent indexing.
	• Some felt that available indices are not representative of local variations in costs (e.g., Seattle ENR not representative of Portland construction market).
	• Methodology for indexing can create lag.
	  ○ *Even when SDC rates are indexed year-to-year, they don't appear to keep up because indexes tend lag on their own.*
	• Some infrastructure systems can lag more than others.
	  ○ *Index numbers for land cost (for parks) are based on assessed values rather than market values, so they continue to fall behind on top of the existing lag.*
	  ○ *Transportation costs have the hardest time keeping up with construction cost escalations.*
	  ○ *Park districts are experiencing the same cost increases as developers but are not able to recoup any costs.*
	• Many (though not all) are seeing actual costs rise faster than their index.
	  ○ *Not keeping up with cost of materials. Index only includes cost of construction (not land), falling further behind.*

Methodology updates are a substantial undertaking	• Methodologies and project lists are not updated regularly.
	  ○ *Takes 5-10 years to update SDC. Hard to keep system plans fresh—spend increment on updating master plans, CIP, and methodology. [small city]*
	  ○ *Methodology updates every 10 years. [large city]*

With SDC escalation falling behind costs,	• Districts haven't been able to move capital projects forward due to stagnant SDCs (against costs). ○ *Have had to make some reductions to projects with costs increasing.*

Themes	Stakeholder Feedback
some service providers can fund less	○ *It is becoming more common for sudden projects to come up, but funding hasn't been allocated for them.* ○ *Falling behind on ability to expand capacity because of cost escalations of past 5 years or more. Far exceed ability to update methodology to keep pace. [small city]*
Equity and Affordability Considerations	
Varying perspectives on what the relevant equity issues are for SDCs	• Some felt SDCs should only consider impact, not ability to pay (particularly in the context of affordable housing waivers). ○ *SDC is based on the impact—equity is more about reflecting differences in impacts.* • Some felt the key equity consideration is putting costs on development vs. existing users. ○ There's substantial concern around over-burdening existing users/long-term residents if user-fees are increased. • Some emphasized supporting affordable housing regardless of impact. ○ *Backfilling to support regulated affordable housing with guaranteed longevity. Very much an equity and need for affordable housing conversation, understanding that market won't deliver it.* • Some focused on reflecting differences in impact for different housing types and larger vs. smaller homes. ○ *Recognize equity piece related unit size.* • Some focused on equitable expenditures of SDC revenue/provision of facilities ○ *Access to walkable parks is an important element of the equity conversation.* ○ *Equity considerations on allocation side, how to decide what gets funded. Major factor in deciding where to spend the revenue.* ○ *Understanding who benefits from the investments is more important than where the money comes from (true equity impact is at the backend, when investments are made).* • Some focused on equity in the process ○ *Existing residents often hold historic influence in investment decisions, so residents who might be disproportionately affected by reducing or eliminating SDCs might not be at the table.* ○ Some communities use standing or ad hoc committees to help in the SDC-setting process.

Themes	Stakeholder Feedback

Increase in interest in/use of affordable housing waivers	• Several cities and service providers have waiver policies in place for regulated affordable housing and more jurisdictions reported considering waivers.
	• But concerns about administration and enforcement for affordable housing waivers were raised.
	  ○ In communities that have not implemented affordable housing waivers, staff sometimes expressed concerns about monitoring and enforcement over time:
	  ▪ How to guarantee that rents stay low?
	  ▪ What happens if owner changes rents? If rents do change to market-rate, is there a way to get SDC payment?
	  ▪ Major administrative tracking concerns.
	• Most service providers that offer SDC waivers for affordable housing limit it to regulated / income-restricted affordable housing.
	  ○ *Some use a deed restriction that requires them to pay back the SDCs if the property does not remain affordable.*
	  ○ *Some noted waivers have increased admin costs because they must review for eligibility, other said it was minimal.*

Concerns about implications of foregone revenue from eliminating or reducing SDCs for affordable housing	• Some do not feel it is fair (or, in some cases, legal) to waive fees for affordable housing.
	  ○ *SDCs are charged based on infrastructure needs, and affordable housing still creates an impact on infrastructure.*
	• Some cities and service providers have set a cap on the amount of waivers they will issue.
	• Many raised questions about where replacement funding would come from.
	  ○ *When SDCs are waived on certain projects, the revenue will need to come from other sources so projects can be built.*
	  ○ *User fees or general funds may be used to backfill whatever SDCs are waived.*
	  ○ *Want to know that if SDCs are reduced or eliminated, how can they ensure investments are made in lower income areas?*
	  ○ *If there was a policy to waive, would have to be a policy to backfill—that money has to come from somewhere. What do you backfill it with is the question, not whether to backfill.*
	  ○ *Concerned that State will require SDCs be waived or reduced for certain types of development projects. If this becomes the case, state funding should be provided to help backfill.*

Themes	Stakeholder Feedback
Timing	
Most jurisdictions collect SDCs at building permit issuance, but some offer flexibility	• Jurisdictions offering deferral to certificate of occupancy (C of O) often do so selectively, but each jurisdiction is different in their approach and criteria. ○ Water SDCs are sometimes linked to meter placement, which typically occurs about 3/4 of the way through finishing the house, before C of O, but after BP (usually). Have leverage because the meter needs to be installed. Several indicated they won't install the meter if SDCs haven't been paid.

Concerns about administering deferrals	• Administratively, it's easiest for jurisdictions to collect at building permit.
	  ○ Easier to collect SDCs with Building Permit when applicant is already paying permit fee - more efficient.
	  ○ When fees are not collected all at once, funding streams become disconnected and project execution can become uncertain.
	• At Certificate of Occupancy, service providers still have some leverage, though there were differing opinions about this.
	  ○ Some said certificate of occupancy is fine, since there's still a lever the jurisdiction has control over.
	  ○ Some cities expressed that once permits are issued, they can't hold up C of O for any unmet conditions or unpaid fees.
	  ▪ *Pretty common opinion from building officials—if don't get fee up front, no hammer to collect any more.*
	  ▪ *Permitting system wouldn't allow carrying a balance—can't call for inspection.*
	• Many service providers are concerned about nonpayment and being in a difficult position with deferral to C of O. For example:
	  ○ *If ready for final inspection, ready to close and move in, and SDC payment holds it up, would look like City holding up final inspection. Creates perception issue.*
	• Single-family development can be more challenging for deferrals.
	  ○ *SF permits all come in individually. Would have to monitor and track every unit individually.*

Themes	Stakeholder Feedback
	○ *For a subdivision phased in over time can deferral create delays in implementing improvements.* • Collecting at time of sale is especially concerning ○ *Rental properties are not sold, there's no trigger in place to collect SDCs* ○ *Large scale planned development that might be built out over several years with piecemeal sales, might not allow for SDCs to be collected in a timely manner.* ○ *Since cities are not involved in the sale of a property, there may be no trigger in place for collection (years down the road) and fees may never get paid.* ○ *Concerned about level of effort and staff time to track and make sure it happens.* ○ *City has no connection to sale, no involvement. Unless appropriately recorded—have to rely on someone else to trigger it, no guarantee it will show up.*
Most service providers are not affected by a small delay in receiving funds, but there are a few cases where timing is more important	• Most service providers are not utilizing SDC revenues for projects within the same year and would generally not be greatly affected by a 6 or 12-month delay in collections. Projects are usually planned out several years through the CIP with current revenues funding projects in later years. • For new parks in master planned areas, timing of SDC collection is important, especially for land acquisition, since this needs to occur prior to development. Timing for developing the park land is less critical. Having parks and playgrounds before first homes come up isn't necessarily as important. However, others felt that people expect park and rec facilities when they move in. • In some cases, utility impacts are immediate (e.g., water use during construction). • Some service providers use SDCs to pay debt service on previously built projects and expend it in the year it is received.
Transparency	
Basic ORS requirements are not a problem for most agencies	• Most provide some info online, but amount and type vary. ○ Methodologies, project lists, fee schedules posted on website. ○ Funding can be tracked in budgets, CIP, and annual reports. • Some charge small administrative charges to recover a portion of the compliance requirements and include a part of master planning costs on the project list.

Themes	Stakeholder Feedback

Additional simpler explanations of SDCs are common	• Cities that only post their methodology online without providing more user-friendly materials for community members to navigate the methodology can create confusion and tie up staff time with fielding questions.
	• Many communities have at least a brief explanation online.
	• Larger agencies have staff dedicated to SDC program, so can provide more tools, such as
	  ○ Dedicated webpage
	  ○ SDC calculators
	  ○ Transportation SDC video
	  ○ Historical SDC tracking and comparisons
	  ○ FAQs
	  ○ Mail CIP reports to citizens
	  ○ Training of front counter staff key to communication/understanding
	  ○ Public info campaign for projects that are funded with SDCs - want people to see how being used
	• Some smaller service providers noted that simple explainers from the state that explain what SDCs are would be helpful.

Providing information on SDC expenditures is more complex	• Would have been concerned if had to clearly show what SDC are paying for specifically.
	  ○ *Gets complicated when multiple revenue sources are applied due to mix of project components (growth and maintenance).*
	  ○ Small communities report it would be difficult to track at a subsystem (neighborhood) level.
	  ○ *There is a lack of tracking where new dwelling units are being constructed relative to where funding is being spent.*

Appendix B. Summary of Input from Developers

Contributors: ECONorthwest

ECONorthwest conducted seven interviews and focus groups with market rate and affordable housing developers and home builders to gather insights on how SDCs affected developers' choices and development outcomes.

Discussion Topics

While the interviews and focus groups varied depending on the developers' experience and expertise, the range of topics addressed in these conversations included:

1. How do SDCs affect your development decisions? Can you give examples of times when SDCs affected and or all of the following:
   - Land negotiations
   - Walking away from a potential project
   - Changing what you would build / target price point
2. How does the impact of SDCs on housing vary across different geographic areas?
3. What are the implications of the timing of when SDCs are due within the development process?
4. How important are the following factors related to SDCs:
   - amount of the SDC relative to the strength of the local housing market;
   - amount of the SDC compared to other similar communities;
   - how the SDCs are used, and being able to see clear value from the SDCs; and
   - certainty about how much the final SDC cost will be.
5. Are there jurisdictions that you think are good models to look to for mitigating impacts of SDCs on housing?

Companies Represented

- Metropolitan Land Group
- Polygon Northwest / Taylor Morrison
- Pacific Crest Real Estate
- CDC Management
- Hi-Valley Development
- Arbor South
- Columbia Gorge Capital
- Killian Pacific
- Stoel Rives, LLP
- Hearthstone Homes
- Cornerstone Community Housing
- NW Housing Alternatives
- Seven Peaks Homes
- Stonebridge Homes
- Venture Properties
- Hayden Homes
- Goodwell Construction

Summary of Stakeholder Feedback and Themes

Themes and stakeholder feedback from the interviews and focus groups are summarized on the following pages by topic.

Themes	Stakeholder Feedback
Do SDCs Affect Development Decisions?	

SDCs are part of underwriting and decision-making, as one of many costs that developers consider	• Most developers, report that SDCs are included as a line item in the proforma as a development cost. Some identified SDCs as a **major** cost category, along with land costs, hard costs, and off-site improvements.
	  ◦ *Moves the needle for cost of housing across the board, combined with everything else.*
	  ◦ *Not only SDCs. One of the biggest costs though.*
	  ◦ *Have decided not to do maybe $20m of work because of how SDCs skewed proforma.*

How SDCs Can Affect Feasibility of Projects	

In some cases, SDCs are enough to make a project infeasible, especially for very cost sensitive housing types	• Entry-level homes are often cost-sensitive because of the need to keep sale prices down.
	  ◦ *Worked for a homebuilder that did entry-level homes for first-time buyers and it was a burden.*
	  ◦ *SDCs are $35-36k on an entry-level house. Sale price needs to be about another $45k just to break even.*
	  ◦ *Try to build a home and SDC fees are almost $30k before building permits. Would have to build something that nobody can afford.* (Small coastal community)
	  ◦ *If just barely pencils and SDC rates go up, they walk away if it's entry-level. In the middle adjust up or down, at bottom it's go/no-go.*
	• Middle housing (attached product) tends to be cost-sensitive because it can cost more to build than a single-family home and sells for less relative to a single-family dwelling, but SDCs are not proportionately lower.
	  ◦ *Jurisdictions often have just a multifamily and single-family SDC rate so middle housing doesn't get the same discount as you would for larger multifamily. Some SDC rates differentiate based on square footage, but those often don't have a substantial discount and other SDCs don't vary in the same way so SDC rates don't change that much.*
	  ◦ *Had a half-acre of land on hold in* [medium-sized mid-Willamette Valley city], *waiting for HB 2001, but when they got the estimate back for SDCs for the 12-unit project it was about $200,000*

Themes	Stakeholder Feedback
	(just for building SDCs). Doesn't include utility costs. Means 20 percent of unit costs going to soft costs outside of architecture & engineering. Considering bailing on it. o *It's a hard sell to propose middle housing when single family performs better. SDCs make up a larger percentage of the sale price for middle housing so they perform even worse.* • Multifamily can also be affected by high SDCs when rents won't cover the costs. o *SDC fees (plus other local fees, including building permit) made it prohibitive to underwrite project. Were about $40k per unit, and those areas had been more like $20-30k historically. If the fees for that area were lower, it would still have been questionable, but would have helped.* o *24-unit project in* [medium-sized mid-Willamette Valley city]. *If it costs more than about $15k per unit, it gets tough. Now getting closer to $20k per unit.* o *12-unit project in* [small city]. *Did some napkin math, got SDC numbers from City up front and said wouldn't work period. Didn't bother refining project. With SDCs in normal range would have been tight anyway.*
Lower SDCs aren't always enough to make an infeasible project feasible	• When projects don't work, it's often about more than just SDCs—construction costs and market conditions are big drivers. o *If it doesn't pencil out, there are probably multiple drivers, not just SDCs.* o *Construction costs have gone up from around $200/sf. Now coming in around $250/sf. Not SDC related, just market right now.* o *Deal-killer now is supply, labor, construction costs. SDCs have become a smaller factor.* o *If a community doesn't have reliable growth, reliable rents won't get near it.* • Lower-cost housing types tend to face obstacles beyond SDCs. o *ADUs are super expensive to build per SF basis and the return on them doesn't align.* o *For middle housing, you're putting a product on a site that would otherwise have a single-family home on it. Lenders always compare to what else could be built there. Have to justify that it performs better than single-family dwelling, but middle housing often doesn't. Attached product depending on market particulars can cost 20 percent more to build than a single-family home (more complex to build) and dramatically undersells relative to a single-family dwelling (30-50 percent of a sf dwelling).* o *Larger homes often perform better than smaller ones. Incentive is to build the largest marketable product on the lot.*

Themes	Stakeholder Feedback

Where SDCs are low relative to other costs, they have little impact on projects	• When a jurisdiction's fees are low, they may not be a source of concern.
	  ○ *SDCs* [for duplexes in a small coastal city] *were about $6,000 per unit, that amount just doesn't move needle too much because rent growth in area is so high and the SDCs were low. Not significant relative to overall budget cost.*
	• Residential adaptive reuse projects can have low SDCs compared to new construction.
	  ○ *Adaptive reuse of a former senior care center that was 70 rooms, which resulted in a reduced fixture count (ended up with about 56 units after completed). Resulted in less than 50k in SDCs on that project, less than 1k per unit.*
	• SDCs are not typically an important factor for high end housing types, such as custom homes.
	  ○ *SDCs are just one other fee on a several-million-dollar house, just a small component. Not that important to their business model.*
	  ○ *Property owner typically pays the SDC for custom homes.*
	  ○ *The bigger the home, the less impactful the SDCs are on the construction of the unit.*
	  ○ *For a second home or custom home it is what it is - nonissue.*
	  ○ *If high end subdivision and there's enough price elasticity it's part of the cost of doing business.*

How SDCs Can Affect the Type or Scale of Housing Developers Build	

In many cases, SDCs are not a factor in determining what a given developer will build.	• Developers tend to specialize in certain types and forms of housing.
	  ○ *Try to build relatively the same types of plans. Pretty standard finish, build all Earth Advantage houses. Everyone wants granite counter tops.*
	  ○ *Always build multifamily, not single-family or townhomes.*
	  ○ *Strictly infill builder, 99 percent in* [one large jurisdiction].
	  ○ *Custom homebuilder, mostly higher-end.*
	  ○ *Target to 80-120 percent AMI projects with mission-centric landowners because land is the largest frontload on the cost. Often work with legacy employers. No lease-up, stabilized at occupancy, saves money.*

Themes	Stakeholder Feedback
	• Product is usually based on what aligns with the market. Many wouldn't change what they build just because of SDCs. This is particularly true for multifamily, given that SDCs are often not known up front. ○ *Trying to get the right combination of unit sizes for the market and pricing. Designing and building to what works for the market and sense of place and what city wants it to look like. Then come up with final product. SDCs aren't last calculated but not first either.* ○ *When underwriting a project, if we know a market, know what finishes make sense for the market - that goes into the hard cost budget. We let the general contractor know what finishes we're targeting. When we run the proforma if all doesn't pencil out it just doesn't work.* ○ *Wouldn't change from entry-level to market because of SDCs, would deliver what's best for the market regardless of SDCs.* ○ *There are a lot more components than SDCs that go into deciding the form of multifamily.*
Sometimes developers will adjust unit size in response to SDCs and other costs.	• SDCs combined with high land costs sometimes push developers to build bigger, more expensive homes to cover the costs. This is particularly true for single-family homes where SDCs are more predictable in advance. ○ *If can't make* [SDC exemption program] *work could be 1700 sf house to get to higher sales price that makes the numbers work. Currently building 3 houses in a neighborhood that's nicer, know they won't be under price cap* [for SDC exemption]. *Had to build 1800 sf house to justify higher sales price and afford SDCs. End up building bigger more expensive house to cover the cost.* ○ *SDCs aren't really stopping things in* [large Metro-area city] - *pushing houses to be larger and more expensive.* • Other developers may build smaller units to cut costs while keeping pricing aligned with the market. ○ *One area had lots of expensive requirements and high fees. Can only charge so much for a house, still have to the price house to be competitive. Think those units might be smaller, higher cost for those features. Typically get a smaller lot, maybe a smaller house but it's new.* ○ *Will change product offering, shrink product to what people will be able to pay. But will the market accept that?* ○ *Have seen house sizes reduced to counter-act increasing costs.*

Themes	Stakeholder Feedback
	○ *For lower sales price, go for a smaller house. Might have to build a 1300 sf house.*
Sometimes when the difference in SDCs is based on product type or scale is substantial, developers will choose the option with the substantially lower SDCs	• In some instances, if SDCs are waived for homes that sell to income-qualified buyer (below 120 percent AMI), market-rate developers will build a lower-cost home to qualify. ○ *When working with the SDC waiver program, homes are priced at $430k to qualified buyer, $475k to nonqualified buyer. If SDC-qualified buyer, get the discount. Sold 3 to SDC-qualified buyer, 2 to nonqualified. Like to sell at lower price point, but a wash either way.* • When SDCs are much lower for small units, this can have a big impact on some projects. ○ *Were able to take advantage of building cottage homes, reduced SDC fees. City figured that cluster code allowed them to put 4 units on one lot, and were only going to get one SDC if put a larger home there, justified that still covering the impact of one larger home. Could build up to 4 units, 1 SDC divided by 4. Were able to do 4 for-sale units, hadn't been an option before. Small fee for hook-up, but not the full $35-40k.*
Other times, when SDC differences are minor, they are not enough to change the unit size or other features.	• Scaled SDCs that do not vary substantially have less impact on what will get built. ○ *In* [one medium-sized mid-Willamette Valley city], *City was reviewing parks fees as well as transportation and water fees. Had asked them to think about a tiered study, because of HB 2001 regulations. There was a push by Council to ask staff to do it. Took about 18 months to come back with recommendation, tiered. It's a little different from* [other tiered approaches]. *Based on Census data—average square footage that are being permitted. Reduced amount on smaller square footage, increased on larger. But doesn't get to where you need to be—not aggressive enough to make it work. When look at fixed cost of what it takes—land, building costs, SDCs, won't be able to get cost down enough to meet area median income.*
How SDCs Affect Housing Prices & Rents	
The market determines what prices/rents are possible, but SDCs can influence whether developers need to	• In a supply-constrained environment when other costs are inflexible, builders may try to push sales prices to recoup at least some of the costs. ○ *If there's lack of supply of land and SDCs are fixed and costs are pretty fixed, have to sell the house for more—there's not much else that can move. Seems like demand is strong enough relative to supply that builders feel like they can push the market.*

Themes	Stakeholder Feedback
push the upper limits or not	○ *Cost typically goes down to buyer on for-sale products, which causes the buyer's buying power to go down. If house was supposed to be $350k and city fees were $60k per home, that does get passed on. Maybe have to increase to $375k.* • Multifamily developers generally indicated they have limited ability to push rents, unless rents are already increasing anyway. ○ *Can't raise rents just to raise rents.* ○ *Unsure if will need to increase rents—don't want to be uncompetitive in pricing. Could lead to longer lease up, might not hit the numbers.* ○ *Trying to get numbers down to make it work with market rents.* ○ *Fees increased for parks district during development. Pandemic helped because rents went through the roof—allowed them to pass through the costs. Otherwise probably would have been on pause until rents went up.*
How SDCs Can Affect Land Prices & Negotiations	
SDCs affect land negotiations and what developers are willing to pay in some cases	• SDCs are one of the factors that impact what landowners and land developers can sell finished lots for, as part of the builder's overall proforma. ○ *Trying to keep SDCs down generally speaking—keeps land values higher as a seller of land.* ○ *Developers come back on the land, that's where the haggling is. But in a supply-constrained development, their business requires land, so maybe they can push on subs or see what else can give.* ○ *If one jurisdiction charging $30k, another is charging $75k that goes into the formula. Either try to pay less for land or know that will have to sell homes for more.* ○ *For any deal that works, they have successfully addressed the impact fees as part of purchase price (for the land).* • There are times where a seller's expectation on the price of land and high SDC costs have kept projects from moving forward because seller won't take a lower price. This can be particularly true when land costs are already low and there is limited room to absorb SDC costs by lowering the land price.

Themes	Stakeholder Feedback
	○ *Expectation from seller that land would sell for similar price of recently sold parcel next door (parcel next-door zoned for single-family units, whereas this one required attached housing, no single family). This particular city had higher SDCs relative to neighboring jurisdictions (new growth area), so could only offer about 35 percent of what the seller was looking for. SDCs were baked into the proposed purchase price and so if they could have come to a deal, the SDCs would have been pushed onto the landowner because they couldn't be baked into the attached product.* ○ *SDCs were a factor in not being able to come to an agreement on land price* ○ *Have passed on projects in* [large Metro-area city]*, and properties that are still for sale where couldn't make the numbers work. Some land people just won't sell if they're not going to make enough.* ○ *Could pay SDCs but landowner needs to take less money—tried to negotiate but would've been $100k on a $300k property.*
Other times, land prices or negotiations do not play a role	• Some developers build on land that has been held for a long time, and land price negotiations aren't a factor. ○ *Already own everything they will develop, not in an acquisitions mode to develop projects.* • Some developers are strictly infill builders, so they do not do any large land acquisitions. ○ *Not much land acquisition negotiation, mostly buying older homes and demo or keep and add to it.*
How SDCs Can Affect Where Development Occurs	
SDCs can make developers choose one area over another in some instances	• Many developers and builders report that land costs and SDCs are differentials when considering what adjacent jurisdiction to build in. When SDC costs are out of line with market conditions, developers may look elsewhere. ○ *In some communities SDCs have been part of decision—don't look at* [one jurisdiction] *because of some of the SDCs there.* ○ *Particularly an issue in older cities that have a lot of infrastructure costs that need to be funded. May pay $500k in SDCs and still have to replace utility lines.* ○ *Won't build in* [certain small towns] *- too expensive. Build in places that have more reasonable SDC fees.*

Themes	Stakeholder Feedback

	• If there are other options in the area with lower SDC costs and comparable market conditions and land costs, developers may choose those areas instead.
	  ○ *If SDC fees are $30k less somewhere* (but markets are similar) *will just go somewhere else. For market-rate apartments almost the same. If can only do a certain number of deals, would choose the lower-cost one (all else equal).*
	  ○ *There are markets where rents or sales prices are similar—closer to urban usually higher, lower further out. Similar housing markets, similar drive to core. Even with state income tax differences, it was similar. There are markets where could get similar pricing with lower fees.*
	• Others said SDCs would generally not be enough for them to choose a different community to build in.
	  ○ *Nearby communities are smaller, don't have diversified economies. Generally wouldn't consider building there. SDC difference would have to be a lot.*
	  ○ *Not so concerned about that* [comparison to other jurisdictions]. *All have different priorities, respect that.*
	  ○ *Affects willingness to build in a given community, but not the only factor.*

Other jurisdiction-specific factors can have a bigger impact than SDCs on where developers want to build.	• In some instances, developers and builders said there were other costs that were more important factors than SDCs, including permitting speed, ease of communicating with and getting clarity from staff, and zoning regulations.
	  ○ *If paying more in SDCs could equate to permit speed and consistency/more predictable way then that might make a difference. Build SDCs into proforma and they are predictable, but the permitting speed is more of an unknown.*
	  ○ *Very different permitting and SDC experience* [between two small towns]. *In one, permitting is great, super fast: 5 weeks from plans to permits issued. Can call directly, very responsive. But a lot of coastal cities have issues with retaining staff for city departments—people move on to bigger communities after a few years. Hard to get timely responses to any questions—planning, land use, permitting, or clear info from Public Works.*
	  ○ *One new growth area had a whole other level of requirements on single-family home developers - specific architectural design guidelines, sustainability requirements that all put a burden on the developer. And municipal fees were high.*

Themes	Stakeholder Feedback
	○ *When you get better service overall, it feels like city is working with you, but in other communities it feels like they don't care if your project happens. It makes a difference. Time savings from a more streamlined process can make up for some of the SDC cost.*
Ability to charge high SDCs varies by size of community and market demand	• Many developers noted that small towns are more sensitive to SDC costs. ○ *Should ideally be some sensitivity that smaller communities won't be able to absorb big SDC fees. More impact in smaller communities. Maybe can pass along in larger communities—maybe a little more expensive than wanted it to be. Almost like gas prices.* ○ *Smaller fees can make a big difference in a small town.* ○ *Less room for error, less variability in cost in emerging markets. Any cost increases would put more strain on the project. Less flexibility to maneuver.* ○ *In other parts of the state* [outside the Portland region]*, price points are lower that you can sell homes for. Jurisdictions have a harder time raising SDCs, haven't seen them as aggressive as they are in Portland region. Market is softer. Not pushing as hard on the amenity side as Portland metro jurisdictions—that keeps costs down.* • Affluent and high-demand, supply-constrained communities may be able to charge higher SDCs. ○ *Small affluent jurisdiction in Portland Metro region, strong market, strong school system. SDCs are considerably higher than other jurisdictions. Higher SDCs tend to correlate with communities that are more difficult to work in and more affluent communities.* ○ *An area with higher income might be able to afford a higher SDC package than a* [medium-sized mid-Willamette Valley city]. ○ *Portland metro jurisdictions know that developers have less options, think they can pay more.* ○ [SDCs for one greenfield development project in the Portland metro region] *were highly negotiated with City and 3 primary developers. They had kind of a line in the sand on how high they could go. Knew what product mix they were anticipating. They intended to have some executive housing—street of dreams, job proximity, golf course proximity. Were banking on being able to charge a premium for new community with parks, schools, amenities. Had come up with a mix of products that would allow them to absorb some cost.*

Themes	Stakeholder Feedback
Whether Developers & Investors Accept Lower Returns When SDCs Are Higher	

Developers can rarely move a project forward that doesn't meet investor and lender return expectations just because SDCs are higher, but sometimes project-specific circumstances can mean the developer absorbs a portion of the cost.	• Pro forma needs to work before moving forward (noted above). Lenders and investors have their requirements / expectations.
	  ○ *Work the proforma backwards. Think they can get X in rent for the units. If they build this many units with those rents, what is NOI* [net operating income]. *Have to make 6.5 percent return on investment or won't loan on it—if can't hit that they walk away. If developer puts $1m in, they want to make sure they are getting a return on that.*
	  ○ *Buyers* [of finished lots] *generally build a proforma on all the costs of building a home for sale, look at what their margins need to be—usually deal with national homebuilders. They look at what SDCs are going to be.*
	• Very rarely, for a major development, investors may intentionally accept lower returns in some phases if later phases will make up for the lower returns.
	  ○ *Did an apartment complex in* [a master planned area]. *Fees were a burden on the project. Developer was tied into the equity investors in the overall development. They were asked by the equity partner to do the deal with lower returns to be the first in. Couldn't negotiate on land to make it lower, couldn't raise rents, so took lower returns on the investment. Didn't meet company requirements, but equity partner needed the master plan to get up and going to get homebuilders to sign contracts. Would not have done that deal otherwise. Was kind of a loss leader.*
	• Developers that hold projects long-term in areas with strong market conditions may be able to pay more up front and still achieve returns over the longer-term.
	  ○ *Depends on who's building the project—20-year hold vs. 5-year hold and sell to institutional equity. Different metrics. Longer view can afford to amortize costs over a longer basis.*
	• Once budgets and financing are locked in, changes to SDCs or other fees can affect financial returns based on how much contingency is needed
	  ○ *Build in escalation into municipal fees. Sometimes they don't go up and it's a win. Other times they go up more and do the best they can.*

Themes	Stakeholder Feedback
How SDCs Can Affect Affordable Housing Developments	

SDCs have to be covered by the combination of rents (limited based on incomes) and other sources of funds that help make the project feasible.	• When SDC costs are known early, they can be incorporated into funding applications.
	  ○ *Have to know costs early and with precision before you get your funding, especially if not using a conventional lender.*
	  ○ *When applied for funding had about $80k plugged in for SDCs after conversation with Public Works—rough math.*
	• For Low Income Housing Tax Credit (LIHTC) projects, the tax credit equity covers a share of the SDC costs when financing closes (project completion), but not all.
	  ○ *4 percent LIHTC—getting about 36 cents back on the dollar—some offset for basis eligible costs. Get about 1/3rd of it back. Doesn't make you whole but helps a little.*

SDC waivers can make a substantial difference to affordable housing developments, but they can also introduce complexity.	• Waived SDCs or exemptions can help close funding gaps.
	  ○ *Had a site for affordable housing development. Original developer couldn't make it work because infrastructure costs were so expensive, including Parks portion of the site. City was trying to come up with an alternative. Reduced number of affordable units, but the only reason they could make it work was because SDC fees were waived or reduced for affordable units.*
	  ○ *Saved almost 900k in SDCs on a 140-unit project. Huge savings.*
	• Requirements from the jurisdictions for qualifying projects can be challenging to meet.
	  ○ *City wants to see a 99-year cash flow projection and you're agreeing to a 99-year affordability covenant that runs with the land. City wants to be in top lien position—they were negotiating with OHCS and the permanent lender for position. Some lenders are flexible, others would walk away before giving up first lien position. The end result is good, but the mechanics are problem. Probably cost another $50k in lawyer fees.*

Certainty on SDCs is particularly important for affordable housing development.	• When SDC costs increase unexpectedly, it can be very hard to find additional funding or cost-savings in other areas at the last minute when funding amounts have been set in advance. ○ *On one project, spent about 3 months with architects and engineers to try to get an SDC fee estimate. No one at the City was willing to have back of napkin conversation. Needed to be ready to issue building permits to calculate the SDC fee. Had SDC fee calculator online, but those are always wrong,*

Themes	Stakeholder Feedback
	often by a lot, even if you get an engineer involved. Staff was difficult to get ahold of—had a line in the proforma from a conversation a year and a half ago where someone gave a rough guess, which ended up being $150k short. Had to take it out of the building. Then a week from closing got a note from Public Works that said they needed another permit that was another $5k that they hadn't planned on. Can't weather those types of surprise costs today. Had to make hard decisions—playground equipment cost cut, landscaping, and site amenities cut. When get close to closing and have been doing everything to keep construction scope in place things are down to very fine margins. At one point almost had to eliminate a floor to make the budget work.
How SDCs Timing of Payment Can Affect Development	

Paying SDCs at building permit increases financing costs and impacts availability of capital	• When SDCs are financed on a construction loan, the developer has to carry interest on that cost throughout the whole development process, so it increases the overall cost of SDCs.
	  ○ *Often pay out of construction loan. Would be nice not to have to add hundreds of thousands to construction loan on day 1, especially with interest rates rising. Have to carry SDC fee debt.*
	  ○ *$40k in SDCs could become $50k with construction interest.*
	  ○ *If include with bank loan on the very front end, might take 6 months to completion plus time to sell, could be 9 months interest.*
	  ○ *Payment at final inspection—a big cost-saver. Pay a set amount on any payment of fees. Savings there is very beneficial. Essentially lowers the cost of the SDC. Have to make fee payment before they'll send an inspector out.*
	• Developers of multifamily projects may have higher carrying costs due to longer development periods.
	  ○ *Should be due at certificate of occupancy instead of permit, especially if 100+ unit multifamily or large industrial project—it's a lot to carry for the development. An 8 percent construction loan for 24 months on $600k SDC fee = $48k in interest.* [market-rate multifamily developer]
	  ○ *It's just cash flow—when money is coming in. Typically don't get a construction loan until have the building permit. To get the building permit have to pay the SDC. Can be 2 years before delivering the product. If can offset for a few years, it helps with cash flow.* [market-rate multifamily developer]

Themes	Stakeholder Feedback
	○ *Not cheap to service debt on something that large that early in a project.* [affordable multifamily developer] • Paying SDCs before construction takes away from the resources available to pay for pre-construction work and early stages such as site preparation. ○ *If use cash on hand, if its $35k per house, could be $700k in SDCs—reduces working capital to build more units.* ○ *Allows putting that money to other parts of the project, e.g. early buy-outs for construction, getting sitework done early—allows getting started on construction before construction loan is in place. First draw is typically like $2m. Instead of paying those fees can get construction started.* ○ *Developers are putting in a lot more cash up front, loans are decreasing (e.g. 60 percent) so might be just equity contribution before construction loan kicks in. Would rather put up-front costs to something more tangible.*
Not all developers agree that deferring to Certificate of Occupancy is helpful	• Some developers are indifferent to when they pay the SDC cost, since they have to pay it eventually. ○ *If it's a $100m project and will have $60m construction loan, nothing says SDC fees have to go in construction loan. Financing same amount either way.* ○ *Deferrals haven't made sense—just delaying the inevitable. Have to pay either way.*
Some developers expressed a desire to defer SDCs past Certificate of Occupancy	• Some builders noted that paying at time of sale would be preferable. ○ *If tie to occupancy—what happens if a small builder is over budget and don't have the funds, can't get final, can't pay the city. Could be a mess. At transfer of title, have the funds to pay it off.* ○ *For build to sell, payable at closing, or at least at C of O so not paying interest on the SDC.* • For rental, some suggested delaying or financing for longer. ○ *Having SDCs payable upon stabilization for rental - equity bump when property is built and stabilized. Could be a lien that gets attached to the property to pay once stabilized.*
Timing of payment vs. timing of impact matters to some developers	• Some developers feel that paying later is more appropriate based on when SDCs are used or when impacts occur. ○ *Cost for essentially nothing—they're designed to offset impacts to systems but impact doesn't start until there's a buyer.*

Themes	Stakeholder Feedback
	○ *Jurisdictions (especially large ones) don't need those dollars for a long time.* ○ *Think should be later—at occupancy. Should be tied to when the impact starts.*
How Important Certainty/Predictability in SDC Costs is to Developers	
Many developers highlighted the importance of knowing how much the SDCs would be in advance.	• Several developers noted issues with major changes to SDCs during the pre-development and development period. Some set money aside specifically to address fee increases, but there are fewer options to adjust to cost-increases that occur later in the development process. ○ *Update fees in April/May, check in with cities on whether and how much they're going up. Occasionally there can be significant changes. But none have ever caused backing out of a deal, just reforecast and reallocating costs. Also carry a municipal fee contingency—pull from that. Try to avoid using soft-cost contingency.* ○ *Relied on numbers from city that accounted for SDC credit. When had final approvals to HUD and couldn't change it got a letter that they ran out of credits. Had baked SDCs into proforma for construction loan for HUD. Immediate hit to contingency before starting.* • Estimating fees is typically more challenging for multifamily development. ○ *Typically find out SDCs later in the process on the multifamily side. When you have your unit mix, then you have the parking ratio, then figure out impervious surface, trying to make it fit and make numbers work at the same time. Can be 6-12 months into project before you know that, and you can't get a great estimate of SDCs before that.* ○ *Certainty is important to developers—timing, amount, etc.* [multifamily developer]
How Important the Usage of SDCs is to Developers	
Many developers see value in the infrastructure that SDCs fund.	• Parks and lack of traffic congestion were identified as factors that particularly offer benefits for housing demand, which supports development. ○ *Parks are necessary, great amenity for dense urban projects*

Themes	Stakeholder Feedback
	○ *Developers like parks, trees, open spaces. If they can see that a community is proactively spending in a beneficial way, it would be a more beneficial offering for housing. If people can see that have the amenities and open space, services, lack of traffic congestion, they will make their decision.* ○ *Projects need to be done. They're necessary. But existing residents aren't paying today's prices for the infrastructure they have.* • Some developers noted the importance of funding needed infrastructure to allow development to move forward. ○ *The biggest benefit of SDCs in Oregon is that they provide a mechanism so jurisdictions can't place moratoriums on development. In other parts of the Country, if they don't have infrastructure and don't have SDCs in place, you end up with moratoriums and can't get things built.*
Developers like to know that SDCs are being put to good use generally, and many would like more transparency about how funds are being used.	• Many placed value on accountability and transparency generally. ○ *Important to see the benefit. Any taxpayer or investor wants to see where their money is going. Goes to government accountability.* ○ *Don't look at what they get for each penny, but do look at governance quality, SDCs are part of that. How much crumbling infrastructure, will there be population flight because tax burden too high or services are poor. Look for great long-term governance.* ○ *Care about overall business environment. What is city charging and how is it being used.* • Some would like to see a more direct and tangible connection between the SDCs paid and the projects they build. ○ *People should know where the dollars are working for them, and may be more willing to pay if they're presented with a project list of where the money will be spent. The area where the money is generated should see the investment.* • Some pointed out that the way SDCs are used varies between infill and suburban contexts, and that suburban projects can be more visible. ○ *Don't build in* [suburban Portland region community], *but hear from other builders that they feel like they're getting value for their parks SDCs—they use the funds.* [Urban jurisdiction] *can't go out and build new parks, they use funds mostly to increase parks capacity (e.g. converting grass field to turf with lights to increase how much of the time it can be used). In more suburban jurisdictions you can see them using the funds.*

Themes	Stakeholder Feedback
	○ *In* [urban jurisdiction] *you rarely see something close that's a direct impact funded by SDCs. Mostly larger capital projects (e.g. major roads). Wish they would put up signs saying "this was paid by X."* • Some developers expressed concern that projects included in SDCs may not get built. ○ *Park fees are challenging because they vary so widely. Sometimes they encompass projects that are unlikely to get built but inflate the fees. No requirement that what they put in the plans actually gets built.* ○ *Have experienced where collecting SDCs for parks but not being used because couldn't afford to maintain them, do the construction, etc.* ○ *Looking at a small community—high parks SDC but talking about decommissioning parks. Where are fees going?* • Some expressed particular concerns about paying for administrative costs. ○ *In informal conversations some have had with city staff, staff say a lot of the SDCs go to admin costs for things like benefits and personnel.* ○ *Are the admin charges really proportional to the service/mechanics received?*
SDC credit policy is as important to some developers as the SDC rate.	• Developers generally like being able to get SDC credits for building needed infrastructure. ○ *Love it when can take advantage—it's a win / win. Jurisdiction gets infrastructure built at lower cost than if they had to build it. Not money directly coming out of their coffers. Developer gets localized benefit rather than SDCs going to a project that might be across town. Helps if a needed improvement might not be proportional to the project.* • Some noted that the credit-eligible portion of infrastructure improvement costs can be more ambiguous than the SDC fee itself. ○ *If projects are on-site or contiguous, only get credit for excess capacity—lots of negotiations on what that means. Often developer gets negotiated down a lot. More clarity on what that means would be helpful.* ○ *City is judge, jury, and executioner. They decide how credits work, what's oversizing, etc. Could sue in theory, but not going to do that. Devil is in the details. Time is money, want to get project done.* ○ *Having to put in a park within a certain distance—city may require that but not getting credit for putting in those parks.*

Themes	Stakeholder Feedback

	• Some said financing cost reduces the value of the credits, particularly if developers are required to pay SDCs and be reimbursed for credit-eligible portion of improvements.
	  o *Had an experience where developer was building infrastructure that will earn them credits, but at the same time as the project. Had to pay SDCs and then reimburse at the end—city wanted the money for free, still wanted to charge interest to defer the SDCs.*
	  o *Deferred because getting credit for significant off-site improvements. Instead of paying fees and then City paying the developer back, defer and reconcile at the end.*
	  o *People sometimes think it's 1:1, but builder has to finance it, carrying costs can erode the value of the credit.*
	• Some noted that provisions allowing transfer of SDC credits are helpful so that developers can get the full benefit of the credit.
	  o *Have successfully received credits and sold to other developers.*
	• [One large city] *made SDC credits not transferrable to other projects, imposed limits geographically. Think that's a mistake. That would further incentivize developers to take on larger improvements and could monetize by selling credits.*

Appendix C. Key Oregon SDC Court Cases

Contributors: Galardi Rothstein Group, FCS Group

The cases listed in this section are not an exhaustive list of Oregon case law, however, they highlight and provide clarity on some key issues associated with implementing an SDC program in Oregon.

Key Case: Home Builders Association (HBA) of Metropolitan Portland v. Tualatin Hills PRD
The Portland HBA brought suit against Tualatin Hills Park and Recreation District (District), essentially claiming that the park SDCs the District adopted constituted an illegal "taking." The Oregon Court of Appeals ruled with the District in 2003 that its SDC met applicable tests of constitutionality as a quasi-legislative exaction. In its ruling, the Court reviewed the District's methodology and stated the following:

> *Plaintiffs (HBA) do not suggest that the SDC is unrelated to the resolution's stated objective of providing parks and recreational facilities, nor do they provide any argument, analysis, or information indicating that the amount of the fees that the resolution imposes is, as a matter of law, unreasonable or arbitrary. Such arguments would not be successful.*

The Court further stated that "The SDC methodology here meets the 'reasonable relationship' standard. That being the case, it also meets, a fortiori, the Due Process 'rational basis' test." The effect of this ruling was to clarify and affirm that a reasonable approach to proportionality would generally be upheld.

Key Case: Portland Metropolitan Association of Realtors, et al v. City of Portland, Multnomah County Circuit Court Case No. 15CV19696
The plaintiffs in this case brought suit against the City of Portland after adoption of a new (2015) park SDC methodology. The Portland Metropolitan Association of Realtors argued a number of points, with one found to have merit. In its project list, the city grouped planned projects into categories and noted the total category cost and SDC eligibility. In its ruling, the Court stated the following:

> *The sheer number of projects aggregated, and the loose descriptions do not provide sufficient evidence to demonstrate to the detail contemplated by the statutes.*

The Court remanded the supporting project list to the city "for greater specificity in the costs, timing and percentage of costs eligible for SDCs for capital improvements needed to increase capacity." This ruling provided additional clarity as to the level of detail required in an SDC project list, as delineated in ORS 223.309.

Another key outcome of the decision was upholding the city's methodology to change the level of service from a traditional acres of park land per 1000 people to current investment per person. As noted by the Court:

> *The level of service becomes the current investment per person in park land and improvements. What exists has been acquired for the use and benefit of the current population. With every new person added, the investment becomes diluted. Capital improvements return the investment to the existing level of service per person. In that sense, there is equilibrium, and the starting point remains static.*

Key Case: Home Builders Association of Lane County, an Oregon Non-Profit Corporation, and Home Builders Construction Company, an Oregon Corporation v. City of Springfield, a Municipal Corporation and Metropolitan Wastewater Management Commission, Lane County Circuit Court Case No. 16-04-15534 and 16-04-15996

In June 2005, the Circuit Court of Lane County upheld a wastewater SDC methodology adopted by the Metropolitan Wastewater Management Commission of Eugene Springfield (MWMC) that was challenged by the Home Builders Association of Lane County. The methodology and project list were challenged on a variety of technical as well as procedural issues. Ultimately, the circuit court ruling upheld MWMC's SDC methodology and project list. Key issues highlighted in the decision included:

1. SDC statute requires that the SDC methodology provide a framework for imposition of SDCs but does not mandate a particular type of methodology.
2. In consideration of what determines an equitable and proportionate share of costs allocated to growth, the standard of review is substantial evidence and reliance on expert opinions and recommendations constitutes substantial evidence.

   > *The SDC statute simply directs that the allocation of fees is done equitably and proportionately—concepts that are not rooted in any legal test but are dependent wholly upon the facts of a given situation. Given the purely factual nature of this assignment of error, it will be reviewed by this court under the substantial evidence standard (i.e., whether a reasonable person could accept the finding as adequate to support a conclusion)*

3. Establishment of an SDC is not a land use decision and the statue does not require projects to be included in a land use plan prior to their inclusion on the SDC project list requirement by ORS 223.309.

Key Case: HBA of Metropolitan Portland v. City of West Linn (2003, 2006)

This matter first came to the Clackamas County Circuit Court as a Writ of Review, and the Court ruled that only one of their claims had merit. The City of West Linn was found to have included open space in its park inventory which did not qualify as parks and recreation facilities. The effect of the larger inventory was to increase the existing level of service provided by the city, and the resulting SDC. In 2003, the Court remanded the matter back to the city, which removed nonqualifying open space and recalculated the fee. The HBA appealed. In 2006, the Court of Appeals of the State of Oregon sided with the city, acknowledging that the city had fixed the only meritorious issue.

Key Case: COBA v. City of Redmond, Deschutes County Circuit Court Case No. 02-CV-0528 ST
The Central Oregon Builders Association (COBA) brought suit against the City of Redmond, claiming that the city had improperly modified its transportation SDC methodology because the City did not provide a 90-day notice to interested parties, as specified in ORS 223.304(6) and (7). In the judgment, the Court found that eliminating pass-by trips from the calculation was in fact a methodology change and that the City "did not provide notice to COBA at least 90 days prior to the first public hearing conducted to consider the transportation SDC as required."

The suit and the resulting 2004 judgment served to elevate the importance of the noticing requirements in ORS 223.304.

Appendix D. Other Potential Infrastructure Funding Sources

State and Federal Funding Programs Available for Local Infrastructure Projects

There are many specific grant programs at the state and federal level that are available to fund certain types of local infrastructure projects. These generally fall into one of the following categories:

- **Discretionary grant programs** (e.g., Water Wastewater Fund and many federal grant programs[232]), which are allocated on a competitive basis and often require local matching funds.
- **Formula grant programs** (e.g., Community Development Block Grants), some of which are allocated to states or regions and distributed based on state or regional priorities (e.g., Congestion Mitigation and Air Quality Improvement Program).
- **Low-interest loans** and Revolving Loan Funds (e.g., Safe Drinking Water Revolving Loan Fund,[233] U.S. Department of Transportation loan financing programs) that offer low-interest financing but are repaid by local sources over time.

Other Local or Regional Funding Mechanisms

Beyond SDCs, there are other funding mechanisms available at a local level that can contribute to funding infrastructure. Some derive funding from property taxes, others from user fees, specific developers/property owners, or broader economic activity. Not all of these options are equally viable, effective, or appropriate for funding infrastructure capital projects, and not all are available or suitable for every community. All have impacts on whichever entities are bearing the costs or competing for revenues, though the nature and extent of the impacts vary.

Property tax-based tools

These tools allocate property tax revenue to infrastructure, either by dedicating existing revenues or (in some cases) establishing additional dedicated taxes. Most apply across all properties within a particular jurisdiction or district.

Options to raise revenue through additional property taxes:

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[232] For examples and details see https://www.fhwa.dot.gov/bipartisan-infrastructure-law/grant_programs.cfm.

[233] For other federal water and wastewater grant and loan programs, see https://www.epa.gov/waterfinancecenter/effective-funding-frameworks-water-infrastructure.

- **General obligation bonds** increase property taxes throughout a jurisdiction or district over a long period of time (e.g., 20-30 years) to repay debt issued to fund capital projects and require voter approval.
- **Local option levies** also increase property taxes for up to 10 years (though they are subject to limitations on property taxes discussed in Section 2.1.3) and require voter approval.
- **Special districts** (e.g., the North Bethany County Service District for Roads, Tualatin Hills Parks and Recreation District) can establish their own tax rates to generate dedicated property tax revenue for infrastructure construction and/or maintenance within the district boundary but are subject to limitations on property taxes discussed in Section 2.1.3 and require voter approval.

Options to allocate existing tax revenue or revenue growth from increasing property value without increasing tax rates:

- **General fund[234]/property tax revenue allocation** (e.g., Washington County's Major Streets Improvement Program) does not require new property tax revenue but competes with other local priorities and is subject to limitations on property taxes discussed in Section 2.1.3.
- **Urban Renewal/Tax Increment Financing** diverts property tax revenues from increases in assessed value inside a specific area for investment in capital projects that improve the area; it does not increase property taxes within the boundary but reduces revenue growth for existing taxing districts.

Development-Based Funding

Contributions from developers can take several forms, including:

- **Exactions** (improvements required as a condition of development approval), which can include on-site and/or off-site improvements. As discussed in Section 1.2.1, exactions are subject to constitutional limitations of rational nexus and rough proportionality.
- **Development agreements** or annexation agreements, which are generally voluntary, negotiated agreements between the jurisdiction and the developer that establish what each party will contribute and be responsible for.
- **Improvements in exchange for additional development rights** (e.g., planned development options that provide regulatory flexibility and/or additional density linked to providing public open space), which depend on there being demand for the additional development rights.

[234] The general fund is technically not a funding mechanism, but an account that all local governments have, where a variety of unrestricted revenue sources are collected.

There are other mechanisms where project costs are paid up front by either a developer or the jurisdiction and recovered from subsequent development or property owners within a specific area that benefits from a specific improvement(s). Examples include:

- **Reimbursement districts** allow the jurisdiction or a developer to recoup a proportionate share of capital investments that benefit multiple properties from subsequent development on those properties.
- **Local improvement districts** (LIDs) establish a special assessment on properties within a defined area that benefit from a specific capital improvement based on their degree of benefit (rather than the value of the property); a majority of affected property owners must support formation of the district.

These are often used to fund projects with a geographically-defined benefit, but they may have limited revenue capacity, especially within smaller areas.

User-Based Funding

There are a number of fees and taxes that derive funding from specific users and activities related to the infrastructure systems themselves. Examples include:

- Broad-based user fees:
  - Utility rates (e.g., water and sewer rates)
  - System-wide user fees (e.g., monthly or annual charges for all residents and/or businesses or fees for use of specific facilities)
- Facility-specific use charges:
  - Parking fees (e.g., permit parking or metered on-street parking revenue)
  - Tolls
  - Facility rental fees

The allowed uses vary by the type of fee or tax, but some can be used for infrastructure funding in whole or in part. Utility rates are commonly used to fund infrastructure improvements for water and sewer, and other types of user fees are becoming more common—see discussion in Section 2.1.4.

Taxes and Fees on Economic Activity

Taxes and fees on economic activity that is relevant to a given infrastructure system (e.g., transportation) can sometimes provide funding to support infrastructure investments. Examples include:

- Franchise fees (fees on utility company/service providers for use of public rights-of-way)
- Fuel (or gas) taxes
- Vehicle registration fees (county level)

Taxes and user fees unrelated to infrastructure can also sometimes generate revenue that can be used flexibly (at least in part) and can be applied to infrastructure among other purposes. These include:

- Targeted sales tax (e.g., prepared food and beverage tax)
- Transient lodging tax

Appendix E. SDC Fees by Jurisdiction, 2007 and 2022

Contributors: FCS Group, Galardi Rothstein Group, ECONorthwest

Exhibit 58: SDC Rates by Jurisdiction and Infrastructure System, 2007

Source: FCS GROUP based on data from League of Oregon Cities, *System Development Charges Survey Report* (February 2020)

City	Parks	Sewer	Water	Transportation	Stormwater	Total
Aurora	$2,205	$2,032	$4,153	$2,095	$159	$10,644
Banks			$2,103	$3,020		$5,123
Beaverton		$2,700	$3,144	$3,020	$900	$9,764
Bend		$1,973	$3,385	$4,217		$9,575
Boardman		$1,189	$1,392			$2,581
Brownsville		$5,160	$2,093		$1,968	$9,221
Cannon Beach		$1,448	$1,407		$815	$3,670
Carlton	$1,794	$5,062	$2,892		$1,029	$10,777
Cave Junction		$2,985	$2,150			$5,135
Central Point	$2,944		$1,255	$4,033	$410	$8,642
Columbia City	$1,438	$1,561	$4,127	$4,399	$250	$11,775
Cornelius	$2,143	$1,000	$1,032	$3,020	$500	$7,695
Corvallis	$4,746	$3,028	$1,008	$2,046	$148	$10,976
Cottage Grove	$234	$692	$775	$776	$1,255	$3,732
Creswell	$1,539	$4,520	$5,026	$597		$11,682
Culver		$4,148			$1,750	$5,898
Dayton	$100	$1,265	$3,633	$1,126		$6,124
Detroit			$7,943			$7,943
Donald		$2,250	$2,250			$4,500
Drain						$0
Dufur		$950	$1,215			$2,165
Eugene	$2,624	$508	$2,276	$1,582	$493	$7,483
Florence		$3,354	$2,838	$692	$1,636	$8,520
Garibaldi	$1,000	$2,001	$2,262	$3,145	$2,475	$10,883
Gladstone		$216	$1,448	$1,171		$2,835
Glendale						$0
Grants Pass	$2,552	$2,463	$2,366	$5,656	$412	$13,449
Gresham	$3,185	$4,923	$4,043	$2,748	$802	$15,701
Halsey		$523	$646		$1,060	$2,229
Hermiston		$678	$1,404			$2,082
Hood River		$1,408	$2,585	$705		$4,698
Jefferson		$7,960	$1,206			$9,166
Junction City	$1,090	$6,669	$1,100	$1,116		$9,975
Klamath Falls	$898	$1,955	$2,533			$5,386
Lakeside		$1,827				$1,827

City	Parks	Sewer	Water	Transportation	Stormwater	Total
Lakeview	$25	$578	$177	$39		$819
Lincoln City	$1,528	$4,725	$2,263	$531	$25	$9,072
Lowell	$889	$1,187	$6,268	$618	$400	$9,362
Madras	$1,780	$3,000	$838	$2,303	$210	$8,131
Manzanita			$3,700			$3,700
Maupin						$0
Milton-Freewater	$525	$930	$870			$2,325
Monmouth	$1,484	$2,753	$1,413	$394	$247	$6,291
Mosier	$1,495	$3,759	$4,499			$9,753
Nehalem			$2,367			$2,367
Newberg	$1,471	$1,469	$3,533	$2,388	$258	$9,119
North Plains	$4,941		$5,791	$3,513		$14,245
Oakland		$2,995	$2,933			$5,928
Ontario						$0
Pendleton				$1,050		$1,050
Philomath	$684	$5,719	$6,228	$3,488	$1,080	$17,199
Port Orford		$3,568	$6,412			$9,980
Portland	$3,053	$2,995	$2,496	$1,883	$585	$11,012
Prineville		$4,089	$2,477	$2,801		$9,367
Redmond	$834	$2,105	$2,092	$2,877		$7,908
Riddle		$3,000	$1,827			$4,827
Sandy	$2,000	$1,834	$1,525	$1,943		$7,302
Scotts Mills			$7,843			$7,843
Seaside	$325	$675	$2,873	$444		$4,317
Silverton	$1,205	$4,392	$3,987	$3,705	$1,375	$14,664
Stayton	$2,254	$3,528	$2,670	$2,512		$10,964
Tangent	$875	$3,285		$354	$124	$4,638
The Dalles		$1,789	$2,317			$4,106
Tigard	$4,812		$2,041	$3,020		$9,873
Turner	$850	$5,000	$2,400	$400		$8,650
Umatilla		$743	$1,029			$1,772
Veneta	$3,197	$3,250	$1,937	$1,694	$142	$10,220
Waldport	$379	$3,037	$2,505			$5,921
West Linn	$8,029	$2,539	$6,698	$4,721	$439	$22,426
Westfir		$5,318	$3,225			$8,543
Wilsonville	$2,451	$4,068	$4,345	$3,082	$482	$14,428
Winston	$150	$1,913		$589		$2,652
Wood Village		$6,688	$1,877			$8,565
Woodburn	$1,448	$2,977	$2,024	$3,286	$275	$10,010
Yachats		$4,650	$3,003			$7,653
Yamhill	$3,023	$1,697	$3,295	$300		$8,315

Exhibit 59: SDC Rates by Jurisdiction and Infrastructure System, 2022

Source: FCS GROUP based on data from jurisdictions, with contributions from Galardi Rothstein Group and ECONorthwest

City	Parks	Sewer	Water	Transportation	Stormwater	Total
Aurora	$2,205	$2,032	$5,543	$2,740	$160	$12,680
Banks	$2,535	$6,625	$4,999	$17,920	$585	$32,664
Beaverton	$11,787	$6,625	$9,354	$9,998	$1,252	$39,016
Bend	$9,544	$5,667	$6,355	$9,269		$30,835
Boardman		$1,783	$2,087			$3,870
Brownsville		$5,160	$2,093		$1,968	$9,221
Cannon Beach	$1,116	$4,849	$2,034		$424	$8,423
Carlton	$2,142	$8,832	$8,740	$4,210	$2,295	$26,219
Cave Junction		$2,985	$2,150			$5,135
Central Point	$2,445	$3,142	$3,267	$2,326	$514	$11,695
Columbia City	$2,019	$5,764	$4,292	$4,575	$388	$17,038
Cornelius	$4,471	$5,732	$9,449	$9,998	$1,910	$31,560
Corvallis	$7,755	$4,963	$1,573	$3,357	$226	$17,874
Cottage Grove	$2,476	$996	$4,938	$2,166	$904	$11,481
Creswell	$3,439	$6,898	$2,405	$3,749	$295	$16,786
Culver		$4,088			$1,750	$5,838
Dayton	$100	$7,564	$4,242	$1,125		$13,031
Detroit	$506		$6,187		$1,977	$8,670
Donald	$1,509	$22,275	$2,835	$3,031	$806	$30,456
Drain		$1,619	1650			$3,269
Dufur		$5,000	$5,000			$10,000
Eugene	$5,424	$2,553	$2,276	$3,489	$733	$14,475
Florence		$5,507	$4,396	$1,063	$2,527	$13,493
Garibaldi	$816	$2,755	$1,980	$1,650	$2,000	$9,201
Gladstone	$9,027	$6,495	$9,040		$3,477	$28,039
Glendale			$2,040			$2,040
Grants Pass	$941	$3,869	$2,863	$1,204	$710	$9,586
Gresham	$4,694	$7,055	$5,305	$4,589	$1,344	$22,987
Halsey		$641	$783		$1,416	$2,840
Hermiston	$450	$251	$294	$99		$1,094
Hood River	$5,064	$1,056	$1,786	$3,703	$756	$12,365
Jefferson	$4,262	$3,971	$4,979	$75	$105	$13,392
Junction City	$2,044	$9,083	$1,100	$1,052		$13,279
Klamath Falls	$1,748	$6,691	$3,304	$3,590		$15,333
Lakeside		$2,274	$5,477			$7,751
Lakeview	$25	$578	$177	$39		$819
Lincoln City	$2,446	$4,475	$2,423	$850	$75	$10,269
Lowell	$1,032	$1,689	$4,575	$696	$673	$8,665
Madras	$2,200	$6,063	$1,591	$4,315	$259	$14,427
Manzanita	$60	$4,258	$6,900		$174	$11,392
Maupin	$500	$3,000	$1,000			$4,500
Milton-Freewater	$525	$1,125	$1,050			$2,700

City	Parks	Sewer	Water	Transportation	Stormwater	Total
Monmouth	$2,142	$3,542	$1,819	$4,020	$447	$11,970
Mosier	$1,495	$4,104	$3,866	$4,154	$1,499	$15,118
Nehalem		$4,258	$3,235			$7,493
Newberg	$8,432	$7,984	$6,444	$7,618	$438	$30,916
North Plains	$8,823	$6,625	$11,615	$19,621	$585	$47,269
Oakland		$3,795	$2,933			$6,728
Ontario		$481	$975	$1,288		$2,744
Pendleton				$1,775		$1,775
Philomath	$5,150	$6,846	$8,855	$5,396	$1,801	$28,048
Port Orford		$4,962	$8,919			$13,881
Portland	$10,927	$8,299	$5,548	$5,694	$1,251	$31,719
Prineville	$3,600	$2,629	$5,141	$4,848		$16,218
Redmond	$5,818	$4,669	$2,992	$4,678		$18,157
Riddle		$3,000	$2,327			$5,327
Sandy	$3,717	$5,480	$3,841	$4,317		$17,354
Scotts Mills			$7,843			$7,843
Seaside	$1,699	$4,882	$2,873	$444		$9,898
Silverton	$6,240	$4,653	$8,285	$3,760	$877	$23,815
Stayton	$3,478	$2,697	$3,620	$2,927	$3,216	$15,938
Tangent	$3,239	$6,996		$1,315	$127	$11,677
The Dalles		$1,789	$2,317	$1,500	$342	$5,948
Tigard	$11,225	$6,625	$10,853	$18,206	$641	$47,550
Turner	$1,969	$3,094	$3,682	$2,122		$10,867
Umatilla		$1,858	$1,544			$3,402
Veneta	$5,949	$6,903	$7,895	$3,994	$224	$24,966
Waldport	$648	$4,448	$4,590			$9,686
West Linn	$12,943	$4,243	$10,576	$1,964	$1,479	$31,205
Westfir		$5,298	$3,225			$8,523
Wilsonville	$6,969	$6,289	$16,455	$15,264	$2,112	$47,089
Winston	$150	$3,874		$1,194		$5,218
Wood Village	$3,119	$3,565	$3,819			$10,503
Woodburn	$4,188	$2,977	$3,944	$6,988	$330	$18,427
Yachats		$7,648	$4,939		$1,642	$14,229
Yamhill	$3,348	$3,867	$6,496	$2,136	$1,781	$17,628

Appendix F. Pro Forma Model Methodology

Contributors: ECONorthwest

ECONorthwest used a pro forma analysis to analyze SDC share of total development costs and the impacts of SDCs on the financial feasibility of new developments. This work typically involves researching market data based on past transactions, gathering inputs from the local development community, and understanding zoning and other regulatory requirements. A more robust research of input data helps build a more accurate model of development feasibility within local contexts.

However, many simplifying assumptions are made to develop a consistent approach that can capture different economic conditions across Oregon. The assumptions result in a few development examples called prototypes whose exact physical and financial characteristics are unlikely to be observed in all markets. Instead, the prototypes serve as representative examples of the categories of housing developments that are possible in Oregon. Analyzing the difference in model results generates key findings that are applicable across all housing types, beyond the few specific ones modeled through the prototypes.

It is not easy to create a single model for a statewide study that involves many varieties of housing markets. There are many geographic markets, and within each are markets for housing types. Some markets resemble each other, but unique circumstances of some markets are difficult to generalize or summarize with other markets. Although many variations and combinations of geographic markets and housing types are possible, seven geographic markets and seven housing types are selected for analysis.

To test the effects of different levels and structures of SDCs across housing markets and types, ECONorthwest used a pro forma analysis, which is a financial model that estimates the feasibility of a new real estate development based on the building's financial performance. Real estate professionals regularly use pro forma analysis to model the revenues and costs of potential developments, evaluate their returns, and understand sources of funding needed for a project to move forward. For the purposes of this study, pro forma analysis is an economic model that can demonstrate the impact of SDCs on potential business decisions that housing developers could face.

Geographic Markets

ECONorthwest modeled seven geographic categories of housing markets in Oregon. They are broad categories that reflect typical housing prices and construction costs across the cities that fall within each geographic region. The market context areas are:

1. **Willamette Valley**: Larger cities along Interstate 5, with some similar housing options within a local housing market. Does not include cities in the Portland Metro area.

2. **Small Cities**: Smaller cities along Interstate 5 or remotely located in eastern Oregon. Relatively stagnant growth, lower demand, and lower land costs are observed in comparison to other market context areas.
3. **Coast**: Coastal cities with many vacation rentals and second homes.
4. **Metro Low**: Suburban cities and neighborhoods in the Portland Metro area with moderate demand for new housing and limited production of new housing.
5. **Metro Mid**: Suburban cities and neighborhoods in the Portland Metro area with relatively strong demand for new housing and, sometimes, large tracts of planned developments.
6. **Metro High**: More exclusive neighborhoods in the Portland Metro area with higher prices and relatively few options for new housing.
7. **Cascades**: Cities east of the Willamette Valley that experienced a strong level of housing demand and production in recent years.

The values used for each geographic market are not intended to represent a specific city, and average housing prices and costs vary by city. Rather, the values are representations of likely values observed across many parts of the geographic market. Moreover, specific economic conditions in some cities or neighborhoods could mean that they resemble the market conditions of a geographic market category that is outside the geographic location. Therefore, the presented data should be interpreted as data "commonly observed in a city like cities in X market."

ECONorthwest defined the geographic markets based both on their geography and on economic factors including relative size of market for new housing, competitiveness or tightness of housing market, substitutability of new housing, and price of vacant parcels that could be developed with new housing. Market size is related to the population of a city or a few adjacent cities where a potential homebuyer or renter could consider relocating to. Substitutability is related to the presence (and production) of similar alternatives for new housing within a market, as previously described in the review of academic literature. Exhibit 60 and Exhibit 61 summarize the factors and the markets.

The evaluation of factors that defined the geographic markets were based on a relative comparison of cities within Oregon. While some cities are producing more housing than others, housing production across the state generally does not match the demand and contributes to the lack of housing affordability.

Exhibit 60. Characteristics of Geographic Markets in Oregon
Source: ECONorthwest

	Willamette Valley	Small Cities	Coast	Metro Low	Metro Mid	Metro High	Cascades
Market Size	Large	Small	Small	Medium	Large	Small	Medium
Competitiveness (Demand)	Moderate	Low	Moderate	Moderate	High	Very High	High
Substitutability (Production)	Moderate	Low	Low	Low	High	Low	Moderate
Land Price	Moderate	Low	Low	Moderate	Moderate	High	High

Exhibit 61. Comparison of Competitiveness and Substitutability in Oregon's Geographic Markets
Source: ECONorthwest

Housing Types

ECONorthwest modeled seven housing types: two scales of a three-story apartment building, two townhouses, and three different sizes of detached single-family units. These housing types are based on new housing types that are likely to occur in all or most of the geographic markets. They do not include taller apartments because they are unlikely to be built in less populated cities, and they do not include single-family dwellings on larger lots because they are unlikely to be built in urban areas where buildable land is scarcer.

Physical Assumptions by Housing Type

The following is a more detailed description of the prototypes, and a summary is provided in Exhibit 62.

- Low-Rise Apartment is a three-story building with 55 units on an acre. Landscape covers 20 percent of the lot. The average leasable unit size is 738 sq. ft. It has 55 surface parking stalls.
- Garden Apartment is a three-story building with 120 units on four acres. Landscape covers 42 percent of the lot. The average leasable unit size is 811 sq. ft. It has 180 surface parking stalls.
- Townhouse prototypes are 1,500-sq.-ft. units with 2,400 sq. ft. of site area per unit. They are two-story structures with a one-car garage for each unit. One prototype is a rental unit, and the other is an ownership unit.

- Small Single-Family is a 1,550-sq.-ft. unit on a lot measuring 4,800 sq. ft. It has a one-car garage.
- Medium Single-Family is a 2,000-sq.-ft. unit on a lot measuring 6,500 sq. ft. It has a two-car garage.
- Large Single-Family is a 2,650-sq.-ft. unit on a lot measuring 6,500 sq. ft. It has a two-car garage and a higher finish quality.

Exhibit 62. Summary of Physical Features of Prototypes
Source: ECONorthwest

Example Housing Type	Building Height (Floors)	Density (Units per Acre)	Average Unit Size (Square Feet)	Parking
Low-Rise Apartment	3	55.0	738	1.0 Stalls per Unit (surface parking)
Garden Apartment	3	30.0	811	1.5 Stalls per Unit (surface parking)
Townhouse	2	18.2	1,500	Single-Car Garage
Small Single-Family	2	9.1	1,550	Single-Car Garage
Medium Single-Family	2	6.7	2,000	Two-Car Garage
Large Single-Family	2	6.7	2,650	Two-Car Garage

Two scales of apartments—**Low-Rise Apartment** and **Garden Apartment**—are included to demonstrate how the impact of SDCs on development feasibility vary by residential density. The review of academic literature revealed that developers of apartments are unlikely to increase unit sizes to spread out the fixed cost of SDCs that are applied per unit. The notion is tested with two housing types that have the same land cost and building height but a different unit mix, residential density, and parking ratio. The average unit size in Low-Rise Apartment is smaller, but it has more units than Garden Apartment. Low-Rise Apartment allows for 1.0 parking stall per unit, whereas Garden Apartment allows for 1.5 parking stalls per unit.

Two versions of townhouses demonstrate the relationship between SDCs and tenure. The two modeled buildings have the same physical form (thus the same development costs), but their tenure is different (i.e., **Townhouse Rental** and **Townhouse Ownership**).

Three different sizes of detached single-family units demonstrate how the impact of SDCs vary with unit size and lot size. All are ownership units. **Medium Single-Family** serves as a reference point. **Small Single-Family** has a smaller unit size and lot size. Because it has a higher residential density, it is effectively the same test as the test for apartments. **Large Single-Family** has a large unit size on the same lot (thus no change in residential density). It tests the assertion made in the review of academic literature that spreading SDCs over a larger unit size is preferred because it reduces cost per square foot.

Financial Assumptions by Housing Type

Exhibit 63 summarizes the total development costs for each geographic market and housing type used in the model (rounded to the nearest thousand). Total development costs include construction labor and material (called "hard costs"), land costs, and "soft costs" such as design and engineering, project management, financing, permits, and fees. They do not include SDCs

or profit margins (investor returns) since those are key variable inputs and outputs of the analysis. Land costs are based on recent transactions of small, vacant lots recorded on Redfin. Cost indices from RSMeans and 2022 National Building Cost Manual[235] are used to differentiate the construction costs across markets. Within each market, the construction costs of all prototypes are based the same kitchen, bathroom, and bedroom costs per square foot of building area; garage cost; surface parking cost; parking ratio; driveway cost; and landscape cost.

Exhibit 63. Total Development Cost Per Unit, Excluding SDCs
Source: ECONorthwest

	Willamette Valley	Small Cities	Coast	Metro Low	Metro Mid	Metro High	Cascades
Low-Rise Apartment	$172,000	$155,000	$170,000	$191,000	$199,000	$226,000	$200,000
Garden Apartment	$200,000	$175,000	$194,000	$219,000	$233,000	$283,000	$255,000
Townhouse Rental	$293,000	$253,000	$282,000	$317,000	$341,000	$424,000	$384,000
Townhouse Ownership	$293,000	$253,000	$282,000	$317,000	$341,000	$424,000	$384,000
Small Single-Family	$353,000	$385,000	$325,000	$371,000	$419,000	$583,000	$544,000
Medium Single-Family	$479,000	$387,000	$442,000	$503,000	$568,000	$791,000	$737,000
Large Single-Family	$570,000	$474,000	$535,000	$607,000	$672,000	$895,000	$826,000

Typical SDCs in each market used in the analysis are summarized in Exhibit 64. The single-family SDCs are determined by calculating the average SDC rate in the 2022 SDC rate data collected by FCS GROUP. Townhouse SDCs are 90 percent of single-family SDCs. Multifamily SDCs are 66 percent of single-family SDCs.

Exhibit 64. Typical SDCs
Source: ECONorthwest, FSC GROUP

	Willamette Valley	Small Cities	Coast	Metro Low	Metro Mid	Metro High	Cascades
Low-Rise Apartment	$13,002	$5,676	$6,930	$16,500	$29,304	$32,208	$12,144
Garden Apartment	$13,002	$5,676	$6,930	$16,500	$29,304	$32,208	$12,144
Townhouse Rental	$17,730	$7,740	$9,450	$22,500	$39,960	$43,920	$16,560
Townhouse Ownership	$17,730	$7,740	$9,450	$22,500	$39,960	$43,920	$16,560

[235] Moselle, Ben. *2022 National Building Cost Manual. 46th Edition*. Carlsbad, CA: Craftsman Book Company, 2022.

	Willamette Valley	Small Cities	Coast	Metro Low	Metro Mid	Metro High	Cascades
Small Single-Family	$19,700	$8,600	$10,500	$25,000	$44,400	$48,800	$18,400
Medium Single-Family	$19,700	$8,600	$10,500	$25,000	$44,400	$48,800	$18,400
Large Single-Family	$19,700	$8,600	$10,500	$25,000	$44,400	$48,800	$18,400

To reflect the realities of each housing market, the model uses different prices, rents, and costs for each market and prototype. ECONorthwest collected price and rent data as well as some data on the physical dimensions of the prototypes from CoStar and Redfin using representative samples of recently built and transacted housing. Exhibit 65 summarizes the monthly rents (rounded to nearest ten) and sales prices (rounded to nearest thousand) for each geographic market and housing type used in the model. A consistent vacancy rate and operating expense ratio (as a percentage of rent) are used for rental prototypes.

Exhibit 65. Market Rents and Prices
Source: ECONorthwest

	Willamette Valley	Small Cities	Coast	Metro Low	Metro Mid	Metro High	Cascades
Low-Rise Apartment	$1,500	$1,030	$1,110	$1,660	$1,770	$2,040	$1,900
Garden Apartment	$1,570	$1,090	$1,170	$1,770	$1,870	$2,180	$1,980
Townhouse Rental	$2,090	$1,610	$1,860	$2,760	$2,780	$3,500	$2,900
Townhouse Ownership	$384,000	$278,000	$390,000	$389,000	$512,000	$675,000	$558,000
Small Single-Family	$448,000	$334,000	$454,000	$488,000	$641,000	$854,000	$675,000
Medium Single-Family	$558,000	$418,000	$612,000	$597,000	$742,000	$1.04 million	$831,000
Large Single-Family	$727,000	$524,000	$797,000	$678,000	$897,000	$1.35 million	$1.09 million

Full Results for SDC Share of Total Development Costs

Section 4.3.2 presented the variation in SDC share of development costs across the state for three markets with different levels of development costs. The three markets are a shorter list of seven market context areas that were analyzed for this report. Exhibit 66 compares the typical development costs and per-unit SDC amounts in the seven markets.

For each market context area, ECONorthwest calculated an average of single-family SDC rates reported in the 2022 LOC survey by FCS GROUP. The townhouse SDC rates are 90 percent of the single-family SDC rates. The multifamily SDC rates are 66 percent of the single-family SDC rates.

Exhibit 67 shows the SDC share of development costs. Depending on the housing type and the market, the SDC share of development costs can range from 1.8 percent to 12.8 percent in Oregon.

Exhibit 66. SDCs and Other Development Costs, By Market Context Area and Housing Type

Source: ECONorthwest

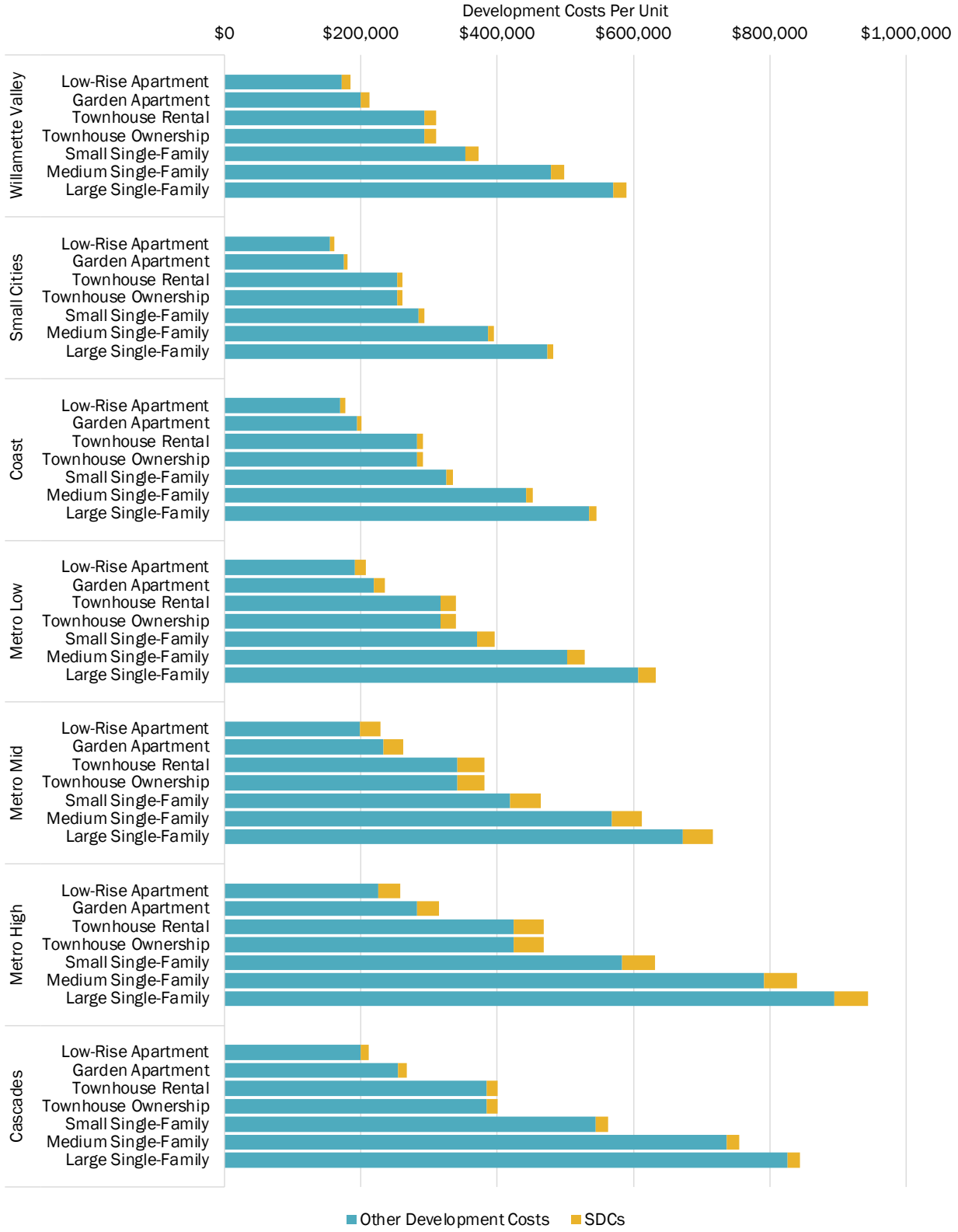
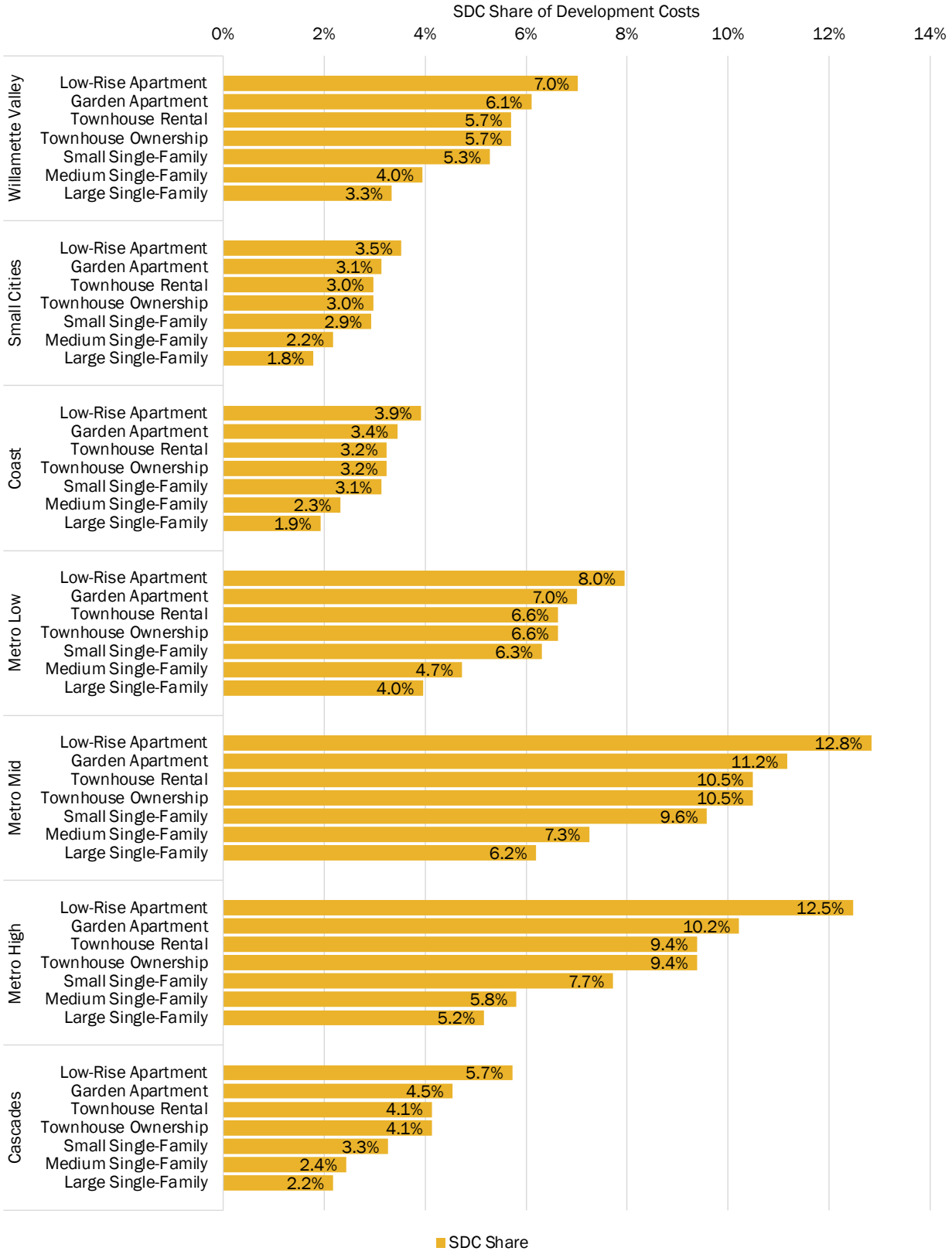


Exhibit 67. SDCs Share of Total Development Costs, by Market Context Area and Housing Type

Source: ECONorthwest



Key Assumptions for Feasibility Evaluation

The key output of the pro forma model is investor returns, and how they change with the amount or structure of SDCs. Although there are many methods to calculate and measure investor returns, the metric selected for this study is internal rate of return (IRR). IRR is a commonly used financial metric in the real estate industry to estimate the profitability of real estate investments. It is a form of discount rate and measured in percentage points. The feasibility analysis includes a cash flow model with expenses and sales related to housing construction occurring at different points in time. A 3 percent annual escalation is assumed for costs, rents, and prices. A 2 percent annual escalation for operating expenses. All units are assumed to be fully occupied at the end of the analysis period.

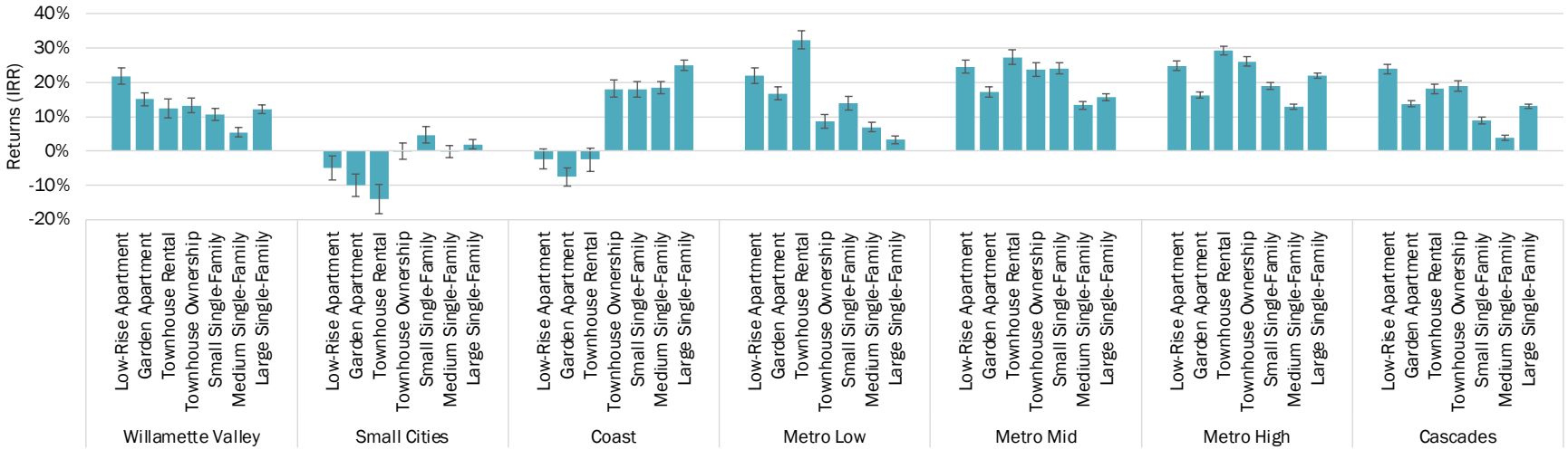
To estimate the impact of SDCs on development feasibility, ECONorthwest estimated the change in IRR resulting from fixed changes in SDC amounts. The amounts are $10,000 for single-family, $9,000 for townhouse, and $6,600 for multifamily across all markets. More specifically, ECONorthwest measured the percentage point change in IRR when the modeled per-unit SDC amount for a single-family unit is reduced from $15,050 to $5,050 or increased from $15,050 to $25,050, and when then SDC amount for townhouse and multifamily units are adjusted accordingly.

Exhibit 68 illustrates the results of the feasibility calculations. The sizes of the bars indicate the IRR with a $15,050 SDC per single-family unit, a $13,545 SDC per townhouse unit, and $9,933 SDC per multifamily unit. The error bars indicate the difference in IRR from the specified change in SDC amount, all else equal. The absolute change in IRR, or about half of the size of the error bars, is the estimates represented in Exhibit 43 and Exhibit 44 (Section 4.4.1).

The wide range of the IRR estimates are partly due to the simplifying assumptions made to develop a consistent approach that can capture different economic conditions across Oregon. Realistically, the types and specific characteristics of housing units that market-rate developers would pursue differ by geographic markets and site-specific conditions. Moreover, the $15,050 baseline for the single-family SDC amount and the $10,000 change are also simplifying assumptions designed to produce analytical results rather than predict market activity.

Exhibit 68. Feasibility Analysis Results

Source: ECONorthwest



Appendix G. Literature Review

Contributors: ECONorthwest

ECONorthwest reviewed the following list of peer-reviewed and published academic literature for this report.

Baden, Brett M., and Don L. Coursey. *An Examination of the Effects of Impact Fees on Chicago's Suburbs*. University of Chicago, Irving B. Harris Graduate School of Public Policy Studies, 1999.

Burge, Gregory. "The Capitalization Effects of School, Residential, and Commercial Impact Fees on Undeveloped Land Values." *Regional Science and Urban Economics* 44 (2014): 1-13.

Burge, Gregory, and Keith Ihlanfeldt. "Impact fees and single-family home construction." *Journal of Urban Economics* 60, no. 2 (2006): 284-306.

Coutts, Christopher, Sang-Seok Bae, Sung-Wook Kwon, Sang-Chul Park, and Richard Feiock. "Development Impact Fees: A Vehicle or Restraint for Land Development?." *Journal of Local Self-Government* (2015): 1047-1065.

Delaney, Charles J., and Marc T. Smith. "Impact Fees and the Price of New Housing: An Empirical Study." *Real Estate Economics* 17, no. 1 (1989): 41-54.

Dresch, Marla, and Steven M. Sheffrin. *Who Pays for Development Fees and Exactions?*. Public Policy Institute of CA, 1997.

Evans-Cowley, Jennifer S., Fred A. Forgey, and Ronald C. Rutherford. "The Effect of Development Impact Fees on Land Values." *Growth and Change* 36, no. 1 (2005): 100-112.

Ihlanfeldt, Keith R., and Timothy M. Shaughnessy. "An Empirical Investigation of the Effects of Impact Fees on Housing and Land Markets." *Regional Science and Urban Economics* 34, no. 6 (2004): 639-661.

Lawhon, Larry L. "Overcoming Potential Exclusivity Associated With Impact Fees: Loveland, Colorado's 30-Year Experience in Development Impact Fees." *Journal of Architectural and Planning Research* (2015): 217-233.

Mathur, Shishir. "Do All Impact Fees Affect Housing Prices the Same?." *Journal of Planning Education and Research* 33, no. 4 (2013): 442-455.

Mathur, Shishir, Paul Waddell, and Hilda Blanco. "The Effect of Impact Fees on the Price of New Single-family Housing." *Urban Studies* 41, no. 7 (2004): 1303-1312.

Mayer, Christopher J., and C. Tsuriel Somerville. "Land Use Regulation and New Construction." *Regional Science and Urban Economics* 30, no. 6 (2000): 639-662.

Singell, Larry D., and Jane H. Lillydahl. "An Empirical Examination of the Effect of Impact Fees on the Housing Market." *Land Economics* 66, no. 1 (1990): 82-92.

Skaburskis, Andrejs, and Mohammad Qadeer. "An Empirical Estimation of the Price Effects of Development Impact Fees." *Urban Studies* 29, no. 5 (1992): 653-667.

Skidmore, Mark, and Michael Peddle. "Do Development Impact Fees Reduce the Rate of Residential Development?" *Growth and Change* 29, no. 4 (1998): 383-400.

Exhibit 69 is a summary of ECONorthwest's review of the literature.

Exhibit 69. Summary of Empirical Studies on Impact Fees

Source: ECONorthwest

Author(s) (Publication Year)	Data Year	Location	Context	Outcome Variable and Methodology	Results
Delaney and Smith (1989)	1971 to 1982	Dunedin, FL	Coastal city near Tampa	Housing price (new single-family) in Dunedin compared to three other cities in the same county before and after fee adoption	Increase in housing prices was greater than in nearby cities with no or minimal impact fees. Suggests the total cost of fee is passed on to new homebuyers.
Singell and Lillydahl (1990)	1983 to 1985	Loveland, CO	Fast economic growth during 1970s. Impact fee in adopted in 1984	Housing price (new and existing units) before and after fee adoption	New housing prices were higher by 3 times the fee for new housing and 6 times the fee for existing housing.
Dresch and Sheffrin (1997)	1992 to 1996	Contra Costa County, CA	Declining economic conditions, particularly in eastern county	Housing price (new and existing units) across the county leveraging within-county variation in fee amount	Impact fee is associated with higher housing prices—by 25% of fee in eastern county and 188% of fee in western county.
Baden and Coursey (1999)	1995 to 1997	8 suburb cities near Chicago, IL	Fast economic growth during 1980s	Housing price (new and existing units) in suburban cities. Impact fee amounts vary across the cities	Price of new housing is higher by 70-120% of the impact fee.
Mathur, Waddell, and Blanco (2004)	1991 to 2000	King County, WA	Period of rapid economic growth. Cities with impact fees grew from 2 in 1994 to 14 in 2000	Housing price (new single-family) in cities with different fee amounts, controlling for year sold and other factors	166% of the fee amount is reflected in prices of new units.
Mathur (2013)	1991 to 2000	King County, WA	Period of rapid economic growth. Cities with impact fees grew from 2 in 1994 to 14 in 2000	Housing price (single-family), correlation with impact fees	Impact fee is positively correlated with single-family housing prices.

Author(s) (Publication Year)	Data Year	Location	Context	Outcome Variable and Methodology	Results
Skidmore and Peddle (1998)	1977 to 1992	DuPage County, IL	Fast growing suburb of Chicago	New residential construction (single-family and multifamily), comparing cities with and without impact fees	Impact fee is correlated with 25% reduction in residential development.
Mayer and Somerville (2000)	1985 to 1996	44 U.S. metro areas	Urban cities across U.S.	New residential construction (single-family), correlation with presence of impact fees	Up to 45% less construction starts observed in metro areas with more regulations.
Burge and Ihlanfeldt (2006)	1993 to 2003	FL (statewide)	Nearly two-thirds of Florida's counties have impact fees.	New residential construction, correlation with presence of impact fees in a given year	Impact fee for public services (excluding water and sewer) is correlated with increase in residential construction.
Skaburskis and Qadeer (1992)	1977 to 1986	Toronto	City's growth period varied during the study period.	Land price of vacant subdivision lots, correlation with impact fees	Impact fee is associated with higher land prices for vacant subdivision lots by 120% of the fee.
Ihlanfeldt and Shaughnessy (2004)	1985 to 2000	Dade County, FL	Impact fee since 1989	Undeveloped land price (new and existing units), correlation with impact fees	Housing prices are higher by 160% of the fee. Land prices are lower by 100% of the fee.
Evans-Cowley, Forget, and Rutherford (2005)	1997	Texas (43 cities in Austin, Dallas, Fort Worth, and Houston metro areas)	Cities of various sizes in Texas that have impact fees	Land price (Vacant and developed lots), correlation with impact fees, controlling for population growth among other factors	1.3% higher lot values for each $1,000 of impact fees.
Burge (2014)	1994 to 2009	FL (statewide)	Impact fees for different kinds of infrastructure	Value of developable land parcels, correlation with impact fees	School impact fee is negatively correlated with value of residentially zoned land and positively correlated with commercially zoned. Water and sewer impact fee is negatively correlated with residentially zoned land value.

Author(s) (Publication Year)	Data Year	Location	Context	Outcome Variable and Methodology	Results
Bae, Kwon, Coutts, Park, and Feiock (2015)	1998 to 2007	FL (statewide)	Nearly two-thirds of Florida's counties have impact fees	Value of developable land parcels, correlation with impact fees	Impact fee is positively correlated with value of developable land parcels.
Lawhon (2015)	1960 to 2010	Loveland, CO	Period of rapid population growth	Number of rental units per nonwhite resident and annual MFI over time in Loveland and nearby towns	Impact fee is not significantly correlated with either outcome variable.

Appendix H. Case Study Methodology

Contributors: ECONorthwest

ECONorthwest identified several recent developments in Washington County that provide an opportunity to examine an example of the relationship between SDCs and housing prices within Oregon. Each development faced different SDC costs, but all compete within the same subregional housing market. ECONorthwest considered three areas that were recently brought into the Portland Metro urban growth boundary (UGB): South Cooper Mountain in the City of Beaverton, South Hillsboro in the City of Hillsboro, and River Terrace in the City of Tigard.

Study Areas

South Cooper Mountain is a 544-acre area that was brought into the UGB in 2011 and became part of Beaverton in 2013. The area sits at the far southwest edge of the city, along the border with Tigard. The community plan for South Cooper Mountain includes a mix of high-density, medium-density, and low-density residential areas to create a walkable, bikeable, and family-friendly neighborhood with a variety of housing options.

South Hillsboro includes 1,400 acres of farms, open space, and developed land at the southeastern edge of Hillsboro, along the border with Aloha. This area was brought into the regional UGB over several years, with the largest piece—1,062 acres—added in 2011. The South Hillsboro Community Plan approved in 2015 creates a new town center along Tualatin Valley Highway and a smaller village center, both with high-density housing, commercial, and retail spaces. The rest of the plan area includes a mix of apartments, townhomes, and lower-density housing and a network of open spaces linked by a trail system.

River Terrace is a 490-acre area just south of South Cooper Mountain that was added to the UGB in 2002 and 2011 and incorporated into the City of Tigard in 2014. The community plan for River Terrace envisions a primarily medium-density neighborhood of about 2,300 homes with one commercial core and a network of open spaces and parks.

SDCs in the Study Areas

Exhibit 70 summarizes the SDCs applied to single-family construction in South Cooper Mountain, South Hillsboro, and River Terrace ("growth areas") and the standard citywide SDC rates applicable to adjacent developments that are not part of the growth area.[236]

Exhibit 70. System Development Charges for Detached Single-Family Housing, 2021
Source: City of Beaverton, City of Hillsboro, City of Tigard, and Washington County.

	Beaverton		Hillsboro		Tigard	
	Standard	Growth Area	Standard	Growth Area	Standard	Growth Area
Clean Water Services and County SDCs						
Sewer*	$6,085		$6,085		$6,085	
Stormwater*	$1,252		$585		$585	
Transportation **	$9,623		$9,623		$9,623	
City-Specific SDCs						
Parks	$11,787***		$6,577	$12,177	$10,345	$10,903
Transportation	-	$8,826	-	$13,523	$7,076	$10,348
Water	$9,193		$11,035		$10,095	
Total	$37,940	$46,767 (+23%)	$33,905	$53,030 (+56%)	$43,809	$47,640 (+9%)

* Connection charges for Clean Water Services
** Transportation Development Tax for Washington County
*** Parks SDC from Tualatin Hills Park and Recreation District (THPRD)

Regression Model

ECONorthwest employed a linear regression model to analyze the relationship between SDCs and housing prices within the Portland metro area housing market, specifically in three cities in Washington County with recent urban growth areas. The data in the model are based on transaction data of home sales in each of the urban growth areas and in nearby neighborhoods with similar housing and access to transportation and retail amenities.

ECONorthwest created a dataset using property transaction data from Redfin. ECONorthwest analyzed sales transactions between January 2017, when the new construction in urban growth areas appeared on the market, and February 2022. This dataset included 1,519 unique properties in Washington County. ECONorthwest filtered the data to include only detached single-family units. Each observation was categorized as either within an urban growth area or in a comparison area. Each property was assigned an estimated total SDC amount based on the total SDC rates of each jurisdiction and the supplemental SDCs for units in urban growth areas.

[236] Beaverton, Hillsboro, and Tigard adjust their SDCs annually using the Seattle Construction Cost Index—an inflation index—published by Engineering News-Record. Each city uses the data from a different month to set their updated fees. This table records fees at the start of the fiscal year in July 2021.

ECONorthwest adjusted the SDC rates to one year prior to construction to approximate SDC rates at the time of permitting, using the *Engineering News Record*'s Construction Cost Index for Seattle.[237] Finally, parcel sizes were joined from the Metro RLIS database and outliers were filtered out, for a total of 974 observations. The distribution of these observations by location is summarized in Exhibit 71.

Exhibit 71. Distribution of Observations in the Dataset by Location
Source: ECONorthwest, Redfin

Development Area	
Growth Area	689
Comparison Area	285
Total	**974**
City	
Beaverton	172
Hillsboro	467
Tigard	335
Total	**974**

ECONorthwest created three regression models to understand the relationship between aspects of development costs, location, amenities, and housing prices. Exhibit 72 summarizes the results of these analyses. The first model tested the per dollar relationship between SDCs and the price per square foot of a detached single-family unit. The results of this model indicate that for every dollar of SDCs, all else being equal, the price per square foot of a unit is higher by $0.0007. In other words, $10,000 in SDCs is related to about $7 higher housing price per square foot. A second model tested the impact of location inside an urban growth area on housing prices. The results of this regression indicate that units inside urban growth areas sold for $14.69 per square foot more than units outside of these growth areas, all else being equal. ECONorthwest also tested the effects of SDCs within each city. These city-specific analyses generally supported the findings of the first two models: Higher SDCs correlate with higher prices per square foot and prices per square foot are generally higher inside urban growth areas. However, the results are not reported in Exhibit 72 because there were not enough observations in the dataset for all the results of the third model to be statistically significant.

The regression models were able to explain about 74.4 to 75.4 percent of the variance in the dependent variable. In addition to the positive correlation between total SDCs and price per square foot, ECONorthwest also observed positive correlations between price per square foot and newer houses and a negative correlation with total square footage. This negative correlation is expected, the total development costs can be spread out across a greater unit size. While this linear model does capture some important relationships, it does not account for nonlinear phenomena such as construction costs, or the economies of scale that a developer might achieve when building a planned development.

[237] This index is the method by which the City of Beaverton, the City of Hillsboro, and the City of Tigard adjust their SDC rates each year.

Exhibit 72. Summary of Linear Regression Results
Source: ECONorthwest

	Model 1	Model 2
	Coefficient (p-value)	
Total SDCs (dollars)	0.0007 (0.000)	-
Year Sold	13.7188 (0.000)	13.6446 (0.000)
Square Feet	-0.0470 (0.000)	-0.0480 (0.000)
Lot Size (square feet)	0.0096 (0.000)	0.0101 (0.000)
Number of Bedrooms	-5.329 (0.000)	-4.697 (0.000)
Number of Bathrooms	0.0456 (0.983)	0.557 (0.789)
Growth Area Development	-	14.6935 (0.000)
R^2	0.744	0.754

To help interpret the results of the regression models, ECONorthwest created a prototypical house with features frequently observed across all three cities. Exhibit 73 summarizes the features of this prototype. ECONorthwest applied the results of the primary regression model to this prototype to understand the relationship between SDCs of different amounts and a standardized detached home.

Exhibit 73. Housing Prototype Characteristics
Source: ECONorthwest

Feature	Value
Square Feet	2,400
Year Sold	2022
Year Built	2022
Beds	4
Baths	2.5
Lot Size (sq. ft)	4,500

Model 1 predicts that a $10,000 difference in SDCs for this prototypical single-family unit would be associated with a $16,800 higher sale price. Model 2 predicts that being in a growth area would be associated with roughly a $35,260 higher sale price for this example home.

Appendix I. Testimony on HB 3040 Related to Timing of SDC Payment

Contributors: Galardi Rothstein Group

Exhibit 74. Testimony on House Bill 3040 Related to Timing of SDC Payments
Source: Summarized by ECONorthwest and Galardi Rothstein Group

File	Author	Testimony
16223	Unknown	Deferrals are an option for the local government.
16313	City of Wilsonville	Local governments should not be forced to defer SDCs or provide financing to developers.
16477	Multiple local governments	"Interest savings from delaying a SDC payment are minimal."
16483	City of Cave Junction	"Deferring SDC charges would raise our administrative costs because we do not have the resources or capacity to track when a sale happens and then follow through with the SDC collection process. Where is the consequence if a new owner homeowner doesn't pay the SDC charges? This bill puts the burden unfairly on the city."
16512	City of Irrigon	"It should be up to each local jurisdiction if they want to defer collection . . . Deferring for a time after closing . . . shows that the state is in cooperation and working with developers and big businesses, not buyers or local governments."
16567	Tualatin Hills PRD	Required deferrals would "come at a substantial cost and risk to local government."
16571	City of Springfield	Required deferrals would "unnecessarily limit our ability to determine the timing of SDCs."
16588	City of Gresham	Required deferrals "would create additional administrative burden" for the City.
16608	Special Districts Association of Oregon	Required deferrals would impose costs on local governments with no guarantee of savings for homebuyers.
16650	City of Hillsboro	Required deferrals would increase administrative burden.
16659	City of Portland	Local governments should continue to have the flexibility to determine the timing of SDC payments.
16664	Multnomah County	"Requiring that SDCs be assessed when a certificate of occupancy is issued or at the point of sale would make it difficult, if not impossible, for local governments to ensure collections from non-paying developers. Furthermore, this bill does not require that developers pass on cost savings to homebuyers or reduce housing prices."
16690	Jim Brewer (affiliated with multiple cities)	Proposed deferral provisions are poorly worded and would have unintended consequences.
16694	City of Independence	"Changing the collection date will result in small savings on interest for developers and increase costs for local governments."
16777	Metropolitan Wastewater Management Commission	Required deferrals would increase costs for ratepayers.
16819	Oregon Association of Clean Water Agencies	Required deferrals would increase costs for ratepayers.

File	Author	Testimony
16964	Unknown	"Changing the collection date will result in small savings on interest for developers and increase costs for local governments."
17156	City of Prineville	Required deferrals would "not be effective in achieving the overarching goal of supporting affordable housing."
17195	City of Sherwood	Required deferrals would impose costs on local governments with no guarantee of savings for homebuyers.
17208	City of Eugene	"Local governments are not involved in private property transactions and this requirement would result in an excessive burden on local governments to track real estate transactions to ensure that the public fees, which a project owes, are paid. Additionally, it is unclear how payment deferral for commercial and industrial developments assists with affordable housing."
17407	Oregon Building Officials Association	"Tying SDC payment to 'time of sale' would create additional administration and local government involvement in a part of the process the local government has thus far been removed from, create a dramatic loss of efficacy because the local government would need to audit unsold properties continually until they sold and their associated SDC payments were verified, and place the local government in the 'no-win' position to create additional enforcement, potentially against the new homeowner, if the fees were not paid upon sale."
17423	Metropolitan Mayors' Consortium	Proposed provisions preempt local authority.
17430	American Planning Association Oregon Chapter	Deferral of SDCs should be at the discretion of the local government.
17433	Washington County	Required deferrals would "leave the County with a significantly higher administrative burden."

Appendix J. Summary of Feedback on SDC Deferral Experience

To better understand the implications of SDC deferral programs for the jurisdiction, FCS GROUP and Galardi Rothstein Group contacted nine cities that have (or previously had) an SDC deferral program with questions regarding administration of this program (Exhibit 75).

Exhibit 75. SDC Deferral Program Contact Log
Source: ECONorthwest

Jurisdiction	Status
Cornelius	Current program
Madras	Current program
Medford	No response
Pendleton	Provided details only for installment payments (not deferrals)
Redmond	Had a program in the past; sunset program as of 2021.
Sherwood	Current program
Tigard	Current program
Veneta	Current program
Wilsonville	Had a program in the past; cancelled program in 2019 code update.

Each jurisdiction received the following questions:

- What are the eligibility criteria for SDC deferral?
- What are the program requirements (e.g., application process, is a lien required, is interest charged, etc.)?
- How often is the deferral option used, and what types of development use it most?
- How long does the deferral typically last (i.e., how long does most development that uses the deferral take between building permit and certificate of occupancy or when the SDCs are due)?
- Has non-payment been an issue for any of the developments that have used the deferral option? If so, how often has this been an issue?
- How much additional staff time is required for developments participating in the SDC deferral program compared to developments that pay SDCs at building permit? Which parts of the process require additional staff time?
- Do you have any additional comments or lessons learned to share about how the program is working in your jurisdiction?

In addition, one jurisdiction submitted comments on the Public Review Draft that described their deferral system. These comments have been integrated to the extent possible.

Feedback Summary

Eligibility & Program Requirements

Eligibility criteria varied widely among the jurisdictions contacted. Some allow deferrals for all residential and commercial projects or for all new residential development, while others limit eligibility based on SDC amount (e.g., Sherwood allows a deferral if the total City Transportation and Parks System Development Charges exceed $50,000), or allow deferrals only for non-profits developing income-restricted housing (e.g., Cornelius).

Typical application processes require developers to submit a formal request, which the City reviews and approves. Roughly half of the jurisdictions report requiring a lien[238] as a condition of SDC deferral. Others require agreements notarized by the property owner. None require interest payments for SDC deferral.

Timing of Payment

For most jurisdictions contacted, the deferred payment is due prior to receiving the Certificate of Occupancy (C of O); a few use a time limit in addition to or instead of the C of O (e.g., 9 months or a year). The jurisdiction that offered their experience as a comment on the Public Review Draft of the report noted they currently require payment at C of O, but have discussed moving the deadline to the final framing inspection (earlier in the construction process), so that any issues can be resolved before a homebuyer is expecting to move in, avoiding impacting the future resident or the jurisdiction appearing to be the problem if there is a hold-up at C of O.

Utilization

Many of the jurisdictions that responded receive a small number of deferral requests annually (Cornelius and Wilsonville have used their program twice, Pendleton uses it roughly once every ten years). However, Madras, which allows deferral for all residential development, saw a steady decrease in deferral requests over the last three years, where nearly half of all SDC payments were deferred. In its program history, Madras has seen 187 total deferrals and five in 2022, mostly for subdivisions. In Tigard, Sherwood, and Wilsonville deferrals were more likely to be taken by large developments due to deferrals not being advertised and/or eligibility criteria.

Administrative Time and Costs

All jurisdictions noted an increase in administrative effort associated with the deferral program, though some said it was a major increase and some said it was less than an hour of staff time. Tasks involved in the deferral process include reviewing and approving the deferral request, filing a lien (if required), communication between agencies or departments regarding the

[238] Liens are legal rights to property by creditors. Liens typically remain in effect until the debt obligation is satisfied and allow the creditor to use the property as collateral if the debt obligation is not fulfilled.

application, tracking status through the development process, and closing out liens or updating permit systems when SDCs have been paid. In Madras, certificates of occupancy are granted by the county, so the process requires an additional level of coordination. Jurisdictions reported that deferral requests can take anywhere from 15 minutes to 7 hours per request. Two smaller jurisdictions use paper filing and mentioned if the number of deferrals increased, they would need to move to an electronic tracking system. In Redmond, the staff burden made the program cumbersome to administer (staff reported it was used frequently), which was one reason the City went on to sunset the program. However, Tigard and Veneta report the additional time spent on deferral is negligible.

There were also costs associated with follow-up and enforcement of payment in some cases. In Wilsonville, one notable non-payment dispute took four years to litigate, which led the city to end the program in 2019 during their SDC code update (see below).

Non-Payment

Three of the seven jurisdictions that provided detailed information reported instances where follow up or enforcement was necessary:

- In Sherwood, one development remains vacant with outstanding fees. (While staff didn't specify, this is presumably a commercial development, given that it is unlikely an apartment or single-family home would be completed but unoccupied for a long period of time.)
- Wilsonville has had at least two instances where deferrals for commercial developments have resulted in disputes with developers who sought to renegotiate the terms of the deferral agreement.
- In Madras, a few deferrals (out of over 100) required follow up at the one-year deadline (perhaps because this is an arbitrary timeline relative to the construction timeline), but did subsequently pay upon follow up. The City noted that one developer in particular had sought to avoid payment. This was the only nonpayment issue attributed specifically to residential development.

Key Findings

The two key concerns with deferrals are administrative burden and nonpayment. Take-aways related to these concerns are summarized below.

- **Administrative Burden:** The responses suggest that administrative burden can be quite variable depending on a jurisdiction's permitting system and deferral procedures. For jurisdictions where the program is broadly available and well-understood within the residential development community, the volume of deferral applications can be challenging due to the total amount of staff time required. In some communities, some of this staff time is linked to filing liens, which are more time consuming to establish and remove, but give the jurisdiction more leverage if there is a nonpayment issue.

Streamlining seems to have helped some jurisdictions to an extent, but there are limits to the ability to streamline if a jurisdiction must coordinate with other agencies (e.g., the county) or does not have an efficient permitting system. Even for jurisdictions that process few deferrals, the amount of effort for each application can be substantial for some, depending on how their program and permitting system works.

- **Nonpayment:** Many of the most egregious examples of nonpayment were linked to commercial projects. Some factors specific to commercial development may have contributed: there is greater variability in SDCs for commercial development depending on the specific end user, which may not be known in detail up front, and could increase the risk of a developer seeking to change the total SDC amount later, when tenants are known. In addition, commercial development tends to have fewer tenants and can take longer to lease up compared to apartments where there are many tenants who typically begin to move in immediately upon C of O. Issues related to residential development appear to be primarily where a time-based deadline was reached before C of O without the developer noticing immediately. This is unsurprising, given that the date may not correspond to any particular construction milestone. One jurisdiction also noted one developer who attempted to avoid requirements on several occasions.

While the negative experiences of some jurisdictions led them to advise caution related to deferrals, the successful (or mixed) experiences of other jurisdictions suggest that some of the concerns could potentially be avoided or mitigated through program requirements and eligibility criteria. However, given the variation in how jurisdictions handle permitting, it may be easier for some jurisdictions to offer deferrals than others, and even at the low end of effort per application, a broadly-used program could potentially become burdensome.

Exhibit 76. Deferral Program Feedback Summary

Source: Personal Communication with FCS GROUP, Galardi Rothstein Group, and ECONorthwest; U.S. Census Bureau (2021).

Color coding key: blue = positive experience, yellow = mixed experience, orange = negative experience

City (Population)	Eligibility Criteria	Timing	Total Deferrals	Administrative Burden	Uses a Lien?	Charges Interest?	Non-Payment Cases
Veneta (5K)	Anyone building a new home	Due by Final Inspections and/or Certificate of Occupancy	Not specified, but has been used.	A little extra time for form and lien	Yes	No	None identified
Tigard (55K)	Any development upon request (used to limit to projects with SDCs higher than for single family detached; not advertised)	Due by Certificate of Occupancy	Used some by larger developments and subdivisions.	15-20 minutes per deferral for initial permit, sometimes additional time after initial review. Don't have a great way to track deferrals in the system—could be more streamlined.	No	No	None
Cornelius (13K)	Only for non-profits developing affordable housing.	Due by Certificate of Occupancy	2	7 hours per deferral. If volume of applications increases, will need new system.	No	No	None
Madras (7K)	All new residential development	Due by Certificate of Occupancy or 1 year whichever comes first	187 total, 5 in 2022. Mostly subdivisions.	3+ hours per deferral for paperwork, filing lien; additional time for monitoring and follow up, checking sale price of the house[239]. Was very time consuming at beginning but have streamlined process.	Yes	No	A few deferrals went past 1-year deadline but paid on follow up. Some developers (one in particular) "try to creatively avoid payment" of the SDCs.
Sherwood (20K)	Only if the total City SDCs (Transportation and	Certificate of Occupancy	Common for large developments,	Less than 3 hours per permit (total, for	No	No	One property stands vacant with

[239] Madras provides SDCs reductions for single-family dwellings based on the sale price of new homes.

City (Population)	Eligibility Criteria	Timing	Total Deferrals	Administrative Burden	Uses a Lien?	Charges Interest?	Non-Payment Cases
	Parks) are more than $50,000.		especially if expecting SDC credits	processing, signatures, and tracking).			outstanding SDC fees.
Wilsonville (26K)—program no longer offered, responses reflect prior program	[no current program—prior eligibility criteria not provided, but applied to at least some commercial development]	Typically drafted to be one year or less. Not tied to Certificate of Occupancy.	Used infrequently, generally large commercial development. Two that staff remember.	Much staff time required for litigation.	-	-	Both recent commercial developers did not or could not pay on time, tried to renegotiate terms. One resulted in 4-year litigation with ruling in favor of City.
Redmond (35K)—program no longer offered, responses reflect prior program	Any development that owed SDCs.	Due by final inspection or within 9 months of the date of the agreement.	Program used a lot. Mostly residential, some commercial.	Much staff time required for processing forms, getting things notarized, verifying payment. Many parties involved (Finance, City Recorders Office, Building Department) Became too much of an administrative burden to sustain—sunset the program.	Yes	No	-

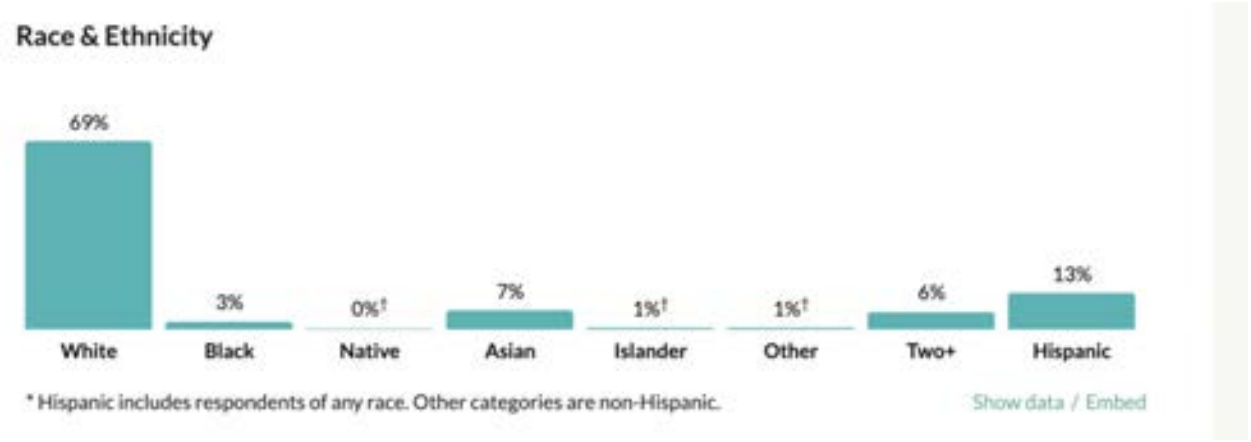
Note: Dashes indicate respondent did not address topic.

Race and Ethnicity in Sherwood

United States Census Bureau

White alone (not Hispanic or Latino)	16,334	80%
Hispanic or Latino	2,014	10%
Asian	974	5%
Some other race	659	3%
American Indian and Alaska Native	171	0.8%
Black or African American	141	0.7%
Native Hawai'ian and Other Pacific Islander	8	0.04%

Portland-Vancouver-Hillsboro, OR-WA Metro Area



business oregon

OREGON CHIPS BIANNUAL REPORT

Report #1 | January-June 2024

Business Oregon, the state's economic development agency, invests in Oregon businesses, communities, and people to promote a globally competitive, diverse, and inclusive economy. Learn more at biz.oregon.gov.

Oregon CHIPS Biannual Report #1

January – June 2024

In April of 2023, the Oregon State Legislature adopted the most significant economic development legislation in a generation to enhance the competitiveness of the state's semiconductor industry. This is the first report issued by Business Oregon on the Oregon CHIPS Program, covering the period from January 1 to June 30, 2024.

Senate Bill 4 included several provisions intended to maximize the opportunity of the federal CHIPS for America Act. This legislation created the Oregon CHIPS Fund and allocated up to $240 million of direct incentives to Oregon semiconductor companies applying for Federal CHIPS Act resources. Oregon Governor Tina Kotek signed Senate Bill 4[1] into law on April 13, 2023.

While this report focuses on the Oregon CHIPS program, the State's efforts to support the semiconductor industry go beyond direct incentives. Oregon's comprehensive approach was borne out of the recommendations from the Semiconductor Task Force, a strategic planning effort led by Senator Ron Wyden, then-Governor Kate Brown, and Portland General Electric CEO Maria Pope. Additional initiatives passed by the Oregon State legislature in 2023 to enhance the competitiveness of the state's semiconductor industry included:

- The Research & Development Tax Credit for Semiconductors, which dedicated $255 million over the next six years to support leading-edge innovations in the state's semiconductor sector.
- The Semiconductor Industrial Land Loan Program, allocating $10 million to advance Oregon's inventory of buildable land necessary for semiconductor manufacturers and suppliers to locate and expand.
- The Oregon Semiconductor Center for Innovation Excellence to sustain engagement between industry, education, and research partners to encourage development and commercialization of new technologies.
- A temporary authority for Governor Kotek to designate a limited number of parcels and acreage as new Industrial areas, to address Oregon's limited land supply for additional semiconductor uses.

Oregon's legislature continued to support local growth of the industry in the 2024 Session by dedicating additional resources to semiconductor-related workforce development and child-care availability through these actions:

- The Future Ready Oregon $200 million investment in education and training includes several Workforce Ready Grants that support new and innovative education and training programs for the semiconductor industry. The State Legislature allocated an additional $10 million in 2024 to Oregon State University, University of Oregon, Oregon Institute of

[1] OR Laws 2023 ch. 25 §§1–6, 7, 8 & 8b

Technology, Portland State University, and Mt. Hood and Portland Community Colleges for talent advancement in the semiconductor industry.[2]

- Creation of the CHIPS Child Care Fund, along with an initial $2.5 million for high-quality childcare to enable skilled, diverse construction workers building the state's semiconductor facilities. Governor Tina Kotek has also committed another $5 million for the CHIPS Child Care Fund from the Oregon CHIPS Fund.

This year, Governor Kotek assembled a team to pursue the location of a National Semiconductor Technology Center (NSTC) in Oregon. The NSTC and CHIPS R&D Program Office were appropriated approximately $11 billion by Congress through the CHIPS and Science Act of 2022 for the creation of a national R&D program, including the development of key national R&D facilities. NATCAST (the non-profit consortium leading the NSTC) has recently announced plans and a site selection process for three separate NSTC Facilities.

The State of Oregon and key partners are proposing an NSTC-funded center in Hillsboro that is essential for securing global leadership in the development and manufacture of the world's most advanced chips. The Governor's proposal contends that the State of Oregon should be the home to the largest NSTC flagship R&D facility based on economic and national security concerns, the capability to execute a sustainable business model, and the contributions that can be made from the substantial existing semiconductor ecosystem footprint within the state.

With funding support from both the federal CHIPS Act and the Oregon CHIPS Act, the center will bring the most advanced companies of the semiconductor ecosystem together to design, construct and ultimately operate the most advanced fab in the world, which is vital for U.S. national security.

For a more detailed update on Oregon's other semiconductor industry programs, refer to the Special Topics section at the end of this report.

Oregon CHIPS Program Overview

Business Oregon and the Governor's Office developed the Oregon CHIPS Program to provide conditioned grants to businesses to support eligible projects.[3] The CHIPS Program has executed seven contracts with a total allocation of $190.7 million since the beginning of 2024. These grants help leverage massive private sector investments to construct, expand, and/or modernize semiconductor commercial facilities around the state. This report provides an update on the progress of six of these projects and the economic impact of the expansions on Oregon businesses, workers, and communities. The seventh award, to Stratacache, Inc., in Eugene, was executed in FY 2024-25 and will be included in more detail in the next Oregon CHIPS Report. The Governor's Office continues to negotiate contracts with several businesses and expects to finalize the remaining contracts by Fall 2024.

[2] More detail on these programs is available at: https://www.oregon.gov/highered/about/Documents/Future-Ready/OnePager-FutureReadyOregon-WorkforceReadyGrants-Semiconductors.pdf

[3] As outlined in Oregon Administrative Rules Chapter 123.400

Oregon CHIPS At-a-Glance

Company	**Contract Start Date**	**Project Summary**	**Oregon CHIPS Award**	**Oregon CHIPS Expended**	**Federal CHIPS & Science Act Award**	**Project Capital Expenditures to date**	**Oregon-based suppliers*** (project-specific unless noted)
Microchip Technology, Inc.	January 5th	Modernization and expansion project to triple production at its 140-acre facility in Gresham.	$11,000,000	$4,750,000	$72 million	$162 million	127
Intel Corporation	January 5th	Expansion of Intel's D1X wafer fabrication facility at the company's center for global R&D in Hillsboro.	$115,000,000	$115,000,000	Portion of $8.5 billion	More than $1 billion	$5.62 billion spent in 2023* **company-wide*
HP, Inc.	January 5th	Modernization and expansion to advance development and manufacturability of microfluidics technology in Corvallis.	$9,500,000	$4,250,000	$50 million	$43 million	18
Analog Devices, Inc.	May 7th	Expansion, infrastructure improvements, and new equipment at the company's largest site in Beaverton.	$12,000,000	$5,250,000	Awaiting decision	Hundreds of millions	162
Siltronic Corporation	May 16th	Tools & equipment to modernize metrology capabilities at Portland production facility.	$2,200,000	$0	Awaiting decision	$2.3 million	0
Lam Research Corporation	May 29th	Major expansion, construction of new advanced R&D center at its Tualatin campus.	$22,000,000	$0	Awaiting decision	Land acquisition & project design costs	7
Stratacache, Inc.	July 2nd	Construction of GaNSi MicroLED foundry through reuse of semiconductor production facility in Eugene.	$19,000,000	$0	Awaiting decision	Will commence reporting in 2025	

Leveraging FEDERAL CHIPS Act Resources

The Oregon CHIPS Program has already been successful in attracting federal resources to our state. Oregon has the dual distinction of being the home to the first CHIPS Act project announced – to Microchip in Gresham – as well as the company receiving the largest CHIPS Act award, Intel, that will go in part towards a major expansion of its research and development headquarters in Hillsboro. Three of the 17 federal CHIPS for America Act awards to date have been for semiconductor expansions in Oregon, including:

Microchip was awarded **$72 million** to modernize, and support workforce development efforts at its mature-node semiconductor fabrication facility in Gresham.

Intel Corporation was awarded **$8.5 billion** for projects in Oregon, Arizona, New Mexico, and Ohio. A portion of this funding will support construction of the company's D1X facility at Ronler Acres.

HP, Inc. was awarded **$50 million** to construct a pilot line to expand production at its "lab to fab" facility in Corvallis and bring the company's groundbreaking innovations in microfluidics to market applications in artificial intelligence, bioscience, and sustainability.

Oregon CHIPS Key Indicators

Project Capital Expenditures To-Date

- >$1.35 billion

Economic Impact

- 316 Oregon-based businesses are suppliers for Oregon CHIPS projects
- >500 Oregon-based businesses are supplying Oregon CHIPS awardees

Jobs created

- **Intel** created 200 jobs to support its Oregon CHIPS project during the reporting period.

R&D Expenditures

- **HP:** $13 million in R&D spend for its Corvallis Microfluidics Project
- **Intel:** $16 billion in fiscal year 2023 across the company (Hillsboro is a center for the company's R&D operations).

When viewed together, the project updates demonstrate the massive level of industry investment in Oregon to drive innovation, expand production, and bring new technologies to market. Public sector investment will help ensure that Oregon is a thriving center of research & development for the semiconductor industry, lifting our nation and improving lives around the world with the innovations created locally. State support also helps ensure the resilience of our local companies, which manufacture and supply a diverse array of electronic control products with end uses from automotive to bioscience to artificial intelligence. Public support is critical to ensure that Oregon

continues to grow our workforce and enable more Oregonians to pursue good-paying jobs in the industry.

The economic impact of the Oregon CHIPS projects highlighted in this report are only beginning to take shape. In the coming months, companies will continue to construct facilities, purchase additional tools, and install equipment, often from vendors and suppliers with operations in Oregon. These operational expansions will in turn generate additional demand for semiconductor supply chain companies that produce specialized materials or support the advanced processing and packaging required to produce these devices. Business Oregon has seen recruitment activity from the semiconductor industry increase, with six separate recruitments in the first half of 2024 vs. one such recruitment in H2 2023.

The semiconductor industry is highly cyclical, and Oregon CHIPS Program is launching during a cyclical downturn caused by post-pandemic inventory correction. This downturn has negatively impacted Oregon CHIPS recipients during the reporting period. Microchip furloughed employees in both March and June and plans to complete its full Gresham campus expansion only when market demand returns. In June, employees at Analog Devices in Beaverton delivered a written petition to the company demanding higher wages and better working conditions. Most recently, Intel announced that the company will lay off 15,000 people from its global workforce to address revenue shortfalls while maintaining its turnaround strategy.

While these events are concerning, the long-term outlook for the semiconductor industry remains strong. As semiconductors become ubiquitous in consumer, household, and automotive products, and the demand for data processing skyrockets, there is broad agreement amongst market analysts that existing and new markets will drive global sales of semiconductors to reach $1 trillion by 2030-2032. Key markets driving growth include smart mobility, smart manufacturing, smart medical technology, as well as data centers and artificial intelligence. Oregon's peer states with significant semiconductor clusters such as New York, Arizona, Ohio, Texas, Idaho and Indiana are continuing to provide incentives and workforce programming to maximize the long-term opportunity from the world's most important traded sector.

Any investment of public funds is worthy of careful monitoring, and especially those of this magnitude. The Oregon CHIPS Program includes return on investment provisions that require companies to meet state and local tax revenue generation obligations, job creation targets, or a combination of both.[4] These requirements are consistent across CHIPS agreements:

- **Oregon CHIPS recipients with revenue targets under 5-year agreements:** for every $1 million in grant proceeds received, the business must generate at least $1.25 million in state and local revenue.
- **Oregon CHIPS recipients with revenue targets under 10-year agreements:** for every $1 million in grant proceeds received, the business must generate at least $1.5 million in state and local revenue.
- **Oregon CHIPS recipients with job creation targets**: one job must be created per $45,000 in grant funds. At least 65 percent of these jobs must be permanent full-time positions; and the jobs must pay (on average) at least the average median income for the region.

[4] Statutory requirements are found in Section 1 (4) of SB 4 (2023).

These specifics for each Oregon CHIPS contract are noted below.

COMPANY	AGREEMENT TYPE	OREGON CHIPS CONTRACT REQUIREMENT
HP, INC.	5-year	$11,875,000 of new state and local tax revenue
INTEL CORPORATION	5-year	$143,750,000 of new state and local tax revenue
MICROCHIP TECHNOLOGY, INC.	5-year	245 new jobs from the project (160 of which must be full-time positions retained for a minimum of 2 years)
ANALOG DEVICES, INC.	5-year	$15,000,000 of new state and local tax revenue
SILTRONIC CORPORATION	10-year	$3,300,000 of new state and local tax revenue
LAM RESEARCH CORPORATION	10-year	$33,000,000 of new state and local tax revenue; or creation of 489 new jobs from the project (318 of which must be full-time positions retained for a minimum of 2 years)
STRATACACHE, INC.	5-year	$23,750,000 of new state and local tax revenue

Next Steps for Oregon CHIPS

The Governor's Office is continuing to negotiate with several companies that have received a notification of intent to award from the Oregon CHIPS program and anticipates further contract announcements in the second half of 2024. However, because some companies that received a notice of intent to award have not proceeded with projects as initially planned, Oregon CHIPS Round 2 was made available for eligible applicants in June 2024. Oregon CHIPS Round 2 provided an additional funding opportunity of at least $10 million. Project submissions include significant operational expansions and foreign direct investment to the state. Business Oregon was also able to use the Oregon CHIPS program as a recruitment incentive for one company to locate its next manufacturing facility in the Silicon Forest. The Governor's Office will be announcing its intent to award from this funding opportunity by the end of September, and contracts for CHIPS Round 2 are expected to be established by end of the calendar year.

Any additional Oregon CHIPS projects that come under contract in 2024 will reported on in more detail in the next Oregon CHIPS Report issued to the State Legislature in September 2025. The second Oregon CHIPS report will cover the period from July 1 to December 31, 2024.

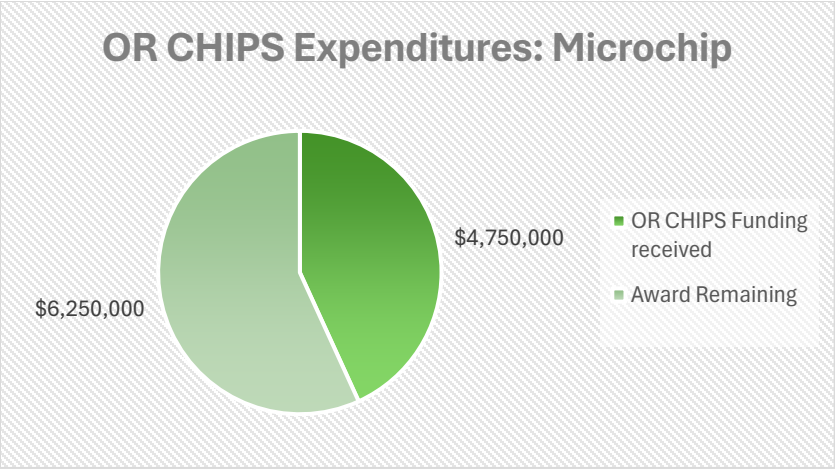
Business Oregon invites you to follow news and announcements tracking the momentum of the semiconductor industry in Oregon by visiting this program page: Business Oregon : Oregon's Semiconductor Industry : Oregon's Semiconductor Industry : State of Oregon[5]

[5] https://www.oregon.gov/biz/programs/semiconductor_chips/pages/default.aspx

Microchip Technology Inc.

Microchip is a mature-node semiconductor manufacturer serving approximately 125,000 customers across the industrial, automotive, consumer, aerospace and defense, communications and computing markets. The company has operated a production facility on its 140-acre campus in Gresham since 2002. In 2024, Microchip received an $11 million Oregon CHIPS award to support the company's Fab 4 Expansion Project, part of a $42.4 million incentive package from the State, the City of Gresham, and Multnomah County.

Microchip's expansion project is designed to triple production by onshoring production capacity to address extreme shortages in the marketplace and received the first federal CHIPS Act award of $72 million announced by the federal CHIPS Program Office in January 2024.



The company reports significant progress on the project to date, including the completion of its cleanroom expansions, which are now in service. Microchip's facility upgrades continue, and has completed its Nitrogen Plant, Ultra Pure Water Plant, and Solvent Exhaust expansion projects. Several more are on track for completion this calendar year. Finally, Microchip continues to install tools, with 70 tools in the process of installation.

The remaining expansion will further increase capacity levels by an estimated 75%. Depending on business conditions and other factors, the remainder of the overall project is expected to be

completed in 4-6 years. Total Project costs for tools and equipment purchase and installation of the tools and equipment, including installation infrastructure and system expansion and upgrades necessary to sustain the site, is estimated at greater than $490 million.

Microchip has weathered significant volatility over the course of this year, with an inventory correction causing an industry-wide 50% drop in revenue from the peak. The company managed the downturn with furloughs in March and June but has not made any layoffs. Microchip also provided company stock to employees more than their unpaid leave. While no new jobs have been added during the reporting period, 350 are expected to be created from the expansion project.

Economic Impacts

The economic impacts from this project on Oregon-based businesses are significant, with Microchip logging $162 million in receivables to date from 129 local vendors. The company also notes additional community benefits through its local purchase of incidental operating and construction supplies, as well as boosting catering, hospitality, and local hotel occupancy.

Environmental Impacts

Microchip entered a public-private partnership with the City of Gresham for the expansion of a system-wide Wastewater Treatment plant, providing the City of Gresham $16 million for its ammonia treatment program.

Workforce & Community Partnerships

Microchip has continued its strategic partnership with Mount Hood Community College (MHCC), providing approximately $100,000 annually to support Incumbent Worker training, internships, and Mobile Learning opportunities. The Incumbent Worker program at MHCC has exceeded enrollment expectations by reducing barriers to advancement for entry level employees. As part of the company's Oregon CHIPS agreement, Microchip will continue to pursue partnerships with community-based organizations to better reach women, people of color, veterans, and people with disabilities. To this end, the company is providing direct financial contributions of $100,000 to the Portland Opportunities Industrialization Center (POIC) and $25,000 for Portland Youth Builders.

Microchip has also built connections with K-12 during the reporting period, through a partnership with Davis Elementary School, high school outreach, and the sponsorship of its first robotics contest.

Child Care

Microchip offers a strategic agreement with KinderCare for employee discounts.

HP Inc

Background

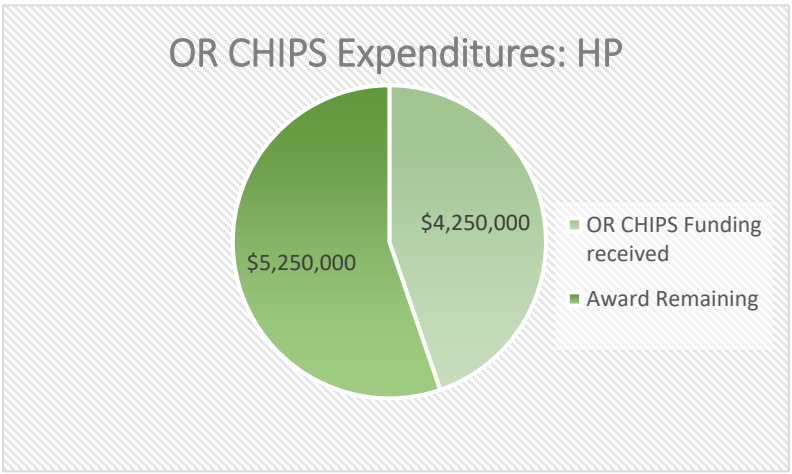
HP Inc is a company with over 40 years of operations in Oregon. The inkjet printer, invented in Corvallis, provides the technological basis for HP's development of microfluidics technology for bioscience and artificial intelligence applications.

Project

HP's Oregon CHIPS award supports facility modernization and expansion to support the use of microfluidics technology, the manipulation of fluids on a microscopic scale. The company recently received an award of $50 million from the Federal CHIPS and Science Act, announced on August 27, 2024, which will help to build a "lab-to-fab" model in which new research and is translated quickly into production.

The project has achieved two significant milestones during the reporting period:

- HP continued risk production of the first G5 product in January 2024. This milestone enables the first production material intended to ship to end customers to start in the fabrication facilities and is the start of the planned manufacturing capacity ramp.
- Manufacturing Release of the first G5 product in May 2024. This milestone indicates that the material produced in the Corvallis, Oregon fabrication facilities has passed all performance and reliability requirements and can be shipped to end customers.



The first product using the G5 technology is now in active manufacturing in the Corvallis semiconductor and advanced packaging fabrication facilities. These milestones indicate the start of the capacity and yield ramps to enable full production volumes over the next few years on the G5 technology.

R&D

Research and development is a significant component of HP's Corvallis Microfluidics project, with $13 million in R&D expenses incurred during the reporting period. The company has continued development work on subsequent products and additional capabilities for the G5 technology platform. During the current reporting period, two new designs were completed and photomasks ordered for first silicon processing, and one new design was completed for the first Precision Over Mold processing. In addition, two new designs had first prototypes delivered from the advanced packaging fabrication facility.

Economic Impacts

Project capital installed to date for this project totals $43 million. The company engaged 18 local suppliers for the project during the reporting period, two of which are small businesses.

Environmental Impacts

HP reports that many environmental impacts of the company are decreasing. Year to date, the company reduced electricity usage roughly 3% year-over-year, reduced its water usage roughly 5.5% year-over-year, and increased its solid waste diversion rate from 89.5% to 92%. The company partners with Energy Trust of Oregon on its energy reduction and tracking initiatives.

Workforce Partnerships

During this period, HP has hired and onboarded 24 interns in Corvallis for the summer of 2024 and will be assessing them for full time conversions. The company's partnership with the Linn Benton Community College Mechatronics program continues to assist HP in getting interns and new hire technician level workers. In addition, Andersen Construction, a key project contractor, offers program offerings and placement programs.

HP is the main partner of Corvallis Microfluidics (CorMic), a Tech-Hub designated by the Economic Development Administration. Through CorMic, HP has partnered with OSU, UO, and OHSU, as well as Clackamas and Linn-Benton community colleges to create workforce development programs and help to accelerate technology development.

K-12

HP provides Education Externships for local K-12 teachers in the STEM fields. Teachers from the local area come and tour our facility where we provide insights into potential career paths for

students in traditional STEM fields as well as technical and trade jobs that support our site. This is the company's second year of hosting this program.

In addition, HP also sponsors two robotic clubs in the Corvallis area with financial and mentoring support, offering participation opportunities at both the elementary and high school level.

Community Partnerships

HP hosted the Oregon Bioscience Association's "Bio in the Valley" and has started a collaboration with the organization for the advancement of life-sciences and workforce development.

Intel Corporation

Background

Intel Corporation is the only advanced logic semiconductor maker that develops its process technology in the United States. Intel develops, ramps, and manufactures all new logic process nodes in its Oregon facilities before transfer to other high-volume manufacturing sites. Many would argue that this makes Intel's Oregon facilities the nation's most important semiconductor innovation cluster.

Intel directly employs over 23,000 people in Oregon and is the state's largest private employer. Intel's Oregon operations create an innovation ecosystem that contributes to the statewide economy through R&D spending, purchasing with local organizations, and generating tax revenue. Since 1974, Intel has invested more than $65 billion in capital to support its operations in Oregon.

Project

For its project supported by the Oregon CHIPS Program, Intel will expand cleanroom manufacturing space at the site of its D1 wafer fabrication facility at Gordon Moore Park in Hillsboro. The building construction and purchase and installation of equipment and tools is expected to be a multi-billion-dollar investment. Oregon CHIPS is slated to be used toward the costs of building design and construction of MSB2, one of the support buildings for the new cleanroom space.

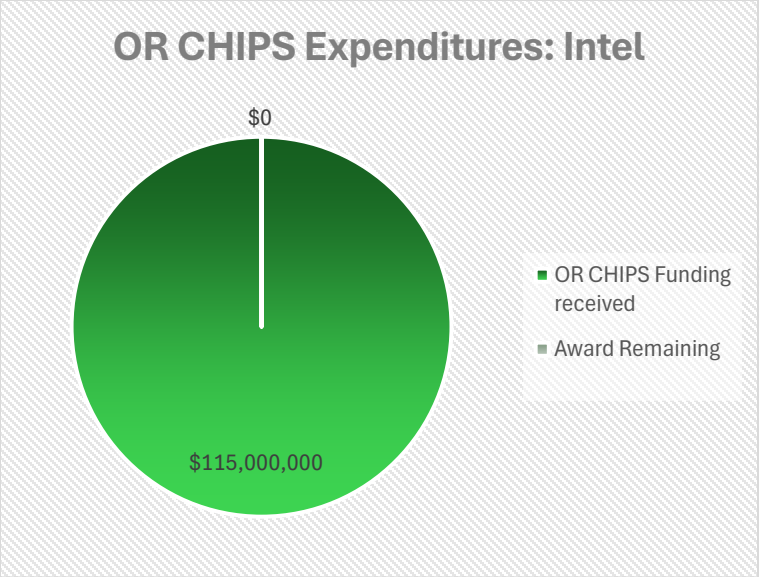
Intel has invested more than $1 billion on its projects cumulatively in the report timeframe to June 30, 2024. Progress on the project during the reporting period includes continued modernization of D1 facilities and installing tools to enable new fabrication capabilities and production capacity. Additionally, the MSB2 building foundation work has been completed, and construction has commenced on the upper floors. The D1 expansion design progressed through space planning and utilities infrastructure validation.

Economic Impacts

In 2023, Intel spent $5.62B with Oregon-based suppliers, and $7.72B total with Oregon and southwest Washington-based suppliers. Intel spent $101.7M with Oregon-based diverse suppliers in 2023.

The company is committed to cultivating a robust network of local suppliers that stimulates the local economy and enhances the resilience and flexibility of its supply chain. More than 200 suppliers in Oregon are considered micro and small businesses.

With regards to R&D, the company reported total R&D investments of more than $16 billion in fiscal year 2023. Intel Oregon remains one of the company's most important R&D centers.



Environmental Impacts

At a company-wide level, Intel has set aggressive goals on reducing greenhouse gas emissions, water recycling and reuse, and restoration. These goals inform the company's approach to its modernization and expansion project at Gordon Moore Park. Specific permits received for the Oregon project include:

- The Oregon Department of Environmental Quality requires an air permit to authorize emissions from modifying or constructing equipment at Gordon Moore Park at Ronler Acres and Aloha campuses.
- A wetlands permit was received from the U.S. Army Corps of Engineers to authorize the expansion of an existing semiconductor fabrication facility.
- Development Review Application approval received from the City of Hillsboro for expansion of an existing semiconductor fabrication facility.

Intel has several ways of engaging with the community to share information and address impacts from operations and construction:

1. **Neighbor Relations program**: Intel is committed to fostering strong relationships with over 3000 members of its neighboring communities to develop investments that are responsive to local needs. This program enables proactive two-way communication between Intel and its near residential neighbors to address concerns and feedback on topics such as significant new construction, changes in visual or audible manufacturing operations from the public perimeter, and progress on commitments made to neighbors.
2. **Air Quality Advisory Committee:** One of the company's objectives is to have open communications between Intel, its neighbors, and the community. The Air Quality Advisory Committee provides a quarterly forum to meet with the community to discuss the company's environmental operations. Those meetings are virtual and open to the public.

3. The **Quarterly Community Advisory Panel** (CAP) plays a pivotal role as a volunteer advisory group, serving as a crucial bridge for communication between Intel and the local community. Comprising community leaders and representatives, this diverse group includes members from business, government, environmental organizations, community organizations, and neighbors.

Workforce & Educational Partnerships

Community Colleges:

Quick Start Technician Training Program: Intel partners with Worksystems, Portland Community College, Worksource, Washington County, and the City of Hillsboro to offer the 2-week, paid Quick Start training program in Oregon. Quick Start aims to support the growing semiconductor industry's employment needs and welcome diverse talent into the technical workforce. The accelerated two-week program is designed to prepare students for a rewarding career as a semiconductor technician with hands-on learning.

A.I. for Workforce: Intel has made significant investments to establish comprehensive digital readiness programs to demystify and democratize emerging technologies for diverse audiences across all segments of society. This includes preparing the wider U.S. workforce with key Artificial Intelligence (A.I.) skills. Oregon's A.I. for Workforce program has expanded to Umpqua Community College to create a pathway for A.I. mechanics and technicians. Intel is collaborating with faculty at Portland Community College to bring the program to their schools.

Universities:

Intel works with Oregon colleges and universities to tailor curricula to meet the semiconductor industry's needs, and through internship programs, Intel provides real-world experience for both undergraduate and graduate-level students. Intel also funds research projects with university students and faculty to foster collaborations and the development of communities among Intel and academia.

K-12

Oregon Robotics Tournament & Outreach Program (ORTOP)

Intel has continued its 21-year partnership with ORTOP by supporting the FIRST LEGO League (FLL), a robotics program engaging more than 3,300 youth in 4th through 8th grade through nearly 500 robotics teams. For the past five years, Intel has donated over $130,000 in direct grants to ORTOP. Intel's support provides scholarships to girls, minority participants, and teams who meet financial need criteria. Intel also hosts the FLL Qualifying Tournaments annually at its Jones Farm campus. In 2023, Intel volunteers provided over 1,841 volunteer hours as judges, referees, and team coaches to support ORTOP programs.

Hillsboro School District Foundation

Intel has a deep partnership with the Hillsboro School District. Each year, Intel employees contribute thousands of hours of volunteer work to the district, from teaching, mentoring, and coaching. Intel has contributed over $320,000 in direct grants to the Hillsboro Schools Foundation over the past five years to support the district's STEAM and CTE programming. As part of a Strikeouts for STEM community partnership with the local baseball team (Hillsboro Hops), Intel funded the Career Technical Education (CTE) and the Hillsboro Schools Foundations' "Imagine your Adventure/Imagina tu Aventura" program, which brings bilingual, bicultural career exploration kits and programs to all kindergarten through sixth-grade classrooms in HSD.

In April 2024, Intel invited the ReVamped robotics team, supported by nonprofit Project LEDO, to demonstrate their robot at our CHIPS gathering event. Governor Tina Kotek and Congresswoman Suzanne Bonamici met with the students at the event. Since their meeting, Bonamici met with Project LEDO to learn more about their work at a meeting at their Portland office with Intel.

In addition, Intel employees serve on CTE and Career Pathways Advisory Councils.

Beaverton Education Foundation

For several years, Intel has partnered with the Beaverton Education Foundation on various STEAM-related grants, totaling over $170,000 over the past five years. Most recently, the company’s $20,000 investment went to support the Building STEAM 4 All Initiative which supports in-class, afterschool, and summer programming in science, technology, engineering, art, and math achievement, focusing on expanding access for students who are underrepresented in the sciences: girls, low-income students, and students of color. In addition, we have partnered with the district to donate $20,000 on a strategic initiative to support their specialized Career Technical Education (CTE) programs, encouraging students to pursue careers in the trades.

Portland Metro STEM Partnership

Intel has partnered with the Portland Metro STEM Partnership to advance efforts that promote equity in STEAM, such as enabling school certification and developing educational programs in partnership with BIPOC communities in the Portland Metro area. Intel was a founding member of the Portland Metro STEM Partnership advisory board in 2009 and advocated for developing the STEM Hub network to serve all of Oregon in 2013. Intel has partnered with Portland Metro STEM and has partnered on several programs, such as our annual National Engineers Week event. Intel has collaborated with the Portland Metro STEM Partnership for seven consecutive years to celebrate National Engineers Week by hosting two days of hands-on learning in Beaverton and Hillsboro fourth-grade classrooms, reaching over 2,200 students. In 2023, more than 350 Intel volunteers visited over 90 classrooms where they guided students through the Intel Future Skills Lunar Lander

project. The company supports professional development for local teachers through its partnership with Portland Metro STEM, hosting an annual "Externship" event during which teachers come to the Intel campus to learn about our industry, careers, and essential skills to share with students. Since 2019, Intel has donated over $100,000 to support Portland Metro STEM's efforts.

Community Partnerships

Intel is working with nonprofits Building Blocks to Success and Self Enhancement, Inc. to support their programming related to establishing career pathways for their students in semiconductor manufacturing. Intel volunteers have engaged with these organizations previously. With both organizations awarded funding from the Higher Education Coordinating Commission for their programming, Intel is partnering to support their efforts to build semiconductor career pathways.

This summer, the company facilitated a joint effort between BB2S, SEI, Intel, and Portland Community College to identify pathways to support this programming. Intel will begin efforts to partner by welcoming 15 middle school students from Building Blocks 2 Success to our Intel campus for a day led by employee volunteers from Intel's Employee Resource Group NIA (Network of Intel African Ancestry). During this visit, Intel plans to share an overview of Intel and a fun STEM activity to inspire our next generation of innovators. The company is also connecting with Self Enhancement, Inc. to plan a larger engagement in the fall.

Intel employee volunteers are also championing community initiatives to support an inclusive talent pipeline. The Empowering Students with Disabilities (ESWD) program, initiated by a team of dedicated Intel volunteers in partnership with the Oregon Department of Education local school districts and the Department of Education, is distinguished by its immersive and hands-on approach to education for students with disabilities. Through this program, volunteers welcome local students with disabilities to the Intel campus to experience a specialized curriculum that encompasses technical learning sessions, soft skills development, and mentorship. Since its inception, the ESWD program has experienced remarkable growth, now serving over twenty-five students from the Hillsboro, Beaverton, and Forest Grove School Districts. So far, Intel has hired two students from this program as summer interns.

Child Care

To help its employees have more access to safe, reliable childcare, Intel plans to expand its current childcare options in the U.S. The company has reviewed programs to address the two most significant issues identified by employees in a recent internal survey on childcare: *availability* and

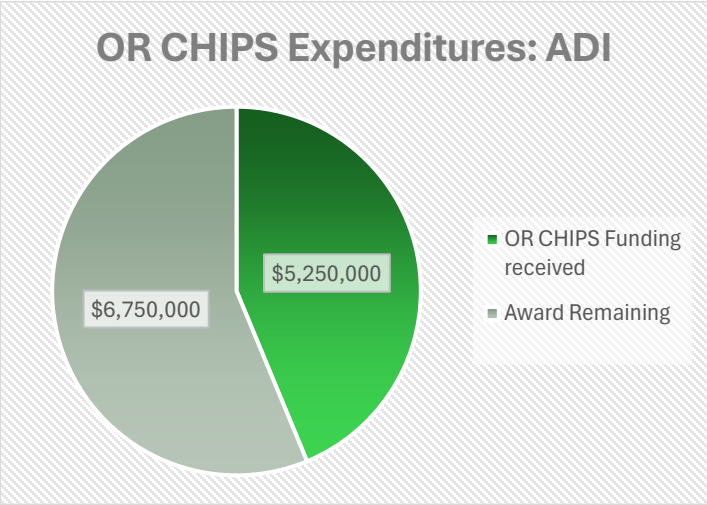
affordability. Childcare enhancements have been identified as a meaningful way to alleviate Intel parents' challenges.

In the U.S., Intel plans to add a second discounted childcare provider network and a new navigation tool to help improve search functionality with access to a vetted network of childcare providers for those looking for alternative solutions, doubling the number of near-site centers. The company will also increase its backup childcare program's reimbursement amount and duration by over 200%. In addition, the company will pilot a childcare reimbursement program for its non-exempt U.S. employees.

Analog Devices, Inc

Analog Devices, Inc. (ADI) is a global semiconductor company that designs, manufactures, tests, and markets a broad portfolio of solutions, including integrated circuits, software, and subsystems that leverage high-performance analog, mixed-signal, and digital signal processing technologies. ADI's comprehensive product portfolio, deep domain expertise, and advanced manufacturing capabilities extend across high-performance precision and high-speed mixed-signal, power management, and processing technologies – including data converters, amplifiers, power management, radio frequency integrated circuits, edge processors, and other sensors.

ADI's largest production facility is in Beaverton, Oregon, where the company creates solutions for customers in various end markets including automotive, industrial automation, technology, communications, healthcare, and various consumer markets.



ADI's Oregon CHIPS agreement for $12 million was executed on May 7, 2024. The company is currently awaiting decision regarding its Federal CHIPS and Science Act application. Oregon CHIPS is supporting ADI's capital project to further modernize and expand its Beaverton facility, to increase its wafer manufacturing capacity. ADI expects to invest an estimated $545M in capital expenditures, which commenced in July 2023.

ADI's Oregon CHIPS project includes two key components:

1) the purchase and acquisition of an adjacent parcel of land, including the existing facilities on that land, and

2) upgrades to ADI's existing Beaverton facility, including infrastructure improvements and the purchase and installation of new equipment and technology.

Key milestones and developments during the reporting period include:

- Significant new tool installations at the site
- Achieved over 100 new tool-level output records (over last six months)
- Reduced manual chemical pours by over 40% and manual chemical cylinder changes by over 75% through moving to bulk supply
- Installed new automated material handling system and automated elevator now under test
- Nearing completion of new N2 air separation unit to supply reliable nitrogen to the fab
- Made significant progress on full qualification of key process technology

Economic Impacts

ADI has invested hundreds of millions of dollars in its facilities expansion and new equipment, including transformation of warehouse space into a new clean room. Impressively, 162 of the suppliers used to export its project to-date are Oregon-based. Approximately one-third of these companies were directly involved in the expansion of the fab and clean room space, resulting in spending and job creation. The remaining spend with these suppliers is for recurring inventory and operational goods and services.

Environmental Impacts

ADI is focused on minimizing its facilities' environmental impacts and reducing Greenhouse Gas emissions. As part of that commitment, the company has issued public Greenhouse Gas emissions goals for its global operations. ADI's environmental targets include:

- Achieving Net Zero across all 3 Scopes of emissions by 2050 or sooner.
- Achieving Carbon Neutrality by 2030 with at least a 50% absolute reduction in Scope 1 and 2 emissions (vs. 2019).
- Diversion of 100% of its waste from its manufacturing facilities from the landfill by 2030.
- Reduction of its water withdrawal intensity normalized to production output by 50% by 2027 (vs. 2022).
- Use of 100% renewable energy across all manufacturing facilities by 2025.

ADI's steps to help achieve these goals include investing in state-of-the-art abatement equipment as part of the company's expansion. This investment will help reduce the impacts of the chemicals used in the semiconductor manufacturing process. ADI is also deploying its own sensor technology to manage water use, driving efficiency, and increasing recycling where possible.

Workforce & Community Partnerships

The company's plans for the expanded Beaverton campus include ecosystem-supporting initiatives to support regional workforce training for careers in the industry. ADI is enhancing Beaverton as the center of its Pacific Northwest Technology Hub by:

- Scaling the Semiconductor Advanced Manufacturing Upskilling Program (SAMU) to expand and increase the qualifications of the PNW semiconductor workforce. This includes donations of surplus tooling to support real-world technical training, co-investment from an equipment supplier, and offering an 8-week "bootcamp" technician training co-designed by a group of semiconductor manufacturers.
- Partnering with universities in the region to provide research space, curriculum development, and internships. Federal CHIPS funding will enable unique fellowship opportunities and other collaborations.

This summer, ADI Beaverton employed four interns from Oregon State University and three from the University of Oregon.

Child Care

With CHIPS funding ADI proposes to stand up a new program to support its employees' childcare expenses. With federal support, the childcare program will consist of (1) an agreement with primary and back-up childcare providers to offer discounts to employees, and (2) a direct ADI subsidy in addition to this discount.

Siltronic Corporation

Siltronic Corporation manufactures 200mm silicon wafers in Portland and is 1 of 4 manufacturers of such silicon wafers in the United States. Silicon wafers are the first building block in supporting vehicle electrification and safety, sustainable energy grids, industrial automation, 5G, and cloud infrastructure. With the financial assistance of the Oregon and Federal CHIPS Acts, Siltronic plans to modernize and expand its Portland facility, enabling the company to meet growing demand and maintain and strengthen its technological leadership.

Project

Oregon CHIPS funding will be used to purchase tools and equipment to modernize the facility's metrology capabilities, to produce wafers that meet the technology needs of the semiconductor industry.

Siltronic reports that the tools listed in its OR CHIPS Grant Agreement have been purchased and are in the process of being installed, and that total project capital expenditures to date is $2.3 million. The company planned to submit its federal CHIPS and Science Act application in August 2024.

Workforce & Community Partnerships

Siltronic hired two MECOP (Multiple Engineering Cooperative Program) interns for the summer of 2024.

Lam Research

Lam Research is Oregon's largest semiconductor equipment company and has had a strong presence in Oregon for more than 20 years. The company's process labs are centers of semiconductor innovation that deliver differentiated experimental and product development results aligned with the nation's CHIPS Act objectives. The semiconductor process tools developed by Lam are complex electro-mechanical systems that apply advanced physics and chemistry to perform critical steps in the creation of microscopic semiconductor devices. Lam's process tools are used by every leading global chipmaker to produce their most advanced devices.

Creating these cutting-edge semiconductor process tools requires two key development deliverables – hardware capable of providing precision control of chemicals to create nano-scale structures on silicon wafers, and process recipes to fine tune the hardware to yield each customer's unique desired results. Lam's process labs are essential to both deliverables. Furthermore, performing this work at Lam's labs allows customers to define and validate production recipes ahead of installation to ensure a rapid ramp to full production.

Oregon CHIPS Project

Lam Research received an Oregon CHIPS award of $22,000,000 to support the expansion of its Research and Development operations with the construction of the company's most advanced R&D center at its campus in Tualatin. This new R&D center will accelerate the development of technology solutions across the company's entire spectrum of chipmaking processes. This state-of-the-art semiconductor process R&D center, still in active development, will be comprised of cleanroom lab space and supporting infrastructure and facilities.

The project is in its beginning stages, with early design work ongoing through the reporting period. Architectural and site master plans have been submitted to the City of Tualatin to kick off the review and feedback process. Capital expenditures to date include the company's land acquisition & project design costs.

Economic Impacts

Lam Research provides high-paying jobs, contributing to lower unemployment rates and increased local spending in Tualatin and surrounding communities. The company's presence in Oregon has

contributed to business growth, attracting suppliers, service providers and other businesses, and helping to boost the local economy. The company anticipates investing hundreds of millions of dollars in the Tualatin Lab expansion project, which will create hundreds of local construction jobs and opportunities for small businesses. For the reporting period, seven companies supplying the TUX project are in Oregon and three of those are considered small businesses.

Environmental Impacts

Lam expects the first construction permits for the project to be issued in the first half of 2025.

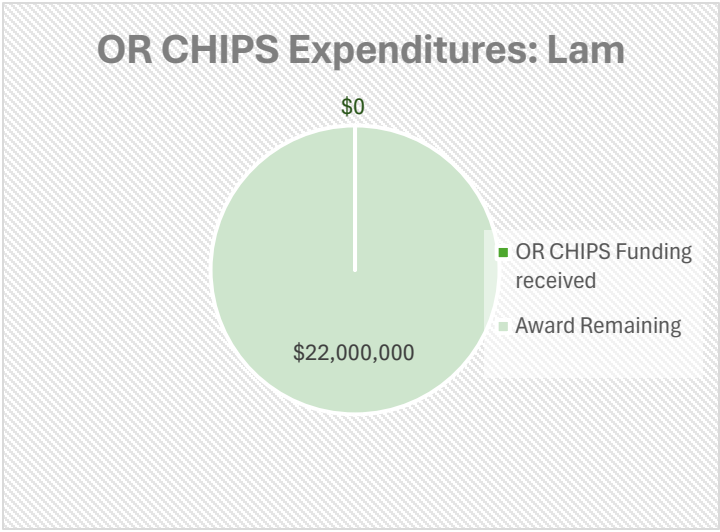
Workforce Partnerships

Lam is actively partnering with various degree programs at Portland Community College and Clackamas Community College to recruit candidates for Lam's Manufacturing Apprentice Program.

Lam has an ongoing collaboration with Portland Community College to provide an 8-week, college-level program that includes both instruction and hands-on labs for manufacturing employees, conducted on-site at Lam Research. Additionally, Lam is expanding this partnership to offer a second college-level program focused on metrology, available to both external individuals and to Lam employees.

Community Partnerships

As a leading semiconductor equipment manufacturer, Lam has maintained a presence in Tualatin for more than thirty years. Over the course of this time, Lam has had a notable impact on the local Tualatin community. Though its expansion project is still in early stages, Lam expects to maintain an ongoing commitment to economic, educational, and social initiatives and expects to continue driving positive change in the community.



The company is known for its charitable contributions and support for local non-profits such as Girls Inc. and IUrban Teen, school support, and volunteering where employees often participate in community service, further strengthening the bond between the company and the community. Lam also supports local community organizations through its social impact program, most recently with organizations like In4all and Family Promise of Tualatin.

Special Topics

Semiconductor Industrial Lands Loan Program

There are numerous industrial properties where, due to the high costs of development to make them site-ready, are not able to advance toward attracting high-wage, high-employment industries. Upfront financial assistance for industrial land development projects ensures a ready supply of properties available to attract, retain, and expand key growth industries, such as semiconductor manufacturers, that typically pay workers above-average wages. Additional funding for a program of this type will create new opportunities for other industrial land development projects, helping Oregon compete nationally and globally.

Established as part of Senate Bill 4, the Semiconductor Industrial Lands Loan Fund addresses this challenge to business recruitment and expansion by providing $10 million in financial assistance in the form of a forgivable loan for certain expenses related to industrial land development that is supportive of the semiconductor industry. Allowable expenses include property acquisition, transportation improvements, natural resource mitigation, land grading activities, and construction costs and expenses, amongst others.

To date, five project from the Semiconductor Industrial Land Loan Fund are currently being negotiated with public and private recipients across the state:

- **Valliscor LLC**: $2,500,000 in funds that will allow purchase of a vacant parcel in Albany for the development of a new facility to produce hexafluorobutadiene (C4F6), an important etchant for the semiconductor industry.
- **Ravin Ventures**: $2,069,000 for wetland mitigation and site infrastructure development (water, sewer, and roads) for an existing property in Coburg.
- The **City of St. Helens:** $2,314,000 for development of a new substation in partnership with Portland General Electric (PGE) that will increase supply and resiliency of electricity to the area.
- **Columbia County**: $94,000 to create a map for electrical transmission routes between six and twenty miles long.
- The **City of Hillsboro**: up to $1,900,000 to acquire a parcel in the heart of the Silicon Forest. This land will be aggregated to create an attractive site for semiconductor use.

Business Oregon staff are currently working on drafting contracts with the awardees noted above. The agency anticipates executing contracts and distributing funds to awardees by January 15, 2025. The balance of funds remaining, approximately $1,123,000, may be made available for distribution through a second competitive funding opportunity in late 2024 or early 2025.

Research & Development Tax Credit for Semiconductors

As a global center for semiconductor research & development, many Oregon companies play a critical role in the nation's efforts to regain technological leadership in the production of semiconductors. The Research and Development Tax Credit for Semiconductors (R&D Tax Credit) is intended to build on Oregon's strengths in this area by recognizing and furthering the contributions of the industry to our economy. The R&D Tax Credit offers a roughly 15% credit for new research and development expenses incurred in Oregon and is available tax years 2024 – 2029. The credit is capped at $4 million annually so that the program can benefit both large and small companies.

While no taxpayers have yet claimed the R&D Tax Credit, the one-time registration required to qualify for the credit in tax year 2024 provided information on expected utilization. An analysis issued by the Legislative Resource Office in March 2024 identified 26 qualified taxpayers, projecting a total $600 million in R&D expenses and an estimated tax credit usage of $23.9 million in 2024.[6]

The number of qualifying taxpayers will likely vary year to year, though Business Oregon expects the number of applicants to increase. The 26 registered taxpayers for 2024 are likely a subset of potential recipients, due to the short time frame and challenge of notifying all possible program stakeholders of the initial registration process in 2023.

Applications for Certification for tax year 2024 will be due on October 15, 2024, and Business Oregon will certify a maximum credit amount for each qualified taxpayer one month later. While only taxpayers that have received a notice of registration for tax year 2024 are qualified to receive this year's R&D Tax Credit, new taxpayers can apply for the benefit in 2025.

The R&D Tax Credit is expected to benefit semiconductor companies of all sizes that represent different aspects of the production cycle, from software design start-ups to leading-edge chip manufacturers. Business Oregon anticipates the credit to serve as both a retention incentive for semiconductor companies conducting research and development, and a recruitment offering for new businesses interested in locating or expanding in the state. Expanding the research and development ecosystem for semiconductors increases both the supply of and demand for a highly skilled workforce, which in turn supports further recruitment of semiconductor, advanced manufacturing, and technology companies to Oregon.

[6] For more on the R&D Tax Credit for Semiconductors, visit https://www.oregon.gov/biz/programs/tax_credit_semiconductors/Pages/default.aspx

Workforce Programs

The availability of skilled operators, technicians and engineers are among the top concerns of semiconductor companies considering whether to locate or expand in Oregon. Top university graduates will continue to drive the innovation that makes Oregon a hub for research and development in the semiconductor space. Business Oregon estimates that Oregon has approximately 38,000 jobs supporting the semiconductor industry, which represents 9% of national semiconductor-related employment. That's compared to having only 1.27% of the overall population in the United States, according to the 2022 US Census.

Despite the current downturn, workforce demands are expected to far outpace supply in the next few years. Oregon CHIPS Round 1 awardees projected the creation of 6500 new jobs across all applications, and Oregon CHIPS Round 2 submissions continue that trajectory despite a more modest amount of available funding. Continued support and focus on semiconductor workforce and talent development over the next 5-10 years is crucial to maintaining the state's ability to attract and retain companies in this sector.

The Future Ready Oregon $200 million investment in education and training includes several Workforce Ready Grants that support new and innovative education and training programs for the semiconductor industry.[7] Several Workforce Ready Grants strengthen partnerships with Oregon CHIPS recipients, including the "Quick Start" program launched and administered in partnership with Intel. Quick Start is an accelerated two-week program designed to prepare students for a career as a semiconductor technician with hands-on learning.

Given that the demand for additional headcount is currently muted, many semiconductor companies are focused on incumbent worker training, i.e., upskilling of existing employees. A Workforce Ready Grant for the Incumbent Worker and Mobile Training program at Mount Hood Community College turned an underutilized mechatronics class into an oversubscribed program by reduced barriers and offering wraparound supports and tuition reimbursements. This program is offered in partnership with both Microchip and Onsemi in Gresham.

Analog Devices' workforce strategy features a partnership with an innovative program called Semiconductor Advanced Manufacturing Upskilling Program (SAMU). SAMU is an independently operated third-party semiconductor workforce training program and facility located in Beaverton. The program was created in 2023 through industry collaboration to

[7] For a more complete case study on Future Ready Oregon's Workforce Development grants supporting the semiconductor industry, view this case study by the Higher Education Coordinating Commission: https://www.oregon.gov/highered/about/Documents/Future-Ready/OnePager-FutureReadyOregon-WorkforceReadyGrants-Semiconductors.pdf

support the labor requirements of semiconductor companies and increase the qualifications of the semiconductor workforce in the Pacific Northwest. SAMU aims to alleviate the resources, time allocation, and financial burdens incurred by individual industry companies who are currently each tasked to develop their own solution around recruiting, training, and retention. This includes donations of surplus tooling to support real-world technical training, co-investment from an equipment supplier, and offering an 8-week "bootcamp" technician training co-designed by a group of semiconductor manufacturers. Though the program is currently completely industry funded, SAMU and workforce partner Acara Solutions have more recently explored public sector partnerships to upgrade the tools and facilities at the training location in Beaverton and offer a paid apprenticeship program, with the goal of creating an ongoing pipeline of qualified semiconductor technicians in the PNW.

In 2024, the Oregon State Legislature passed House Bill 4154 establishing the Semiconductor Talent Sustaining Fund and requiring the Higher Education Coordinating Commission to allocate any future resources going into the fund to provide education, training and research to assist the semiconductor industry. The legislature also allocated an additional $10 million to support talent advancement within the semiconductor industry. Oregon CHIPS recipients Intel, Analog Devices, and Microchip are working alongside Oregon schools supported by this legislation, including Oregon State University, University of Oregon, Oregon Institute of Technology, Portland State University, and Mt. Hood and Portland Community Colleges to ensure this additional funding strengthens the connection between industry needs and the state's training and research programs.

Child Care

With the passage of HB 4098, the Oregon State Legislature established the CHIPS Child Care Fund and appropriated $2.5 million for the new fund with a goal of providing high-quality childcare for construction workforce building out semiconductor facilities around the state. Additionally, Governor Tina Kotek committed another $5 million for the CHIPS Child Care Fund from Oregon CHIPS. Since June, Business Oregon has been facilitating a CHIPS Child Care Work Group with representatives from the semiconductor and childcare provider industries, elected officials, and agency representatives to provide recommendations to the State Legislature by November 15th regarding requirements for Oregon CHIPS awardees to contribute to the CHIPS Child Care Fund, and the mechanism for any such requirements.

Oregon CHIPS awardees Intel, Analog Devices, and Microchip each provided details for this report on their plans to improve access to high-quality childcare for employees. See each company's section for more information.

Business Recruitments and Economic Growth

Based on economic development activity observed in the first half of 2024, it seems likely that the state's suite of semiconductor incentives is improving the business environment for this sector. Examples include:

- **Recruitments:** Business Oregon has seen recruitment activity from the semiconductor industry increase during the reporting period, with six separate recruitments in the first half of 2024 vs. one such recruitment in July – December 2023.

- **Foreign Direct Investment:** Oregon CHIPS Round 2 project submissions demonstrate a trend of local expansions funded by foreign direct investment. The agency was also able to use the Oregon CHIPS program as a recruitment incentive for one company to locate its next manufacturing facility here in the Silicon Forest.
- **Delegation Visits:** Business Oregon received one of the agency's first major international inbound delegations since the pandemic, a 23-member group of Taiwanese semiconductor executives visiting the state in mid-June. In late October, Business Oregon will partner with the Japan External Trade Organization (JETRO) to host a delegation of Japanese semiconductor business representatives. These visits provide an opportunity for agency, academic, and elected leaders to share the value proposition for investing in the semiconductor industry in Oregon.

In July, Business Oregon celebrated the state's position as a global center for the semiconductor industry at SEMICON West 2024 in San Francisco. The agency collaborated with economic development partners from Hillsboro, Sherwood, Portland and Greater Portland, Inc. to host a sellout reception featuring SEMI Americas President Joe Stockunas.

The State of Oregon will soon be helping to administer the federal CHIPS Regional Strategy. Oregon is one of six states designated to lead a Regional Cluster. Business Oregon will serve as the lead strategic implementation partner on the ground to promote the success of federal CHIPS Act investments. This includes coordinating across government parties to measure ecosystem development, facilitate site availability, monitor infrastructure improvements, prioritize workforce training, explore childcare solutions, and engage with tribal communities, and share knowledge across regions.

Conclusion

This Oregon CHIPS Biannual Report is the first of a series of reports that will describe progress on specific Oregon CHIPS projects, as well as provide an update on the state of the industry. The bold actions taken by the Oregon State Legislature to support the semiconductor industry in Oregon over the last few years will have profound impacts on our state's economic future. The early indicators on business recruitment, foreign direct investment, and delegation activity are trending positively, but time will tell if Oregon's semiconductor sector grows at rates comparable to our peer states in the industry. These states see value in addressing the key challenges faced by the semiconductor industry through support for workforce development programs, provision of incentives, and streamlining of regulatory hurdles. The business environment for the semiconductor industry (as well as other types of advanced manufacturing) in Oregon could benefit from further legislative action in these areas:

- **Continued funding for workforce development,** with a focus on programs that connect industry needs directly to program offerings.
- **Match funding for universities** to compete for federal grants to grow Oregon's capacity for research and talent development.
- **Incentives for expansion and modernization projects at local supply chain companies**, to help Oregon-based businesses compete for the dramatic growth in demand for materials and processing that will come from local chip manufacturer expansions.
- **Additional industrial site readiness resources** to create shovel-ready land for recruitments and expand the footprint of where industry can locate across the state.

Thank you for reviewing the progress of Oregon CHIPS and other state programs supporting the growth of the semiconductor industry. Business Oregon values your feedback!

Were there sections that you found especially insightful? Do you have suggestions on what you'd like to see in future CHIPS reports? Send Business Oregon your comments at Oregon.CHIPS@oregon.gov.

2040 SHERWOOD COMPREHENSIVE PLAN

ATTRACTIVE AND ATTAINABLE HOUSING

DRAFT BACKGROUND REPORT

JULY 15, 2020

I. Introduction

Context

In past years, Sherwood has been one of the fastest growing cities in Oregon. While a bedroom community in the Portland/Vancouver Metropolitan Region, Sherwood's population grew from about 3,000 residents in 1990 to nearly 20,000 residents in 2019. Despite this record growth, Sherwood maintains an exceptional quality of life, driven by access to renowned schools, quality medical services, high level of public safety, a unique park and recreation system, a revived central business district, and excellent cultural facilities and community events.

Community Vision and Goals

In 2018, the City conducted a visioning process for the Comprehensive Plan Update and the community identified the desire for "*attractive and attainable housing*." This theme will constitute a section of the City's updated Comprehensive Plan. The vision states:

> *"By 2040, Sherwood aims to develop a range of housing choices for a diversity of ages and income levels, providing community members the ability to live in Sherwood throughout all stages of life."*

Purpose

The City of Sherwood is preparing a series of background reports intended to inform community conversations about Sherwood's future. This report explores the topic of housing in Sherwood, recapping the major themes and policy questions identified in the City's Housing Needs Analysis (HNA) for the 2019 to 2039 period. The housing needs analysis provides Sherwood with a factual basis to support future planning efforts related to housing and prepares to update and revise the City's Comprehensive Plan policies. The HNA was updated for the Sherwood West Preliminary Concept Plan in 2015, and then again in 2019 as part of the City's UGB expansion request, which was ultimately withdrawn by City Council. The HNA will need to be adopted prior to, or as part of, the Comprehensive Plan adoption process.

The housing needs analysis is intended to comply with requirements of statewide planning policies that govern planning for housing and residential development (Statewide Planning Goal 10), its implementing Metropolitan Housing Rule (OAR 660-007), and Metro's 2040 Functional Growth Management Plan. Taken together, the City's primary obligations are to:

(1) designate land in a way that provides the opportunity for 50% of new housing to be either multifamily or single-family attached housing (e.g., townhouses);

(2) achieve an average density of six dwelling units per net acre; and

(3) provide enough land to accommodate forecasted housing needs for the next 20 years.

Sherwood is already in compliance with these requirements and can accommodate most of the new housing forecast, based on existing conditions, assets and trends as described in the following sections. Key policy questions, and potential housing goals and design principles, are offered at the

end of this report. To help support discussion, Appendix A includes a suite of cut sheets for different housing types that exist, or could exist, in Sherwood, based on the community's 2040 vision statement.

How has Sherwood's Population Changed in Recent Years?

The basis for the housing needs analysis is an understanding of the demographic characteristics of Sherwood's residents.[1]

- **Sherwood's population grew relatively fast in recent years.** Sherwood's population increased from 3,000 people in 1990 to nearly 18,600 people in 2013, averaging 8% annual growth. Sherwood's fastest period of growth was during the 1990s, consistent with statewide trends. Between 2000-2013, Sherwood grew by 6,600 people, at an average rate of nearly 3.5% per year. For comparison, Washington County grew at 2.5% annually between 1990-2013 and the Portland Region grew at 1.6% per year.
- **Sherwood's population is aging.** People aged 45 years and older were the fastest growing age group in Sherwood between 2000 and 2010, consistent with state and national trends. By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015) and 25% in the Portland Region (up from 19% in 2015). It is reasonable to assume that the share of people 60 years and older will grow relatively quickly in Sherwood as well.
- **Sherwood is attracting younger people and more households with children**. In 2010, the median age in Sherwood was 34.3 years old, compared to Washington County's median age of 35.3 years and the State median of 38.4. Sherwood has a larger share of households with children (47% of households), compared with Washington County (33%) or the Portland Region (29%). The Millennial generation—people born roughly between 1980 to 2000—are the largest age group in Oregon and will account for the majority of household growth in Sherwood over the next 20 years.
- **Sherwood's population is becoming more ethnically diverse.** About 6% of Sherwood's population is Latino, an increase from 4.7% in 2000. In comparison to Washington County and the Portland Region, Sherwood is less ethnically diverse. In the 2009-2013 period, 16% of Washington County residents, and 12% Portland Region residents, were Latino.

What Factors May Affect Future Growth in Sherwood?

If these trends continue, population will result in changes in the types of housing demanded or "needed" in Sherwood in the future.

- **The aging of the population is likely to result in increased demand for smaller single-family housing, multifamily housing, and housing for seniors.** People over 65 years old

[1] The majority of data quoted in this analysis is from the U.S. Census American Community survey, with population data from the Population Research Center at Portland State University and development data from the City's Building Permit database.

will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, or moving into group housing (such as assisted living facilities or nursing homes) as they continue to age.

- **The growth of younger and diversified households is likely to result in increased demand for a wider variety of housing, affordable and appropriate for families with children, such as small single-family housing, townhouses, duplexes, and multifamily housing.** If Sherwood continues to attract young residents, then it will continue to have demand for housing for families, especially housing affordable to younger families with moderate incomes. Growth in this population will result in growth in demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.[2]
- **Changes in commuting patterns could affect future growth in Sherwood.** Sherwood is part of a complex, interconnected regional economy. Demand for housing by workers at businesses in Sherwood may change with significant fluctuations in fuel and commuting costs, as well as substantial decreases in the capacity of highways to accommodate commuting.
- **Sherwood households have relatively high income, which affects the type of housing that is affordable, particularly for young people and new families.** Income is a key determinant of housing choice. Sherwood's median household income ($78,400) is more than 20% higher than Washington County's median household income ($64,200). In addition, Sherwood has a smaller share of population below the federal poverty line (7.6%) than the averages of Washington County (11.4%) and the Portland Region (13.9%).

What are the Characteristics of Sherwood's Housing Market?

The existing housing stock in Sherwood, homeownership patterns, and existing housing costs will shape changes in Sherwood's housing market in the future.

- **Sherwood's housing stock is predominantly single-family detached.** About 75% of Sherwood's housing stock is single-family detached, 8% is single-family attached (such as townhomes), and 18% is multifamily (such as duplexes or apartments). Sixty-nine percent of new housing permitted in Sherwood between 2000 and 2014 was single-family detached housing.
- **Almost three quarters of Sherwood's residents own their homes.** Homeownership rates in Sherwood are above Washington County (54%), the Portland Region (60%), and Oregon (62%) averages.

[2] The housing needs analysis assumes that housing is affordable if housing costs are less than 30% of a household's gross income. For a household earning $65,000, monthly housing costs of less than $1,960 are considered affordable.

- **Homeownership costs increased in Sherwood, consistent with national trends.** Median sales prices for homes in Sherwood increased by about 30% between 2004 and 2014, from about $245,000 to $316,500. The median home value in Sherwood is 3.8 times the median household income, up from 2.9 times the median household income in 2000.
- **Housing sales prices are higher in Sherwood than the regional averages.** As of January 2015, median sales price in Sherwood was $316,500, which is higher than the Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($237,300) median sales prices. Median sales prices were higher in Sherwood than in other Portland westside communities such as Tigard, Tualatin, and Beaverton, but lower than Wilsonville or West Linn. The average price per square foot in Sherwood is also higher than Portland westside communities.
- **Rental costs are higher overall in Sherwood than the regional averages.** The median rent in Sherwood was $1,464, compared to Washington County's average of $1,270.
- **More than one-third of Sherwood's households are cost-burdened.** Thirty-eight percent of Sherwood's households were cost-burdened (i.e., paid more than 30% of their income on rent or homeownership costs). Renters were more likely to be cost-burdened (40% of renters were cost-burdened), compared to homeowners (35% were cost-burdened) in Sherwood. These levels of cost burden are consistent with regional averages. In Washington County in the 2009-2013 period, 38% of households were cost burdened, compared to 41% in the Portland Region.

Future housing affordability will depend on the relationship between income and housing price. The key question is whether housing prices will continue to outpace income growth. Answering this question is difficult because of the complexity of the factors that affect both income growth and housing prices. Sherwood will need to provide the opportunity for development of a wider variety of housing, including housing affordable to low- and moderate-income households.

How much Housing Growth is Forecast, and can that Growth be Accommodated within Sherwood?

As required by state law, household growth in Sherwood is based on Metro's coordinated forecast. The forecast includes growth in both areas within the city limits, as well as areas currently outside the city limits that the City expects to annex for residential uses (most notably the Brookman area).

- **Sherwood is forecast to add 1,728 new households between 2019 and 2039.** Of these, 700 new households are inside the existing city limits; 1,029 new households are outside the current city limits in the Brookman Area.
- **Sherwood's land base can accommodate most of the forecast for growth.** Vacant and partially vacant land in the Sherwood Planning Area has capacity to accommodate 1,121 new dwelling units. Sherwood can accommodate about 65% of the forecast for new housing in areas within the city limits and Brookman Area.

- **Sherwood has a deficit of land for housing.** Sherwood has a deficit of land for 608 dwelling units. The largest deficits are in Medium Density Residential-Low (154 dwelling units), Medium Density Residential-High (252 dwelling units), and High Density Residential (145 dwelling units).
- **To provide adequate land supply, Sherwood will need to continue to annex the Brookman area and plan for Sherwood West.** Without the Brookman area developing, the City has a projected deficit of about 1,155 dwelling units. Sherwood will need to continue to annex the Brookman area in order to accommodate the City's forecast of residential growth. The City recently annexed about 98 acres in the Brookman Area. The annexed land is in the center of the Brookman Area and has relatively few owners (about 8 property owners). Annexing and developing other areas, with a larger number of owners, may be more challenging, to the extent that the property owners have to come to agreement about development.

What if Sherwood Grows Faster?

- **The forecast for growth in Sherwood is considerably below historical growth rates.** Metro's forecast for new housing in Sherwood shows that households will grow at an average annual growth rate of 1.1% per year. In comparison, Sherwood's population grew at 3.4% per year between 2000 and 2013 and 8% per year between 1990 and 2013. If Sherwood grows faster than Metro's forecast during the 2019 to 2039 period, then Sherwood will have a larger deficit of land needed to accommodate growth.
- **At faster growth rates, Sherwood's land base has enough capacity for several years of growth.** At growth rates between 2% to 4% of growth annually, land inside the Sherwood city limits can accommodate two to five years of growth. With capacity in the Brookman Area, Sherwood can accommodate four to ten years of growth at these growth rates.
- **Additional housing growth in Sherwood depends the availability of development-ready land.** The amount of growth likely to happen in Sherwood over the next few years is largely dependent on how the Brookman Area is annexed, when the Sherwood West area is brought into the urban growth boundary and annexed, and when urban services (such as roads, water, and sanitary sewer) are developed in each area. The City recently annexed about 98 acres in the Brookman Area.

What are the Implications for Sherwood's Housing Policies?

- **Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman area.** The growth rate of Metro's forecast for household growth (1.1% average annual growth) is considerably lower than the City's historical population growth rate over the last two decades (8% average annual growth). Metro's forecast includes growth that can be generally accommodated within the Sherwood city

limits and Brookman. Given the limited supply of buildable land within Sherwood, it is likely that the City's residential growth will slow until Sherwood West is development ready.

- **Sherwood has a relatively limited supply of land for moderate- and higher-density multifamily housing.** The limited supply of land in these zones is a barrier to development of townhouses and multifamily housing, which are needed to meet housing demand resulting from growth of people over 65, young families, and moderate-income households.

Key Policy Questions for Consideration

The results of the Housing Needs Analysis highlight questions for the update of the City's Comprehensive Plan. The following are some key policy questions to consider, followed by additional information to help guide understanding and discussion.

- Providing housing opportunities for first time home buyers and community elders (who prefer to age in place or downsize their housing) will require a range of housing types. Examples of these housing types include: single family homes on smaller lots, clustered housing, cottages or townhomes, duplexes, tri-plexes, four-plexes, garden apartments, or mid-rise apartments. Where should Sherwood consider providing a wider range of housing types? What types of housing should Sherwood plan for?
- Changes in demographics and income for Sherwood and regional residents will require accommodating a wider range of housing types. How many of Sherwood's needed units should the city plan to accommodate within the city limits? How much of Sherwood's needed units should be accommodated in the Brookman Area and in Sherwood West?
- What design features and greenspaces would be important to consider for new housing?
- What other design standards would be needed to "keep Sherwood *Sherwood*"?
- What is the appropriate mix of residential land and employment land in the city to balance the city's tax base?

Housing Goals and Design Principles for Consideration

Given the information outlined in this background report, and to help guide discussion around these key policy questions, the following suggests potential neighborhood design principles and goals for enabling a variety of housing options in Sherwood, as per the community's 2040 vision statement. The following may help guide updates to policy language in the Housing element of the City's Comprehensive Plan.

Potential Sherwood Neighborhood Design Principles

- Cultivate a mix of housing types, including missing middle and multi-family residences that are designed in a way to increase density and preserve neighborhood character.
- Create walkable neighborhoods that respond to their surrounding landscape.

- Provide safe and effortless connectivity to schools, parks, and commercial centers for pedestrians, cyclists, and cars.
- Enhance existing natural assets and integrate greenspaces and parks into new development.
- Enhance Sherwood's small-town character and historic core through human scale development that is accessible and inviting to all.

Potential goals for enabling a variety of housing options

- Encourage a variety of housing types and sizes that offer options at multiple price points and contribute positively to the character of the neighborhood and walkable streetscape.
- Provide housing type options that transition between mixed-use and multi-family zones and single-family zones.
- Provide housing alternatives for community members that are older, younger, single-parent households and anyone that would prefer a smaller dwelling.
- Provide housing type options that increase density while maintaining consistency of building scale and character with existing single-family dwellings.
- Provide attractive and highly functional open spaces that benefit residents and enhance the walking experience within the neighborhood.
- Promote cohesive architecture that is visually appealing, context sensitive and uses high-quality building materials.
- Minimize the impact of vehicular uses on the pedestrian environment and adjacent properties.
- Promote massing, scale and architectural features of new dwellings that contribute to the envisioned neighborhood pattern and address compatibility and transitions between developments.

APPENDIX A. Housing Type Cut Sheets

The following cut sheets provide an overview of various housing types, some of which may or may not already exist in Sherwood. These cut sheets provide information on each housing type and their general design principles in order to provide a foundational understanding of residential development patterns in Sherwood.

As Sherwood updates the City's Comprehensive Plan, the development potential for each of the housing types within the *current* development context will change with shifts in the regional housing market and with development in Sherwood. For example, a regional or national recession may slow population growth and demand for housing in Sherwood. Alternatively, development of one or more of the housing types below may make future development of the same or similar housing types more likely, if development is successful.

Accessory-Dwelling Units (ADUs)

Separate, private dwellings that are secondary to a primary dwelling on a property and can be developed as a detached structure or integrated with the main dwelling in a basement, attic, or addition.

- Development standards often require ADUs to match the scale, architectural form, and materials of the primary dwelling.
- Small (typically 300-800sf) dwellings that provide kitchen, bathroom, bedroom or loft, and are often targeted towards single residents, empty-nesters, or small families.
- ADUs are flexible to fit on a variety of sites with different access options, such as ADUs built above a garage accessed by an alleyway bisecting a block.

DESIGN AND CHARACTER PRINCIPLES

ADUs are well-suited for corner lots, where a separate street access can be provided, and the structure helps fill in the fabric of the neighborhood.

ADUs can be **located on properties in a variety of ways** and provide flexible options to bolster neighborhood character and increase housing stock.

New home construction can include ADUs in the primary structure, such as in these narrow-lot homes that include ground-floor ADUs accessed via a shared center pathway.

SHERWOOD EXAMPLES

ADU addition above a garage

Detached ADU

A variety of stand-along, attached, and attic/basement ADUs exist throughout Sherwood and are permitted on single-family lots.

No. of Dwellings
One dwelling per ADU

Lot Size
Varies, as ADUs are constructed on existing home lots

Dwelling Size
200-800sf typically

Approx. Density
One or more can be permitted on a lot and usually don't count against density regulations.

Building Size
Varies; may be a small shed or garage conversion, a larger stand-alone structure, or part of a primary dwelling

Single Family

A detached, stand-alone house on its own lot, single family homes can vary greatly in size, design style, lot size, bedroom count, features, and numerous other details.

- Usually defined as a stand-along structure with private garage or surface parking and private outdoor yards.
- Contemporary designs may include smaller lots, alley-access parking, and accessory-dwellings units built as part of original construction.
- Development and design standards establish some restrictions, but single-family homes often vary greatly in size and style even within neighborhoods and blocks, from traditional to modern, and designed to suit a variety of household compositions.

DESIGN AND CHARACTER PRINCIPLES

Homes set on relatively smaller lots can make use of **varied facades, recessed parking, and numerous materials** to reduce the perceived bulk of the structure and make a more walkable neighborhood.

New subdivision homes often draw **design influence from their regional setting**, such as these new houses in Central Oregon, using rustic materials and featuring alley-access parking.

Infill and new construction homes emphasize modern designs, are often set closer to the street, and may prioritize backyard open space.

SHERWOOD EXAMPLES

SW Windrow Ln.
Zone: HDR - PUD
Dwelling Size: approx. 1,900sf
Lot Size: approx. 2,600sf

SW Handley St.
Zone: HDR
Dwelling Size: approx. 3,000sf
Lot Size: approx. 8,200sf

Single family homes comprise most of Sherwood's housing stock and vary widely from century-old homes to new-construction subdivisions, and from small-lots to large, rural-feeling lots.

No. of Dwellings
One per lot, with accessory dwelling units permitted in Sherwood on all single-family lots

Lot Size
Typically 2,000-10,000sf or more depending on the setting

Dwelling Size
800-3,000sf or more

Approx. Density
5-18 dwellings per acre on a net basis

Building Size
Can vary significantly but usually designed for compatibility with adjacent housing and structures

Duplex

A small, typically 1-2.5 story structure that contains two separate dwelling units on one lot.

- Duplexes often look very similar to single-family home, making them well-suited as infill compatible with existing neighborhoods.
- Cities may choose to define duplexes as two detached dwellings occupying a single lot or parcel.
- Duplexes may also be created by interior division of an existing home, ensuring to provide separate entrances and other requirements such as kitchens and bathrooms in each.

DESIGN AND CHARACTER PRINCIPLES

Duplexes can generally match existing single-family homes in height and scale, and are **ideal for corner lots** with multiple access points.

Rear-access parking from an alley (if present) helps provide an appealing front façade and contributes to a safer walking environment.

Internal conversions turn one home into two within the character of a single-family home. This example uses one main entrance, which then connects to upper and lower dwellings.

SHERWOOD EXAMPLES

SW Daffodil St.
Zone: HDR
Dwelling Size: approx.. 1,400sf per unit
Lot Size: approx. 4,500sf per unit

SW Windflower Ave.
Zone: HDR
Dwelling Size: approx.. 1,000sf per unit
Lot Size: approx. 4,000sf per unit

Sherwood's duplex-style homes are mostly found in 1990s-era subdivisions where every home is two-attached.

No. of Dwellings
Two dwellings per lot; multiple buildings can be adjacent

Lot Size
Typically 4,000-10,000sf per duplex

Dwelling Size
600-2,400sf per dwelling

Approx. Density
8-15 dwellings per acre

Building Size
Can vary significantly but usually designed for compatibility with adjacent housing and structures

Triplex and Quadplex

Three or four dwellings arranged in either attached or detached structures on one lot.

- Ideal for both infill and new subdivision development as they maintain a single-family character while providing a broader range of dwelling sizes and price-points.
- Shared open space and consolidated driveways can help create a walkable environment with minimal vehicle conflict points.
- Dwellings can be stacked or side-by-side in a variety of configurations.

DESIGN AND CHARACTER PRINCIPLES

Varied rooflines and facades help create a small-scale home look and feel.

A shared sidepath provides access to 3 of the units in this quadplex, allowing the building to present a **well-scaled front façade** to the street.

A variety of parking options (front access, or none) provides unit type and cost variety.

Patios and porches provide private outdoor space.

SHERWOOD EXAMPLES

SW Pine (used as four apartments)
Zone: MDRH
Dwelling Size: approx. 2,900sf total
Lot Size: approx. Unknown

Triplexes and quadplexes are rare in Sherwood, especially in new construction. Most examples are small apartment units without contemporary design features.

No. of Dwellings
3 or 4 per property

Lot Size
4,000-10,000sf

Dwelling Size
8,00-1,800sf per dwelling

Approx. Density
20-30 dwellings per acre on net

Building Size
Generally matches the proportions and design qualities of single-family homes, at a somewhat larger overall scale

Townhome

A small- to medium-sized building usually containing 2-8 attached single-family homes. Often arranged in groupings along a public street or an interior street, with each dwelling having an individual street-facing entry.

- Smaller townhome groupings can be used as infill, compatible with existing neighborhoods.
- Townhomes help support a walkable, urban fabric along corridors, neighborhood centers, and parks.
- Townhomes can provide a moderate-density single-family option in subdivisions and new development.

DESIGN AND CHARACTER PRINCIPLES

Entryway patios and front doors create a **traditional and compatible building presence** on the street

Varied building fronts create more interesting design

Landscape and pathways enhance the site design in this townhouse courtyard

Rear- or interior-access parking minimizes street-side impacts and creates appealing front facades – this option is most feasible on larger, deeper lots that have room for internal driveways

SHERWOOD EXAMPLES

SW Berkshire Terrace
Zone: HDR – PUD
Dwelling Size: approx. 1,600sf
Lot Size: approx. 1,500sf

SW Vinter Lane
Zone: HDR
Dwelling Size: approx. 1,600-1,900sf
Lot Size: approx. 1,750-2,500sf

Many of Sherwood's newer townhomes are part of PUD (planned-unit development) subdivisions.

Most are suburban in character, with front garages, wide lots for the townhouse type, and containing three or more bedrooms.

No. of Dwellings
2-8 per attached grouping; Sherwood limits townhomes to six units per cluster

Lot Size
1,500-3,000sf per dwelling

Dwelling Size
1,000-2,400sf

Approx. Density
Up to 20-24 dwellings per acre

Building Size
Each dwelling typically 2-3 stories and attached in blocks of 2-8 dwellings

Cottage Cluster / Pocket Neighborhood

Generally, 8 or more cottage or small-home detached or attached dwellings clustered around common open spaces and shared low- or no-vehicle streets.

- Cottage clusters often use accessible pathways to link homes to parking areas located on the edges of the site in order to be non-intrusive.
- Dwellings are typically 600-1,000 square feet are rarely exceed 2 stories.
- The size of cottage clusters usually requires a larger lot, or the assembly of multiple lots.

DESIGN AND CHARACTER PRINCIPLES

Quality designs and materials and efficient units layouts create for **intimate, invitingly-scaled homes** and cluster configurations.

Cottage cluster designs should take cues from the **context and ecology of the site**, working around tree groves, wetlands, and other natural features.

Parking on the outer edges of the site allow **pathways and safe, kid-friendly open spaces** to link between cottages and common buildings.

SHERWOOD EXAMPLES

Sherwood does not contain any cottage *cluster development*.

No. of Dwellings
6-12 per cluster; multiple clusters may be placed on a site

Lot Size
10,000-20,000sf per cluster

Dwelling Size
Up to 1,400sf

Approx. Density
8-24 dwellings per acre

Building Size
Generally smaller average homes sizes of 1-2 stories; multiple dwellings may be attached within the cluster

Courtyard

Multiple dwellings placed side-by-side or stacked in a 1-3 story building oriented around a shared courtyard.

- The courtyard provides shared open space and access to dwellings and can be made more or less private to the street depending on surrounding activity and needs for privacy.
- The typical U-shape pattern can be formed by a single building or multiple buildings oriented around the courtyard; this shape provides daylight access and privacy for units while giving most or all dwellings a view on the central courtyard.
- The size of courtyard housing usually requires a larger lot, or the assembly of multiple lots.

DESIGN AND CHARACTER PRINCIPLES

Central courtyards can be fully enclosed for privacy, and may include usable open spaces and sustainable site features such as stormwater catchment.

Entryways and patios overlooking the courtyard ensure foot traffic and visibility on common areas.

Locating parking on the edges of the site (not shown in this photo) allows **buildings to form naturally around courtyard areas** and pedestrian routes.

SHERWOOD EXAMPLES

Cedar Creek Village
Zone: HDR
Dwelling Size: Unknown
Lot Size: approx. 4.8 acres

Triplexes and quadplexes are rare in Sherwood, especially in new construction. Most examples are small apartment units without contemporary design features.

No. of Dwellings
8-16 dwellings, typically

Lot Size
10,000-40,000sf per apartment grouping

Dwelling Size
600-1,400sf

Approx. Density
16-25 dwellings per acre

Building Size
Can vary significantly in size and number to better blend into neighborhood and commercial nodes

Small Multifamily

Medium-size structures providing between 6 and 20 or more dwellings, usually no more than 3 stories, and efficient unit sizes of 300-700sf in studio, one-bedroom, or two-bedroom configurations.

- Heights similar or only slightly exceeding the neighborhood context help match scale and character.
- Parking, if provided, is best hidden to the side or rear of the buildings.
- Multifamily is most suitable as a mid-scale housing product that helps transition between single-family neighborhoods and more dense main streets and downtowns.

DESIGN AND CHARACTER PRINCIPLES

Varied facades, multiple materials, porches, and other design features help break up the scale of these relatively larger buildings within a neighborhood.

Walkup multifamily apartments often use porches, gables roofs, and extensive landscaping to help integrate buildings into existing neighborhood character.

Small multifamily may replace existing, outdated single-family homes to provide **mid-range density and housing options**, especially in areas with recent up-zoning and near transit options and business services.

SHERWOOD EXAMPLES

SW Roy Rogers (mixed-use)
Zone: GC
Dwelling Size: Unknown
Lot Size: approx. 3.4 acres

Creekview Crossing – SW Cedar Brook
Zone: HDR
Dwelling Size: Estimated 1,700sf / unit
Lot Size: 7.4 acres (180 dwellings)

Recent new apartment complexes in Sherwood include mixed-use projects along arterial roads (SW Roy Rogers) and high-density PUD subdivisions comprising numerous small -plexes (Creekview Crossing).

No. of Dwellings
10 to over 100, depending on the size of the development

Lot Size
10,000-25,000sf or more

Dwelling Size
500-1,200sf

Approx. Density
20+ dwellings per acre

Building Size
Usually up to 3 stories and scaled to be a quarter or half block, or less

Exhibit F

Sherwood Housing Needs Analysis 2019 to 2039

Prepared for:

City of Sherwood

February 2019

ECONorthwest
ECONOMICS • FINANCE • PLANNING

Contact Information

Beth Goodman and Robert Parker, AICP, prepared this report as a subcontractor to Cogan Owens Greene and 3-J Consulting for the City of Sherwood. ECONorthwest is solely responsible for its content, any errors or omissions.

ECONorthwest specializes in economics, planning, and finance. Established in 1974, ECONorthwest has over three decades of experience helping clients make sound decisions based on rigorous economic, planning, and financial analysis.

For more information about this report, please contact:

Erika Palmer, Planning Manager
22560 SW Pine Street
Sherwood, Oregon 97140
503-625-4208
PalmerE@SherwoodOregon.gov

Acknowledgements

Cogan Owens Greene, 3-J Consulting, ECONorthwest, and the City of Sherwood thank the many people who helped to develop the Sherwood Draft Housing Needs Analysis.

Regional Partners

Brian Harper, Metro

State of Oregon

Anne Debbaut, Regional Representative, DLCD
Gordon Howard, Urban Planning Specialist, DLCD

City of Sherwood

Julia Hajduk, Community Development Director
Erika Palmer, Planning Manager
Carrie Brennecke AICP, Senior Planner

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Executive Summary

This is an executive summary of the findings of the Sherwood Housing Needs Analysis for the 2019 to 2039 period. The housing needs analysis provides Sherwood with a factual basis to support future planning efforts related to housing, including Concept Planning for Sherwood West, and prepares to update and revise the City's Comprehensive Plan policies.

The housing needs analysis is intended to comply with requirements of statewide planning policies that govern planning for housing and residential development, Goal 10, it's implementing Metropolitan Housing Rule (OAR 660-007), and Metro's 2040 Functional Growth Management Plan. Taken together, the City's primary obligations from Goal 10 are to (1) designate land in a way that provides the opportunity for 50% of new housing to be either multifamily or single-family attached housing (e.g., townhouses); (2) achieve an average density of six dwelling units per net acre; and (3) provide enough land to accommodate forecasted housing needs for the next 20 years. Sherwood is able to meet these requirements and can accommodate most of the new housing forecast, as described in this summary.

How has Sherwood's Population Changed in Recent Years?

The basis for the housing needs analysis is an understanding of the demographic characteristics of Sherwood's residents.[1]

- **Sherwood's population grew relatively fast in recent years.** Sherwood's population increased from 3,000 people in 1990 to nearly 18,600 people in 2013, averaging 8% annual growth. Sherwood's fastest period of growth was during the 1990s, consistent with statewide trends. Between 2000-2013, Sherwood grew by 6,600 people, at an average rate of nearly 3.5% per year. For comparison, Washington County grew at 2.5% annually between 1990-2013 and the Portland Region grew at 1.6% per year.

- **Sherwood's population is aging.** People aged 45 years and older were the fastest growing age group in Sherwood between 2000 and 2010, consistent with state and national trends. By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015) and 25% in the Portland Region (up from 19% in 2015).

[1] The majority of data quoted in this analysis is from the U.S. Census American Community survey, with population data from the Population Research Center at Portland State University and development data from the City's Building Permit database.

It is reasonable to assume that the share of people 60 years and older will grow relatively quickly in Sherwood as well.

- **Sherwood is attracting younger people and more households with children**. In 2010, the median age in Sherwood was 34.3 years old, compared to Washington County's median age of 35.3 years and the State median of 38.4. Sherwood has a larger share of households with children (47% of households), compared with Washington County (33%) or the Portland Region (29%). The Millennial generation—people born roughly between 1980 to 2000—are the largest age group in Oregon and will account for the majority of household growth in Sherwood over the next 20 years.

- **Sherwood's population is becoming more ethnically diverse.** About 6% of Sherwood's population is Latino, an increase from 4.7% in 2000. In comparison to Washington County and the Portland Region, Sherwood is less ethnically diverse. In the 2009-2013 period, 16% of Washington County residents, and 12% Portland Region residents, were Latino.

WHAT FACTORS MAY AFFECT FUTURE GROWTH IN SHERWOOD?

If these trends continue, population will result in changes in the types of housing demanded or "needed" in Sherwood in the future.

- **The aging of the population is likely to result in increased demand for smaller single-family housing, multifamily housing, and housing for seniors.** People over 65 years old will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, or moving into group housing (such as assisted living facilities or nursing homes) as they continue to age.

- **The growth of younger and diversified households is likely to result in increased demand for a wider variety of affordable housing appropriate for families with children, such as small single-family housing, townhouses, duplexes, and multifamily housing.** If Sherwood continues to attract young residents, then it will continue to have demand for housing for families, especially housing affordable to younger families with moderate incomes. Growth in this population will result in growth

in demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.[2]

- **Changes in commuting patterns could affect future growth in Sherwood.** Sherwood is part of a complex, interconnected regional economy. Demand for housing by workers at businesses in Sherwood may change with significant fluctuations in fuel and commuting costs, as well as substantial decreases in the capacity of highways to accommodate commuting.

- **Sherwood households have relatively high income, which affects the type of housing that is affordable.** Income is a key determinant of housing choice. Sherwood's median household income ($78,400) is more than 20% higher than Washington County's median household income ($64,200). In addition, Sherwood has a smaller share of population below the federal poverty line (7.6%) than the averages of Washington County (11.4%) and the Portland Region (13.9%).

WHAT ARE THE CHARACTERISTICS OF SHERWOOD'S HOUSING MARKET?

The existing housing stock in Sherwood, homeownership patterns, and existing housing costs will shape changes in Sherwood's housing market in the future.

- **Sherwood's housing stock is predominantly single-family detached.** About 75% of Sherwood's housing stock is single-family detached, 8% is single-family attached (such as townhomes), and 18% is multifamily (such as duplexes or apartments). Sixty-nine percent of new housing permitted in Sherwood between 2000 and 2014 was single-family detached housing.

- **Almost three quarters of Sherwood's residents own their homes.** Homeownership rates in Sherwood are above Washington County (54%), the Portland Region (60%), and Oregon (62%) averages.

- **Homeownership costs increased in Sherwood, consistent with national trends.** Median sales prices for homes in Sherwood increased by about 30% between 2004 and 2014, from about $245,000 to $316,500. The median

[2] The housing needs analysis assumes that housing is affordable if housing costs are less than 30% of a household's gross income. For a household earning $6,500 (the median household income in Sherwood), monthly housing costs of less than $1,960 are considered affordable.

home value in Sherwood is 3.8 times the median household income, up from 2.9 times the median household income in 2000.

- **Housing sales prices are higher in Sherwood than the regional averages.** As of January 2015, median sales price in Sherwood was $316,500, which is higher than the Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($237,300) median sales prices. Median sales prices were higher in Sherwood than in other Portland westside communities such as Tigard, Tualatin, and Beaverton, but lower than Wilsonville or West Linn.

- **Rental costs are higher overall in Sherwood than the regional averages.** The median rent in Sherwood was $1,064, compared to Washington County's average of $852.

- **More than one-third of Sherwood's households have housing affordability problems.** Thirty-eight percent of Sherwood's households were cost-burdened (i.e., paid more than 30% of their income on rent or homeownership costs). Renters were more likely to be cost-burdened (40% of renters were cost-burdened), compared to homeowners (35% were cost-burdened) in Sherwood. These levels of cost burden are consistent with regional averages. In Washington County in the 2009-2013 period, 38% of households were cost burdened, compared to 41% in the Portland Region.

  Future housing affordability will depend on the relationship between income and housing price. The key question is whether housing prices will continue to outpace income growth. Answering this question is difficult because of the complexity of the factors that affect both income growth and housing prices. Sherwood will need to provide the opportunity for development of a wider variety of housing, including housing affordable to low- and moderate-income households.

How Much Housing Growth is Forecast, and Can that Growth be Accommodated within Sherwood?

The housing needs analysis in this report is based on Metro's coordinated forecast of household growth in Sherwood. The forecast includes growth in both areas within the city limits, as well as areas currently outside the city limits that the City expects to annex for residential uses (most notably the Brookman area).

- **Sherwood is forecast to add 1,728 new households between 2019 and 2039.** Of these, 700 new households are inside the existing city limits; 1,029 new households are outside the current city limits in the Brookman Area.

- **Sherwood's land base can accommodate most of the forecast for growth.** Vacant and partially vacant land in the Sherwood Planning Area has capacity to accommodate 1,121 new dwelling units. Sherwood can accommodate about 65% of the forecast for new housing on areas within the city limits and Brookman Area.

- **Sherwood has a deficit of land for housing.** Sherwood has a deficit of land for 608 dwelling units. The largest deficits are in Medium Density Residential-Low (154 dwelling units), Medium Density Residential-High (252 dwelling units), and High Density Residential (145 dwelling units).

- **To provide adequate land supply, Sherwood will need to continue to annex the Brookman area.** Without the Brookman area developing, the City has a projected deficit of about 1,155 dwelling units. Sherwood will need to continue to annex the Brookman area in order to accommodate the City's forecast of residential growth. The City recently annexed about 98 acres in the Brookman Area. The annexed land is in the center of the Brookman Area and has relatively few owners (about 8 property owners). Annexing and developing other areas, with a larger number of owners, may be more challenging, to the extent that the property owners have to come to agreement about development.

What if Sherwood Grows Faster?

- **The forecast for growth in Sherwood is considerably below historical growth rates.** Metro's forecast for new housing in Sherwood shows that households will grow at an average annual growth rate of 1.1% per year. In comparison, Sherwood's population grew at 3.4% per year between 2000 and 2013 and 8% per year between 1990 and 2013. If Sherwood grows faster than Metro's forecast during the 2019 to 2039 period, then Sherwood will have a larger deficit of land needed to accommodate growth.

- **At faster growth rates, Sherwood's land base has enough capacity for several years of growth.** At growth rates between 2% to 4% of growth annually, land inside the Sherwood city limits can accommodate two to five years of growth. With capacity in the Brookman Area, Sherwood can accommodate four to ten years of growth at these growth rates.

- **Additional housing growth in Sherwood depends the availability of development-ready land.** The amount of growth likely to happen in Sherwood over the next few years is largely dependent on when the Brookman Area is annexed, when the Sherwood West area is brought into the urban growth boundary and annexed, and when urban services (such as roads, water, and sanitary sewer) are developed in each area. The City recently annexed about 98 acres in the Brookman Area.

WHAT ARE THE IMPLICATIONS FOR SHERWOOD'S HOUSING POLICIES?

- **Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman area.** The growth rate of Metro's forecast for household growth (1.1% average annual growth) is considerably lower than the City's historical population growth rate over the last two decades (8% average annual growth). Metro's forecast includes growth that can be generally accommodated within the Sherwood city limits and Brookman. Given the limited supply of buildable land within Sherwood, it is likely that the City's residential growth will slow until Sherwood West is made development-ready.
- **Sherwood has a relatively limited supply of land for moderate- and higher-density multifamily housing.** The limited supply of land in these zones is a barrier to development of townhouses and multifamily housing, which are needed to meet housing demand resulting from growth of people over 65, young families, and moderate-income households.
- **The results of the Housing Needs Analysis highlight questions for the update of the City's Comprehensive Plan and the Concept Planning of Sherwood West.**
    - Providing housing opportunities for first time home buyers and community elders (who prefer to age in place or downsize their housing) will require a wider range of housing types. Examples of these housing types include: single family homes on smaller lots, clustered housing, cottages or townhomes, duplexes, tri-plexes, four-plexes, garden apartments, or mid-rise apartments. Where should Sherwood consider providing a wider range of housing types? What types of housing should Sherwood plan for?

- Changes in demographics and income for Sherwood and regional residents will require accommodating a wider range of housing types. How many of Sherwood's needed units should the city plan to accommodate within the city limits? How much of Sherwood's needed units should be accommodated in the Brookman Area and in Sherwood West?
- What design features and greenspaces would be important to consider for new housing?
- What other design standards would be needed to "keep Sherwood Sherwood"?

1 Introduction

This report presents the Sherwood Housing Needs Analysis 2019 to 2039. The housing needs analysis provides Sherwood with a factual basis to support future planning efforts related to housing, including Concept Planning for Sherwood West, and prepares to update and revise the City's Comprehensive Plan policies. This report was based on the draft Sherwood Housing Needs Analysis 2015 to 2035 report, from June 2015.

It is intended to comply with statewide planning policies that govern planning for housing and residential development, Goal 10, OAR 660-007, and Metro's Functional Growth Management Plan. The methods used for this study generally follow the *Planning for Residential Growth* guidebook, published by the Oregon Transportation and Growth Management Program (1996).

This report provides Sherwood with a factual basis to support future planning efforts related to housing and options for addressing unmet housing needs. It provides specific analysis that is required for a jurisdiction in Oregon to comply with state policies.

Background

Sherwood is located at the southwestern edge of the Portland metropolitan urban growth boundary (UGB). Over the 2000 to 2014 period, Sherwood had a substantial amount of residential growth. Residential development included all of the different housing types with single family detached housing concentrated in the 2000 to 2005 period. In part due to this growth and limited land supply for new homes, Sherwood is embarking on a Concept Plan for the Sherwood West urban reserve. Concurrently, the City is updating its factual basis for an eventual update of its Comprehensive Plan.

This housing needs analysis provides a factual basis to inform both an update of the residential Comprehensive Plan polices and the Concept Plan for Sherwood West. This analysis provides:

- Information about the characteristics of Sherwood's housing market, in the context of Washington County, the Portland metropolitan region, and Oregon,
- Information about the types and density of housing developed since 2000, changes in homeownership patterns,
- Changes in housing cost and affordability, and other housing market characteristics; and
- A forecast of residential growth in Sherwood for the 2019 to 2039 period.

As required by OAR 660-024, this forecast is based on Metro's household forecast and demographics and economic trends that will affect housing demand over the next 20 years.

ORGANIZATION OF THE REPORT

The main body of this report presents a summary of key data and analysis used in the housing needs analysis. The appendices present detailed tables and charts for the housing needs analysis. This document is organized as follows:

- **Chapter 2. Historical and Recent Development Trends** presents a high-level summary of residential development in Sherwood.
- **Chapter 3. Housing Demand and Need** presents a housing needs analysis consistent with requirements in the Planning for Residential Growth Workbook. Detailed tables and charts supporting the demographic and other information discussed in Chapter 4 is presented in Appendix B.
- **Chapter 4. Residential Land Sufficiency** estimates the residential land sufficiency in Sherwood needed to accommodate expected growth over the planning period.
- **Appendix A. Residential Buildable Land Inventory Report**
- **Appendix B. Trends Affecting Housing Need in Sherwood**

FRAMEWORK FOR A HOUSING NEEDS ANALYSIS

People view homes and communities in a wide range of ways. Economists view housing as a bundle of services for which people are willing to pay. Shelter is one service, but housing typically also includes:

- Proximity to other attractions (job, shopping, recreation),
- Amenities (type and quality of fixtures and appliances, landscaping, views), prestige, and
- Access to public services (quality of schools).

Because it is impossible to maximize all these services and simultaneously minimize costs, households must, and do, make tradeoffs. What individuals can purchase for their money is influenced by individuals' life circumstances as well as economic forces and government policy. Among households and income levels, preferences vary. Attributes homebuyers and renters seek are a function of many factors that may include income, age of household head, number of people and children in the household, number of workers and job locations, educational opportunities, number of automobiles, neighborhood amenities and so on.

Thus, the housing choices of individual households are influenced in complex ways by dozens of factors; and the housing market in the Portland Region, Washington County, and Sherwood is the result of the individual decisions of thousands of households. These points help to underscore the complexity of projecting what types of housing will be built in Sherwood between 2019 and 2039.

The complex nature of the housing market was demonstrated by the unprecedented boom and bust during the past decade. This complexity does not eliminate the need for some type of forecast of future housing demand and need and the resulting implications for land demand and consumption. Such forecasts are inherently uncertain. Their usefulness for public policy often derives more from the explanation of their underlying assumptions about the dynamics of markets and policies than from the specific estimates of future demand and need.

Thus, we begin our housing analysis with a framework for thinking about housing and residential markets, and how public policy affects those markets.

OREGON HOUSING POLICY

Statewide planning Goal 10

Sherwood's primarily obligations under Goal 10 are to:

- Designate land in a way that 50% of new housing could be either multifamily or single-family attached housing (e.g., townhouses)
- Provide opportunities to achieve an average density of six dwelling units per net acre
- Provide opportunities for development of needed housing types: single-family detached, single–family attached, and multifamily housing.

The passage of the Oregon Land Use Planning Act of 1974 (ORS Chapter 197), established the Land Conservation and Development Commission (LCDC), and the Department of Land Conservation and Development (DLCD). The Act required the Commission to develop and adopt a set of statewide planning goals. Goal 10 addresses housing in Oregon and provides guidelines for local governments to follow in developing their local comprehensive land use plans and implementing policies.

At a minimum, local housing policies must meet the requirements of Goal 10 and the statutes and administrative rules that implement it (ORS 197.295 to 197.314, ORS 197.475 to 197.490, and OAR 600-008).[3] Jurisdictions located in the Metro UGB are also required to comply with Metropolitan Housing in OAR 660-007 and Title 7 of Metro's Urban Growth Management Functional Plan in the Metro Code (3.07 Title 7).

Goal 10 requires incorporated cities to complete an inventory of buildable residential lands and to encourage the availability of adequate numbers of housing units in price and rent ranges commensurate with the financial capabilities of its households.

Goal 10 defines needed housing types as "housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels." ORS 197.303 defines needed housing types:

(a) Housing that includes, but is not limited to, attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;[4]

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490; and

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions.

[3] ORS 197.296 only applies to cities with populations over 25,000.

[4] Government assisted housing can be any housing type listed in ORS 197.303 (a), (c), or (d).

In summary, Sherwood must identify needs for all of the housing types listed above as well as adopt policies that increase the likelihood that needed housing types will be developed.

The Metropolitan Housing Rule

OAR 660-007 (the Metropolitan Housing rule) is designed to "assure opportunity for the provision of adequate numbers of needed housing units and the efficient use of land within the Metropolitan Portland (Metro) urban growth boundary." OAR 660-0070-005(12) provides a Metro-specific definition of needed housing:

> "Needed Housing" defined. Until the beginning of the first periodic review of a local government's acknowledged comprehensive plan, "needed housing" means housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels.

The Metropolitan Housing Rule also requires cities to develop residential plan designations:

> (1) Plan designations that allow or require residential uses shall be assigned to all buildable land. Such designations may allow nonresidential uses as well as residential uses. Such designations may be considered to be "residential plan designations" for the purposes of this division. The plan designations assigned to buildable land shall be specific so as to accommodate the varying housing types and densities identified in OAR 660-007-0030 through 660-007-0037.

OAR 660-007 also specifies the mix and density of new residential construction for cities within the Metro Urban Growth Boundary (UGB):

> "Provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing or justify an alternative percentage based on changing circumstances" (OAR 660-007-0030 (1).

OAR 660-007-0035 sets specific density targets for cities in the Metro UGB. Sherwood average density target is six dwelling units per net buildable acre.[5]

[5] OAR 660-024-0010(6) defines Net Buildable Acres as follows: "Net Buildable Acre" consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads.

Metro Urban Growth Management Functional Plan

The Metro Urban Growth Management Functional Plan describes the policies that guide development for cities within the Metro UGB to implement the goals in the Metro 2040 Plan.

Title 1: Housing Capacity

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 1 responsibilities.

Title 1 of Metro's Urban Growth Management Functional Plan is intended to promote efficient land use within the Metro UGB by increasing the capacity to accommodate housing capacity. Each city is required to determine its housing capacity based on the minimum number of dwelling units allowed in each zoning district that allows residential development, and maintain this capacity.

Title 1 requires that a city adopt minimum residential development density standards by March 2011. If the jurisdiction did not adopt a minimum density by March 2011, the jurisdiction must adopt a minimum density that is at least 80% of the maximum density.

Title 1 provides measures to decrease development capacity in selected areas by transferring the capacity to other areas of the community. This may be approved as long as the community's overall capacity is not reduced.

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 1 responsibilities.

Title 7: Housing Choice

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 7 responsibilities.

Title 7 of Metro's Urban Growth Management Functional Plan is designed to ensure the production of affordable housing in the Metro UGB. Each city and county within the Metro region is encouraged to voluntarily adopt an affordable housing production goal.

Each jurisdiction within the Metro region is required to ensure that their comprehensive plans and implementing ordinances include strategies to:

- Ensure the production of a diverse range of housing types,
- Maintain the existing supply of affordable housing, increase opportunities for new affordable housing dispersed throughout their boundaries, and
- Increase opportunities for households of all income levels to live in affordable housing (3.07.730)

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 7 responsibilities.

Title 11: Planning for New Urban Areas

Title 11 of Metro's Urban Growth Management Functional Plan provides guidance on the conversion of land from rural to urban uses. Land brought into the Metro UGB is subject to the provisions of section 3.07.1130 of the Metro Code, which requires lands to be maintained at rural densities until the completion of a concept plan and annexation into the municipal boundary.

The concept plan requirements directly related to residential development are to prepare a plan that includes:

(1) A mix and intensity of uses that make efficient use of public systems and facilities,

(2) A range of housing for different types, tenure, and prices that addresses the housing needs of the governing city, and

(3) Identify goals and strategies to meet the housing needs for the governing city in the expansion area.

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 11 responsibilities.

In addition, the City needs to comply with the Fair Housing Act, administered by the U.S. Department of Housing and Urban Service (HUD). Complying with this Act requires meeting the Affirmatively Furthering Fair Housing (AFFH) goal of the Fair Housing Act. The City must comply with these regulations to qualify for federal grant funds for housing.

2 Historical and Recent Development Trends

Analysis of historical development trends in Sherwood provides insights into how the local housing market functions. The intent of the analysis is to understand how local market dynamics may affect future housing—particularly the mix and density of housing by type. The housing mix and density by type are also key variables in forecasting future land need. The specific steps are described in Task 2 of the DLCD *Planning for Residential Lands* Workbook:

1. Determine the time period for which the data must be gathered.
2. Identify types of housing to address (at a minimum, all needed housing types identified in ORS 197.303).
3. Evaluate permit/subdivision data to calculate the actual mix, average actual gross density, and average actual net density of all housing types.

The period used in the analysis of housing density and mix is 2000 to 2014, which includes both times of high housing production and times of low housing production. The reasons for choosing this period were:

(1) The 2000 to 2014 period includes more than one economic cycle, with extreme highs and extreme lows in the housing market and

(2) Data prior to 2005 was less easily available and obtaining and compiling data for 2000 to 2004 was difficult to acquire.

The housing needs analysis presents information about residential development by housing types. For the purposes of this study, we grouped housing types based on: (1) whether the structure is stand-alone or attached to another structure and (2) the number of dwelling units in each structure. The housing types used in this analysis are:

- **Single-family detached:** single-family detached units and manufactured homes on lots and in mobile home parks.
- **Single-family attached:** all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses.
- **Multifamily**: all attached structures other than single-family detached units, manufactured units, or single-family attached units. Multifamily units include duplexes, tri-plexes, quad-plexes, and structures with more than five units (such as apartments).

The reason for choosing these categories of housing type for the analysis is that they meet the requirements definition of needed housing types in ORS 197.303.[6]

In general, this report uses data from the 2009-2013 American Community Survey (ACS) for Sherwood, as described in Appendix B. Where information is available, we report information from the 2010 Decennial Census. This section summarizes historical and recent development trends, described in detail in Appendix B.

The primary geographies used throughout this report are:

- **Sherwood.** This generally refers to the Sherwood city limits. Census data for Sherwood uses this geography.
- **Sherwood Planning Area.** This is the Sherwood city limits and land that is within the Metro urban growth boundary but outside of the Sherwood city limits, primarily the Brookman Area.
- **Sherwood West.** The urban reserve to the west of Sherwood that may be brought into the Metro urban growth boundary when needed regionally and determined beneficial locally.

While this report presents the forecast for housing growth in Sherwood for the 2019-2039 period, it is based on analysis completed for the 2015 HNA.

Residential development trends[7]

Three-quarters of Sherwood's housing is single-family detached housing.

Single-family detached housing makes up the largest share of Sherwood's housing stock (Figure B- 1**).** Currently:

- Single-family detached housing accounts for about 75% of Sherwood's housing stock.
- Single-family attached housing accounts for about 8% of Sherwood's housing stock.
- Multifamily housing accounts for about 18% of Sherwood's housing stock.

[6] The analysis of development in Sherwood attempts to separate single-family detached and single-family attached housing. However, the City's building permit system does not distinguish between these two types of housing. City staff manually identified single-family attached housing where there was a concentration of it developed (i.e., a development of townhouses). City staff were unable to identify small-scale single-family attached development that was scattered throughout the city.

[7] Except where otherwise noted, data in this section is from the U.S. Decennial Census (for 2010 data) or the U.S. Census's American Community Survey for 2009-2013.

Over the 2000-2014 period, 69% of new housing permitted by Sherwood was single-family detached housing.

The majority of housing developed in Sherwood between 2000 and 2014 was single-family detached housing (Table B- 1 **and** Figure B- 2**).**[8]

- Over the 2000 to 2014 period, Sherwood issued permits for nearly 2,225 dwellings, with about 148 units permitted each year.
- Sixty-nine percent of new housing permitted in Sherwood between 2000 and 2014 was single-family. Roughly 1,721 single-family dwelling units were permitted over the 15-year period.
- Nine percent of the building permits issued in Sherwood over 2000 to 2014 were single-family attached (i.e., townhouses) and 23% were for multifamily housing.
- The majority of new housing in Sherwood was built between 2000 and 2006, before development decreased with the national housing crisis.
- The majority of new multifamily housing in Sherwood was permitted in 2006, 2009, and 2014. The majority of new single-family attached housing was permitted in 2004 and 2005.
- Between 2015 and 2018, Sherwood permitted about 160 new single-family detached units.

Almost three quarters of Sherwood's residents own their homes (Figure B- 3**,** Figure B- 4**, and** Figure B- 5**).** Homeownership rates in Sherwood are above Washington County and Oregon's averages.

- Homeownership rates declined slightly over the last decade. Roughly 79% of housing in Sherwood was owner-occupied in 2000 compared to about 75% in 2010.
- Most owner-occupied housing is single-family detached, about 89%.
- Renter-occupied housing is a mixture of multifamily (57%), single-family detached (35%), and single-family attached (9%).

Sherwood's vacancy rate is lower than Multnomah, Washington, and Clackamas counties, and lower than the State average (Table B- 2 **and** Figure B- 6**).**

- In 2010, Sherwood's vacancy rate (3.9%) was below that of Multnomah (6.2%), Washington (5.4%), and Clackamas (7.1%) counties, and lower than Oregon's (9.3%).
- The vacancy rates for apartments in the Tigard/Tualatin/Sherwood area varied from a high of 5.8% in Spring 2010 to a low of 2.6% in Fall 2013

[8] Building permit data is from the City of Sherwood Building Permit Database.

and were within 1% of the vacancy rate for the Portland/Vancouver metro area.[9]

Sherwood's residential development between 2000 and 2014 averaged 8.2 dwelling units per net acre, above the State's requirement in OAR 660-007 for six dwelling units per net acre (Table B- 3 Table B-4**).**[10]

- Average density in Sherwood was 8.2 dwelling units per net acre over the 2000 to 2014 period.
- Density was lowest in the Very Low Density Residential Zone (2.9 dwelling units per net acre) and Medium Density Residential Low Zone (6.1 dwelling units per net acre).
- Density was highest in Office Commercial (24.4 dwelling units per net acre) and High Density Residential (19.1 dwelling units per net acre).

[9] Multifamily NW Apartment Reports, Spring 2010 – Fall 2014.

[10] City of Sherwood Building Permit Database.

3 Housing Need in Sherwood

This chapter presents the analysis of housing needs in Sherwood over the 2019 to 2039 period. Estimates of needed units by structure type and by density range follows.

Chapter 1 described the framework for conducting a housing "needs" analysis. The specific steps in conducting a housing needs analysis are:

1. Project number of new housing units needed in the next 20 years.
2. Identify relevant national, state, and local demographic and economic trends and factors that may affect the 20-year projection of structure type mix.
3. Describe the demographic characteristics of the population and, if possible, housing trends that relate to demand for different types of housing.
4. Determine the types of housing that are likely to be affordable to the projected households based on household income.
5. Estimate the number of additional needed units by structure type.
6. Determine the needed density ranges for each plan designation and the average needed net density for all structure types.

This chapter presents information for these steps for Sherwood's housing needs analysis.

PROJECTION OF NEW HOUSING UNITS NEEDED IN THE NEXT 20 YEARS

The housing needs analysis in this report is based on the Metroscope forecast of household growth in Sherwood over the next 25 years.

As required by OAR 660-024, the housing needs analysis in this report is based on a coordinated forecast from Metro (the Metro 2040 TAZ Forecast by Households, January 2016), which is a necessary prerequisite to estimate housing needs. The projection of household growth includes areas currently within the city limits, as well as areas currently outside the city limits that the City expects will be annexed for residential uses (most notably the Brookman area). In 2017, a portion of the Brookman area annexed into the city limits. We call these areas combined the "Sherwood planning area."

While the housing needs analysis presents information for Sherwood West, this area is currently outside of the regional UGB. Housing need in Sherwood West is not considered part of Sherwood's overall housing need for the purposes of this study. The information in this report, however, can inform the ongoing Concept Planning for Sherwood West.

The housing needs analysis focuses on housing growth in Sherwood over the 2019 to 2039 period.

The forecast shows that Sherwood will add 1,729 new households over the 20-year period.

The forecast shows growth of 4,337 new dwelling units in Sherwood West. While Metro's forecast assumes that growth will take place over the next 20-years, it may occur over a 50-year period.

Table B-6 in Appendix B presents Metro's forecast for housing in Sherwood for the 2010 to 2040 period. Table 1 presents ECONorthwest's extrapolation of Metro's forecast for Sherwood to the 2019 to 2039 period. Table 1 shows that **the Sherwood planning area is expected to add 1,729 new households between 2019 and 2039. Regional models and informed projections suggest 700** new households will be accommodated inside the existing city limits. Approximately 1,029 new households are expected to be accommodated outside the current city limits in the Brookman Area.

Table 1. Extrapolated Metro forecast for household growth, Sherwood planning area, 2019 to 2039

	Households			
Year	Sherwood City Limits	Brookman Area	Sherwood Planning Area	Sherwood West (50-Year Forecast)
2019	6,916	304	7,220	293
2039	7,616	1,333	8,949	4,630
Change 2019 to 2039				
Households	700	1,029	1,729	4,337
Percent	10%	338%	24%	1480%
AAGR	0.5%	7.7%	1.1%	14.8%

Source: Metro 2040 TAZ Forecast by Households, January 2016
Extrapolation from the 2015 forecast (the base year in the Metro forecast) to 2019 (not shown in Metro's forecast) by ECONorthwest

DEMOGRAPHIC AND SOCIOECONOMIC FACTORS AFFECTING HOUSING CHOICE

Demographic trends are important to a thorough understanding of the dynamics of the Sherwood housing market. Sherwood exists in a regional economy; trends in the region impact the local housing market. This section documents national, state, and regional demographic, socioeconomic, and other trends relevant to Sherwood.

The Factors that Affect Housing Choice

The factors that have the largest impact on a household's housing choice are: age of the householder, household size and composition, and income.

Analysts typically describe housing demand as the preferences for different types of housing (i.e., single-family detached or apartment), and the ability to pay for that housing (the ability to exercise those preferences in a housing market by purchasing or renting housing—in other words, income or wealth).

Metro, the agency responsible for regional planning within the Portland metropolitan UGB, uses a decision support tool called Metroscope to model changes in measures of economic, demographic, land use, and transportation activity. Metroscope includes a residential location model, which projects the locations of future households based on factors such as land availability and capacity, cost of development, changes in demographics, changes in employment, and changes in transportation and transit infrastructure. The housing needs analysis in this report is based on the Metroscope forecast of household growth in Sherwood over the next 25 years.

Many demographic and socioeconomic variables affect housing choice. However, the literature about housing markets finds that age of the householder, size of the household, and income are most strongly correlated with housing choice.[11]

[11] The research in this chapter is based on numerous articles and sources of information about housing, including:

The Case for Multi-family Housing. Urban Land Institute. 2003

E. Zietz. *Multi-family Housing: A Review of Theory and Evidence.* Journal of Real Estate Research, Volume 25, Number 2. 2003.

C. Rombouts. *Changing Demographics of Homebuyers and Renters.* Multi-family Trends. Winter 2004.

J. McIlwain. *Housing in America: The New Decade.* Urban Land Institute. 2010.

D. Myers and S. Ryu. *Aging Baby Boomers and the Generational Housing Bubble*. Journal of the American Planning Association. Winter 2008.

M. Riche. *The Implications of Changing U.S. Demographics for Housing Choice and Location in Cities.* The Brookings Institution Center on Urban and Metropolitan Policy. March 2001.

- **Age of householder** is the age of the person identified (in the Census) as the head of household. Households make different housing choices at different stages of life.
- **Size of household** is the number of people living in the household. Younger and older people are more likely to live in single-person households. People in their middle years are more likely to live in multiple person households (often with children).
- **Income** is the household income. Income is probably the most important determinant of housing choice. Income is strongly related to the type of housing a household chooses (e.g., single-family detached, duplex, or a building with more than five units) and to household tenure (e.g., rent or own).

This section focuses on these factors, presenting data that suggests how changes to these factors may affect housing need in Sherwood over the next 20 years.

National housing trends

Appendix B presents a full review of national housing trends. This brief summary builds on previous work by ECONorthwest, Urban Land Institute (ULI) reports, and conclusions from *The State of the Nation's Housing, 2014* report from the Joint Center for Housing Studies of Harvard University. The Harvard report summarizes the national housing outlook as follows:

> "With promising increases in home construction, sales, and prices, the housing market gained steam in early 2013. But when interest rates notched up at mid-year, momentum slowed. This moderation is likely to persist until job growth manages to lift household incomes. Even amid a broader recovery, though, many hard-hit communities still struggle and millions of households continue to pay excessive shares of income for housing."

Several challenges to a strong domestic housing market remain. Demand for housing is closely tied to jobs and incomes, which are taking longer to recover than in previous cycles. While trending downward, the number of underwater homeowners, delinquent loans, and vacancies remains high. *The State of the Nation's Housing* report projects that it will take several years for market conditions to return to normal and, until then, the housing recovery will likely unfold at a moderate pace.

L. Lachman and D. Brett. *Generation Y: America's New Housing Wave.* Urban Land Institute. 2010.

National housing market trends include: [12]

- **Post-recession recovery slows down**. Despite strong growth in the housing market in 2012 and the first half of 2013, by the first quarter of 2014, housing starts and existing home sales were both down by 3% from the same time a year before, while existing home sales were down 7% from the year before. Increases in mortgage interest rates and meager job growth contributed to the stall in the housing market.
- **Continued declines in homeownership**. After 13 successive years of increases, the national homeownership rate declined each year from 2005 to 2013, and is currently at about 65%. The Urban Land Institute projects that homeownership will continue to decline to somewhere in the low 60% range.

In 2012, more than one-third of households across the US had housing affordability problems, with the lowest income households having the most difficulty finding affordable housing.

- **Housing affordability**. In 2012, more than one-third of American households spent more than 30% of income on housing. Low-income households face an especially dire hurdle to afford housing. Among those earning less than $15,000, more than 80% paid over 30% of their income and almost 70% of households paid more than half of their income. For households earning $15,000 to $29,000, more than 60% were cost burdened, with about 30% paying more than half of their income on housing.

Since 1990, the average size of new dwelling units increased both for single-family and multifamily housing. At the same time, the average lot size for new housing decreased.

- **Changes in housing characteristics**. National trends show that the size of single-family and multifamily units, and the number of household amenities (e.g., fireplace or two or more bathrooms) has increased since the early 1990s. Between 1990 and 2013 the median size of new single-family dwellings increased 25% nationally from 1,905 square feet to 2,384 square feet and 18% in the western region from 1,985 square feet to 2,359 square feet. Moreover, the percentage of units smaller than 1,400 square feet nationally decreased from 15% in 1999 to 8% in 2013. The percentage of units greater than 3,000 square feet increased from 17% in 1999 to 29% of new one-family homes completed in 2013. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 2009 and 2013, the percentage of lots less than 7,000 square feet increased from 26% of lots to 30% of lots. Similarly, in the western region, the share of lots less than 7,000 square feet increased from 43% to 48% of lots.

[12] These trends are based on information from: (1) The Joint Center for Housing Studies of Harvard University's publication "The State of the Nation's Housing 2013," (2) Urban Land Institute, "2011 Emerging Trends in Real Estate," and (3) the U.S. Census.

- **Long-term growth and housing demand**. The Joint Center for Housing Studies forecasts that demand for new homes could total as many as 13.2 million units nationally between 2015 and 2025. Much of the demand will come from Baby Boomers, Millennials,[13] and immigrants.
- **Changes in housing preference**. Housing preference will be affected by changes in demographics, most notably the aging of the Baby Boomers, housing demand from the Millennials, and growth of foreign-born immigrants. Baby Boomers' housing choices will affect housing preference and homeownership, with some boomers likely to stay in their home as long as they are able and some preferring other housing products, such as multifamily housing or age-restricted housing developments.

  In the near-term, Millennials and new immigrants may increase demand for rental units. The long-term housing preference of Millennials and new immigrants is uncertain. They may have different housing preferences as a result of the current housing market turmoil and may prefer smaller, owner-occupied units or rental units. On the other hand, their housing preferences may be similar to the Baby Boomers, with a preference for larger units with more amenities. Recent surveys about housing preference suggest that Millennials want affordable single-family homes in areas that that offer transportation alternatives to cars, such as suburbs or small cities with walkable neighborhoods. [14]

Future housing preferences will be affected by demographic changes, such as the aging of the Baby Boomers, growing housing demand from Millennials, and growth of foreign-born immigrants.

[13] Millennials are, broadly speaking, the children of Baby Boomers, born from the early 1980's through the early 2000's.

[14] The American Planning Association, "Investing in Place; Two generations' view on the future of communities." 2014. "Survey Says: Home Trends and Buyer Preferences," National Association of Home Builders International Builders Show, accessed January, 2015, http://www.buildersshow.com/Search/isesProgram.aspx?id=17889&fromGSA=1. "Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows," Transportation for America, accessed January 2015, http://t4america.org/wp-content/uploads/2014/04/Press-Release_Millennials-Survey-Results-FINAL-with-embargo.pdf.

State Trends

Oregon's *2011-2015 Consolidated Plan* includes a detailed housing needs analysis as well as strategies for addressing housing needs statewide.[15] The plan concludes that "Oregon's changing population demographics are having a significant impact on its housing market." It identified the following population and demographic trends that influence housing need statewide. Oregon is:

- Facing housing cost increases due to higher unemployment and lower wages, as compared to the nation.
- Since 2005, is experiencing higher foreclosure rates compared with the previous two decades.
- Losing federal subsidies on about 8% of federally-subsidized Section 8 housing units.
- Losing housing value throughout the State.
- Losing manufactured housing parks, with a 25% decrease in the number of manufactured home parks between 2003 and 2010.
- Increasingly older, more diverse, and has less affluent households.[16]

Regional and Local Demographic Trends

Sherwood has a growing population (Table B- 5**).** Sherwood's growing population will drive future demand for Sherwood over the planning period.

- Sherwood grew by more than 15,000 people, a 501% increase in population, at an average annual rate of 8.1% over the 1990 to 2013 period. [17]
- Sherwood grew at a faster rate than the nation as a whole (1.0% per year), Oregon (1.4% per year), and the Portland Region (1.6%) over this period.
- Metro forecasts that the number of households in the Sherwood Planning Area will grow by about 1,729 households over the 2019-2039 period, at an average annual growth rate of 1.1%.
- Metro forecasts that Sherwood West, an area that is adjacent to Sherwood but currently outside of the Metro Urban Growth Boundary, will grow by 4,337 households. Growth in Sherwood West will not begin until the area is included in the Metro UGB and annexed into Sherwood. While Metro's forecast assumes that Sherwood West may be fully

[15] http://www.ohcs.oregon.gov/OHCS/HRS_Consolidated_Plan_5yearplan.shtml

[16] State of Oregon *Consolidated Plan 2011 to 2015*. http://www.oregon.gov/ohcs/hd/hrs/consplan/2011_2015_consolidated_plan.pdf

[17] 2013 Population Estimates in Oregon come from Portland State University's Population Research Center.

developed by 2040, it may take longer, perhaps until 2065, for Sherwood West to fully develop.

- Metro's forecast of household growth considers residential capacity within Sherwood's city limits to accommodate growth. Much of Sherwood's future growth depends on bringing new land into the city limits, including the Brookman Area and Sherwood West.

The growth of younger and diversified households will result in increased demand for a wider variety of affordable housing appropriate for families with children, such as small single-family housing, townhouses, duplexes, and multifamily housing.

Sherwood's population is younger than the state, on average (Table B- 7**,** Table B- 8**, and** Figure B- 8**).** Sherwood has a larger share of people younger than 30 years of age, and a relatively small share of people over 50 years. If Sherwood continues to attract young residents, then it will continue to have demand for housing for families, especially housing affordable to younger families with moderate incomes. Recent studies suggest that growth in younger residents (e.g., Millennials) will result in increased demand for both affordable single-family detached housing, as well as increased demand for affordable townhouses and multifamily housing. Growth in this population will result in growth in demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.

- In 2010, the median age in Sherwood was 34.3 years old, compared to the State median of 38.4.
- A higher percentage of Sherwood's population is younger than 30 years (44%) compared to the state as a whole (39%). Furthermore, a smaller share of Sherwood's population is younger than 50 years (21%), compared to the state as a whole (34%).

The aging of the population will result in increased demand for smaller single-family housing, multifamily housing, and housing for seniors.

Sherwood's population is growing older (Figure B- 9**).** Although Sherwood has a smaller share of people over 50 years old than the State average, Sherwood's population is growing older, consistent with State and national trends. Demand for housing for retirees will grow over the planning period, as the Baby Boomers continue to age and retire. However, Sherwood's demand for housing for seniors may grow at a slower rate than across the State.

Growth of seniors will have the biggest impacts on demand for new housing through demand for housing types specific to seniors, such as assisted living facilities or age-restricted developments. These households will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, or moving into group housing (such as assisted living facilities or nursing homes), as their health fails.

- The fastest-growing age group over the 2000 to 2010 period in Sherwood was people aged 45 years and older, with the most growth in the number of people aged 45 to 64.
- In Sherwood, people aged 45 to 64 grew by 102%, from 1,936 to 3,917 people between 2000 and 2010.

- By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015). The percent of total population in each age group younger than 60 years old will decrease. The age distribution in the Portland Region will change in a similar pattern.[18]
- Given the growth of people 45 years and older in Sherwood and the forecast for growth of people 60 years and older between 2019-2039 in Washington County and the Portland Region, it is reasonable to expect that Sherwood will have growth in the senior population.

Sherwood is becoming more ethnically diverse (Figure B- 10**).** Growth in Hispanic and Latino population will affect Sherwood's housing needs in a variety of ways. Growth in first and, to a lesser extent, second and third-generation Hispanic and Latino immigrants tend to increase demand for larger dwelling units to accommodate the on average larger household sizes for these households. Households for Hispanic and Latino immigrants are more likely to include multiple generations, requiring more space than smaller household sizes. As Hispanic and Latino households integrate over generations, household size typically decreases and housing needs become similar to housing needs for all households.

Growth in Hispanic and Latino households will result in increased demand for housing of all types, both for ownership and rentals, with an emphasis on housing that is comparatively affordable.

- Sherwood's Hispanic and Latino population grew by 99% from 2000 to the 2009-2013 period, from 557 to 1,107 people, increasing its share of the population from 4.7% to 6.0%.
- Nonetheless, Sherwood's percentage of Hispanic or Latino population remains below that of the state as a whole. In the 2009-2013 period, Hispanic and Latino population accounted for 12% of the state's population, compared to Sherwood's average of 6.0%.

Sherwood's household size is larger than State averages (Table B- 9**).** The larger household size is indicative of a larger share of households with children or multigenerational households.

- Sherwood's average household size was 2.89 persons per household, compared with the regional average of 2.54 persons per household, and the state average of 2.49 persons per household.
- The size of households in Sherwood grew from 2000 to the 2009-2013 period (2.77 to 2.89). Over the same period, the average household size

[18] Demographic forecast for Washington County by the Oregon Office of Economic Analysis.

in the Portland Region rose slightly from 2.53 to 2.54, while the State's average fell from 2.51 to 2.49.

Sherwood has a relatively high share of households with children (Figure B-11**).** Households with children are more likely to prefer single-family detached housing, if it is relatively affordable.

- Sherwood has a larger share of households with children (47%) than the State average (27%), the Portland Region (29%), or Washington County (33%).
- In the 2009-2013 period, Sherwood had a smaller share of single-person households (19%) than the regional average (29%).
- In the 2009-2013 period, Sherwood had a smaller share of non-family households (23%) than the regional average (38%).

Sherwood is part of a complex, interconnected regional economy (Figure B- 12**,** Table B- 11**, and** Table B- 12**).** Most people working at businesses in Sherwood do not live in Sherwood. Demand for housing by workers at businesses in Sherwood may change with fluctuations in fuel and commuting costs, as well as the capacity of highways to accommodate commuting. [19]

- Commuting is typical throughout the region: 91% of Sherwood's working residents commuted outside the city, and about 85% of those who work in the city live outside the city itself.

Summary of the Implications of Demographic and Socioeconomic Trends on Housing Choice

The purpose of the analysis thus far has been to provide background on the kinds of factors that influence housing choice, and in doing so, to convey why the number and interrelationships among those factors ensure that generalizations about housing choice are difficult and prone to inaccuracies.

There is no question that age affects housing type and tenure. Mobility is substantially higher for people aged 20 to 34. People in that age group will also have, on average, less income than people who are older. They are less likely to have children. All of these factors mean that younger households are much more likely to be renters, and renters are more likely to be in multifamily housing.

The data illustrate what more detailed research has shown and what most people understand intuitively: life cycle and housing choice interact in ways that are predictable in the aggregate; age of the household head is correlated with household size and income; household size and age of household head affect housing preferences; income affects the ability of a household to afford a

[19] US Census Bureau, LED on the Map, http://lehdmap3.did.census.gov/themap3/.

preferred housing type. The connection between socioeconomic and demographic factors and housing choice is often described informally by giving names to households with certain combinations of characteristics: the "traditional family," the "never marrieds," the "dinks" (dual-income, no kids), the "empty nesters."[20] Thus, simply looking at the long wave of demographic trends can provide good information for estimating future housing demand.

Thus, one is ultimately left with the need to make a qualitative assessment of the future housing market. The following is a discussion of how demographic and housing trends are likely to affect housing Sherwood over the next 20 years:

- **Growth in housing will be driven by growth in population.** Between 2000 and the 2009-2013 period, the number of housing units in Sherwood increased by 47% from about 4,500 to 6,600 (Figure B- 4), while its population grew by roughly 55% from 11,963 to 18,575 from 2000 to 2013 (Table B- 5).[21]
- **On average, future housing will look a lot like past housing.** That is the assumption that underlies any trend forecast, and one that allows some quantification of the composition of demand for new housing. As a first approximation, the next three to five years of residential growth will look a lot like the last three to five years.
- **If the future differs from the past, it is likely to move in the direction (on average) of smaller units and more diverse housing types.** Most of the evidence suggests that the bulk of the change will be in the direction of smaller average house and lot sizes for single-family housing.

  Key demographic trends that will affect Sherwood's future housing needs are: (1) the aging of the Baby Boomers, (2) aging of the Millennials, (3) growth of family households, and (4) continued growth in Hispanic and Latino population.

  - *The Baby Boomer's population is continuing to age.* By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015). The changes that affect Sherwood's housing demand as the population ages are that household sizes decrease and homeownership rates decrease.
  - *Millennials will continue to age.* By 2035, Millennials will be roughly between about 35 years old to 55 years old. As they age, generally speaking, their household sizes will increase and homeownership rates will peak by about age 55. Between 2019 and 2039,

[20] See *Planning for Residential Growth: A Workbook for Oregon's Urban Areas* (June 1997).

[21] 2013 Population Estimates come from come from the Portland State University Population Research Center's Annual Population Estimates.

Millennials will be a key driver in demand for housing for families with children.

- *Growth of households with children.* Sherwood has an unusually high percentage of households with children, compared to the regional averages. If Sherwood continues to attract families with children, demand for housing for families, such as affordable single-family detached or townhouses, will increase.
- *Hispanic and Latino population will continue to grow.* The U.S. Census projects that by about 2040, Hispanic and Latino population will account for more than one-quarter of the nation's population. The share of Hispanic and Latino population in the western U.S. is likely to be higher. Growth in Hispanic and Latino population will drive demand for housing for families with children. Given the lower income for Hispanic and Latino households,[22] growth in this group will also drive demand for affordable housing, both for ownership and renters.

In summary, an aging population, increasing housing costs, housing affordability concerns for Millennials and the Hispanic and Latino populations, and other variables are factors that support the conclusion of smaller and less expensive units and a broader array of housing choices.

Millennials and immigrants will drive demand for affordable housing types, including demand for small, affordable single-family units (many of which may be ownership units) and for affordable multifamily units (many of which may be rental units).

- **No amount of analysis is likely to make the distant future any more certain: the purpose of the housing forecasting in this study is to get an approximate idea about the future so policy choices can be made today.** Economic forecasters regard any economic forecast more than three (or at most five) years out as highly speculative. At one year, one is protected from being disastrously wrong by the shear inertia of the economic machine. But a variety of factors or events could cause growth forecasts to be substantially different.

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[22] The following article describes household income trends for Hispanic and Latino families, including differences in income levels for first, second, and third generation households. In short, Hispanic and Latino households have lower median income than the national averages. First and second generation Hispanic and Latino households have median incomes below the average for all Hispanic and Latino households.

Pew Research Center. *Second-Generation Americans: A Portrait of the Adult Children of Immigrants*, February 7, 2012

REGIONAL AND LOCAL TRENDS IN HOUSING COSTS AND AFFORDABILITY

Sherwood's income is higher than state averages (Figure B- 19**).** Income is a key determinant of housing affordability. Since 2000, Sherwood's income has decreased (in inflation-adjusted dollars), consistent with state trends.

- Sherwood's median household income ($78,400) was about 55% higher than the state median ($50,229) in the 2009-2013 period.
- Inflation-adjusted income for households in Sherwood decreased by about 10% from about $87,500 in 2000 to $78,400 (in 2013 dollars) from 2000 to the 2009-2013 period. This is consistent with state and regional trends.
- Poverty rates increased in Sherwood from 2.7% of the population below poverty in 2000 to 7.6% in 2010. The increase is consistent with state and regional trends.
- Sherwood had a smaller share of population below the federal poverty line in the 2009-2013 period (7.6%) than the state average (16.2 %).

Housing costs in Sherwood increased by 30% since 2000.

Sales prices in Sherwood are higher than the regional averages.

Homeownership costs have increased in Sherwood (Figure B- 13**,** Figure B- 14**,** Figure B- 15 **and** Figure B- 16**).** Sales prices for single-family housing increased over the period from 2004 to 2014, consistent with national trends. While housing prices peaked in 2007, before falling during the recession, sales prices grew by about 30% from 2004 to 2014. Sales prices have continue to increase through 2017 and may be above the 2007 peak.

The increases in housing costs have made Sherwood less affordable than most other communities on the southwest side of Portland.

- Median sales prices for homes in Sherwood increased by about 30% between 2004 and 2014, from about $245,000 to $318,000.[23]
- As of January 2015, median sales prices in Sherwood were about $316,500, higher than in Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($237,300). Median sales prices were higher in Sherwood than in other Portland westside communities such as Tigard, Tualatin, and Beaverton but lower than Wilsonville or West Linn.
- Prices per square foot rose in Sherwood from $130 per square foot in October 2004 about $170 dollars in October 2014, comparable to the price in Washington County and the Portland Region (both about $170). The cost of housing per square foot was comparable in Sherwood to other

[23] Recent median home sale price, including price per square foot, comes from Zillow Real Estate Research.

cities on the southwest side of Portland, such as Tigard, Tualatin, Beaverton, and Wilsonville.

- The sales price data suggest that, overall, owner-occupied housing being produced in Sherwood was more expensive because it is larger than housing built in other cities in the southwestern Portland area.
- The ratio of home value to income increased by 32% from 2000 to 2009-2013. In 2000, the median home value was 2.9 times the median household income. By 2009-2013, the median home value was 3.8 times the median household income. In comparison, in 2009-2013, the typical value of an owner-occupied house in Washington County was 4.4 times the median income and the state average was 4.74 times the median income.

Rental costs are about 25% higher than the regional average.

Rental costs are higher in Sherwood than the average in Washington County, with a slightly lower rental cost on a cost per square foot basis (Table B- 14**, and** Figure B- 17 **and** Figure B- 18**).**

- The median contract rent in Sherwood in the 2009-2013 period was $1,064, compared to Washington County's average of $852.
- Average rent in the Tigard/Tualatin/Sherwood area submarket was $1.13 per square foot in Fall 2014, lower than the regional average of $1.22 per square foot. Between Spring 2010 and Spring 2013, average rent in Tigard/Tualatin/Sherwood area increased by 38%, consistent with the regional increase of 36%.

More than one-third of Sherwood's households have housing affordability problems, similar to regional averages.

More than one-third of Sherwood's households have housing affordability problems (Figure B- 20 **and** Figure B- 21**).**

- Thirty-eight percent of Sherwood's households were cost burdened (i.e., paid more than 30% of their income on rent or homeownership costs) in the 2009-2013 period.[24] This is consistent with the state averages.
- Roughly 40% of Sherwood's renter households were cost burdened in the 2009-2013 period. About one-fifth of renters were severely cost burdened (i.e., pay more than 50% of their income on rent).
- About 35% of Sherwood's homeowners were cost burdened in the 2009-2013 period. Only about 1% of homeowners were severely cost burdened (i.e., paid more than 50% of their income on homeownership costs).

[24]A household is considered cost burdened if they pay more than 30% of their gross income on housing costs. For renters, housing costs include the following: monthly rent, utilities (electricity, gas, and water and sewer), and fuels (wood, oil, etc.). For homeowners, housing costs include the following: mortgage payments, real estate taxes, insurance, mobile home costs, condominium fees, utilities, and fuels.

- When considering housing and transportation costs combined, the average household in Sherwood spends 54% of its income on housing costs and transportation costs. Metro considered a household that spends 45% or more of its income on transportation and housing as paying more they can afford. For context, the average households in Tualatin, Wilsonville, and Tigard pay 50% to 52% of their income for housing and transportation costs.

Future housing affordability will depend on the relationship between income and housing price. Households in Sherwood generally have higher than average incomes and housing prices are higher than average. In addition, Sherwood is at the edge of the Metro UGB, making transportation costs higher for households in Sherwood, compared to households who live in more central parts of the region. Determining whether housing in Sherwood will be more or less affordable is difficult to answer when based on historical data. The key questions are whether housing prices will continue to outpace income growth and whether transportation costs will continue to grow in the future.

FORECAST OF HOUSING BY TYPE AND DENSITY OF HOUSING

Table 2 shows the forecast of needed housing units in Sherwood based on the total estimate of housing need shown in Table 1. The forecast in Table 2 assumes: that the forecast for new housing will be: 50% single-family detached, 25% single-family attached, and 25% multifamily. This forecast is consistent with the requirements of OAR 660-007-0035.

The forecast shows increased demand for lower-cost housing types such as single-family attached and multifamily units, which meets the needs resulting in the changing demographics in Sherwood and the Portland region. The changes in demographics are the aging of the Baby Boomers, growth in Millennial households, and increases in ethnic diversity. The previous section described these trends and the implications for housing need in Sherwood.

The forecast assumes an equal share of single-family attached and multifamily housing based on the existing types of housing in Sherwood, which are predominantly single-family detached. Both single-family attached and multifamily housing provide opportunities for housing costing less than single-family detached housing, both for owners and renters.

Table 2. Forecast of needed housing units by mix, Sherwood planning area, 2019-2039

Housing Type	New Dwelling Units (DU)	Percent
Single-family detached	865	50%
Single-family attached	432	25%
Multifamily	432	25%
Total	**1,729**	

Source: ECONorthwest

The assumed housing mix meets the requirement of OAR 660-007-0030 to "designate sufficient buildable land to provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing."

The needed density in Sherwood is consistent with the densities achieved in residential zones Sherwood over the 2000-2014 period (Table B-4). These densities are:

- Very Low Density Residential (VLDR): 2.9 dwelling units per net acre

- Low Density Residential (LDR): 6.5 dwelling units per net acre[25]
- Medium Density Residential – Low (MDRL): 6.1 dwelling units per net acre
- Medium Density Residential – High (MDRH): 7.7 dwelling units per net acre
- High Density Residential (HDR): 19.1 dwelling units per net acre

These densities, when applied to Sherwood's supply of buildable land in the capacity analysis (Table 6) results in an overall density of 7.3 dwelling units per net acre. This housing density meets the requirements of OAR 660-007-0035 to "provide for an overall density of six or more dwelling units per net buildable acre."

Table 3 allocates the needed housing units to Sherwood's zones. The allocation is based on allowed uses in Sherwood's zoning code, historical development trends, and Sherwood's inventory of vacant buildable residential land.

Table 3. Allocation of needed housing units to zones, Sherwood planning area, 2019-2039

	Zone					
	Very Low Density Residential	Low Density Residential	Medium Density Residential-Low	Medium Density Residential-High	High Density Residential	Total
Dwelling Units						
Single-family detached	95	182	450	121	17	865
Single-family attached	-	-	-	259	173	432
Multifamily	-	-	86	138	208	432
Total	95	182	536	518	398	1,729
Percent of Units						
Single-family detached	5%	11%	26%	7%	1%	50%
Single-family attached	0%	0%	0%	15%	10%	25%
Multifamily	0%	0%	5%	8%	12%	25%
Total	5%	11%	31%	30%	23%	100%

Source: ECONorthwest

Needed housing by income level

Step four of the housing needs analysis is to develop an estimate of need for housing by income and housing type. This requires an estimate of the income distribution of current and future households in the community. The estimates

[25] The historical density achieved in LDR, 6.5 dwelling units per acre, is higher than the maximum allowable density in LDR, 5 dwelling units per net acre. This fact can be explained in large part by the fact that 60% of new development in LDR was part of a Planned Unit Development (PUD), which averaged 7.6 dwelling units per acre.

presented in this section are based on (1) secondary data from the Census, and (2) analysis by ECONorthwest.

The analysis in Table 4 based on American Community Survey data about income levels in Sherwood, using income information shown in Table B- 17. Income is categorized into market segments consistent with HUD income level categories, using the Portland Region's 2014 Median Family Income (MFI) of $69,400. Table 4 is based on current household income distribution, assuming approximately that the same percentage of households will be in each market segment in the future.

Based on Sherwood's current household income distribution, Table 4 shows that about 31% of households in Sherwood have incomes below 80% of the MFI. These households will need a range of housing, such as lower-cost single-family detached housing, townhouses, manufactured homes, or multifamily housing. These households will predominantly be renters. Sixty-nine percent of households have incomes above 80% of MFI. These households will be a mix of owners and renters. Their housing needs will include single-family detached, townhouses, and multifamily housing.

Growth in lower-income demographic groups, such as the Millennials, or in Baby Boomers who want to downsize their homes, may increase demand for smaller single-family detached houses, townhouses, and multifamily housing.

Table 4. Estimate of needed new dwelling units by income level, Sherwood, 2019-2039

				Commonly Financially Attainable Housing Products		
Market Segment by Income Portland MSA MFI: $69,400	Income Range	Number of New Households in Sherwood	Percent of Households in Sherwood (currently)	Owner-occupied	Renter-occupied	
High (120% or more of MFI)	$83,280 or more	725	42%	All housing types; higher	All housing types; higher	
Upper Middle (80%-120% of MFI)	$55,520 to $83,280	467	27%	All housing types; lower	All housing types; lower	Primarily New Housing
Lower Middle (50%-80% of MFI)	$34,700 to $55,520	232	13%	Single-family attached;	Single-family attached;	Primarily Used Housing
Lower (30%-50% of less of MFI)	$20,820 to $34,700	117	7%	Manufactured in parks	Apartments; manufactured	
Very Low (Less than 30% of MFI)	Less than $20,820	188	11%	None	Apartments; new and used	

Source: ECONorthwest
MFI is Median Family Income

Need for government assisted and manufactured housing

ORS 197.303 requires cities to plan for government-assisted housing, manufactured housing on lots, and manufactured housing in parks.

- **Government-assisted housing.** Government subsidies can apply to all housing types (e.g., single family detached, apartments, etc.) Sherwood allows development of government-assisted housing in all Residential zones, with the same development standards for market-rate housing. This analysis assumes that Sherwood will continue to allow government-assisted housing in all its Residential zones. Because government-assisted housing is similar in character to other housing (with the exception of the subsidies), it is not necessary to develop separate forecasts for government-assisted housing.
- **Manufactured housing on lots.** Sherwood allows manufactured housing in all residential zones as a permitted use. As manufactured homes are allowed as a permitted use in all zones, it is not necessary to develop separate forecasts for manufactured housing on lots.
- **Manufactured housing in parks (**Table B- 13**).** OAR 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial or high-density residential development. According to the Oregon Housing and Community Services' Manufactured Dwelling Park Directory,[26] Sherwood has four manufactured dwelling parks:
    - Carriage Park Estates with 58 spaces, all occupied
    - Crown Court with 14 spaces, except for one vacancy
    - Orland Villa with 24 spaces, all occupied
    - Smith Farm Estates with 90 spaces, all occupied

  ORS 197.480(2) requires Sherwood to project need for mobile home or manufactured dwelling parks based on: (1) population projections, (2) household income levels, (3) housing market trends, and (4) an inventory of manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial, or high-density residential.

    - Table 1 shows that the Sherwood planning area will grow by 1,729 dwelling units over the 2019 to 2039 period.
    - Analysis of housing affordability (in Table 4) shows that about 18% of Sherwood's new households will be low income, earning 50% or less

[26] Oregon Housing and Community Services, Oregon Manufactured Dwelling Park Directory, http://o.hcs.state.or.us/MDPCRParks/ParkDirQuery.jsp

of the County's median family income. One type of housing affordable to these households is manufactured housing.

- Manufactured housing in parks accounts for about 2.4% (258 dwelling units) of Sherwood's current housing stock, according to 2009-2013 Census data.
- National, state, and regional trends during the 2000 to 2010 period showed that manufactured housing parks were closing, rather than being created. For example, between 2003 and 2010, Oregon had a statewide decrease of 25% in the number of manufactured home parks. The trend of closing of manufactured housing parks slowed during the housing recession but is likely to increase as housing prices and land prices increase.
- The longer-term trend for closing manufactured home parks is the result of manufactured home park landowners selling or redeveloping their land for uses with higher rates of return, rather than lack of demand for spaces in manufactured home parks. Manufactured home parks contribute to the supply of lower-cost affordable housing options, especially for affordable home ownership. The trend in closure of manufactured home parks increases the shortage of manufactured home park spaces. Without some form of public investment to encourage continued operation of existing manufactured home parks and construction of new manufactured home parks, this shortage will continue.

Table 4 shows that the households most likely to live in manufactured homes in parks are those with incomes between $20,820 and $34,700 (30 to 50% of median family income). Assuming that about 1.5% to 2.5% of Sherwood's new households (1,729 new dwellings) choose to live in manufactured housing parks, the City may need 26 to 43 new manufactured home spaces. At an average of 8 dwelling units per net acre, this results in demand for 3.3 to 5.4 acres of land.

The City allows development of manufactured housing parks in MDRL zones, where the City has 66 vacant suitable buildable acres of land. Development of a new manufactured home park in Sherwood over the planning period seems unlikely. The land needed for development of a manufactured housing park is part of the forecast in Table 2.

4 Residential Land Sufficiency

This chapter presents an evaluation of the sufficiency of vacant residential land in Sherwood to accommodate expected residential growth over the 2019 to 2039 period. This chapter includes an estimate of residential development capacity (measured in new dwelling units) and an estimate of Sherwood's ability to accommodate needed new housing units for the 2019 to 2039 period. The chapter also includes conclusions and recommendations based on the results of the housing needs analysis.

Residential Buildable Land

Table 5 presents the City's inventory of buildable land. The buildable lands inventory is based on City of Sherwood and Metro GIS data. Appendix A presents a complete description of the methodology used to develop the buildable lands inventory. The key assumptions in the inventory are:

- **Vacant land** was defined as land that is fully vacant (as determined by Metro's Regional Land Information System (RLIS) GIS data and local data), or tax lots that are at least 95% vacant, or tax lots that have less than 2,000 square feet developed, with development covering less than 10% of the entire lot.
- **Unbuildable land** was removed from the inventory, including land with: public tax exemptions (i.e., land owned by the city or state), schools, churches, and other tax-exempt social organizations, private streets, rail properties, parks, and tax lots that do not meet the City's requirements for infill development.
- **Environmental resources and constraints** were deducted from the inventory of vacant land, including floodways and slopes over 25%.
- **Future rights-of-way** were accounted for based on lot sizes, with tax lots larger than one acre assumed to have 18.5% of land set aside for future rights-of-way.

Table 5 shows that Sherwood has 175 net acres of suitable buildable residential land. Fifty-five percent of Sherwood's vacant land (96 acres) is within the city limits and 45% (79 acres) is within the Brookman Area or other unincorporated areas within the current Urban Growth Boundary.

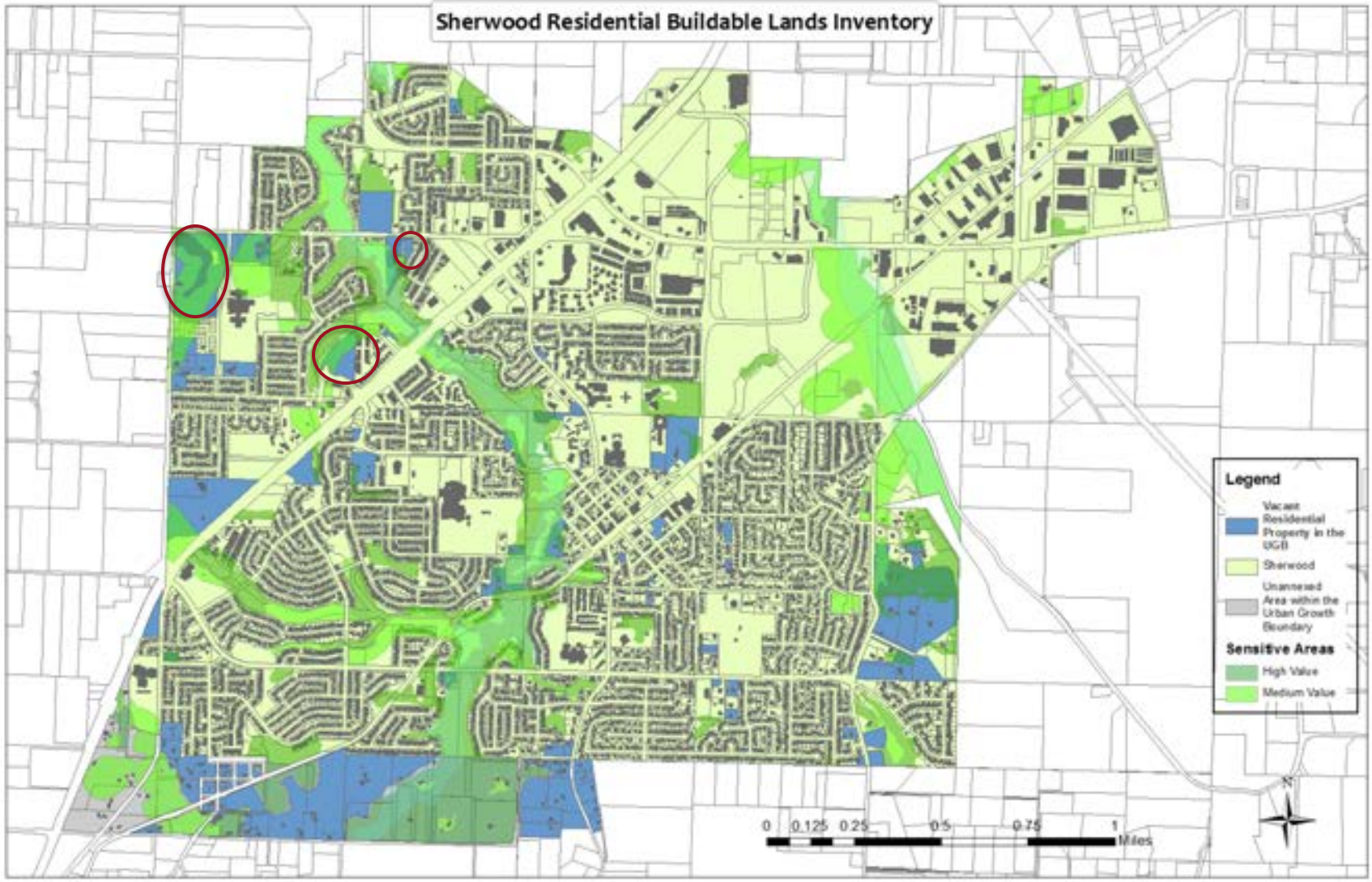
Table 5. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014

Zone	Gross Acres	Percent of Total
Land within City Limits		
Very Low Density Residential (VLDR)	24	14%
Very Low Density Residential Planned Unit Development (VLDR-PUD)	1	1%
Low Density Residential (LDR)	22	13%
Medium Density Residential-Low (MDRL)	14	8%
Medium Density Residential-High (MDRH)	21	12%
High Density Residential (HDR)	14	8%
Subtotal	**96**	**55%**
Brookman and Other Unincorporated Areas		
Very Low Density Residential (VLDR)	1	1%
Medium Density Residential-Low (MDRL)	52	30%
Medium Density Residential-High (MDRH)	8	4%
Medium Density Residential- Low/High* (MDRL/H)	15	8%
High Density Residential (HDR)	3	2%
Subtotal	**79**	**45%**
Total	**175**	**100%**

Source: City of Sherwood
*Note: There is one lot split between MDRL and MDRH.

Map 1 shows the inventory of vacant and partially vacant land in Sherwood. Notable areas where development has occurred since 2014 are circled in red on Map 1. In total, 160 new single-family detached units were permitted between January 1, 2015 and December 31, 2018.

Map 1. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014



Source: City of Sherwood

RESIDENTIAL DEVELOPMENT CAPACITY

This section presents a summary of the analysis used to estimate Sherwood's residential development capacity.

The capacity analysis estimates the number of new dwelling units that can be accommodated on Sherwood's residential land supply.[27] The capacity analysis evaluates ways that vacant suitable residential land may build out by applying different assumptions.

In short, land capacity is a function of buildable land, housing mix (as determined by plan designation or zoning), and density. The basic form of any method to estimate capacity requires (1) an estimate of *buildable* land, and (2) assumptions about density. The arithmetic is straightforward:

Buildable Land (ac) * Density (du/ac) = Capacity (in dwelling units)

For example:

100 acres * 8 du/ac = 800 dwelling units of capacity

The example is a simplification of the method, which skips some of the nuances that can be incorporated into a detailed capacity analysis such as variations in densities and housing mix among different Comprehensive Plan Designations.

Capacity analysis results

The capacity analysis estimates the development potential of vacant residential land to accommodate new housing based a range of density assumptions by zoning designation. Table 6 shows the capacity of Sherwood's residential land based on the buildable vacant and partially vacant land in Sherwood and a range of potential density assumptions.

The analysis of capacity in Table 6 is meant to illustrate the potential capacity of Sherwood's land based on current development policies and on historical development densities. Table 6 shows development capacity using: (1) the minimum allowable densities and (2) the maximum allowable densities (ensuring that lots meet the minimum lot size requirements. Table 6 also shows capacity based on historical densities.

- **Buildable Acres.** The Buildable Lands Inventory identified 175 net acres of vacant and partially vacant land, with 96 acres within Sherwood's city

[27] In this report, the term "capacity analysis" is used as shorthand for estimating how many new dwelling units the vacant residential land in the UGB is likely to accommodate.

limits and 79 acres in the Brookman and other unincorporated areas within the Metro UGB.

- **Capacity based on Zoning: Minimum Densities.** The analysis considered the capacity of Sherwood's land based on minimum densities in Sherwood's zoning code. This analysis shows that Sherwood has capacity of 940 new dwelling units at 5.4 dwelling units per net acre based on minimum zoning in all districts.
- **Capacity based on Zoning: Maximum Densities and Minimum Lot Sizes.** The analysis considered the capacity of Sherwood's land based on maximum densities in Sherwood's zoning code and the minimum lot size. This analysis was developed based on parcel-specific data. The amount of buildable land was identified in each parcel and the potential capacity was evaluated based on development standards in Sherwood's zoning code.

  The maximum capacity estimate estimates the capacity of Sherwood's land based on the maximum density allowed by zone by parcel, assuming that each parcel of buildable land meets the minimum lot size of the zone it is in.

  Table 6 shows that Sherwood's buildable land has capacity to accommodate 1,510 new dwelling units under these assumptions. This estimate results in an overall average of 8.6 dwelling units per net acre. About 44% of Sherwood's development capacity is in the Brookman area and other unincorporated areas within the Metro UGB.
- **Historical Development Densities.** The analysis considered the capacity of Sherwood's land based on historical development density by zone. In this analysis, we applied the historical density to the total vacant land in each zone to estimate the number of dwelling units that could be accommodated.

  Table 6 shows that Sherwood's buildable land has capacity to accommodate 1,286 new dwelling units based on historical development densities. This estimate results in an overall average of 7.3 dwelling units per net acre. About 44% of Sherwood's development capacity is in the Brookman area and other unincorporated areas within the Metro UGB.

Table 6. Range of capacity estimates, Sherwood vacant and partially vacant land, gross acres and gross densities, 2015

Zone	Buildable Acres	Capacity based on Zoning: Minimum Densities		Capacity based on Zoning: Maximum Densities and Minium Lot Sizes		Capacity based on Historical Development Densities		Difference in Capacity between Maximum Densities and Historical Densitites	
		Dwelling units	Derived Density	Dwelling units	Derived Density	Density Assumption	Dwelling units	Difference in Dwelling Units	Difference in Density
Land within City Limits									
VLDR	24	19	0.8	94	3.9	2.9	69	25	1.0
VLDR_PUD	1	-	-	4	3.8	2.9	3	1	0.9
LDR	22	71	3.2	113	5.1	6.5	144	(31)	(1.4)
MDRL	14	75	5.2	112	7.8	6.1	88	24	1.7
MDRH	21	111	5.3	223	10.7	7.7	161	62	3.0
HDR	14	224	16.0	303	21.7	19.1	266	37	2.6
Subtotal	**96**	**500**	**5.2**	**849**	**8.8**		**731**	**118**	**8.8**
Brookman and Other Unincorporated Areas									
VLDR	1	2	1.6	4	3.2	2.9	3	1	0.3
MDRL	52	275	5.3	401	7.7	6.1	317	84	1.6
MDRH	8	36	4.7	62	8.1	7.7	58	4	0.4
MDRL/H*	15	78	5.3	109	7.5	7.5	109	-	-
HDR	3	49	15.4	70	22.1	19.1	60	10	3.0
Subtotal	**79**	**440**	**5.6**	**661**	**8.4**		**547**	**114**	**8.4**
Total	175	940	5.4	1,510	8.6	7.3	1,278	232	1.3

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

*Note: There is one lot in the Brookman Area that is split zoned MDRL/MDRH. Of this 15 acre lot, 13 acres is assumed MDRH and two acres is assumed MDRL. The density assumptions for that lot are consistent with the density assumptions shown in Table 6.

Table 6 compares the difference in the capacity estimates for the "maximum density (and minimum lot size) capacity" estimate and the "historical development density" estimate. Table 6 shows that the capacity estimate based on historical development densities results in 232 fewer dwelling units than the capacity based on maximum densities. The average density using the historical development densities is 1.3 dwelling units per acre lower than the maximum density analysis.

This difference shows that development in Sherwood is generally occurring at lower than the maximum allowed densities, showing underbuild in Sherwood. Further analysis shows that residential development between 2000 and 2014 occurred at between 70% to 80% of the maximum allowable densities. The exception is Low Density Residential, where development occurred at higher than allowable densities approximately 60% of LDR development between 2000 and 2014 was in Planned Unit Developments – neighborhoods that were approved to provide a more compact development option.

Underbuild is expected as a result of development constraints that lower development capacity, such as slopes. In addition, parcel configuration contributes to underbuild, with parcels that are oddly shaped or have more land than the minimum requirement but not enough for additional housing.

Table 6 demonstrates that development in Sherwood occurred at considerably higher densities than the minimum allowable densities in each zone.

Based on the analysis in Table 6, we conclude that **both the maximum density (and minimum lot size) and the historical development density estimates exceed the State requirement** (OAR 660-007-0035(2)) to "provide for an overall

density of six or more dwelling units per net buildable acre." The estimate results in an average density of between 7.3 to 8.6 dwelling units per net acre.

The conclusion of the housing needed analysis is that Sherwood's historical densities by housing type (shown in Table B- 3) meet Sherwood's future housing needs. Table B- 3 shows Sherwood's historical densities as 6.5 dwelling units per acre for single-family detached, 17.9 dwelling units per acre for single-family attached, and 20.5 dwelling units per acre for multifamily. If future residential development continues to occur at approximately these densities and with the mix of housing shown in Table 2, then Sherwood will be meeting its Goal 10 requirements.

In addition to the capacity shown in Table 6, Sherwood could have additional residential development capacity resulting in development of housing in commercial zones and from redevelopment of residential properties with existing development (where redevelopment results in a net increase in the number of dwelling units on the property).

About 9% of Sherwood's residential development over the 2000 to 2014 period occurred in commercial zones. It is reasonable to assume that some residential development over the next 20 years would occur in commercial zones, as long as housing is considered a secondary use to the commercial use, as required by Sherwood's development code.

Sherwood has limited opportunities for redevelopment because much of Sherwood's housing stock was developed over the last two decades. In addition, residential land in Sherwood is parcelized and meeting existing density requirements in areas with existing development would be difficult.

Table 7 presents a revision of the capacity shown in Table 6 for capacity based on historical densities. Between January 1, 2015 and December 31, 2018, Sherwood issued 160 permits for housing, all in the MDRL, MDRH, and HDR zones. Table 7 reduces the capacity estimate by 160 units, resulting in a capacity of 571 units on land within the city limits.

Table 7. Revised capacity based on historical development densities accounting for building permits issued in 2015 to 2018, dwelling units, 2018

Zone	Capacity based on Historical Development Densities	Building Permits Issued 2015 to 2018	Revised Capacity
Land within City Limits			
VLDR	69		69
VLDR_PUD	3		3
LDR	144		144
MDRL	88	34	54
MDRH	161	52	109
HDR	266	74	192
Subtotal	731	160	571

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

Table 8 summarizes Sherwood's development capacity based on the analysis in Table 6 (using the Historical Densities analysis) and reduction in capacity for development between 2015 and 2018 in Table 7.

Table 8. Summary of development capacity based on changes from 2015 to 2018, dwelling units, Sherwood city limits and Brookman and other Unincorporated areas, 2017

	Buildable Acres	Density Assumption	Dwelling units
Very Low Density Residential	26	2.9	76
Low Density Residential	22	6.5	144
Medium Density Residential-Low	68	6.1	382
Medium Density Residential-High	41	7.7	266
High Density Residential	17	19.1	253
Total	175	6.4	1,121

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

RESIDENTIAL LAND SUFFICIENCY

The last step in the analysis of the sufficiency of residential land within Sherwood is to compare the demand for land by zone (Table 3) with the capacity of land by zone based on historical development densities (Table 6 and Table 7). Table 9 shows that Sherwood has a deficit of capacity in each zone, for a total deficit of about 608 dwelling units. The largest deficits are in Medium Density Residential-Low (154 dwelling units), Medium Density Residential-High (252 dwelling units), and High Density Residential (145 dwelling units).

The conclusion from Table 9 is that the current inventory of buildable residential land is **not** sufficient to accommodate Sherwood's expected growth. To comply with Goal 10, the City will need to either change its policies to allow for more development on the inventory of vacant land, request a UGB expansion from Metro, or both. The types of land with the largest deficit are Medium Density Residential-Low, Medium Density Residential-high, and High Density Residential.

Table 9. Comparison of capacity of existing residential land with demand for new dwelling units, dwelling units, Sherwood planning area, 2019-2039

Zone	Capacity (Needed Densities)	Housing Demand	Comparison Capacity *minus* Demand (dwelling units)
Very Low Density Residential	76	95	-19
Low Density Residential	144	182	-38
Medium Density Residential-Low	382	536	-154
Medium Density Residential-High	266	518	-252
High Density Residential	253	398	-145
Total	**1,121**	**1,729**	**-608**

Source: ECONorthwest
Note: DU is dwelling unit.

POTENTIAL GROWTH IN SHERWOOD WEST

Development capacity in Sherwood West will vary from 3,300 to 6,500 dwelling units. The Concept Plan will begin to identify housing types and development scenarios that fit with the community's vision for Sherwood West and that are possible, given likely development and infrastructure costs

The Concept Planning work for Sherwood West is ongoing. The results of the Concept Planning work and later concept and master planning phases will determine more precisely the type and amount of housing in Sherwood West. Table 10 presents estimates of capacity in Sherwood West based on a range of density assumptions, from an average of 6.0 to 12.0 dwelling units per acre. The purpose of the information in Table 10 is to provide some idea of potential development capacity in Sherwood West.

The timing of development in Sherwood West is being discussed through the Concept Planning process. A number of factors will affect the timing of development in Sherwood West, such as when the area is brought into the Metro UGB, provisions of services, and future concept planning for the area. Sherwood West may not be fully built out until 2065. The areas expected to develop first in Sherwood West are Areas A, B, and a portion of C in the Concept Plan, which are located in the southeast part of Sherwood West, adjacent to the Brookman Area. The Sherwood School District has plans to develop a high school in Area A in the next few years.

Table 10. Potential residential development capacity, Sherwood West

	Dwelling Units	Notes
Estimate of Buildable Land		
Gross Acres	670	
Net Acres	546	We assumed an average net-to-gross factor of 18.5% for rights-of-way, regardless of parcel size.
Potential Capacity based on Density Assumptions		
Required average from OAR 660-007 - 6 DU/net acre	3,276	Under this assumption, Sherwood West would be primarily built-out with single-family detached housing. Given Sherwood's historical development densities and the City's requirement to provide opportunity that half of new development is single-family attached and multifamily, this density seems too low for Sherwood West. Issues related to costs of services and development density will be discussed in the pre-concept planning process (and again in the concept planning process) may indicate that this density assumption is too low to support development costs for Sherwood West.
Historical Development Density* - 7.8 DU/net acre	4,259	Issues related to costs of services and development density will be discussed in the pre-concept planning process (and again in the concept planning process) may indicate that this density assumption is too low to support development costs for Sherwood West.
10 DU/net acre	5,460	Metro's forecast for capacity in Sherwood West (4,844) would be accommodated at an average of 10 dwelling units per acre, with some additional capacity for other development.
12 DU/net acre	6,552	

Source: Buildable Lands Estimate from OTAK and analysis by ECONorthwest
*Note: Historical Development Density includes only development in residential zones over the 2000-2014 period.

CONCLUSIONS AND RECOMMENDATIONS

The key findings and recommendations from the housing needs analysis are as follows:

Sherwood is able to accommodate 65% of the forecast for growth within the Sherwood Planning Area.

- **Sherwood is able to meet state requirements for housing mix and density.** The City's primary obligations are to (1) designate land in a way that 50% of new housing could be either multifamily or single-family attached housing (e.g., townhouses) and (2) achieve an average density of six dwelling units per net acre. Put another way, the City is required to plan that 50% of their new housing will have the opportunity to be multifamily or single-family attached housing (e.g., townhouses), with all housing at an average density of 6 dwelling units per net acre. Sherwood is able to meet these requirements.
- **Sherwood is meeting its obligation to plan for needed housing types for households at all income levels.** Sherwood's residential development policies include those that allow for development of a range of housing types (e.g., duplexes, manufactured housing, and apartments) and that allow government-subsidized housing. This conclusion is supported by the fact that Metro's 2016 *Compliance Report* concluded that Sherwood was in compliance with Metro Functional Plan and Title 7 (Housing Choice). Sherwood will have an ongoing need for providing affordable housing to households with all income levels.
- **Sherwood has a deficit of land for housing.** Sherwood can accommodate about 65% of the forecast for new housing on areas within the city limits and Brookman Area. However, Sherwood has a deficit of land for 608 dwelling units. The largest deficits are in Medium Density Residential-Low (154 dwelling units), Medium Density Residential-High (252 dwelling units), and High Density Residential (145 dwelling units).
- **To provide adequate supply, Sherwood will need to continue to annex the Brookman area.** Sherwood will need to continue to annex the Brookman area in order to accommodate the City's forecast of residential growth. The City recently annexed about 98 acres in the Brookman Area. The annexed land is in the center of the Brookman Area and has relatively few owners (about 8 property owners). Annexing and developing other parts of the Brookman area, with a larger number of owners, may be more challenging, to the extent that the property owners have to come to agreement about development.
- **Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman Area.** The growth rate of Metro's forecast for household growth (1.1% average annual growth) is considerably lower than the City's historical population growth rate over the last two decades (8% average annual growth). Metro's forecast only

includes growth that can be accommodated with the Sherwood Planning area, which does not include Sherwood West.

Given the limited supply of buildable land within Sherwood, it is likely that the City's residential growth will slow, especially if portions of Sherwood West are not brought into the Metro UGB in the earlier part of the 20-year planning period. It is likely that Sherwood's future growth over the 2019-2039 period would be considerably slower than its historical growth rate, if for no other fact than it is mathematically more difficult to maintain a high growth rate with a larger population. In addition, Sherwood's fast growth during the last two decades was driven by historically fast in-migration in to the Portland region, a trend that Metro's forecast shows slowing, and the availability of vacant buildable residential land in Sherwood.

Sherwood's fast growth during the last two decades was driven by historically fast in-migration in to the Portland region, a trend that Metro's forecast shows slowing, and the availability of vacant buildable residential land in Sherwood.

Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman Area.

- **Sherwood has a relatively limited supply of land for moderate- and higher-density multifamily housing.** Sherwood has 41 vacant acres of MDRH land and 17 acres of HDR land. If the City wants more multifamily housing growth in core areas of Sherwood, the City could evaluate whether to make policy changes that either increase the capacity of MDRH and HDR land or designate more land for these uses. Some specific considerations:
  - MDRH allows up to 11 dwelling units per acre. However the lot development requirements[28] for multifamily make it difficult to achieve the maximum development density. The City should evaluate the implications of changing MDRH development standards to allow densities of at least 11 dwelling units per acre or a moderate increase in the maximum allowable densities in MDRH.
  - The City's supply of HDR land is very limited, with 17 vacant acres of HDR. As part of the Comprehensive Plan update, the City may choose to evaluate opportunities to upzone land to HDR, to allow more multifamily land in areas such as centers or along transportation corridors.
  - Sherwood's development code does not provide opportunities for development of housing at moderate multifamily densities of 11.1 to 16.7 dwelling units per acre, the gap in densities between MDRH and HDR. As part of the Comprehensive Plan update, the City may choose to evaluate the need for a zone that allows development in this density,

Sherwood's development code does not provide opportunities for development of housing at moderate multifamily densities between 11 to 16 dwelling units per acre.

Providing opportunities for housing in these densities may address and provide opportunities for development of a wider range of affordable housing types.

[28] Sherwood has an 8,000 square foot minimum lot size for the first two multifamily units, with a requirement for 3,200 additional square feet for each multifamily unit beyond the first two units.

which might include townhouses and moderate-sized apartment or condominium buildings.

- About 9% of Sherwood's residential development over the 2000 to 2014 period occurred in commercial zones., Sherwood may be able to accommodate additional multifamily residential development in these zones. The City may choose to evaluate and identify opportunities for additional multifamily development in commercial zones, as part of the Comprehensive Plan update.

- **Sherwood should monitor residential development.** The city may wish to develop a monitoring program that will allow Sherwood to understand how fast land is developing. The monitoring program will inform Metro's UGB planning process by providing more detailed information about housing growth and development capacity in Sherwood. This information can help City staff and decision-makers make the case to Metro staff and decision-makers about the need for residential expansion areas. We recommend using the following metrics to monitor residential growth:

  - **Population.** The City already routinely monitors population growth by using the annual population estimates prepared by the Center for Population Research at Portland State University.

  - **Building permits.** The Housing Needs Analysis included a review of building permits by dwelling type, plan designation, zone, and net density. Because the City collects most of the data used in the analysis of historical development density, we recommend that city staff update this analysis on an annual basis.

  - **Subdivision and partition activity.** This metric is intended to measure the rate and density of land divisions in Sherwood. Specific data to include with subdivision and partition activity are the area of the parent lot, the area in child lots, the number of child lots, the average size or density of lots, and the area in dedicated right-of-way.

  - **Land consumption.** This metric relates closely to the building permit data. The building permit data should include tax lot identifiers for each permit. The City should match each permit to data in the buildable lands inventory and report how much land is being used by plan designation, zone, and land classification (e.g., vacant, redevelopable, infill, etc.). Additionally, we recommend the City map the location of development on an annual basis.

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Appendix A. Appendix A. Residential Buildable Lands Inventory

This appendix presents the methodology used to develop the buildable lands inventory and the results of the buildable lands inventory. The information in this appendix was developed by City of Sherwood staff.[29]

METHODOLOGY

Definitions used in the inventory

Vacant land

- Any tax lot that is fully vacant as determined by RLIS GIS Data[30], aerial photography, field checks and local records.
- Tax lots that are at least 95% vacant are considered vacant land.
- Tax lots that are less than 2,000 sq. feet developed AND developed part is under 10% of entire lot

Developed land

- Part vacant/part developed tax lots are considered developed and will be treated in the redevelopment filter

Steps in developing the buildable land inventory

Step 1: Inventory and map fully vacant residential lands

a. Sort City tax lot data by zoning designation within the City boundary.

The residential zones including any planned unit development overlay utilized within this study include:

- Very Low Density Residential (VLDR)
- Low Density Residential (LDR)
- Medium Density Residential Low (MDRL)
- Medium Density Residential High (MDRH)
- High Density Residential (HDR)

b. Identify parcels that are fully vacant.

[29] Michelle Miller, AICP, Senior Planner at the City of Sherwood developed the buildable lands inventory.

[30] Metro's Data Resource Center collaborates with local partners to develop and deliver the Regional Land Information System (RLIS) – more than 100 layers of spatial data that supports strategic decision-making for governments, businesses and organizations across the region.

1. Remove developed parcels using most recent Metro's RLIS GIS data.
2. Planning staff review based on current aerial photography, field checks, and local records

Step 2: Subtract unbuildable acres

a. Remove tax lots that d/n have potential to provide residential growth.

1. Tax exempt with property codes for City, State, Federal and Native American designations
2. Schools
3. Churches and social organizations-based solely on tax exempt codes
4. Private streets
5. Rail properties
6. Tax lots under the minimum lot size of the zone or 4,250 sq. ft. for residential land due to infill standards
7. Parks

b. Calculate deductions for environmental resources[31].

1. Remove Floodways-100% removed
2. Recognize environmental constraints such as slopes over 25 % and constrained areas as defined by Cities and Counties under Metro Functional Plan Title 13-Riparian Corridors (Class I and II) and Upland Wildlife Habitat (Class A and B) -100%
3. By assumption, allow one dwelling unit per residentially zoned tax lot if environmental encumbrances would limit development such that by internal calculations no dwelling units would otherwise be permitted.

c. Calculate for future streets. [32]

This methodology sets aside a portion of the vacant land supply (not redevelopment supply) in order to accommodate future streets and sidewalks. This assumption is calculated on a per tax lot basis.

1. Tax lots less than 3/8 acre assume 0% set aside future streets.33
2. Tax lots between 3/8 acre and 1 acre assume a 10% set aside for future streets
3. Tax lots greater than an acre assume an 18.5% set aside for future streets

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[31] Environmental resources are considered to include Title 3, Title 13 FEMA floodway and slopes over 25 %.

[32] The BLI accounts for future streets on a tax lot by tax lot basis. The buildable area of each tax lot is reduced based on individual tax lot size.

[33] The basis for these net street deduction ratios derive from previous research completed by the Data Resource Center and local jurisdictions for the 2002 UGR.

4. Industrial zoning assumes a 10% set aside regardless of size.

Step 3: Inventory and map re-developable lands

a. Definition:

Re-developable: applies to lots that are classified as developed that are now likely to redevelop or during the 20-year planning period**.**

b. Query performed that identifies previously developed lots that have potential to redevelop over time due to the relationship between the size of the lot and the value of improvements.

1. Sites between .26-.54 acres with improvements less than $ 50 K
2. Sites over .55 acres with improvement between $50,001-100 K
3. Sites over 1 acre with improvement values between $ 100,001-150 K
4. Results of this query include land that is wholly re-developable, meaning existing improvements would be replaced, and land that is partially vacant, meaning the lot could be divided to allow for additional development.

Step 4: Planning staff review of draft map-(Investigative step)

a. Remove under construction or pending construction as of October 1, 2014

b. Added back and redefined areas of special concern (Areas like Brookman for example)[34]

c. Review and add City owned properties that are developable and not held for public purpose

d. For parcels zoned MDRH and HDR determine densities based on location and likelihood that parcel will develop with multifamily or single-family dwelling units and base densities on minimum lot size for single-family and maximum density for multifamily.

e. Re-developable or partially vacant sites that include:

- Properties currently for sale
- Lots that are more than twice the minimum lot size required to support the number of existing dwelling units including tax lots that have land division potential
- Sites that should have been identified as partially vacant but not caught earlier
- Lands with single-family development zoned for multifamily development

f. Remove from Map and defined the following as Not Likely to Redevelop

- Sites occupied by active religious institutions
- Sites with known deed restrictions
- Sites currently under development

[34] Assume Brookman Concept Plan Zoning

- Sites occupied by utility infrastructure
- Commercially zoned land greater than ½ mile from either residential or town center lots-most likely won't be mixed use with residential

g. Redevelop Strike Price Analysis

- Perform on all tax lots planned for residential and commercial development, to identify Multifamily and Commercial sites with a market redevelopment strike price of less than $10 per square foot.[35]

$$\text{Strike Price} = \frac{\text{(Improvement value + land value)}}{\text{Total Sq. Ft of lot}}$$

h. Identify possible rezone properties that would either be added or subtracted from the inventory over time.

[35] This formula is part of the draft proposed Metro methodology for identifying sites zoned for Multifamily and Mixed Use Development that are likely to redevelop. $10/sq.ft. is the estimated threshold for the market supporting redevelopment of suburban sites that are zoned for multifamily development.

RESULTS OF THE BUILDABLE LANDS INVENTORY

Table A- 1 presents the City's inventory of buildable land. The buildable lands inventory is based on City of Sherwood and Metro GIS data. Table A- 1 shows that Sherwood has 175 net acres of suitable buildable residential land. Fifty-five percent of Sherwood's vacant land (96 acres) is within the city limits and 45% (79 acres) is within the Brookman Area or other unincorporated areas within the current Urban Growth Boundary.

Table A- 1. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014

Zone	Gross Acres	Percent of Total
Land within City Limits		
Very Low Density Residential (VLDR)	24	14%
Very Low Density Residential Planned Unit Development (VLDR-PUD)	1	1%
Low Density Residential (LDR)	22	13%
Medium Density Residential-Low (MDRL)	14	8%
Medium Density Residential-High (MDRH)	21	12%
High Density Residential (HDR)	14	8%
Subtotal	**96**	**55%**
Brookman and Other Unincorporated Areas		
Very Low Density Residential (VLDR)	1	1%
Medium Density Residential-Low (MDRL)	52	30%
Medium Density Residential-High (MDRH)	8	4%
Medium Density Residential- Low/High* (MDRL/H)	15	8%
High Density Residential (HDR)	3	2%
Subtotal	**79**	**45%**
Total	**175**	**100%**

Source: City of Sherwood
*Note: There is one lot split between MDRL and MDRH.

Table A- 2 presents a revision of the capacity shown in Table A- 1 for capacity based on historical densities. Between January 1, 2015 and December 31, 2018, Sherwood issued 160 permits for housing, all in the MDRL, MDRH, and HDR zones. Table A- 2 reduces the capacity estimate by 160 units, resulting in a capacity of 571 units on land within the city limits.

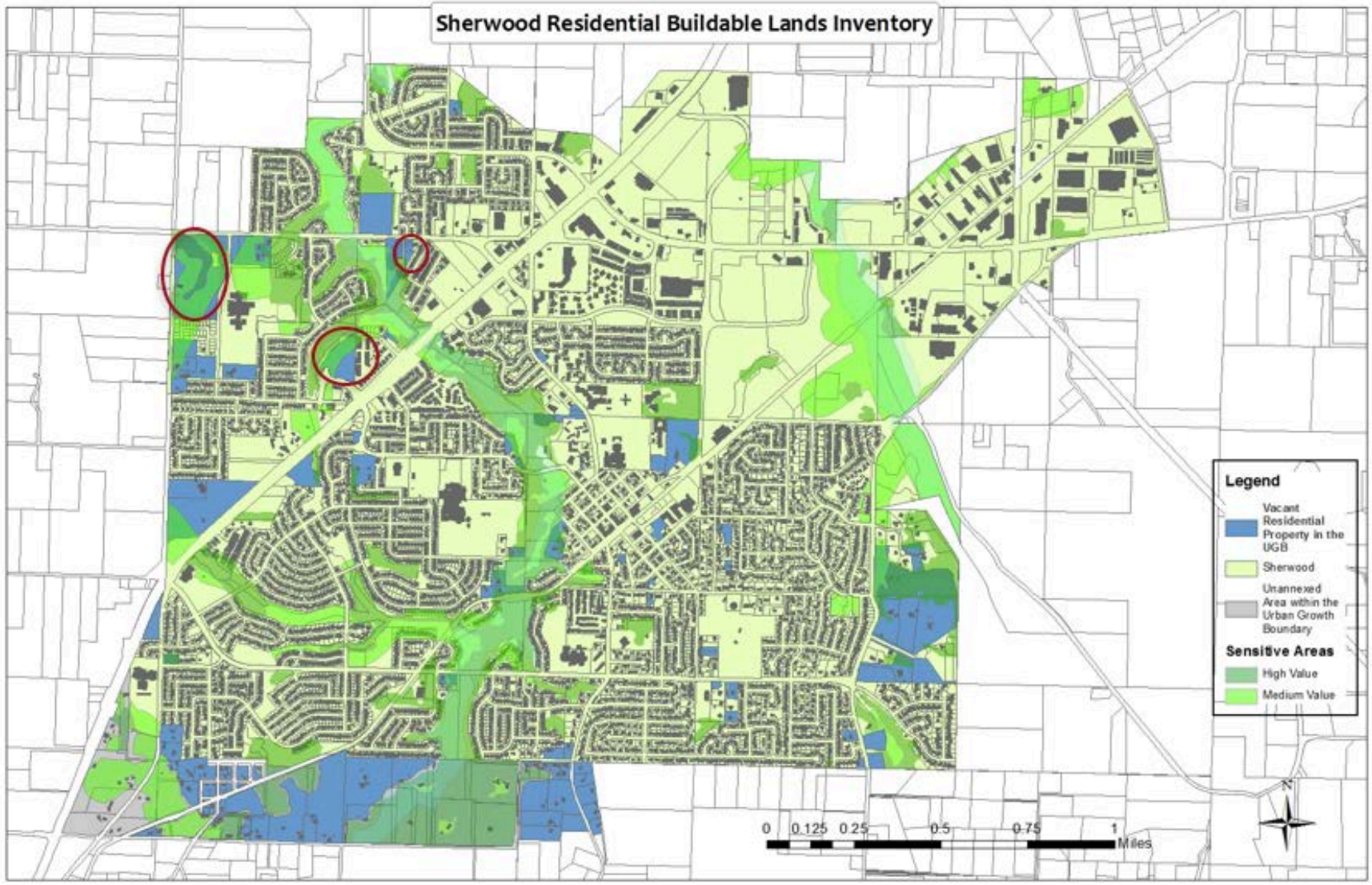
Table A- 2.. Revised capacity based on historical development densities accounting for building permits issued in 2015 to 2018, dwelling units, 2018

Zone	Capacity based on Historical Development Densities	Building Permits Issued 2015 to 2018	Revised Capacity
Land within City Limits			
VLDR	69		69
VLDR_PUD	3		3
LDR	144		144
MDRL	88	34	54
MDRH	161	52	109
HDR	266	74	192
Subtotal	**731**	**160**	**571**

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

Map A-1 shows vacant and partially vacant land in Sherwood. Notable areas where development has occurred since 2015 are circled in red on Map 1. In total, 160 new single-family detached units were permitted between January 1, 2015 and December 31, 2018.

Map A-1. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014



Source: City of Sherwood

Appendix B. Trends Affecting Housing Need in Sherwood

Historical and Recent Development Trends

Analysis of historical development trends in Sherwood provides insights into how the local housing market functions. The intent of the analysis is to understand how local market dynamics may affect future housing—particularly the mix and density of housing by type. The housing mix and density by type are also key variables in forecasting future land need. The specific steps are described in Task 2 of the DLCD *Planning for Residential Lands* Workbook:

- Determine the time period for which the data must be gathered.
- Identify types of housing to address (at a minimum, all needed housing types identified in ORS 197.303).
- Evaluate permit/subdivision data to calculate the actual mix, average actual gross density, and average actual net density of all housing types.

The period used in the analysis of housing density and mix is 2000 to 2014, which includes both times of high housing production and times of low housing production. This reasons for choosing this period were: (1) the 2000 to 2014 period includes more than one economic cycle, with extreme highs and extreme lows in the housing market and (2) data prior to 2005 was less easily available and obtaining data for 2000 to 2004 required a considerable amount of work by City staff to compile the data.

The housing needs analysis presents information about residential development by housing types. For the purposes of this study, we grouped housing types based on: (1) whether the structure is stand-alone or attached to another structure and (2) the number of dwelling units in each structure. The housing types used in this analysis are:

- **Single-family detached:** single-family detached units and manufactured homes on lots and in mobile home parks.
- **Single-family attached:** all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses.

Multifamily: all attached structures other than single-family detached units, manufactured units, or single-family attached units.

These categories of housing type were chosen for the analysis because they meet the requirements of needed housing types in ORS 197.303.[36]

Data used in this analysis

Throughout this analysis, we use data from multiple well-recognized and reliable data sources. One of the key sources for data about housing and household data is the U.S. Census. This report primarily uses data from two Census sources:

- The **Decennial Census**, which is completed every ten years and is a survey of all households in the U.S. The Decennial Census is considered the best available data for information such as demographics (e.g., number of people, age distribution, or ethnic or racial composition); household characteristics (e.g., household size and composition); and housing occupancy characteristics. As of the 2010 Decennial Census, it does not collect more detailed household information, such as income, housing costs, housing characteristics, and other important household information. Decennial Census data is available for 1990, 2000, and 2010.

- The **American Community Survey (ACS)**, which is completed every year and is a sample of households in the U.S. The 2009-2013 ACS sampled about 16.2 million households, or about 2.8% of the households in the nation. The ACS collects detailed information about households, such as demographics (e.g., number of people, age distribution, ethnic or racial composition, country of origin, language spoken at home, and educational attainment); household characteristics (e.g., household size and composition); housing characteristics (e.g., type of housing unit, year unit built, or number of bedrooms); housing costs (e.g., rent, mortgage, utility, and insurance); housing value; income; and other characteristics.

In general, this report uses data from the 2009-2013 ACS for Sherwood. Where information is available, we report information from the 2010 Decennial Census.

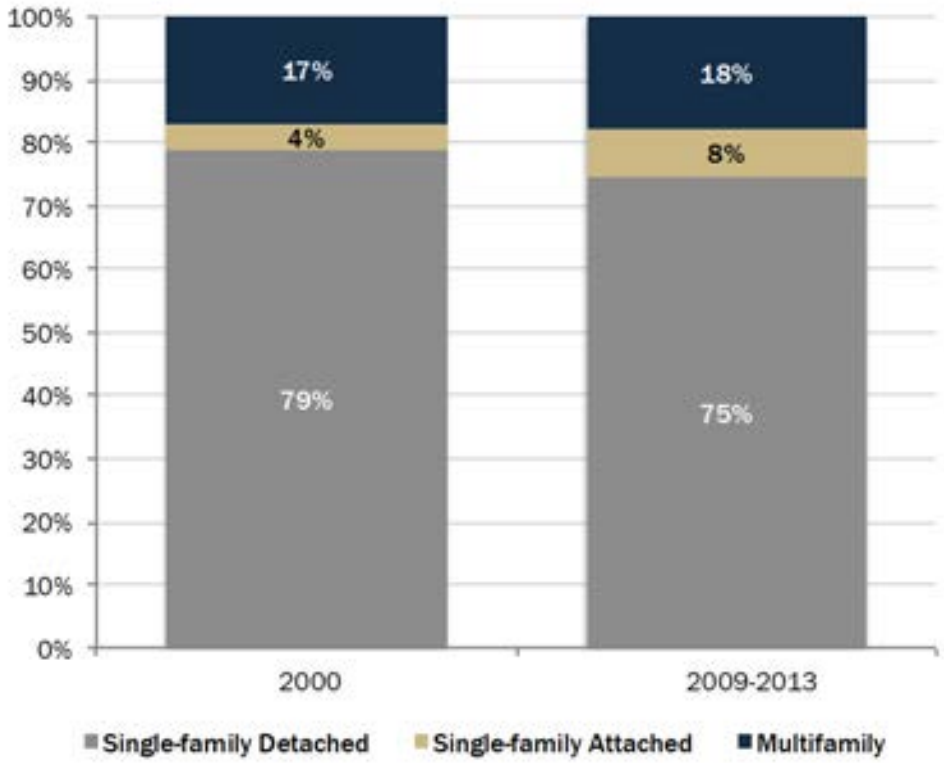
Trends in housing mix in Sherwood

According to the American Community Survey, Sherwood had more than 6,500 housing units in the 2009-2013 period. Figure B- 1 shows that Sherwood's housing stock is predominantly single-family detached housing. In 2000, 79% of

[36] The analysis of development in Sherwood attempts to separate single-family detached and single-family attached housing. However, the City's building permit system does not distinguish between these two types of housing. City staff manually identified single-family attached housing that was developed with a concentration of single-family attached housing. City staff were unable to identify small-scale, single-family attached development scattered throughout the city.

Sherwood's housing stock was single-family detached and 77% was single-family detached in 2009-2013. The share of multifamily units increased from 17% of Sherwood's housing stock in 2000 to 18% in 2009-2013.

Figure B- 1. Mix of Housing Types, Sherwood, 2000 to 2009-2013



Source: U.S. Census 2000 SF3 Table H030, American Community Survey 2009-2013, Table B25024.

Table B- 1 and Figure B- 2 show that the mix of housing developed over the 2000 to 2014 period was predominantly single-family housing (including single-family detached, single-family attached, and manufactured housing), accompanied by intermittent growth in multifamily.

Over the entire 2000 to 2014 period, Sherwood issued permits for nearly 2,225 dwelling units, with about 148 permits issued per year. About 69% of dwellings permitted were single-family detached, 9% were single-family attached, and 23% were multifamily.

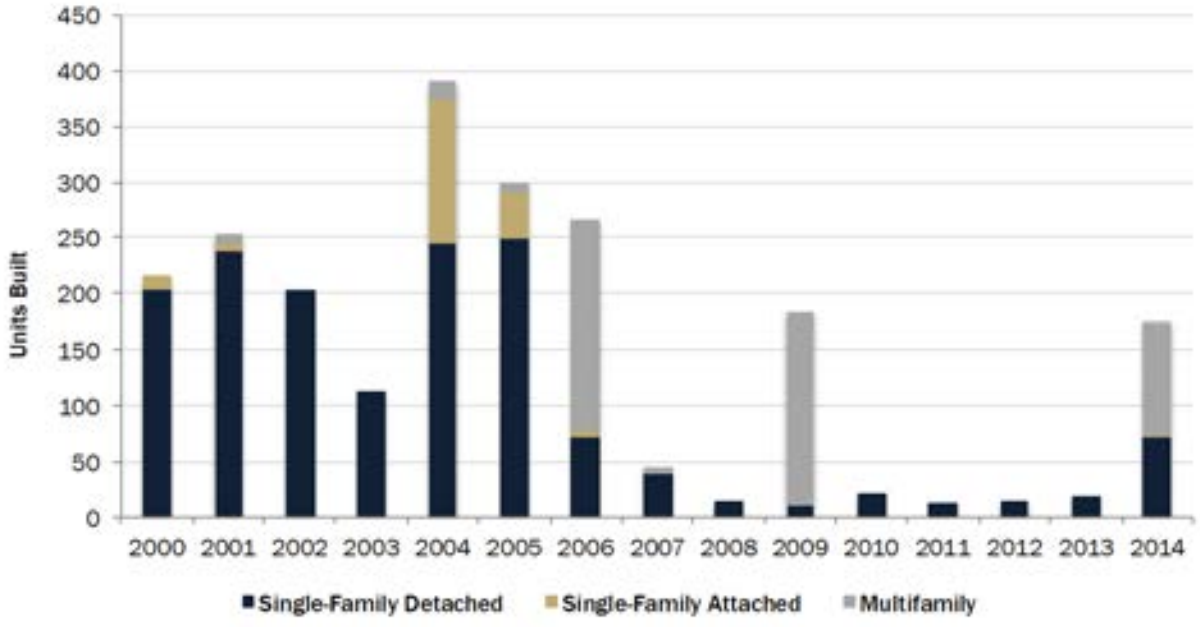
In addition, 160 units were permitted during the January 1, 2015 to December 31, 2018 period. All units permitted were single-family detached. These permits are not shown in Table B- 1 and Figure B- 2.

Table B- 1. Building permits by type of unit, Sherwood, 2000-2014

Housing Type	New Units Permitted	Average of New Units Permitted Annually	Mix of New Units
Single-Family Detached	1,525	102	69%
Single-Family Attached	196	13	9%
Multifamily	504	34	23%
Total	2,225	148	100%

Source: City of Sherwood Building Permit Database.
Notes: Single-Family Detached includes manufactured housing.

Figure B- 2. Building permits by type of unit, Sherwood, 2000 to 2014

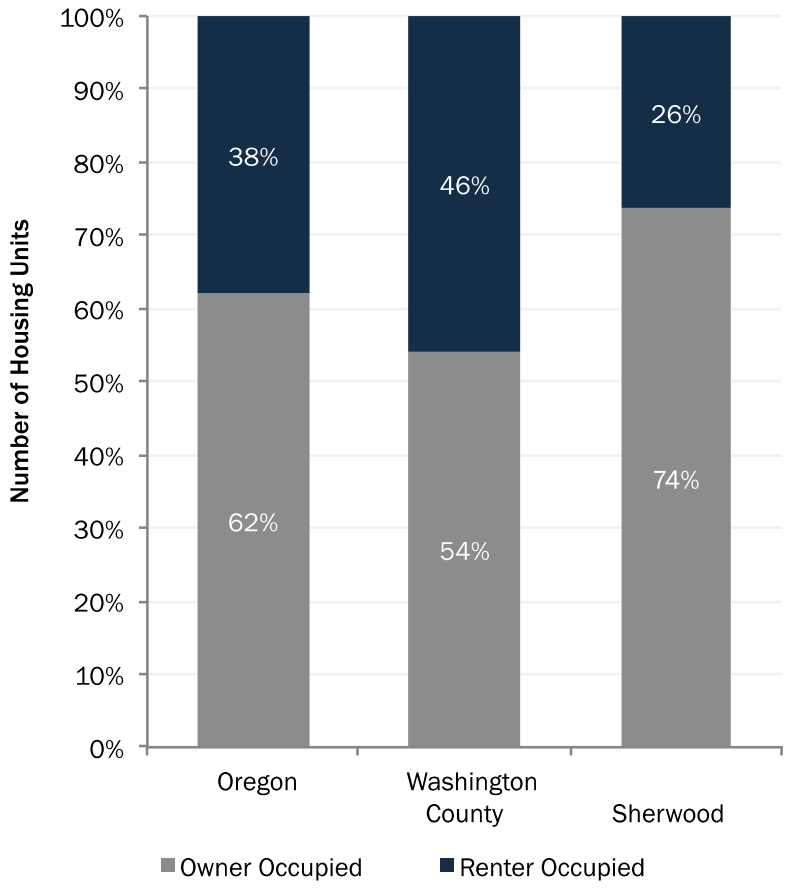


Source: City of Sherwood Building Permit Database.
Notes: Single-Family Detached includes manufactured housing.

Trends in Tenure

Figure B- 3 shows housing tenure in Oregon, Washington County, and Sherwood for the 2009-2013 period. Sherwood has a higher rate of ownership (74%) than the county (54%) and the state (62%).

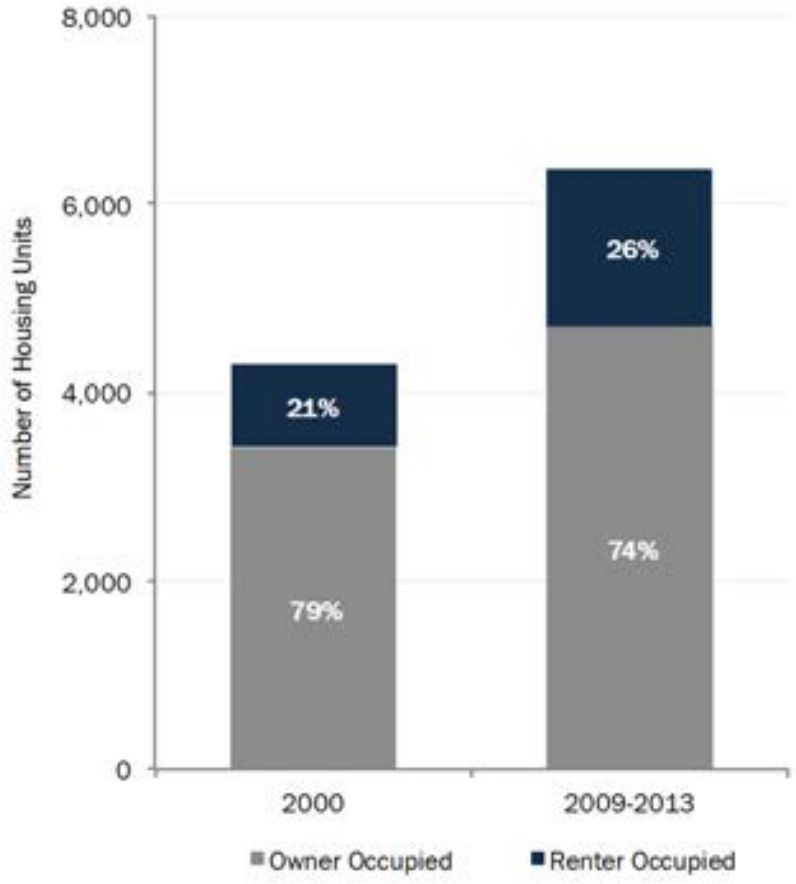
Figure B- 3. Housing Tenure, Oregon, Washington County, Sherwood, 2009-2013



Source: American Community Survey 2009-2013, Table B25003.

Figure B- 4 shows change in tenure (owner versus renter-occupied housing units) for the City of Sherwood over the 2000 to 2009-2013 period. The overall homeownership rate declined, from 79% to 74% between 2000 to 2009-2013, while renting increased by 5%. This change is consistent with national and statewide trends in homeownership.

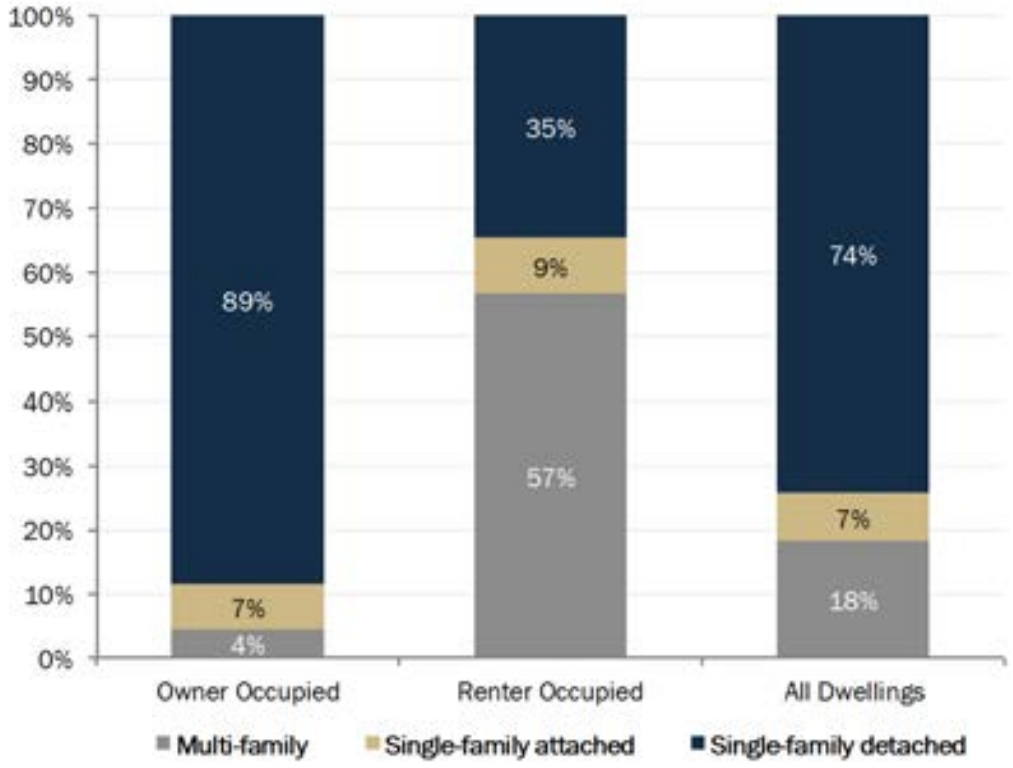
Figure B- 4. Tenure, occupied units, Sherwood, 2000 to 2009-2013



Source: U.S. Census 2000 SF3 Table H032, American Community Survey 2009-2013 Table B25003.

Figure B- 5 shows the types of dwelling in Sherwood in 2009-2013 by tenure (owner/renter-occupied). The results indicate that in Sherwood, single-family housing types are most frequently owner-occupied (70% of all housing is single-family, owner-occupied housing) and multifamily housing is most frequently renter-occupied (15% of all housing is multifamily renter-occupied housing).

Figure B- 5. Housing units by type and tenure, Sherwood, 2009-2013



Source: American Community Survey 2009-2013 Table B25032.

Housing Vacancy Rates

Table B- 2 shows vacancy rates in Oregon, Multnomah, Washington, and Clackamas counties, and Sherwood between 2000 and 2009-2013. Vacancy rates increased in in Oregon, and Clackamas counties, but fell in Multnomah and Washington counties, and in Sherwood. As the 2009-2013 period, Sherwood had a relatively low vacancy rate (2.7%) compared to the regional counties, whose rates ranged from 5.5% to 7.0%, and to Oregon (9.6%).

Table B- 2. Housing vacancy rate, Oregon, Multnomah, Washington and Clackamas Counties, and Sherwood, 2000 to 2009-2013

	Oregon	Multnomah County	Washington County	Clackamas County	Sherwood
2000	8.2%	6.4%	5.7%	5.5%	3.6%
2009 - 2013	9.6%	5.9%	5.5%	7.0%	2.7%
Change 2000 to 2009-2013	17.1%	-7.5%	-3.6%	28.3%	-24.7%

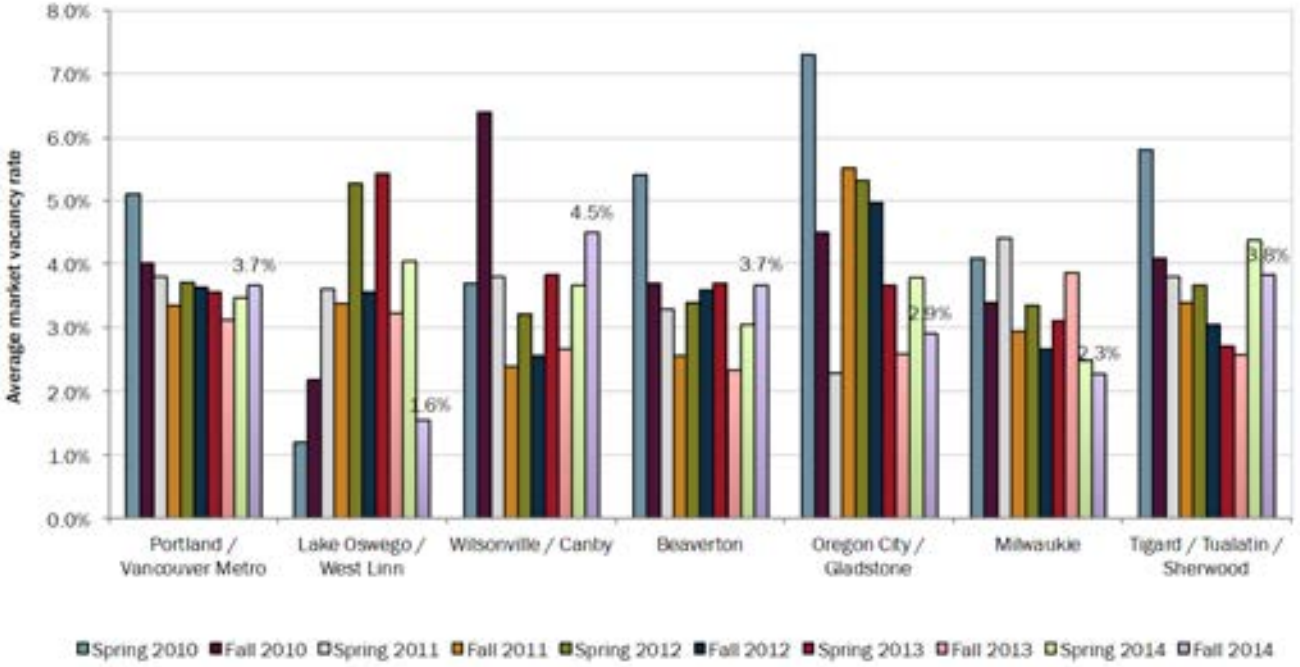
Source: U.S. Census 2000 SF1 Table H003, American Community Survey 2009-2013 Table B25002.

Multifamily NW tracks trends in the Portland area rental market and publishes a semi-annual report. Figure B- 6 shows average market vacancy rates for apartments for the Portland/Vancouver region and selected submarkets in the south-central Portland Region. The vacancy rates in the

Tigard/Tualatin/Sherwood area varied from a high of 5.8% in Spring 2010 to a low of 2.6% in Fall 2013. The vacancy rate in this area was within 1% (above or below) the vacancy rate for the Portland /Vancouver metro area. According to the Fall 2014 Apartment Report, the vacancy rate for apartments in the Tigard/Tualatin/Sherwood area was 3.8%, slightly higher than the regional average of 3.7%.

Multifamily vacancy rates vary, in part, as a result of building new multifamily developments. When a new multifamily development comes on the market, it may take months (or longer) for the new units to be absorbed into the housing market through rental of new units. During this absorption period, the vacancy rate will generally increase for multifamily housing.

Figure B- 6. Average market vacancy rates for apartments, Portland/Vancouver Metro area and selected submarkets, 2010-2014



Multifamily NW Apartment Reports, Spring 2010 – Fall 2014.

Density

Housing density is the density of housing by structure type, expressed in dwelling units per net or gross acre.[37] The U.S. Census does not track residential development density.

This study analyzes housing density based on new residential development within Sherwood between 2000 and 2014, similar to the analysis of achieved mix. The analysis of housing density uses data from the City of Sherwood's building permits database.

Table B- 3 shows that development that was permitted between 2000 and 2014 achieved overall average densities of 8.2 dwelling units per net acre. The majority of permitted housing was single-family detached housing, which averaged 6.5 dwelling units per net acre. Multifamily housing achieved an average of 20.5 and single-family attached achieved and average of 17.9 dwelling units per net acre.

Table B- 3. Estimated density by type of unit, net acres, Sherwood, 2000-2014

Housing Type	New and Existing Units	Acres	Density (dwelling unit per acre)
Single-Family Detached	1,641	251	6.5
Single-Family Attached	196	11	17.9
Multifamily	504	25	20.5
Total	2,341	286	8.2

Source: City of Sherwood Building Permit Database.
Note: Single-Family Detached includes manufactured housing
Note: The number of new single-family detached housing is higher in Table B- 3 than in Table B- 1 because Table B- 3 includes 116 existing manufactured dwellings in manufactured housing parks. These dwellings were included as part of the density calculation to correctly calculate the densities of manufactured housing in the manufactured housing parks with one or more newly permitted dwellings over the 2000 to 2014 period.

Table B-4 shows an analysis of residential development density (dwelling units per net acre) over the 15-year period for Sherwood by zoning designation. Table B-4 shows:

- Ninety-two percent of residential development was in residential zones, which had an overall density of 7.8 dwelling units per net acre.
- Density in residential zones varied from 2.9 dwelling units per net acre in the Very Low Density Residential zone to 19.1 dwelling units per net acre in the High Density Residential zone.

[37] OAR 660-024-0010(6) uses the following definition of net buildable acre. "Net Buildable Acre" "…consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads." While the administrative rule does not include a definition of a gross buildable acre, using the definition above, a gross buildable acre will include areas used for rights-of-way for streets and roads. Areas used for rights-of-way are considered unbuildable.

- Density in the Low Density Residential zone averaged 6.5 dwelling units per net acre. Development in Planned Unit Developments (PUD) in this zone achieved an average of 7.6 dwelling units per net acre, which explains the relatively high density in this zone.
- Density in Commercial and Mixed-Use zones averaged 15.6 dwelling units per net acre.

Table B-4. Housing density by Zone, net acres, Sherwood, 2000 to 2014

Zone	New and Existing Units	Acres	Density (dwelling unit per acre)
Residential Zones			
Very Low Density Residential	53	18	2.9
Low Density Residential	807	124	6.5
PUD	487	64	7.6
Non-PUD	320	59	5.4
Medium Density Residential-High	301	39	7.7
Medium Density Residential-Low	368	60	6.1
High Density Residential	605	32	19.1
Residential subtotal	2,134	273	7.8
Commercial and Mixed Use Zones			
Office Commercial	150	6	24.4
Mixed-use Commercial and Condo	55	7	7.9
Retail Commercial	2	0	17.4
Commercial subtotal	207	13	15.6
Total	**2,341**	**286**	**8.2**

Source: City of Sherwood Building Permit Database

NATIONAL HOUSING TRENDS

The overview of national, state, and local housing trends builds from previous work by ECONorthwest, Urban Land Institute (ULI) reports, and conclusions from *The State of the Nation's Housing, 2014* report from the Joint Center for Housing Studies at Harvard University.[38] The Harvard report summarizes the national housing outlook as follows:

> "With promising increases in home construction, sales, and prices, the housing market gained steam in early 2013. But when interest rates notched up at mid-year, momentum slowed. This moderation is likely to persist until job growth manages to lift household incomes. Even amid a broader recovery, though, many hard-hit communities still struggle and millions of households continue to pay excessive shares of income for housing."

Several challenges to a strong domestic housing market remain. Demand for housing follows trends in jobs and incomes, which are taking longer to recover than in previous cycles. While trending downward, the numbers of underwater homeowners, delinquent loans, and vacancies remain high. *The State of the Nation's Housing* report projects that it will take several years for market conditions to return to normal and, until then, the housing recovery will likely unfold at a moderate pace.

Trends in housing development

The single-family housing market began strong in 2013, but by the arrival of 2014, housing starts were down 3% and new home sales had fallen 7% from the year before. The *State of the Nation's Housing Report* attributes most of the decline to increases in mortgage interest rates and meager improvements in employment and wages.

Thirty-year mortgage interest rose in 2014, bucking a downward trend. After falling to a low of around 3.4% in 2013, rates rose to around 5% in 2014. The rise of mortgage interest rates increased the cost of investment in a home and contributed to the fall in the rate of housing starts. In addition to the rise of mortgage interest rates, "steady but unspectacular job growth" presented a fundamental obstacle to the housing market's progress, according to the report. Employment grew, but slowly, and incomes continued to fall. As long as job and wage growth remain slow, potential homebuyers will not create sufficient demand for robust growth in the housing market.

[38] The State of the Nation's Housing, Harvard University, 2014, accessed January 2014. http://www.jchs.harvard.edu/research/state_nations_housing

Other recent trends in the housing market included: home inventories remained low (homes now spend less than six months on the market), investors purchased fewer distressed properties, the renter market grew, and a larger share of young people chose to live with their parents.

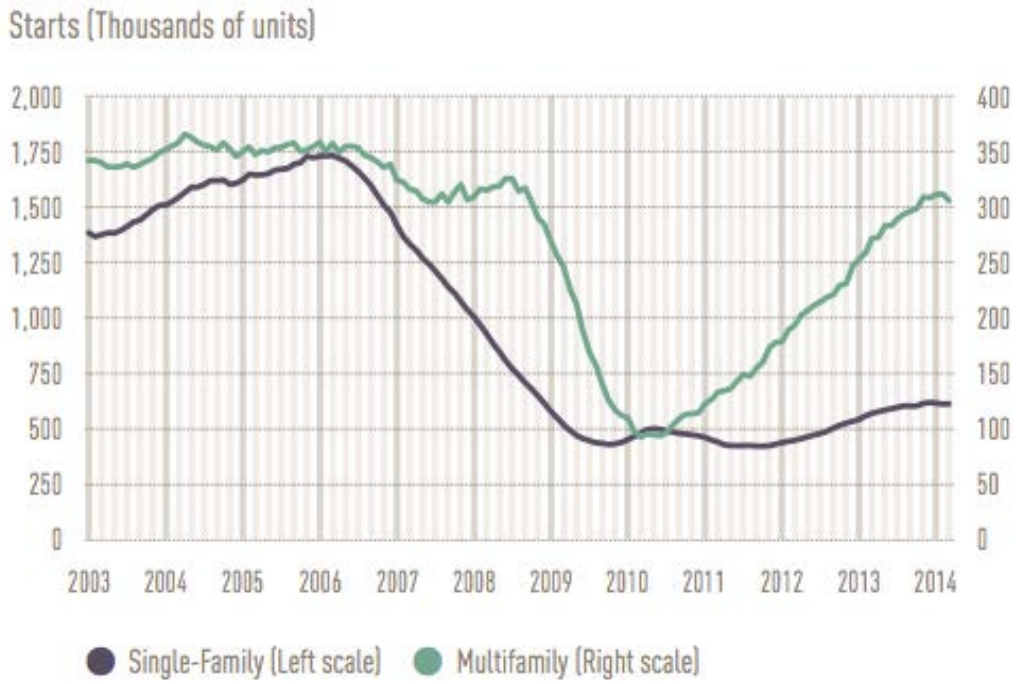
Supplies of existing homes for sale remained low in 2013, which may reflect the unwillingness or inability of owners to sell at current prices (Figure A- 1). As home prices return to levels that are more acceptable to sellers, more homes will go on the market.

Figure A- 1. Inventories of Homes for Sale Against Months Supply, 2002-2013

Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

Multifamily home construction continued robust growth for a third consecutive year. Multifamily starts increased 25% to over 300,000 in 2013, approaching pre-recession levels of around 350,000. In contrast to strong multifamily housing growth, single-family home starts grew slowly, at only about 15%, well below pre-recession levels of production: less than 620,000 starts in 2013, compared to over 1.5 million in 2006. These growth trends are shown in Figure A- 2.

Figure A- 2. Housing Starts, 2003-2014

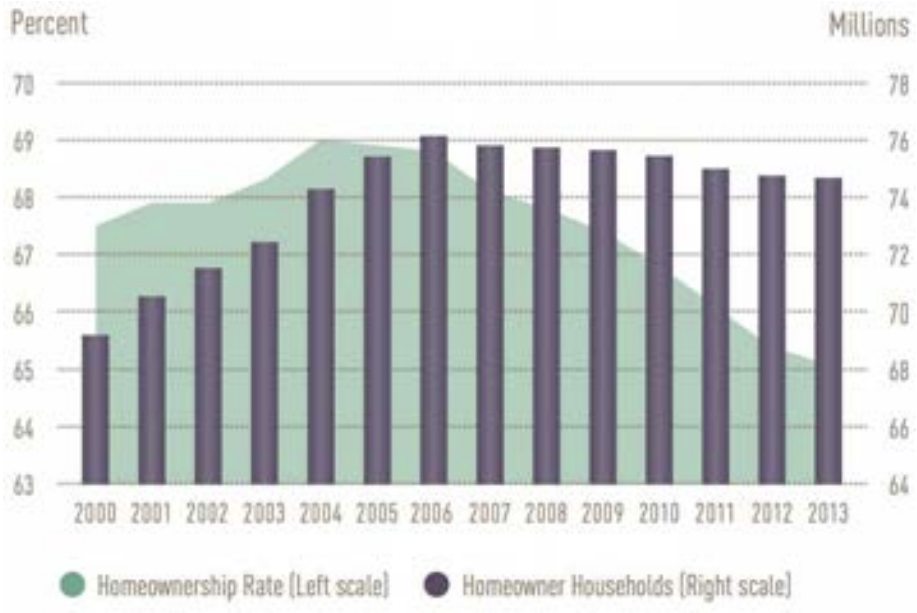


Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

Long run trends in home ownership and demand

The housing market downturn and foreclosure crisis had an immediate and potentially lasting impact on homeownership. After 13 successive years of increases, the national homeownership rate declined each year from 2005 to 2013, and is currently at approximately 65%. However, while the rate declined again in 2013, it was the smallest drop since 2008. As seen in Figure A- 3, the US homeownership rate fell only 0.3 percentage points.

Figure A- 3. Homeownership Rates and the Number of Homeowner Households, 2000-2013



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

The long-term market outlook shows that homeownership is still the preferred tenure. While further homeownership gains are likely during the next decade, they are not assured. Additional increases depend, in part, on the effect of foreclosures on potential owner's ability to purchase homes in the future, as well as whether the conditions that have led to homeownership growth can be sustained.

The Joint Center for Housing Studies indicates that demand for new homes could total as many as 13 million units nationally between 2015 and 2025. The location of these homes may differ from recent trends, which favored lower-density development on the urban fringe and suburban areas. The Urban Land Institute identifies the markets that have the most growth potential as "global gateway, 24-hour markets," which are primary coastal cities with international airport hubs (e.g., Washington D.C., New York City, San Francisco, or Seattle). Development in these areas may be nearer city centers, with denser infill types of development.[39]

The Joint Center for Housing Studies also indicates that demand for higher density housing types exists among certain demographics. They conclude that because of persistent income disparities, as well as the movement of the

[39] Urban Land Institute, "2011 Emerging Trends in Real Estate" and "2012 Emerging Trends in Real Estate"

Millennials into young adulthood, housing demand may shift away from single-family detached homes toward more affordable multifamily apartments, town homes, and manufactured homes.

Home rental trends

Nationally, the rental market continues to grow. In 2013, the number of households living in rental units increased by half a million, marking the ninth consecutive year of expansion. In addition to growth in rentals in 2013, the million-plus annual increases observed in 2011 and 2012 puts current growth rates on pace to easily surpass the record 5.1 million gain in the 2000s.

Rental markets across the country have been tightening, pushing up rents across the majority of markets. Rental vacancy rates also continued to drop in 2013, both nationwide and in most metros. The US rental vacancy rate stood at 8.3% in 2013 and, while this is the lowest level observed since 2001, this was still high relative to the 7.6% averaged in the 1990s.

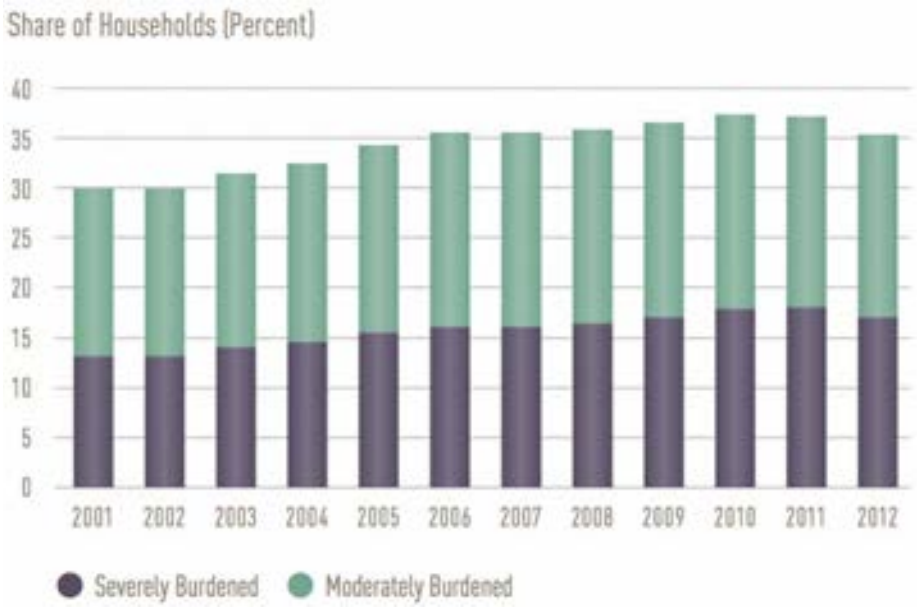
Over the longer term, the Joint Center for Housing expects demand for rental housing to continue to grow. Minorities will be the largest driver of rental demand because they are on average younger and less likely to own homes than whites. Demographics will also play a role. Growth in young adult households will increase demand for moderately priced rentals, in part because the oldest Millennials reached their late-20s around 2010. Meanwhile, growth among those between the ages of 45 and 64 will lift demand for higher-end rentals.

As the homeownership market recovers, the growth in renter households will likely slow. Since much of the increased demand for rental housing has been met through the conversion of single-family homes to rentals, future market adjustments may come from a return of these units to owner-occupancy. Additionally, the echo-boom generation should provide strong demand for rental units in the coming years.

Trends in housing affordability

Many homeowners pay a disproportionate share of their income on housing, with 35% of households in the U.S. who are cost burdened.[40] While the share of households that are cost burdened fell by about 4% in 2012, the share of households that were cost burdened increase between 2001 and 2011 (Figure A-4). More than 15% of U.S. households are severely cost burdened.

Figure A- 4. Share of Cost-burdened Households, 2001-2012



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

The Joint Center for Housing Studies points to widening income disparities, decreasing federal assistance, and depletion of inventory through conversion or demolition as three factors exacerbating the lack of affordable housing. While the Harvard report presents a relatively optimistic long-run outlook for housing markets and for homeownership, it points to the significant difficulties low- and moderate-income households face in finding affordable housing and preserving the affordable units that do exist.

According to the Joint Center for Housing Studies, these statistics understate the true magnitude of the affordability problem because they do not capture the tradeoffs people make to hold down their housing costs. For example, these figures exclude people who live in crowded or structurally inadequate housing units. They also exclude the growing number of households that move to

[40] Households are considered cost burdened if they spent 30% or more of their gross income on housing costs. Households who spent 50% or more of their gross income on housing costs are considered severely cost burdened.

locations distant from work where they can afford to pay for housing, but must spend more for transportation to work. Among households in the lowest expenditure quartile, those living in affordable housing, spent an average of $100 more on transportation per month in 2010 than those who are severely housing cost-burdened. With total average monthly outlays of only $1,000, these extra travel costs could amount to roughly 10 percent of the entire household budget.

Demographic trends in housing preference

Demographic changes likely to affect the housing market and homeownership are:

- The aging of the Baby Boomers, the oldest of whom were in their late-60's in 2012.
- Housing choices of younger Baby Boomers, who were in their early to mid-50's in 2010.
- The children of Baby Boomers, called the Millennials, who ranged from their late teens to late twenties in 2012.
- Immigrants and their descendants, who are a faster growing group than other households in the U.S. [41]

The aging of the Baby Boomers will affect housing demand over the next decades. People prefer to remain in their community as they age.[42] The challenges that aging seniors face in continuing to live in their community include: changes in healthcare needs, loss of mobility, the difficulty of home maintenance, financial concerns, and increases in property taxes.[43] Not all of these issues can be addressed through housing or land use policies. Communities can address some of these issues through adopting policies that:

- Diversify housing stock to allow development of smaller, comparatively easily-maintained houses in single-family zones, such as single-story townhouses, condominiums, and apartments.
- Allow commercial uses in residential zones, such as neighborhood markets.
- Allow a mixture of housing densities and structure types in single-family zones, such as single-family detached, single-family attached, condominiums, and apartments.

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[41] Urban Land Institute, "2011 Emerging Trends in Real Estate"

[42] A survey conducted by the AARP indicates that 90% of people 50 years and older want to stay in their current home and community as they age. See http://www.aarp.org/research.

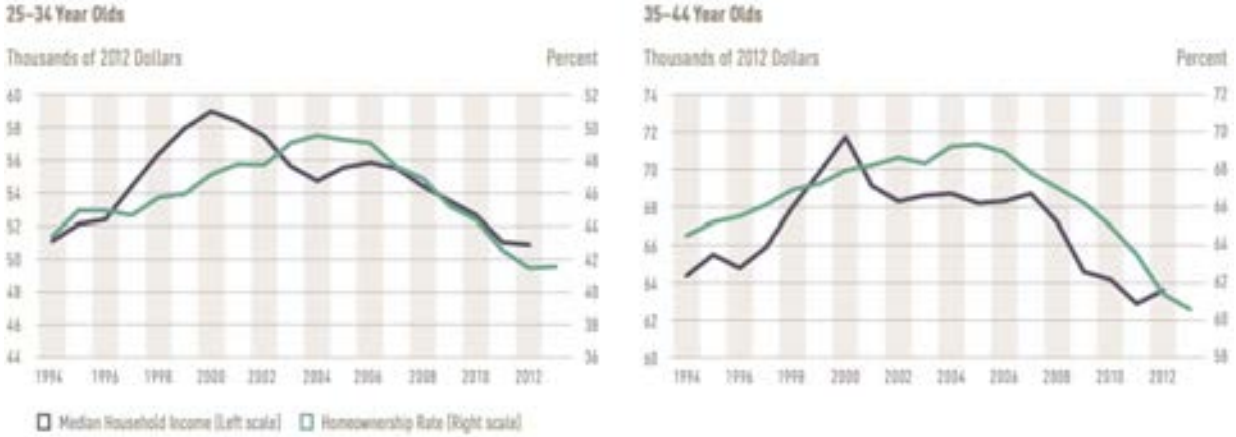
[43] "Aging in Place: A toolkit for Local Governments" by M. Scott Ball.

- Promote the development of group housing for seniors that are unable or do not choose to continue living in a private house. These facilities could include retirement communities for active seniors, assisted living facilities, or nursing homes.
- Design public facilities so that they can be used by seniors with limited mobility. For example, design and maintain sidewalks so that they can be used by people in wheelchairs or using walkers.

Household formation fell to around 600,000 to 800,000 in the 2007-2013 period, well below the average rate of growth in previous decades. Despite sluggish growth recently, several demographic factors indicate increases in housing growth to come. The Millennial generation (those born after 1985) is the age group most likely to form the majority of new households. While low incomes have kept current homeownership rates among young adults below their potential, Millennials may represent pent-up demand that will release when the economy fully recovers. As Millennials age, they may increase the number of households in their 30s by 2.4 to 3.0 million over the through 2025.

While the population of young adults between 20 and 29 years grew in the 2003-2013 decade by more than 4 million from the previous decade, the rate at which members of this age group formed their own households fell. As a result, household growth has not kept pace with overall population growth**.** Even if today's low household formation rates were to persist, however, the aging of the Millennials into their 30s will likely raise household headship rates due to lifecycle effects. About 60% of all 35–44 year-olds head an independent household, compared with less than 42% of all 25–34 year-olds. Thus, the Millennial generation, more populous than the Baby Boomers, is expected to be the primary driver of new household formation over the next twenty years.

Figure A- 5. Homeownership Rates and Incomes for Young and Middle-Aged Adults, 1994-2012



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

It is currently unclear what housing choices the Millennials will make. Some studies suggest that their parents' negative experience in the housing market, with housing values dropping so precipitously and so many foreclosures, will make Millennials less likely to become homeowners. In addition, high unemployment and underemployment may decrease Millennials' earning power and ability to save for a down payment. It is not clear, however, that Millennials' housing preferences will be significantly different from their parents over the long run.

Recent surveys suggest that as Millennials age and form families, they will increasingly prefer to live in single-family homes in suburban locations. A recent survey by the National Association of Homebuilders finds that roughly three-quarters of Millennials want to live in a single-family home and would prefer to live in a suburb, compared to just 10% that would prefer to live in a city center.

Other recent surveys suggest that Millennials prefer to live in walkable communities, where there are alternatives to driving. According to surveys from the American Planning Association and Transportation For America, at least three quarters of Millennials want their city to offer opportunities to live and work without relying on a car. While Millennials may choose housing that satisfies these preferences, the cost of living will place parameters on their housing choices. According to the APA survey, 71% percent of Millennials rated affordable housing as a high priority for metro areas.

In coming years Millennials will pursue homes that provide a combination of space, "walkability," and affordability. They will demonstrate these preferences in the market soon: according to the APA survey, more than half of Millennials

consider themselves at least somewhat likely to move within the next five years.[44]

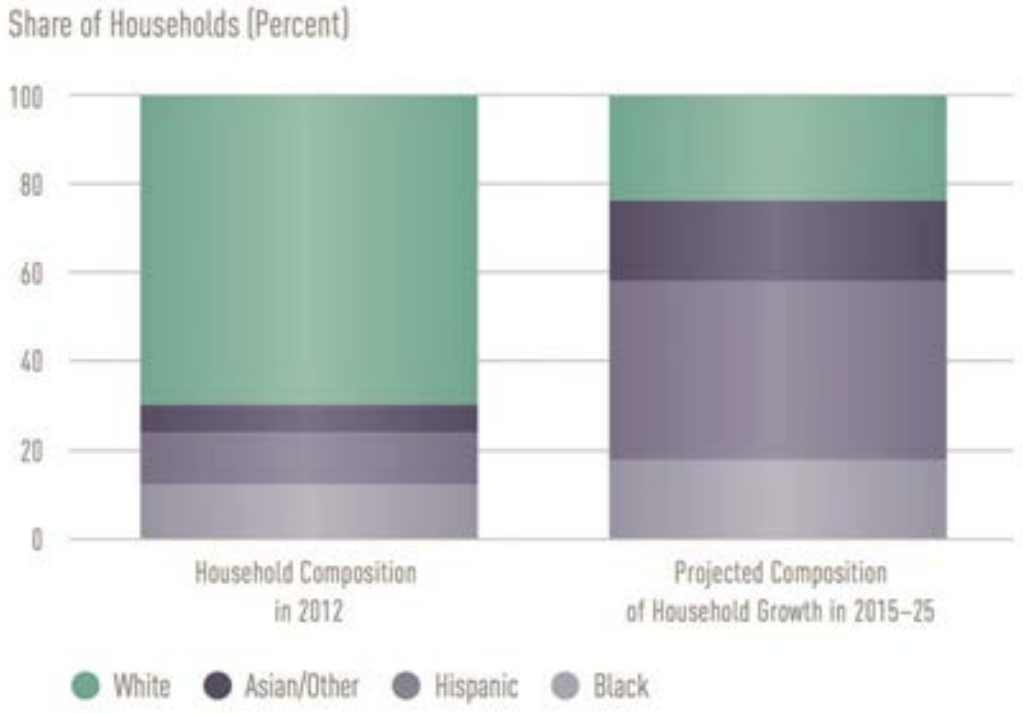
From 2004 to 2013, homeownership rates for 25-34 year olds and 35-44 year olds fell by around 8% and 9% respectively, with ownership rates for people 25 to 54 years old at the lowest point since recordkeeping started in 1976 (Figure A- 5). Nonetheless, the 25 and 34 year-old age group still makes up the majority of first-time homebuyers. Young adults in this cohort make up 54.3 percent of first-time homebuyers. Their majority among first-time homebuyers means that their ability to buy homes will play an important role in growth of the housing market in the near future.

The fall in homeownership among young adults results largely from the decline in income. Approximately 6 million more individuals between 20 and 29 years earned less than $25,000 than in 2003, while the number of those earning between $25,000 and $50,000 fell by over a million. Furthermore, the share of households younger than 30 years with student loan debt increased by more than 7% since 2007, from 33.9% to 41.0%.

According to the Joint Center for Housing Studies, immigration and increased homeownership among minorities will also play a key role in accelerating household growth over the next 10 years. Current Population Survey estimates indicate that the number of foreign-born households rose by nearly 400,000 annually between 2001 and 2007, and accounted for nearly 30 percent of overall household growth. Beginning in 2008, the influx of immigrants was staunched by the effects of the Great Recession. After a period of declines, however, the foreign born are again contributing to household growth. Census Bureau estimates of net immigration in 2011–12 indicate an increase of 110,000 persons over the previous year, to a total of nearly 900,000. Furthermore, as shown in Figure A- 6, the Harvard report forecasts that minorities will make up about 76% of the household growth between 2015 and 2025. The greater diversity among young adults partly explains the increased share of growth that will belong to minorities. For example, about 45% of Millennials are minorities, compared to 28% of Baby Boomers.

[44] The American Planning Association, "Investing in Place; Two generations' view on the future of communities." 2014. "Survey Says: Home Trends and Buyer Preferences," National Association of Home Builders International Builders Show, accessed January, 2015, http://www.buildersshow.com/Search/isesProgram.aspx?id=17889&fromGSA=1. "Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows," Transportation for America, accessed January 2015, http://t4america.org/wp-content/uploads/2014/04/Press-Release_Millennials-Survey-Results-FINAL-with-embargo.pdf.

Figure A- 6. Share of Households by Racial/Ethnic Group, 2012 and 2015-25



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

The growing diversity of American households will have a large impact on the domestic housing markets. Over the coming decade, minorities will make up a larger share of young households, and constitute an important source of demand for both rental housing and small homes. This makes the growing gap in homeownership rates between whites and blacks and whites and Hispanics troubling. Since 2001, the difference in homeownership rates between whites and blacks rose from 25.9 to 29.5 in 2013. Similarly the gap between white and Hispanic homeownership rates increased since 2008, from below 26%, to over 27% in 2013. This growing gap between racial and ethnic groups will hamper the country's homeownership rate as minority households constitute a larger share of the housing market.

Trends in Housing Characteristics

The U.S Census Bureau's Characteristics of New Housing Report (2013) presents data that show trends in the characteristics of new housing for the nation, state, and local areas. Several long-term trends in the characteristics of housing are evident from the New Housing Report:[45]

[45] https://www.census.gov/construction/chars/highlights.html

- **Larger single-family units on smaller lots**. Between 1990 and 2013 the median size of new single-family dwellings increased 25% nationally from 1,905 sq. ft. to 2,384 sq. ft., and 19% in the western region from 1,985 sq. ft. to 2,359 sq. ft. Moreover, the percentage of units fewer than 1,400 sq. ft. nationally decreased by almost half, from 15% in 1999 to 8% in 2012. The percentage of units greater than 3,000 sq. ft. increased from 17% in 1999 to 29% of new one-family homes completed in 2013. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 1990 and 2013, the percentage of lots less than 7,000 sq. ft. increased from 27% of lots to 36% of lots.
- **Larger multifamily units**. Between 1999 and 2013, the median size of new multiple family dwelling units increased by 2% nationally and 3% in the western region. The percentage of new multifamily units with more than 1,200 sq. ft. increased from 28% in 1999 to 32% in 2013 nationally, and increased from 25% to 32% in the western region.
- **More household amenities**. Between 1990 and 2013, the percentage of single-family units built with amenities such as central air conditioning, 2 or more car garages, or 2 or more baths all increased. The same trend in increased amenities is seen in multifamily units.

During the recession, the trend towards larger units with more amenities faltered. Between 2007 and 2009, for example, the median size of new single-family units decreased by 6% throughout the nation, including in the West. In addition, the share of new units with amenities (e.g., central air conditioning, fireplaces, 2 or more car garages, or 2 or more bath) all decreased slightly during this time. With the recovery, however, housing sizes have been increasing annually; median housing sizes increased by 12% between 2009 and 2013 nationwide, and 10% in the western region. The short term, post-recession trends regarding amenities are mixed, but generally appear to be increasing (albeit more slowly than housing sizes).

It appears that the decreases in unit size and amenities were a short-term trend, resulting from the housing crisis. However, numerous articles and national studies suggest that these changes may indicate a long-term change in the housing market, resulting from a combination of increased demand for rental units because of demographic changes (e.g., the aging of the baby boomers, new immigrants, and the echo-boomers), as well as changes in personal finance and availability of mortgages.[46]

These studies may be correct and the housing market may be in the process of a long-term change, with some fluctuations over time in unit size and amenities.

[46] These studies include "Hope for Housing?" by Greg Filsram in the October 2010 issue of Planning and "The Elusive Small-House Utopia" by Andrew Rice in the New York Times on October 15, 2010.

On the other hand, long-term demand for housing may not be substantially affected by the current housing market. The echo-boomers and new immigrants may choose single-family detached housing and mortgages may become easier to obtain.

Studies and data analysis have shown a clear linkage between demographic characteristics and housing choice. This is more typically referred to as the linkage between lifecycle and housing choice and is documented in detail in several publications. Analysis of data from the Public Use Microsample (PUMS) in the 2000 Census helps to describe the relationship between selected demographic characteristics and housing choice. Key relationships identified through this data include:

- Homeownership rates increase as income increases;
- Homeownership rates increase as age increases;
- Choice of single-family detached housing types increases as income increases;
- Renters are much more likely to choose multiple family housing types than single-family; and
- Income is a stronger determinate of tenure and housing type choice for all age categories.

STATE DEMOGRAPHIC TRENDS

Oregon's *2011-2015 Consolidated Plan* includes a detailed housing needs analysis as well as strategies for addressing housing needs statewide.[47] The plan concludes that, "Oregon's changing population demographics are having a significant impact on its housing market." It identified the following population and demographic trends that influence housing need statewide. Oregon is:

- Facing housing cost increases due to higher unemployment and lower wages, when compared to the nation.
- Experiencing higher foreclosure rates since 2005, compared with the previous two decades.
- Losing federal subsidies on about 8% of federally subsidized Section 8 housing units.
- Losing housing value throughout the State.
- Losing manufactured housing parks, with a 25% decrease in the number of manufactured home parks between 2003 and 2010.

[47] http://www.ohcs.oregon.gov/OHCS/HRS_Consolidated_Plan_5yearplan.shtml

- Increasingly older, more diverse, and has less affluent households.[48]

REGIONAL AND LOCAL DEMOGRAPHIC TRENDS

Regional demographic trends largely follow the statewide trends discussed above, but provide additional insight into how demographic trends might affect housing in Sherwood. Demographic trends that might affect the key assumptions used in the baseline analysis of housing need are: (1) the aging population, (2) changes in household size and composition, and (3) increases in diversity. This section describes those trends.

The following section presents data tables. In a few places, additional explanatory text is included. For the most part, the text describing the implications of the tables is in the main part of the document.

Growing population

Sherwood has a growing population. Table B- 5 shows population growth in the U.S., Oregon, the Portland Region, Washington County, and Sherwood, between 1990 and 2013.

Table B- 5. Population in U.S., Oregon, the Portland Region, Washington County, and Sherwood, 1990-2013

	Population			Change 1990 to 2013		
Area	1990	2000	2013	Number	Percent	AAGR
U.S.	248,709,873	281,421,906	311,536,594	62,826,721	25%	1.0%
Oregon	2,842,321	3,421,399	3,919,020	1,076,699	38%	1.4%
Portland Region	1,174,291	1,444,219	1,693,600	519,309	44%	1.6%
Washington County	311,554	445,342	550,990	239,436	77%	2.5%
Sherwood	3,093	11,963	18,575	15,482	501%	8.1%

Source: US Census Bureau Decennial Census 1990 and 2000; Portland State University, Population Research Center
Note: AAGR is average annual growth rate.

The housing needs analysis in this report is based on a coordinated household forecast from Metro (the January 2016 2040 TAZ Forecast), which is a necessary prerequisite to estimate housing needs. The projection of household growth includes areas currently within the city limits, as well as areas currently outside the city limits that the City expects to annex for residential uses (most notably the Brookman area). We call these areas combined the "Sherwood planning area."

Table B-6 presents Metro's forecast for household growth and new housing development in the Sherwood planning area for the 2010 to 2040 period. The table shows Metro's forecast for the Sherwood city limits, areas currently outside

[48] State of Oregon *Consolidated Plan 2011 to 2015*. http://www.oregon.gov/ohcs/hd/hrs/consplan/2011_2015_consolidated_plan.pdf

the city limits that are expected to be annexed by 2040, which are together the Sherwood planning area. Table B-6 shows Metro's forecast for the number of households in each of the following years:

- **2010.** Metro's forecast uses an estimate of the number of households in 2010 as the starting point of the forecast.
- **2015.** Estimate of number of households in 2015.
- **2040.** Metro's forecast estimates household growth of 2,078 dwelling units or 30%, by 2040. Part of the forecasting process was providing jurisdictions an opportunity to review and comment on the forecast for growth through 2040.

Table B-6 also shows Metro's forecast for the Sherwood West area, which is forecast to grow by 4,337 dwelling units by 2040. While Metro forecasts that this development will occur over the 2015 to 2040 period, the discussion of timing of this development in the Concept Planning process suggests that Sherwood West may take 50 years (2015 to 2065) to develop the 4,337 dwelling units in Metro's forecast.

Table B-6. Metro forecast for housing growth, Sherwood planning area, 2010 to 2040

	Households			
Year	Sherwood City Limits	Brookman Area	Sherwood Planning Area	Sherwood West (50-Year Forecast)
2010	6,476	242	6,718	270
2015	6,784	226	7,010	293
2040	7,653	1,435	9,088	4,811
Change 2015 to 2040				
Households	869	1,209	2,078	4,518
Percent	13%	535%	30%	1542%
AAGR	0.5%	7.7%	1.0%	11.8%

Source: Metro 2040 TAZ Forecast by Households, January 2016
Note: The Sherwood City Limits are the following Metro Transportation Analysis Zones (TAZs): 989 to 997.
The Brookman area is predominantly in Transportation Analysis Zone 978, with a small area in 988. Brookman is an area that the City expects to annex for residential growth over the planning period.
Sherwood West is parts of Transportation Analysis Zones 1428, 1429, and 1432.

Sherwood's housing needs analysis must be based on a 20-year period, but Metro's forecast describes growth over a 25-year period. Table B- 7 shows an extrapolation of Metro's forecast for the 2019 to 2039 period. ECONorthwest extrapolated Metro's forecast to 2018 based on the number of households in 2015 and the growth rate in the forecast between 2015 and 2040. We assumed that little to no growth happened in Sherwood West between 2015 and 2018, an

assumption that is supported by the relative lack of building permit activity in these areas.

Table B- 7 shows that the Sherwood planning area will add 1,729 new households between 2019 and 2039, with 700 new households inside the existing city limits and 1,029 new households in outside the current city limits in the Brookman Area.

Table B- 7. Extrapolated Metro forecast for housing growth, Sherwood planning area, 2019 to 2039

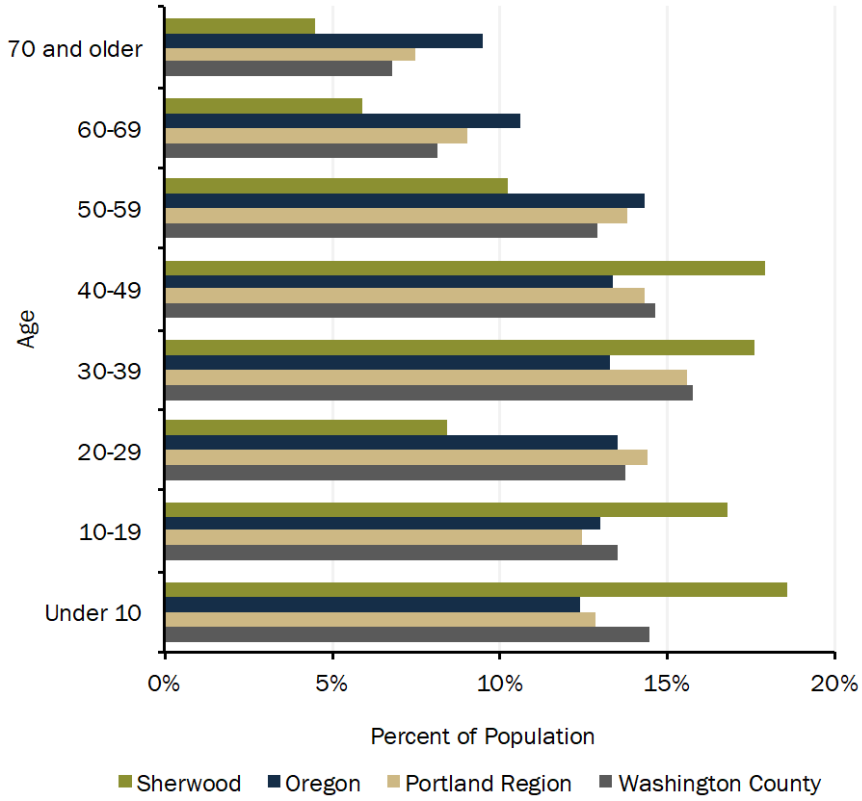
	Households			
Year	Sherwood City Limits	Brookman Area	Sherwood Planning Area	Sherwood West (50-Year Forecast)
2019	6,916	304	7,220	293
2039	7,616	1,333	8,949	4,630
Change 2019 to 2039				
Households	700	1,029	1,729	4,337
Percent	10%	338%	24%	1480%
AAGR	0.5%	7.7%	1.1%	14.8%

Source: Metro 2040 TAZ Forecast by Households, January 2016

Aging population

In 2010, the median age in Sherwood was 34.3 years old, compared to the median of 35.3 in Washington County, and the State median of 38.4. Figure B- 7 shows the populations of Oregon, the Portland Region, Washington County, and Sherwood by age in 2010.

Figure B- 7. Population Distribution by Age for Oregon, Sherwood, Oregon, Portland Region, Washington County



Source: U.S. Census 2010, Profile of General Population and Housing Characteristics

Table B- 8 shows population by age in Sherwood for 2000 and 2010. Over the 2000 to 2010 period, the population of people aged 45 to 64 years old grew the fastest, increasing from 1,936 to 3,917, or 102%.

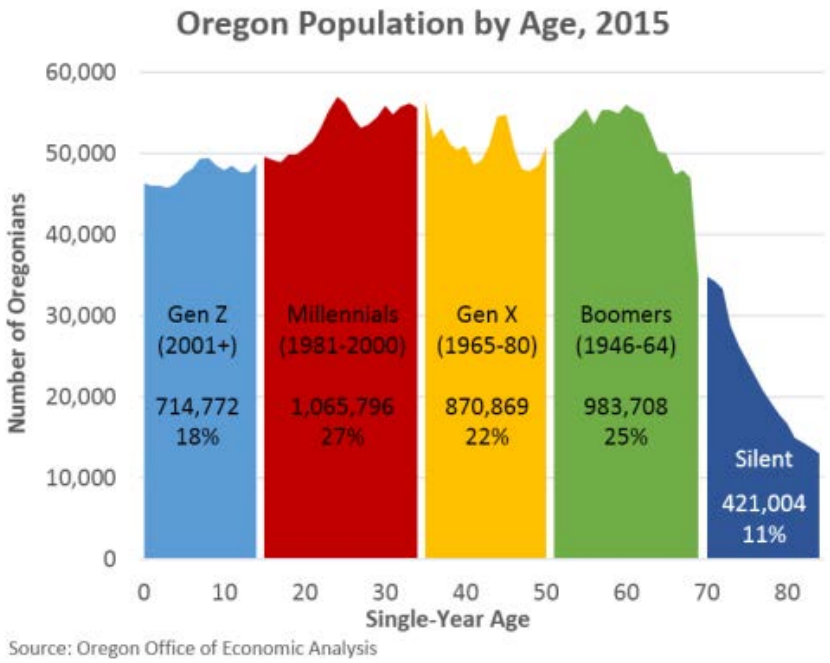
Table B- 8. Population by Age, Sherwood, 2000 and 2010

	2000		2010		Change 2000-2010		
Age Group	Number	Percent	Number	Percent	Number	Percent	Share
Under 5	1,351	11%	1,518	8%	167	12%	-3%
5-17	2,383	20%	4,589	25%	2,206	93%	5%
18-24	644	5%	939	5%	295	46%	0%
25-44	4,854	41%	5,991	33%	1,137	23%	-8%
45-64	1,936	16%	3,917	22%	1,981	102%	5%
65 and over	623	5%	1,240	7%	617	99%	2%
Total	11,791	100%	18,194	100%	6,403	54%	0%

Source: U.S. Census 2000 Table P12, U.S. Census 2010 Table P12

Figure B- 8 shows the population distribution by generation and age in Oregon in 2015. The largest groups are the Millennials (27% of Oregon's population) and the Baby Boomers (25% of Oregon's population). By 2035, the end of the planning period for this analysis, Millennials will be between 35 and 54 years old. Baby Boomers will be 71 to 89 years old.

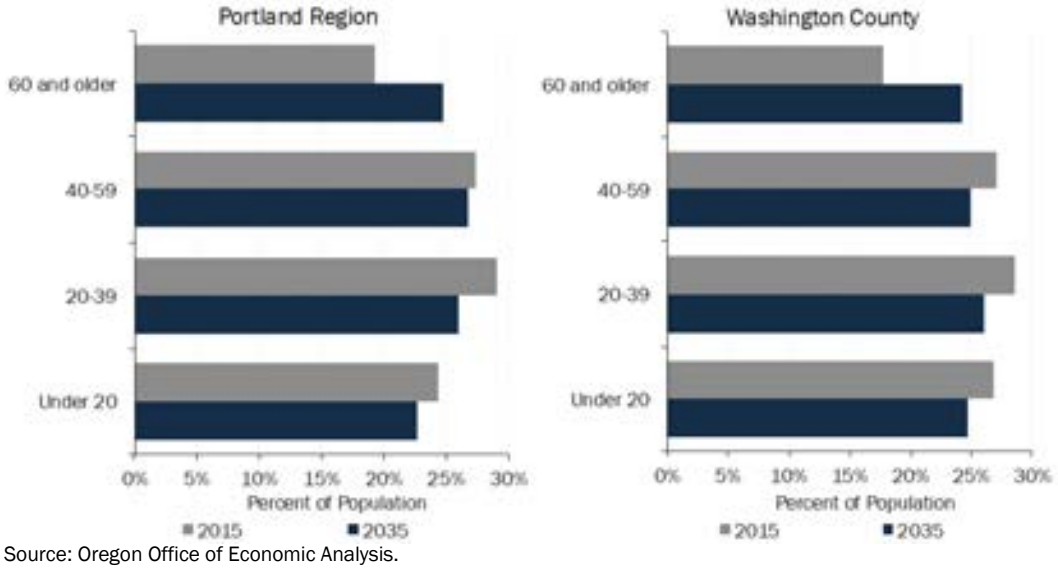
Figure B- 8. Population Distribution by Generation and Age, Oregon, 2015



Source: Oregon Office of Economic Analysis, "Population, Demographics, and Generations" by Josh Jehner, February 5, 2015.
http://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/

Figure B- 9 shows the Office of Economic Analysis's (OEA) forecast of population change by age group, from 2015 to 2035, for the Portland Region. By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015). The percent of total population in each age group younger than 60 years old will decrease. The age distribution in the Portland Region will change in a similar pattern.

Figure B- 9. Current and projected population by age, Portland Region and Washington County, 2015 and 2035

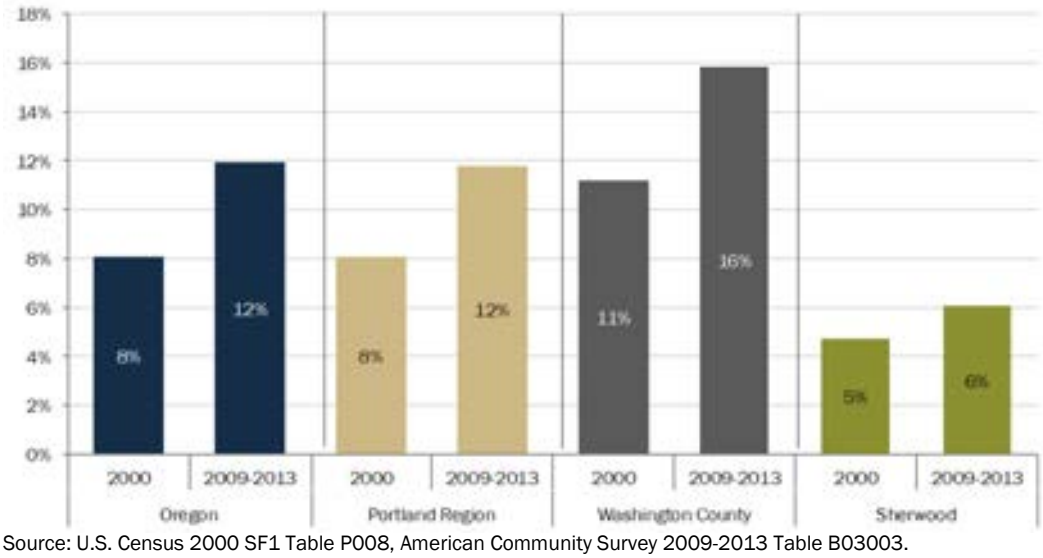


Source: Oregon Office of Economic Analysis.
http://www.oregon.gov/DAS/OEA/docs/demographic/pop_by_ageandsex.xls

Increased ethnic diversity

Figure B-10 shows the percentage of the total population that is of Hispanic or Latino origin for Oregon, the Portland Region, and Sherwood, in 2000 and 2009-2013. Between 2000 and 2009-2013, Hispanic or Latino population increased from 5% of the population to 6% of the population, adding 550 additional Hispanic or Latino residents. Sherwood has a smaller percentage of Hispanic or Latino population than the county or regional average.

Figure B- 10 Hispanic or Latino population by percentage, Oregon, the Portland Region, Washington County, Sherwood, in 2000 and 2009-2013



Source: U.S. Census 2000 SF1 Table P008, American Community Survey 2009-2013 Table B03003.

Household size and composition

Household size

Table B- 9 shows average household sizes in Oregon, the Portland Region, Washington County, and Sherwood in 2000 and the 2009-2013 period.

Table B- 9. Average household size, Oregon, Portland Region, Washington County, and Sherwood, 2000 to 2009-2013.

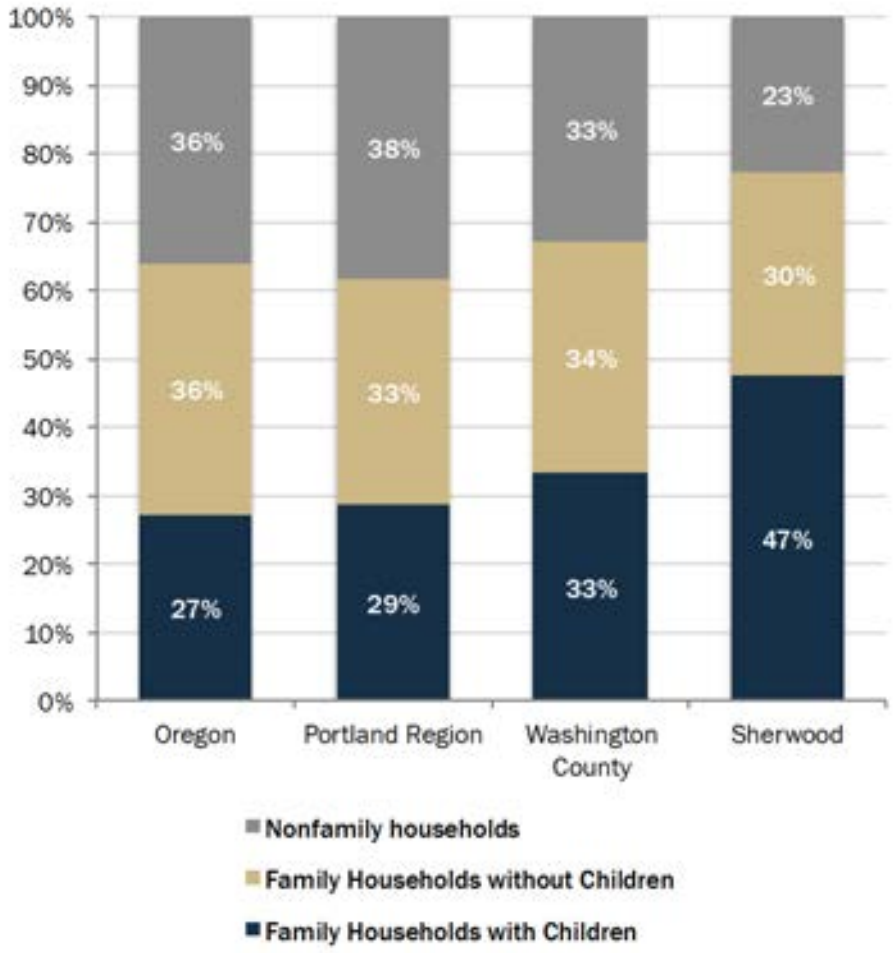
	Oregon	Portland Region	Washington County	Sherwood
2000				
Average household size	2.51	2.53	2.61	2.77
Owner-occupied units	2.59	2.67	2.75	2.85
Renter-occupied units	2.36	2.30	2.39	2.47
2009-2013				
Average household size	2.49	2.54	2.64	2.89
Owner-occupied units	2.55	2.64	2.72	3.00
Renter-occupied units	2.41	2.37	2.53	2.57
Change 2000 to 2009-2013				
Average household size	-0.02	0.00	0.03	0.12
Owner-occupied units	-0.04	-0.02	-0.03	0.15
Renter-occupied units	0.05	0.07	0.14	0.10

Source: U.S. Census 2000 SF1 H012, American Community Survey 2009-2013 Table B25010.

Household composition

Figure B- 11 shows household composition in Oregon, the Portland Region, Washington County, and Sherwood in 2009-2013. A larger share of Sherwood's housing composition is family household with children (47%) compared to that of Washington County (33%), the Portland Region (29%), and Oregon (27%).

Figure B- 11. Household composition, Oregon, Portland Region, Washington County, and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Tables DP02.

Group Quarters

Table B- 10 shows the population living in group quarters in Oregon, the Portland Region, Washington County, and Sherwood in 2000 and 2010. Only seven out of 18,194 Sherwood residents lived in group quarters in 2010, less than 0.0%. In contrast, 2.3% of Oregon's population and 1.8% of the Portland region's population lives in group quarters.

Table B- 10. Persons in group quarters, Oregon, Portland Region, Washington County, and Sherwood, 2000 to 2010.

	2000	2010
Oregon		
Total Population	3,421,399	3,831,074
Persons in Group Quarters	77,491	86,642
Percent in Group Quarters	2.3%	2.3%
Percent in correctional institutions	0.6%	0.6%
Portland Region		
Total Population	1,444,219	1,641,036
Persons in Group Quarters	23,667	29,124
Percent in Group Quarters	1.6%	1.8%
Percent in correctional institutions	0.0%	0.0%
Washington County		
Total Population	445,342	529,710
Persons in Group Quarters	4,101	6,788
Percent in Group Quarters	0.9%	1.3%
Percent in correctional institutions	0.1%	0.4%
Sherwood		
Total Population	11,791	18,194
Persons in Group Quarters	19	7
Percent in Group Quarters	0.2%	0.0%
Percent in correctional institutions	0.0%	0.0%

Source: U.S. Census 2000 SF1 Tables P1 and P37, U.S. Census 2010 SF1 Tables P1 and P42

Commuting trends

Commuting within the Portland region is common, with small cities like Sherwood seeing the vast majority of workers commute out of the city for work and the majority of people working in the city commuting in from other parts of the region. Figure B- 12 shows this pattern in Sherwood, with the majority of people living in Sherwood commuting out for work and the majority of people working in Sherwood commuting into the city for work.

Figure B- 12. Inflow and Outflow of Employment and Residence in Sherwood, 2011

Source: U.S. Census Bureau: LED on the Map, http://lehdmap3.did.census.gov/themap3/
The U.S, Census bases this data on Unemployment Insurance earnings data and the Quarterly Census of Employment and Wages (QCEW) data, combined with administrative data, additional administrative data and data from censuses and surveys. From these data, the program creates statistics on employment, earnings, and job flows at detailed levels of geography and industry and for different demographic groups.

Table B- 11 shows the places where Sherwood residents were employed in 2011. More than 90% of Sherwood residents worked outside of the city.

Table B- 11. Places that residents of Sherwood were employed in, 2011.

Location	Number	Percent
Counties		
Washington	3,616	49%
Multnomah	1,803	24%
Clackamas	1,147	16%
Yamhill	338	5%
Maion	330	4%
Clark	71	1%
Polk	13	0%
Columbia	12	0%
All other counties	54	1%
Cities		
Portland	1,686	23%
Tigard	660	9%
Sherwood	658	9%
Beaverton	575	8%
Tualatin	575	8%
All other cities	3,230	44%
Total	7,384	100%

Source: U.S. Census Bureau: LED on the Map, http://lehdmap3.did.census.gov/themap3/.

Table B- 12 shows where employees of firms located Sherwood lived in 2011. More than 80% of people who worked in Sherwood commuted from outside the city.

Table B- 12. Places where workers in Sherwood lived in 2011

Location	Number	Percent
Counties		
Washington	2,013	47%
Clackamas	602	14%
Multnomah	467	11%
Yamhill	460	11%
Marion	224	5%
Clark	76	2%
Linn	52	1%
Lane	46	1%
Polk	44	1%
All other counties	296	7%
Cities		
Sherwood	658	15%
Portland	371	9%
Tigard	233	5%
Beaverton	224	5%
Newberg	207	5%
All other cities	2,587	60%
Total	4,280	100%

Source: U.S. Census Bureau: LED on the Map, http://lehdmap3.did.census.gov/themap3/

MANUFACTURED HOMES

Manufactured homes are and will be an important source of affordable housing in Sherwood. They provide a form of homeownership that can be made available to low- and moderate-income households. Cities are required to plan for manufactured homes—both on lots and in parks (ORS 197.475-492).

Generally, manufactured homes in parks are owned by the occupants who pay rent for the space. Monthly housing costs are typically lower for a homeowner in a manufactured home park for several reasons, including the fact that property taxes levied on the value of the land are paid by the property owner rather than the manufactured homeowner. The value of the manufactured home generally does not appreciate in the way a conventional home would, however. Manufactured homeowners in parks are also subject to the mercy of the property owner in terms of rent rates and increases. It is generally not within the means of a manufactured homeowner to relocate a manufactured home to escape rent increases. Living in a park is desirable to some because it can provide a more secure community with on-site managers and amenities, such as laundry and recreation facilities.

Sherwood had 258 manufactured homes in 2000 and 155 manufactured homes in the 2009-2013 period, a decrease of 103 dwellings. According to Census data, roughly 83% of the manufactured homes in Sherwood were owner-occupied in the 2009-2013 period.

OAR 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial, or high-density residential development. Table B- 13 presents the inventory of mobile and manufactured home parks within Sherwood in 2014. The results show that Sherwood had 4 manufactured home parks with 186 spaces and 1 vacant space.

Table B- 13. Inventory of Mobile/Manufactured Home Parks, City of Sherwood, 2014

Name	Location	Park Type	Total Spaces	Vacant Spaces
Carriage Park Estates	23077 SW Main St	Family	58	0
Crown Court	27300 SW Pacific Hwy	Family	14	1
Orland Villa	22200 SW Orland Street	Family	24	0
Smith Farm Estates	17197-17180 SW Smith Ave	Family	90	0
Total			186	1

Source: Oregon Manufactured Dwelling Park Directory, http://o.hcs.state.or.us/MDPCRParks/ParkDirQuery.jsp.

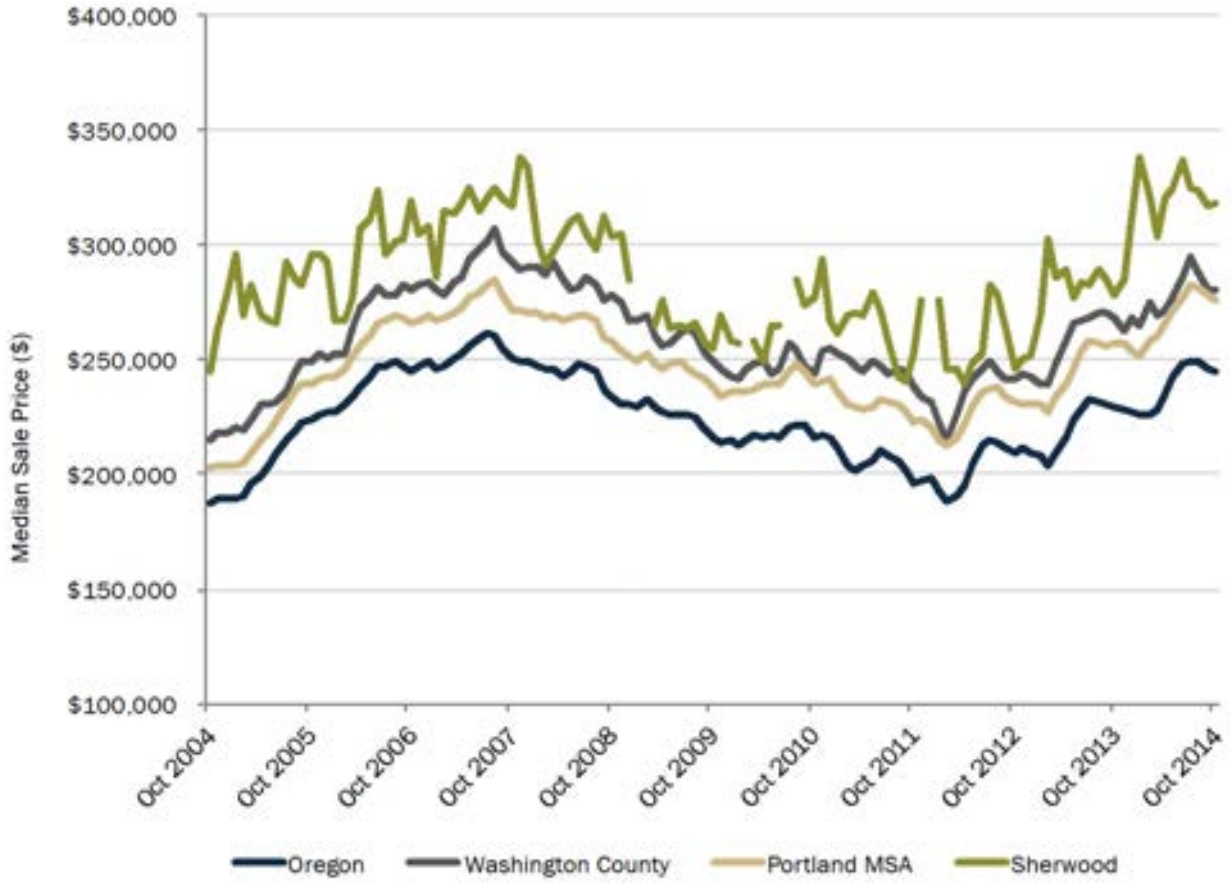
Changes in housing cost

According to Zillow, the median sales price of a home in Sherwood increased by about 30% between 2004 and 2014. Housing prices rose steeply prior to 2007, reaching a high of roughly $338,000, before the housing bubble and recession led to a period of declining housing prices. Housing prices in Sherwood, while following the same general pattern, remain higher than those observed in other parts of the region and the State as a whole.

Housing values

Figure B- 13 shows the median sales price in Oregon, the Portland MSA, Washington County, and Sherwood between 2004-2014. As of January 2015, median sales prices in Sherwood were $331,300, higher than in Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($241,400).

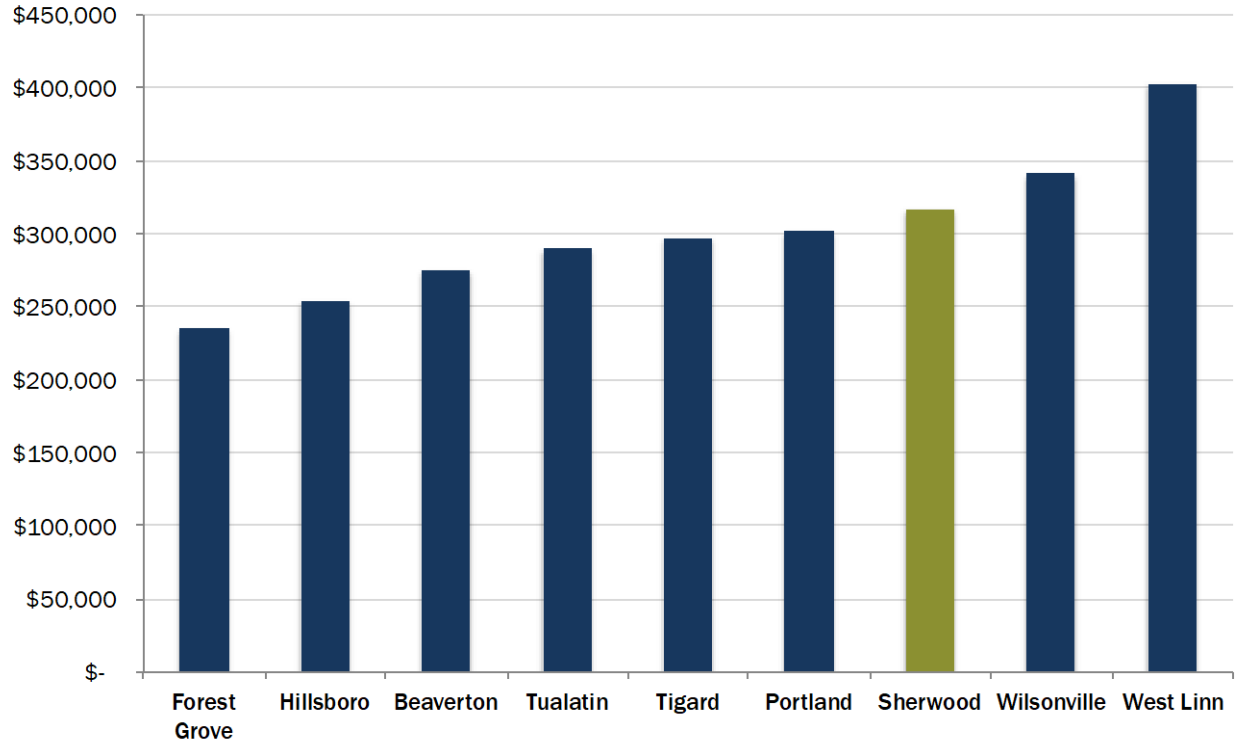
Figure B- 13. Median Sales Price, Oregon, Portland MSA, Washington County and Sherwood, 2004-2014



Source: Zillow Real Estate Research.
Note: Gaps in Sherwood's median sales price occur where data was not available.

Figure B- 14 shows median home sales prices for Sherwood and regional cities in January 2015. In that month, median home sale prices in Sherwood were about $316,500, above sales prices in other Portland westside communities such as Tigard, Tualatin, and Beaverton. Median sales prices in Wilsonville and West Linn were higher than those in Sherwood.

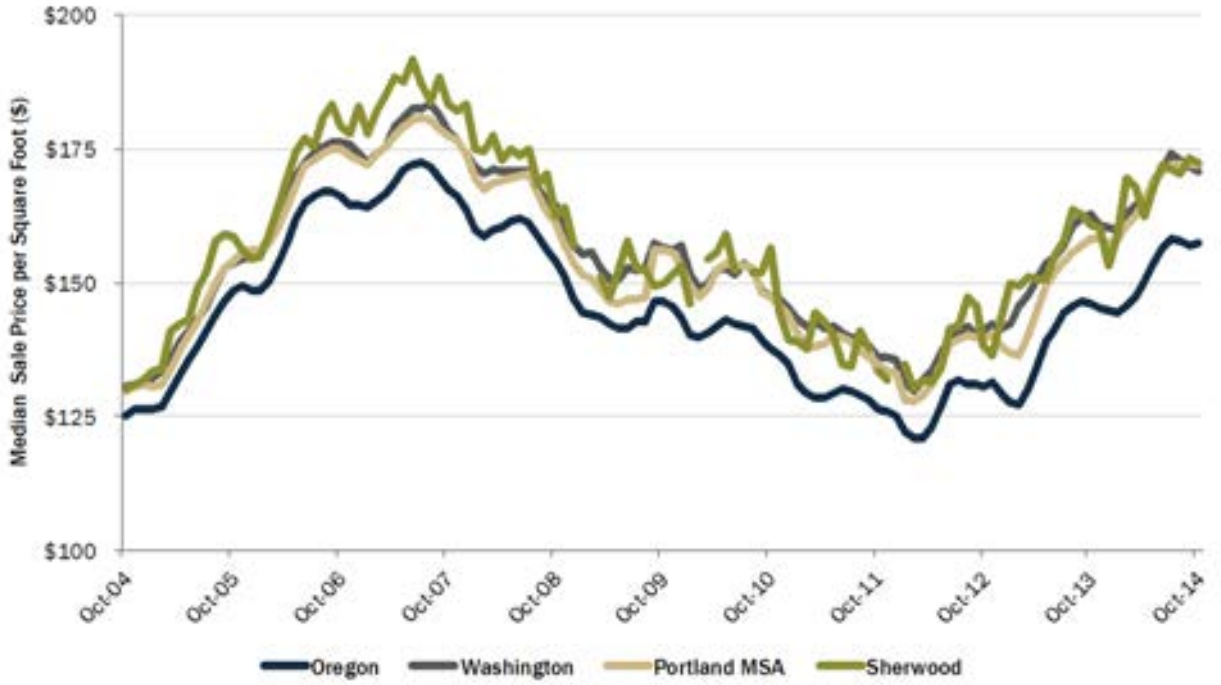
Figure B- 14. Median Home Sales Price, Sherwood, Tualatin, Tigard, Beaverton, Hillsboro, Forest Grove, Portland, January 2015



Source: Zillow Real Estate Research.

Figure B- 15 shows median home sales price per square foot for Oregon, the Portland MSA, Washington County and Sherwood from 2004-2013. Prices per square foot rose in Sherwood from $130 per square foot in October 2004 to $192 in July 2007. Prices fell after 2007 and rose again starting in 2011. In October 2014, the median price per square foot in Sherwood was about $170 dollars, comparable to the price in Washington County and the Portland Region (both about $170) and above that of the state as a whole ($157 per square foot).

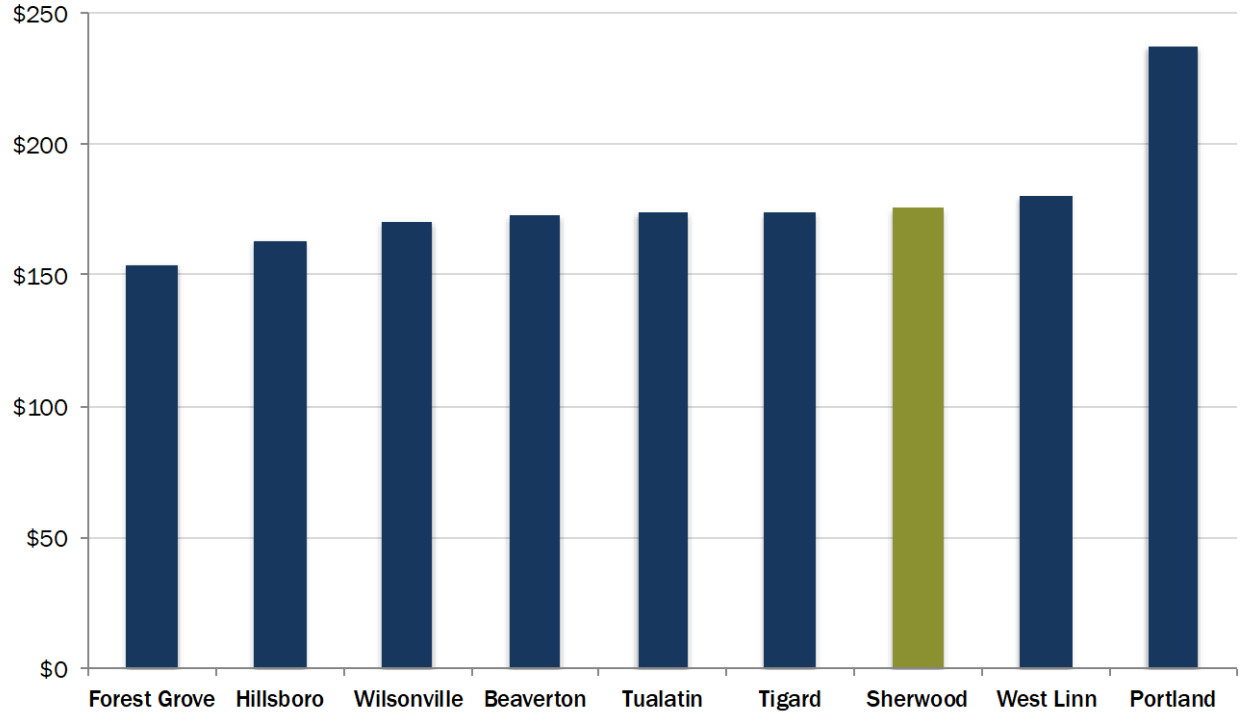
Figure B- 15. Median Sales Price per Square Foot, Oregon, Portland MSA, Washington County and Sherwood, 2004-2014



Source: Zillow Real Estate Research.
Note: Gaps in Sherwood's median sales price occur where data was not available.

Figure B- 16 shows median home sales price per square foot for Sherwood and regional cities in January 2015. Of the cities sampled, Sherwood had the third-highest price per square foot, at $176 per square foot. Prices per square foot in West Linn and Portland were higher, at $180 and $237 respectively. While Sherwood's prices were the third highest, they compared very closely to other cities such as Tigard ($174), Tualatin ($174), Beaverton ($173), and Wilsonville ($171).

Figure B- 16. Median Sales Price Per Square Foot, Forest Grove, Hillsboro, Wilsonville, Beaverton, Tualatin, Tigard, Sherwood, West Linn, and Portland, January 2015.



Source: Zillow Real Estate Research.

Housing rental costs

Table B- 14 shows the median contract rent in Oregon, Multnomah, Washington, and Clackamas counties, and Sherwood, in 2000 and 2009-2013. The median contract in Sherwood in 2009-2013 was $212 above the median in Washington County.

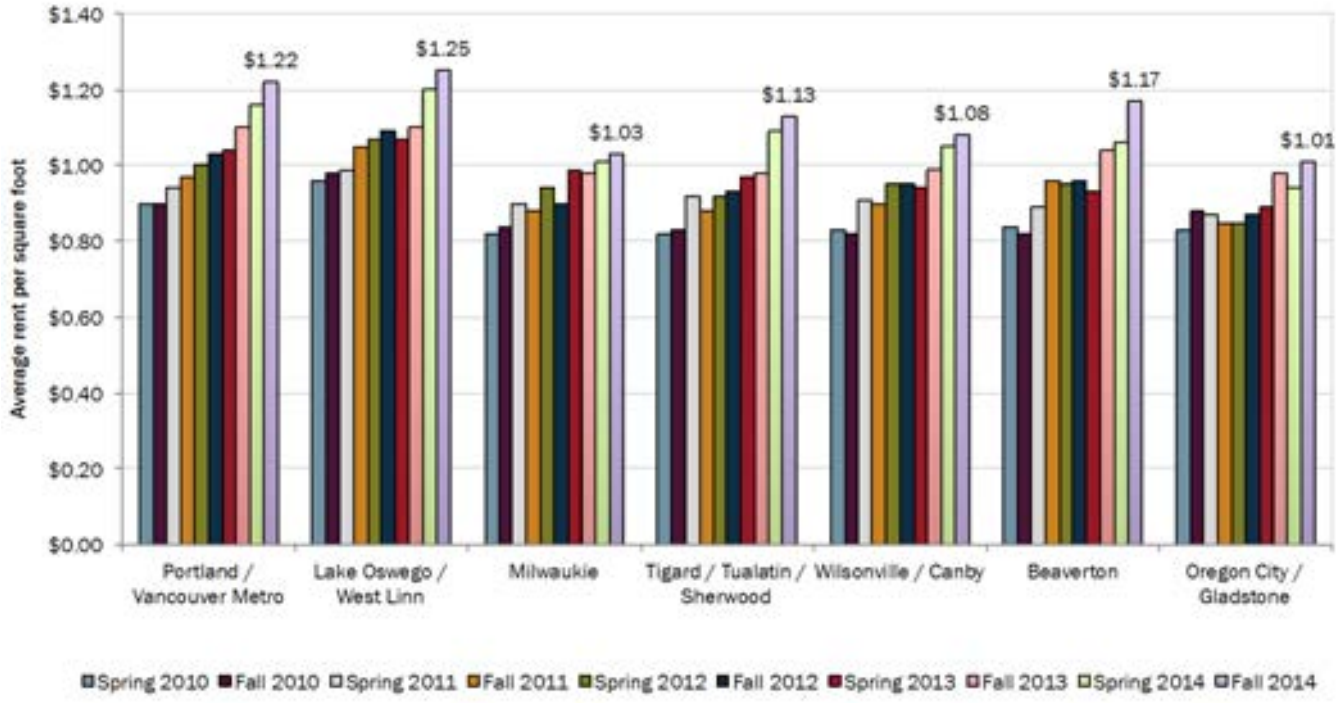
Table B- 14. Median contract rent, inflation-adjusted dollars, Oregon, Multnomah Washington, and Clackamas Counties, and Sherwood, 2000 to 2009-2013

Location	Rent		Change 2000 to 2009-2013	
	2000	2009-2013	Amount	Percent
Oregon	$741	$749	$8	1%
Multnomah County	$771	$799	$28	4%
Washington County	$878	$852	-$26	-3%
Clackamas County	$853	$858	$5	1%
Sherwood	$880	$1,064	$184	21%

Source: U.S. Census 2000 SF3 Table H56, American Community Survey 2012 Table B25058
Note: All data reported in 2013 dollars; 2000 figures were updated using Consumer Price Index.

Figure B- 17 shows average rent per square foot for apartments in the Portland/Vancouver Metro region and selected submarkets, according to Multifamily NW data between 2010 and 2014. Average rent in the Tigard/Tualatin/Sherwood area submarket was $1.13 per square foot in Fall 2014, lower than the regional average of $1.22 per square foot. Between Spring 2010 and Spring 2013, average rent in Tigard/Tualatin/Sherwood area increased by 38%, consistent with the regional increase of 36%.

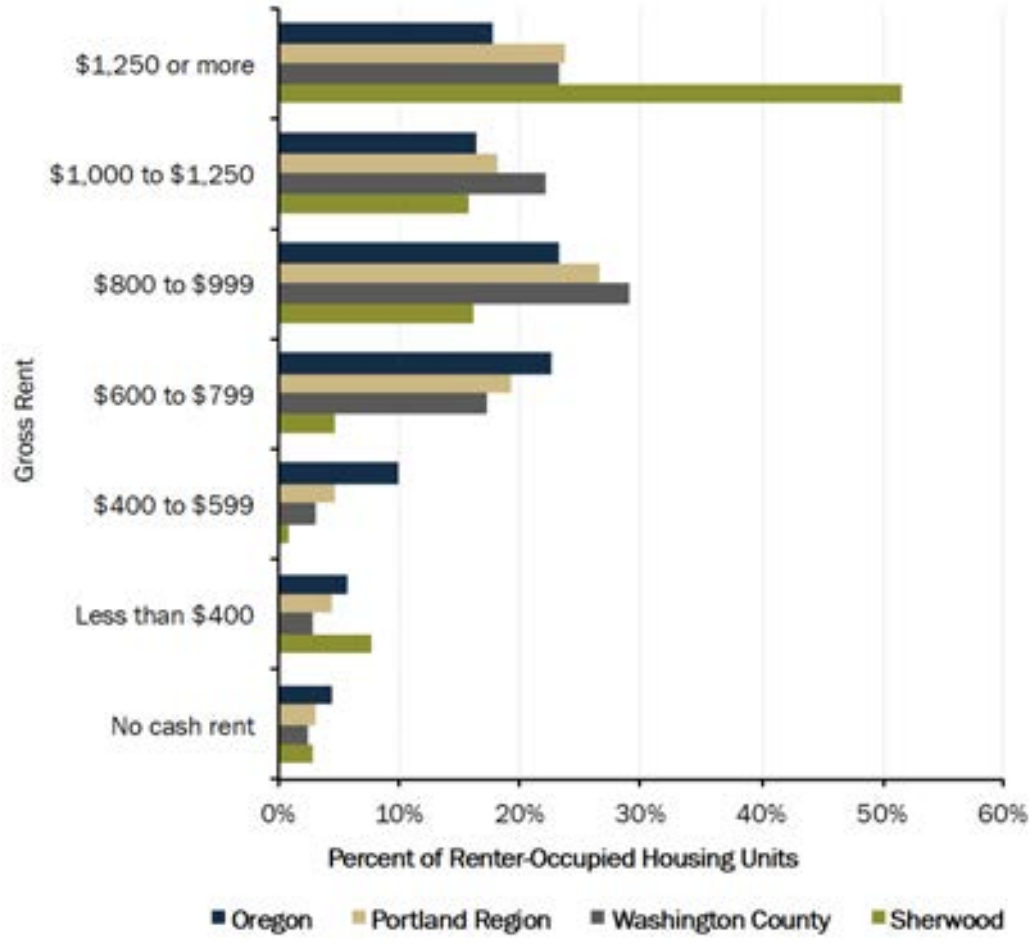
Figure B- 17. Average rent per square foot, Portland/Vancouver Metro and selected submarkets, 2010-2014



Source: Multifamily NW Apartment Reports, Spring 2010 through Fall 2014.
Note: The average rent price shown on the graph is for Fall 2014

Figure B- 18 shows a comparison of gross rent for renter-occupied housing units in Oregon, the Portland Region, Washington County, and Sherwood in 2009-2013.[49]

Figure B- 18. Gross rent, renter occupied housing units, Oregon, Portland Region, Washington County, and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Table B25063.

[49] The U.S. Census defines gross rent as: "the amount of the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else)."

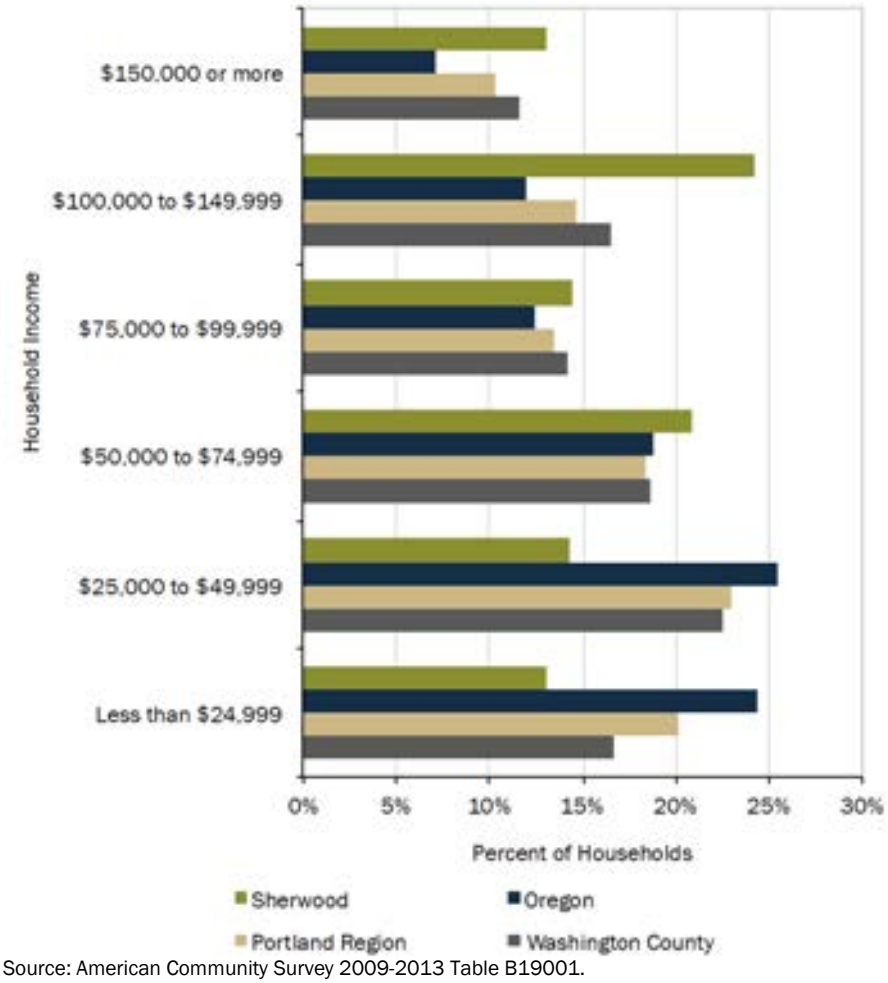
INCOME AND AFFORDABILITY OF HOUSING

This section summarizes regional and local income and housing cost trends. Income is a key determinant in housing choice and a households' ability to afford housing. A review of historical income and housing price trends provides insight into the local and regional housing markets.

The median household income in Sherwood was higher than in nearby counties and the state as a whole in the 2009-2013 period. Median household income in Sherwood was about $78,400, compared to $64,200 in Washington County, $64,400 in Clackamas County, and $52,500 in Multnomah County. Statewide, the median income was about $50,300.

Figure B- 19 shows the distribution of household income in Oregon, the Portland Region, and Sherwood in the 2009-2013 period. Sherwood had the highest share of households earning over $100,000 and the lowest share of households earning less than $25,000.

Figure B- 19. Household Income, Oregon, Portland Region, Washington County, and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Table B19001.

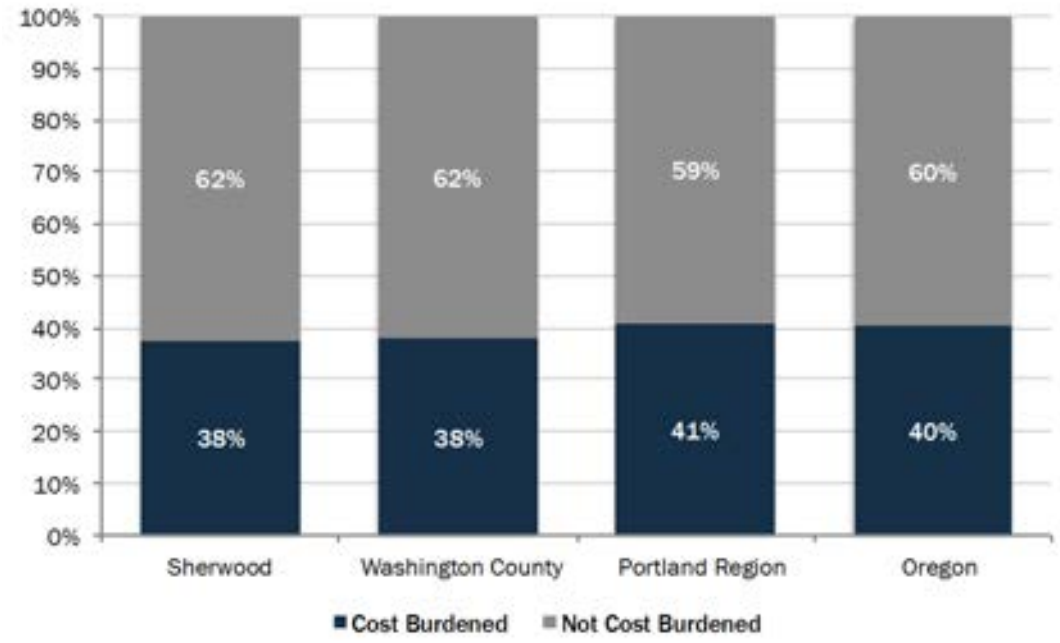
A typical standard used to determine housing affordability is that a household should pay no more than a certain percentage of household income for housing, including payments and interest or rent, utilities, and insurance.[50] HUD guidelines indicate that households paying more than 30% of their income on housing experience "cost burden," and households paying more than 50% of their income on housing experience "severe cost burden." Using cost burden as an indicator of housing affordability is consistent with the Goal 10 requirement to provide housing that is affordable to all households in a community.

According to the U.S. Census, nearly 2,345 households in Sherwood—or 38%—paid more than 30% of their income for housing expenses in the 2009-2013 period. About 44% of renter households in Sherwood were cost burdened, compared with 35% of owner households. In comparison, 40% of Oregon's households were cost burdened in the 2009-2013 period, with 54% of renter households and 32% of owner households cost burdened.

[50] Cost burden for renters accounts for the following housing costs: monthly rent, utilities (electricity, gas, and water and sewer), and fuels (wood, oil, etc.). Cost burden for homeowners accounts for the following housing costs: mortgage payments, real estate taxes, insurance, mobile home costs, condominium fees, utilities, and fuels.

Figure B- 20 shows the percentage of the population experiencing housing cost burdens in Oregon, the Portland Region, Washington County, and Sherwood in 2009-2013.

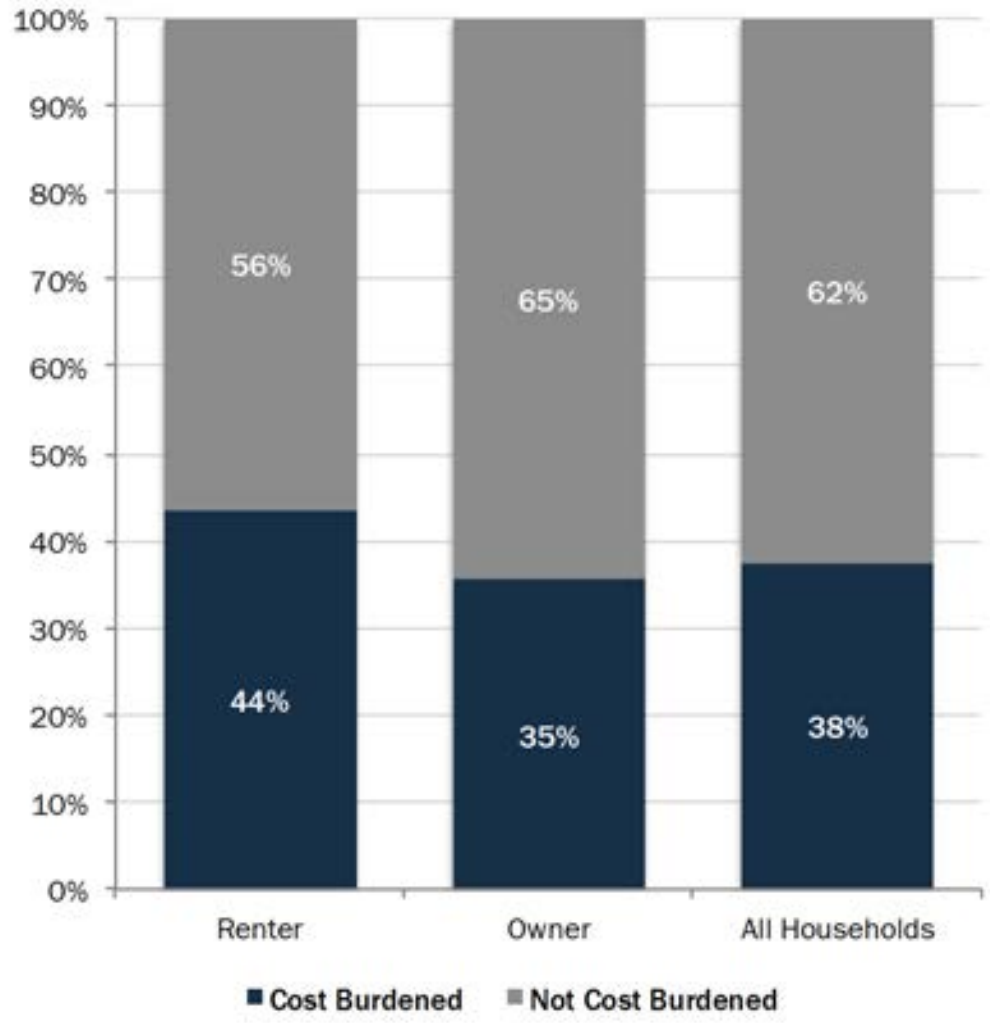
Figure B- 20. Housing cost burden, Oregon, Portland Region, Washington County and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Tables B25070 and B25091.
Note: Households which the Census classifies as "Not computed" were excluded from the above calculations.

Figure B- 21 shows housing cost burden, by tenure, for Sherwood households in 2009-2013. Forty-four percent of Sherwood's renter households are cost burdened, compared to 49% of renter households in Washington County. Thirty-five percent of owner households are cost burdened, compared to 31% of owner households in Washington County.

Figure B- 21. Housing cost burden by tenure, Sherwood, 2009-2013.



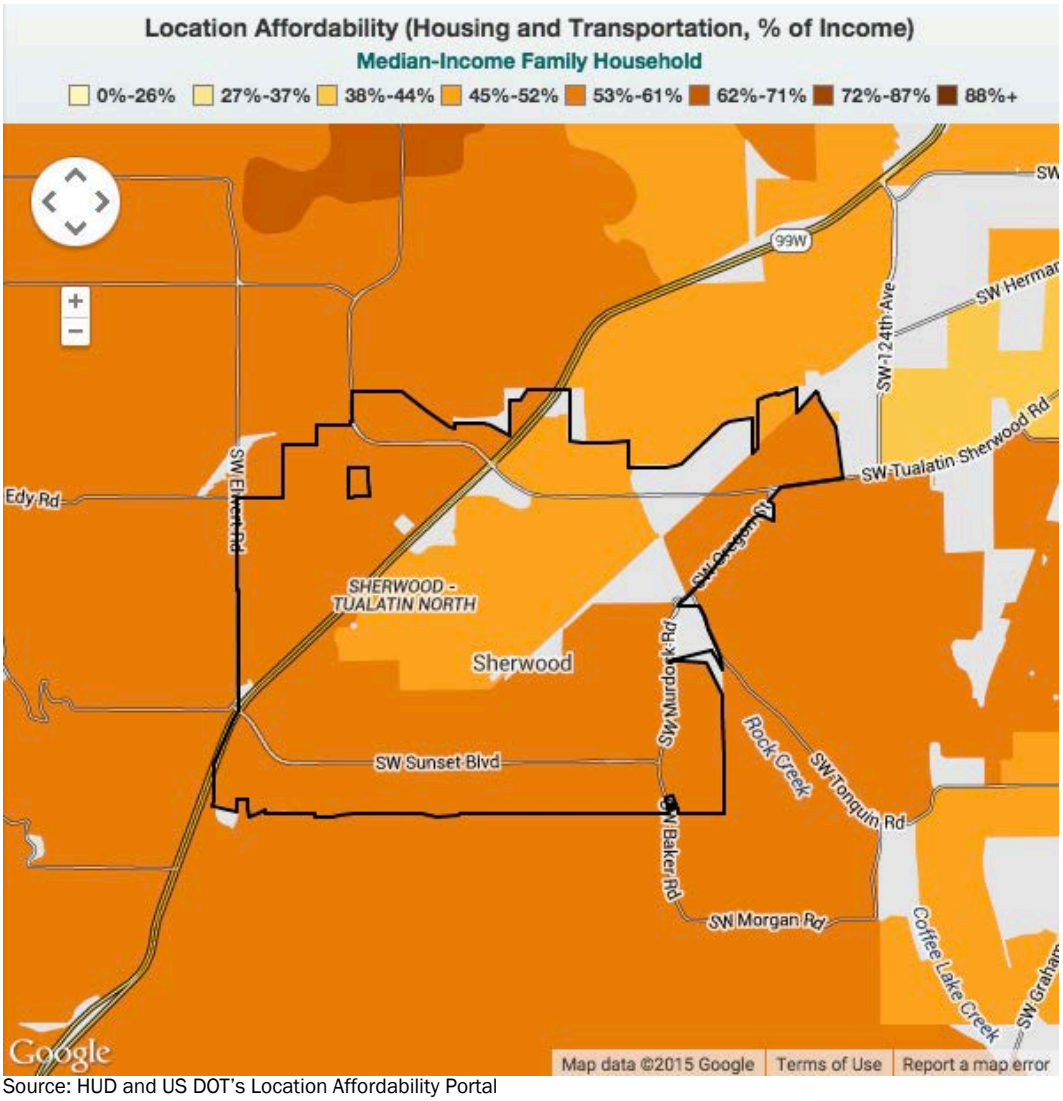
Source: American Community Survey 2009-2013 Tables B25070 and B25091.

Another way to measure cost burden is to consider the costs of housing combined with the costs of transportation. In the *Draft 2014 Urban Growth Report*, Metro considered this perspective on cost burden. Metro considered a household that spends 45% or more of its income on transportation and housing as cost burdened.

According to data from the Location Affordability Portal, from HUD and the U.S. Department of Transportation, the average household in Sherwood spends 54% of its income on housing costs and transportation costs. Figure B- 22 and Figure

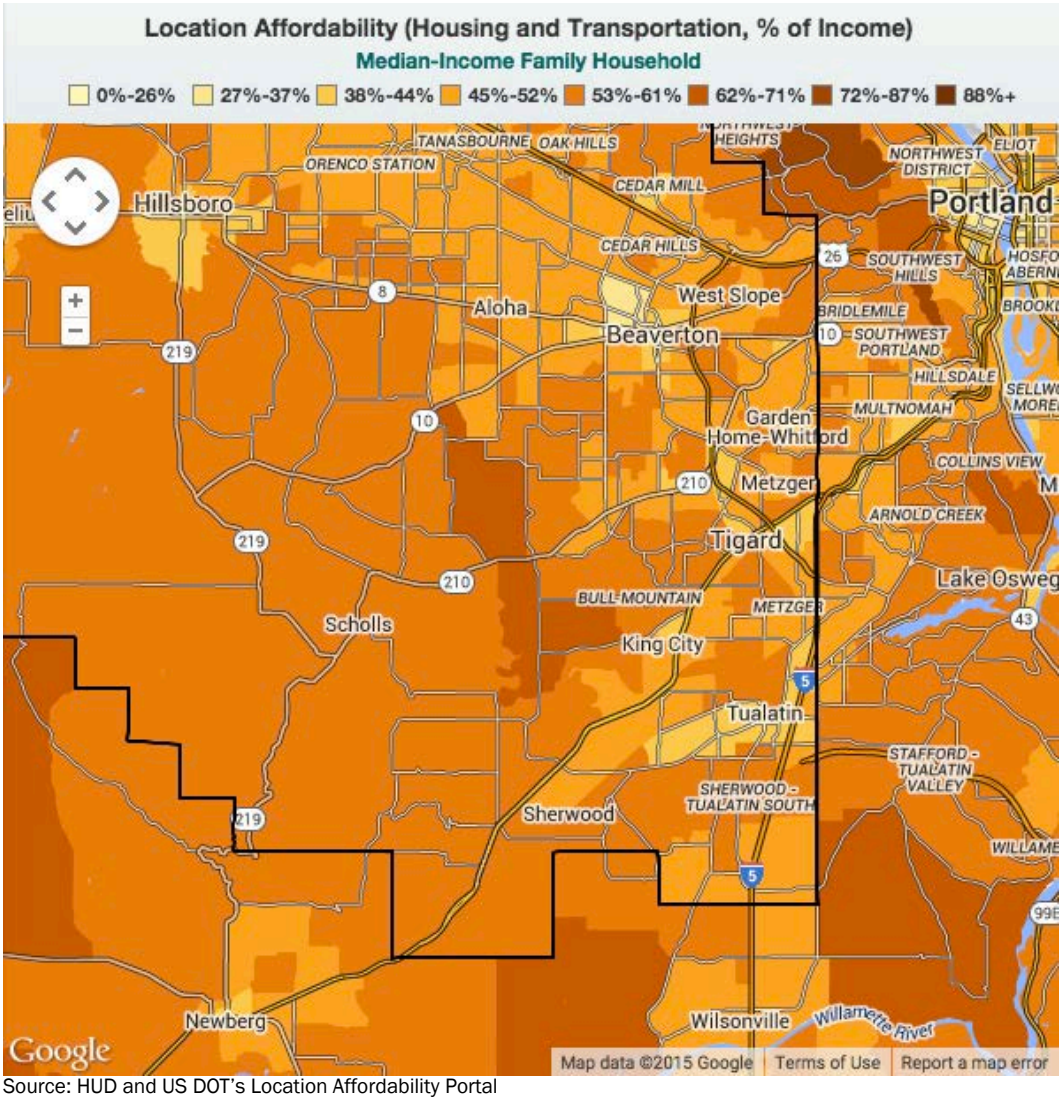
B- 23 show the percentage of income spent on housing and transportation costs in Sherwood and the southwestern part of the Portland region. In comparison to cities such as Tualatin, Wilsonville, and Tigard, households in Sherwood pay a slightly larger percentage of their income on housing and transportation costs. On average, households in these cities pay 50% to 52% of their income on housing and transportation costs.

Figure B- 22. Housing and transportation costs as a percentage of median family income, Sherwood, 2014



Source: HUD and US DOT's Location Affordability Portal
http://locationaffordability.info/

Figure B- 23. Housing and transportation costs as a percentage of median family income, southwestern Portland region, 2014



Source: HUD and US DOT's Location Affordability Portal
http://locationaffordability.info/

While cost burden is a common measure of housing affordability, it does have some limitations. Two important limitations are:

- A household is defined as cost burdened if the housing costs exceed 30% of their income, regardless of actual income. The remaining 70% of income is expected to be spent on non-discretionary expenses, such as food or medical care, and on discretionary expenses. Households with higher income may be able to pay more than 30% of their income on housing without impacting the household's ability to pay for necessary non-discretionary expenses.
- Cost burden compares income to housing costs and does not account for accumulated wealth. As a result, the estimate of how much a household can afford to pay for housing does not include the impact of accumulated

wealth on a household's ability to pay for housing. For example, a household with retired people may have relatively low income but may have accumulated assets (such as profits from selling another house) that allow them to purchase a house that would be considered unaffordable to them based on the cost burden indicator.

Cost burden is only one indicator of housing affordability. Another way of exploring the issue of financial need is to review wage rates and housing affordability. Table B- 15 shows an illustration of affordable housing wage and rent gap for households in the Portland MSA at different percentages of median family income (MFI). The data are for a typical family of four. The results indicate that a household must earn $17.73 an hour to afford a two-bedroom unit according to HUD's market rate rent estimate.

Table B- 15. Affordable Housing Wage Gap, Portland MSA, 2014

Value	Minimum Wage	30% MFI	50% MFI	80% MFI	100% MFI	120% MFI
Annual Hours	2,080	2,080	2,080	2,080	2,080	2,080
Derived Hourly Wage	$9.10	$10.01	$16.68	$26.69	$33.37	$40.04
Annual Wage	$18,928	$20,820	$34,700	$55,520	$69,400	$83,280
Annual Affordable Rent	$5,678	$6,246	$10,410	$16,656	$20,820	$24,984
Monthly Affordable Rent	$473	$521	$868	$1,388	$1,735	$2,082
HUD Fair Market Rent (2 Bedroom)	$922	$922	$922	$922	$922	$922
Is HUD Fair Market Rent Higher Than The Monthly Affordable Rent?	Yes	Yes	Yes	No	No	No
Rent Paid Monthly OVER 30% of Income	$449	$402	na	na	na	na
Rent Paid Annually OVER 30% of Income	$5,386	$4,818	na	na	na	na
Percentage of Income Paid OVER 30% of Income for Rent	28%	23%	na	na	na	na
Percentage of Income Spent on Housing	58%	53%	32%	20%	16%	13%
For this area what would the "Affordable Housing Wage" be?	$17.73	$17.73	$17.73	$17.73	$17.73	$17.73
The Affordable Housing Wage Gap IS:	**$8.63**	**$7.72**	**$1.05**	**na**	**na**	**na**

Source: FMR comes from HUD's FY 2014 Two-Bedroom FMR for Portland-Vancouver-Hillsboro MSA. Minimum wage from Oregon's Bureau of Labor and Industries. MFI from HUD's FY 2014 MFI for Portland- Vancouver -Hillsboro MSA.

Table B- 16 shows a rough estimate of affordable housing cost and units by income levels for Sherwood in 2014 based on Census data about household income, the value of owner-occupied housing in Sherwood, and rental costs in Sherwood. Several points should be kept in mind when interpreting this data:

- Affordable monthly housing costs and estimate of affordable purchase prices are based on HUD income standards and assume that a household will not spend more than 30% of household income on housing costs. Some households pay more than 30% of household income on housing costs, generally because they are unable to find more affordable housing or because wealthier households are able to pay a larger share of income for housing costs.
- HUD's affordability guidelines for Fair Market Rent are based on median family income and provide a rough estimate of financial need. These guidelines may mask other barriers to affordable housing such as move-in costs, competition for housing from higher-income households, and availability of suitable units. They also ignore other important

factors such as accumulated assets, purchasing housing as an investment, and the effect of down payments and interest rates on housing affordability.

- Households compete for housing in the marketplace. In other words, affordable housing units are not necessarily *available* to low-income households. For example, if an area has a total of 50 dwelling units that are affordable to households earning 30% of median family income, 50% of those units may already be occupied by households that earn more than 30% of median family income.

The data in Table B- 16 indicate that in 2014:

- About 20% of households in Sherwood could not afford a two-bedroom apartment at HUD's fair market rent level of $922.
- A household earning median family income ($69,400) could afford a home valued up to about $173,500.
- Sherwood has a deficit of about 660 dwellings to households earning less than $35,000 (or 50% of the Portland metropolitan area's median family income).

Table B- 16. Rough estimates of housing affordability, Sherwood, 2009-2013

Income Level	Number of HH	Percent	Affordable Monthly Housing Cost	Crude Estimate of Affordable Purchase Owner-Occupied Unit	Est. Number of Owner Units	Est. Number of Renter Units	Surplus (Deficit)	HUD Fair Market Rent (FMR) in 2014
Less than $10,000	186	3%	$0 to $250	$0 to $25,000	44	60	(82)	
$10,000 to $14,999	280	4%	$250 to $375	$25,000 to $37,000	40	69	(171)	
$15,000 to $24,999	364	6%	$375 to $625	$37,500 to $62,500	35	36	(293)	
								Studio: $666
$25,000 to $34,999	298	5%	$625 to $875	$62,500 to $87,500	71	111	(116)	1 bdrm: $774
$35,000 to $49,999	618	10%	$875 to $1,250	$87,500 to $125,000	77	510	(31)	2 bdrm: $922
								3 bdrm: $1,359
$50,000 to $74,999	1,333	21%	$1,250 to $1,875	$125,000 to $187,500	360	678	(295)	4 bdrm: $1,633
Portland MSA 2014 MFI: $69,400			$1,735	$173,500				
$75,000 to $99,999	922	14%	$1,875 to $2,450	$187,500 to $245,000	748	172	(2)	
$100,000 to $149,999	1,543	24%	$2,450 to $3,750	$245,000 to $375,000	2,172	23	652	
$150,000 or more	836	13%	More than $3,750	More than $375,000	1,151	23	338	
Total	6,380	100%			4,698	1,682	0	

Source: FMR comes from HUD's FY 2014 Two-Bedroom FMR for Portland-Vancouver-Hillsboro MSA. Minimum wage from Oregon's Bureau of Labor and Industries. MFI from HUD's FY 2014 MFI for Portland-Vancouver-Hillsboro MSA; Data about the share of owner and renter households and their income in Sherwood comes from the American Community Survey, 2009-2013 Tables B25075, B25063, B19001.

Table B- 17 shows that between 2000 and 2009-2013, both median household income and housing values increased substantially, with increases in home value outpacing growth in income. Median household income increased between 2000 and the 2009-2013 period.

Housing in Sherwood has become less affordable since 2000, consistent with county and statewide trends. In 2009-2013, the median home value was 3.8 times the median household income in Sherwood, up from 2.9 in 2000.

Housing in Sherwood is relatively affordable, compared to the county and state. In 2009-2013, the median home value was 4.4 times the median household income in Washington County, with a statewide average of 4.7.

Table B- 17. Household income to home value, 2013 dollars, Oregon, Washington County, and Sherwood, 2000 and 2009-2013.

	2000	2009-2013	Change 2000 to 2013	
			Number	Percent
Oregon				
Median HH Income	$57,282	$50,229	-$7,053	-12%
Median Owner Value	$204,120	$238,000	$33,880	17%
Ratio of Home Value to Income	3.56	4.74	1.17	33%
Washington County				
Median HH Income	$72,971	$64,180	-$8,791	-12%
Median Owner Value	$252,560	$282,400	$29,840	12%
Ratio of Home Value to Income	3.46	4.40	0.94	27%
Sherwood				
Median HH Income	$87,525	$78,355	-$9,170	-10%
Median Owner Value	$254,100	$300,300	$46,200	18%
Ratio of Home Value to Income	2.90	3.83	0.93	32%

Source: Census 2000 SF1 P53 P77 P82 P87, SF3 H7 H63 H76, American Community Survey 2009-2013 DP03, B25003, B25064, B25077.

ORDINANCE NO 490

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF NORTH PLAINS, OREGON, AMENDING THE URBAN GROWTH BOUNDARY AND APPROVING ASSOCIATED COMPREHENSIVE PLAN TEXT AMENDMENTS

WHEREAS, the City of North Plains ("City") initiated an expansion of the City's Urban Growth Boundary ("UGB") and associated Comprehensive Plan text amendments; and

WHEREAS, the City used the updated Housing Needs Analysis (2022) ("HNA"), and the updated Economic Opportunities Analysis (2022, as approved by Ord. No. 484) ("EOA") to identify the City's 20-year land needs; and

WHEREAS, the UGB Expansion Final Report and associated Comprehensive Plan text amendments detail the City's analysis in determining how much land to include in the expansion area and where to expand, as well as associated policies; and

WHEREAS, the Planning Commission conducted a duly-noticed public hearing on the UGB expansion proposal at its May 10, 2023 meeting, and made a recommendation of approval to the City Council; and

WHEREAS, the City Council conducted a duly-noticed public hearing on the UGB expansion proposal at its June 5, 2023 meeting and considered all information in the record.

Now, therefore:

THE CITY OF NORTH PLAINS ORDAINS AS FOLLOWS:

Section 1. The City Council hereby adopts the UGB amendment, as described in the North Plains Urban Growth Boundary Expansion: Final Report, attached hereto as Exhibit A, as modified by the Planning Commission Recommendation, attached hereto as Exhibit B. The City Council also hereby adopts the Comprehensive Plan text amendments described in Exhibit C, attached hereto.

Section 2. In support of its decision, the City Council adopts the findings of the Planning Commission Recommendation, see Exhibit B, and the Staff Report for File No. CPA 23-056(1), attached hereto as Exhibit E

Section 3. The City Manager is authorized to prepare planning documents to reflect the changes adopted by this Ordinance, including deleting and adding textual

material and maps, renumbering pages or sections, and making any technical changes not affecting the substances of these amendments as necessary to conform to the North Plains Comprehensive Plan format.

Section 4 This Ordinance shall become effective on the 30th day after its adoption.

INTRODUCED on the 5th day of June, 2023. ADOPTED on the 20th day of June, 2023; EFFECTIVE on the 20th day of July, 2023.

CITY OF NORTH PLAINS, OREGON

By: _____
Russ Sheldon, Council President

ATTEST:

By: _____
Lori Lesmeister, City Recorder

Ordinance No. 490
Exhibit A

North Plains Urban Growth Boundary Expansion: Final Report

June 2023

NORTH PLAINS
OREGON
City to the Sunset

Acknowledgements

City Council
Mayor Teri Lenahan
Russ Sheldon
Robert Kindel
Cameron Martinez
Ricky Smith
James Fage
Trista Papen

Planning Commission
Stewart King, Chair
Heather LaBonte, Vice Chair
Tom Hauth
Douglas Nunnenkamp
Mike VanDomelen
John Vater
Lonnie Knodel

Project Advisory Committee
Mayor Teri Lenahan
Commissioner Stewart King
Commissioner Lonnie Knodel
Commissioner Doug Nunnenkamp
Charlie Hopwell
Eric Lawson, Economic Development Committee
Anne Debbaut (DLCD)
Kevin Young (DLCD)
Jessica Pelz (Washington County),

City Staff
Andy Varner, City Manager
Bill Reid, Finance Director
Blake Boyles, Public Works Director

Consultants
3J Consulting
Kittelson & Associates
PR Land Use Strategies

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1. Introduction

North Plains is one of the fastest growing communities in Washington County. According to Portland State University's Population Research Center, the City's population is expected to nearly double by 2035. North Plains' North and East Urban Growth Boundary (UGB) Expansion Areas were annexed in 2017 so that the UGB and city limits are now contiguous, leaving the City without any UGB expansion areas to meet emerging employment and housing land needs.

The City's 2017, updated in 2022, Housing Needs Analysis (HNA) identifies a need for 167 acres of land, to meet residential demands through 2037, including land for parks and infrastructure. The 2018 Economic Opportunities Analysis (EOA), updated in 2022, identifies a need for 515 acres to meet industrial land needs and 172 acres to meet commercial land needs through 2038, including land for infrastructure. Combined, these studies estimate a need for 854 acres to meet the city's 20-year land need.

This UGB Expansion Report follows the guidance provided by Statewide Planning Goal 14 (Urbanization), which incorporates the requirements of ORS 197A.300 to 197A.325 Amendment of Urban Growth Boundary Outside Metro. The report answers the following questions to justify a UGB expansion for North Plains:

1. Is any additional land needed for one or more urban uses, and if so how much?
2. If additional land is needed, how much can be accommodated within the current UGB?
3. If additional land is needed outside the UGB, where is the best place to expand the boundary?
4. What other amendments are needed to comply with the statewide planning goals?

Policy Framework

Urban growth boundary expansions in Oregon are guided by Statewide Planning Goal 14: Urbanization. The purpose of Goal 14 is "to provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."

To amend an urban growth boundary, a city must complete a location analysis, comparing alternative locations and considering which addition to the UGB will result in the most accommodating and cost-effective boundary, while creating the fewest conflicts with neighboring land uses, and causing the fewest negative environmental and economic impacts.

Through discussions with staff from the Department of Land Conservation and Development (DLCD), the City determined that the Standard Method for UGB expansions best suits North Plains. The Standard Method is governed by Oregon Administrative Rule (OAR) 660-024. The rule regulates

how to establish a study area to evaluate land for inclusion in the UGB and the priority of land for inclusion in the UGB. In addition, the four boundary location factors of Goal 14 must be applied. These rules will be described in greater detail later in the report.

The 2004 *Washington County – North Plains Urban Planning Area Agreement* establishes (1) a site-specific Urban Planning Area within which both the County and the City maintain an interest in comprehensive planning, (2) a process for coordinating comprehensive planning and development in the Urban Planning Area, and (3) a process to amend the Urban Planning Area Agreement (UPAA). The UPAA stipulates the procedure for amending the UPAA and/or the Urban Planning Area Boundary including the responsibilities of each jurisdiction.

The North Plains Comprehensive Plan governs UGB expansions. Objective 1 of the Urbanization chapter calls for the City "to identify and utilize accepted growth management techniques in a manner that will implement the Comprehensive Plan vision statement, goals, objectives, and policies." Subsequent policies guide the City's efforts to maintain and amend the UGB.

The proposed UGB amendment must be approved by the City of North Plains and Washington County and then by DLCD.

Process Overview

The North Plains UGB Expansion Report provides information to meet the following steps in the UGB expansion process:

1. Establish Land Need
2. Establish Study Area
3. Analyze Study Area
4. Evaluate Urbanization Potential
5. Review and Acknowledgement

The UGB Expansion project was initiated in August 2020 and completed in March 2023. A Project Advisory Committee (PAC) was convened to guide the process and make recommendations for Planning Commission and City Council consideration. The PAC met eight times over the course of the project. All meetings were noticed and open to the public. In addition, a public meeting was held to gather community input on the proposed UGB expansion study area.

The PAC was made up of the following representatives:

- Teri Lenahan, Mayor
- Stewart King, Planning Commission Chair
- Lonnie Knodel, Planning Commissioner
- Doug Nunnenkamp, Planning Commissioner/Parks Board Chair
- Eric Lawson, Economic Development Committee
- Charlie Hopewell, Jewett Cameron COO

- Laura Kelly, DLCD
- Kevin Young, DLCD
- Glen Bolen, ODOT Region 1
- Kate Hawkins, ODOT Region 1
- Jessica Pelz, Washington County
- Shannon Wilson, Washington County Housing

2. Establish Land Need

This chapter details the steps taken to establish North Plains' land need:

- Analyze Population Growth Forecast (from Portland State University (PSU)
- Identify Housing Land Need (from acknowledged HNA)
- Identify Other Land Need e.g., parks, public facilities (from acknowledged plans)
- Identify Employment Land Need (from acknowledged EOA)
- Identify Site Characteristics of Land Needed
- Examine Sites within Existing UGB

Population Growth Forecast

The land needed to accommodate the projected growth of residential and employment uses in the 20-year planning horizon is based on the official population forecast, housing type mix and employment land needs identified in the City's adopted 2022 HNA and 2022 EOA. These two studies used the population forecast prepared by the Portland State University (PSU) Population Research Center in 2020.

In June 2020, PSU released a new population forecast for North Plains, forecasting a population of 7,076 in 2040. This is an increase of 3,666 people at an average annual growth rate of 3.7%. The 2017 HNA was updated to reflect this forecast and will be adopted by the City of North Plains along with the UGB Expansion. The EOA was also updated to reflect the new forecast and was adopted by the City of North Plains on November 7, 2022, and ultimately acknowledged by DLCD.

Land Need: Residential, Parks, and Public Facilities

The 2022 HNA update identifies a total need for 1,348 dwelling units over the 20-year planning horizon, 558 of which can be accommodated within the existing UGB. This leaves a deficit of 790 dwelling units that cannot be accommodated inside the current North Plains UGB (Table 1).

Table 1. North Plains 2020 HNA UGB Expansion Average Residential Density Scenarios

Plan Designation	Dwelling Units Capacity of Buildable Land	Needed Dwelling Units (2020-2040)	Surplus or Deficit of Dwelling Units
Low Density Residential (R7.5)	11	591	(580)
Medium Density Residential (R5)	19	84	(65)
High Density Residential (R2.5)	24	169	(145)
Neighborhood Commercial	504	504	0
Total	558	1,348	(790)

In order to determine how much land is needed to accommodate the 790 dwelling units, the City must determine an average density (or densities) of housing. The HNA prepared several average

density scenarios to help illustrate the approximate amount of land that would be needed exclusively for housing at lower, moderate, and higher average densities (Table 2).

Table 2. North Plains 2020 HNA UGB Expansion Average Residential Density Scenarios

Average Density	Density	Land Need
Lower density	6.7 units per acre	118 acres
Moderate density	8.4 units per acre	94 acres
Higher density	9.7 units per acre	82 acres

The 2019 Comprehensive Plan includes maximum residential densities for each of the city's three residential zoning designations (Table 3), as well as a standard for future residential development of 70% single family detached and 30% single-family attached and multifamily.

Table 3. North Plains 2019 Comprehensive Plan Residential Densities

Comprehensive Plan Designation	Maximum Density	Corresponding Zoning District
Medium/Low Density Residential	5.8 dwelling units per net acre	R-7.5
Medium/High Density Residential	8.7 dwelling units per net acre	R-5
High Density Residential	17.4 dwelling units per net acre	R-2.5

Determining the amount of land needed for housing requires application of an average density for each residential zone as well as inclusion of the required housing type mix (70% single-family detached/30% single-family attached and multifamily). In identifying an average density for each zone, the City took into account several factors. North Plains is likely to retain an auto-dominated transportation system as public transit is not currently available or planned for the City. It is also important to City policy makers and residents to maintain a rural, small town identity but to accommodate reasonable population growth that would support certain uses, such as a grocery store and a vibrant downtown core.

After consideration of the HNA residential density scenarios (Table 2), the Comprehensive Plan densities (Table 3) and the community's growth objectives, the PAC refined the proposed residential densities for inclusion in the UGB Expansion Area (Table 4).

Table 4 UGB Expansion Area Residential Densities

Zoning Designation	Average Density	Acres	Dwelling Units
R-7.5 (Low Density)	5.5 dwelling units per net acre	84.5	464
R-5 (Medium Density)	8.0 dwelling units per net acre	14.0	112
R-2.5 (High Density)	17.4 dwelling units per net acre	12.3	214
Total	7.1 dwelling units per net acre	110.8	790

In addition to the dwelling units themselves, the City must accommodate parks, trails, open space, schools, and public infrastructure. Land need was estimated for each of these uses as detailed below.

Parks, Trails and Open Space: The amount of land needed for parks, open spaces and trails is estimated at 40 acres. This is based on the current deficit and future need of park land in the City to meet the goal level of service (LOS) in the Parks and Open Space Master Plan of 6.25 acres of parks per 1,000 residents, plus open spaces and trails to connect all residents to a park.

The 2040 population estimate of 7,076 people translates to 44.23 acres of developed core parks. Adding 2.0 acres for trails and pathways brings the total need in year 2040 to approximately 46.23 acres. According to the Parks Plan, there are 6.24 acres of parks in the city[1]. Therefore, the amount of land needed for parks, trails and open space in the UGB expansion is 40 acres.

Schools: All public schools in North Plains are owned and operated by Hillsboro School District (HSD). HSD completed construction of a new elementary school in 2021 that, combined with the existing elementary school, will accommodate all K-6 students in North Plains in the 20-year planning horizon of the UGB expansion.

Middle school students in North Plains attend Evergreen Middle School and high school students attend Glencoe High School, both of which are in Hillsboro. Evergreen currently has just over 800 students and capacity for another 400 students. The District's current demographic study shows a Student Yield Factor of 0.053 middle school students per household in North Plains for the Glencoe High School feeder group. The addition of an estimated 790 housing units in the next 20 years within the UGB expansion area would yield approximately 42 new middle school students in North Plains in the next 20 years. While a middle school may eventually be built in North Plains, there is no

[1] The Sunset Ridge and Brynhill Master Plan areas include privately-owned parks that are accessible to the public that are not included in the Parks Plan inventory as they were not fully constructed at the time of inventory and are not owned or maintained by the City.

plan to do so in the 20-year planning horizon of the UGB expansion. Similarly, there are no plans for high school construction in the city. Therefore, the needs analysis for public schools results in no land need for the UGB Expansion project.

Public Infrastructure: The amount of land needed for public infrastructure is estimated at 15% of the acreage needed for residential dwellings (for example, 100 acres of land for dwellings requires 15 acres for streets and infrastructure).

In determining the residential land need, including areas for parks, trails, open spaces, schools and infrastructure, the City has determined that a total of 168 acres of land are needed for residential uses in the UGB expansion (Table 5).

Table 5. Residential Land Need (Recommended to PAC in May 2021)

Land Use	Acres
Housing	110.8
Parks, Trails and Open Space	40.0
Schools	0
Infrastructure	16.6
Total Residential Land Need	167.4

Land Need and Site Characteristics: Employment and Public Facilities

The 2022 EOA and associated land need estimates are based on the adopted City Council Vision for future economic growth and diversification as permitted and encouraged by OAR 660-024. The Vision includes Four Priorities for community and economic development with the UGB expansion study process:

PRIORITY 1: Reverse the worsening trend of bedroom community status for North Plains with a thriving jobs-housing balance by expanding and diversifying employment opportunity and industry profile and presence.

PRIORITY 2: Grow business investment in North Plains to encourage expansion and diversification of the City's property tax base to reverse the imbalance created by a growing bedroom community development trend.

PRIORITY 3: Ensure and sustainably fund community-supporting infrastructure, economy-supporting infrastructure, and expanded City services such as recreational offerings that enhance community health and diversify the City economy.

PRIORITY 4: Expand the local presence of important, everyday commercial services for the residents of North Plains which offers a shorter and safer distance rather than at extended and costly distance to other cities.

The 2022 EOA identified a deficit of 687.8 acres of employment land in the 20-year planning period (2020-2040). This includes 172.4 acres for commercial uses and 515.4 acres for industrial uses. These totals include an allowance for needed for right-of-way (infrastructure) estimated at 25% of the acreage needed for employment uses. Therefore, the total land area needed to accommodate employment lands and associated infrastructure is 687.8 acres (Table 6).

Table 6. Employment Land Need (Recommended by PAC in May 2021)

Land Use	**Acres**
Commercial	172.4
Office	*91.5*
Institutional	*21.2*
Retail	*72.3*
Industrial	515.4
Flex/Business Park	*167.6*
General Industrial	*324.5*
Warehouse	*52.9*
Total Employment Land Need	687.8

In addition to the amount of land needed, the 2020 EOA also identified target services and industries for future economic growth consistent with City Council's Vision directive that export-oriented employers need to be pursued and recruited to broaden and strengthen its economy and employment opportunities. These services and industries include:

- A full-service grocery store
- Export-oriented employers
  - Computer & Electronic (C&E) Mfg.54 (5-100+ acres typical site range)
  - Multi-tenant Office Complex55 (5-20 acres typical site range)
  - Business Incubator (5-25+ acres typical site range)
  - Food Processing (5-25+ acres typical site range)
  - Small-scale manufacturing (electronics mfg., machinery mfg. (i.e., agriculture or industrial machinery), metals fabricating, specialty food & beverage manufacturing, renewable and alternative energy products) (10-50 acres typical site range)
  - Small-scale warehouse, distribution & wholesale (5-50 acres typical site range)
  - Professional services
  - Personal services (residents, senior and visitors)

The EOA goes on to identify specific site characteristics needed to accommodate these services and industries. Table 7 shows the number and size of sites needed to accommodate various users.

Table 7. Specific Land Demand by Plan Designation and Size

Number of Sites by Use Type	Typical Acreage	Sites Needed
Industrial		
Tech-based Anchor or Large Industrial	100 or more	2
Large Park/Cluster	50-100	1
Medium and Smaller Park	20-50	1
Expanding Users	5 – 20	8
Independent Small Businesses	5 or less	7
Totals	515.4 Acres	**19**
Commercial – Office & Retail		
Large Business Park or Retail Center	20 – 40	1
Medium Business Park or Retail Complex	5 – 20	5
Small Office and Retail, Lodging Site	5 or less	9
Totals	172.4 acres	**15**

Source: PNW Economics, LLC

Note: Typical Acreage includes 25% addition for infrastructure

Table 8 shows the total 20-year residential and employment land need of 855.2 acres.

Table 8. North Plains UGB Expansion Area Land Need

Land Use	Land Need
Residential (Including housing, parks, trails, open space and right-of-way)	167.4 acres
Employment (Including commercial and industrial properties and right-of-way)	687.8 acres
Total UGB Expansion Area Land Need	855.2 acres

Examine Sites within Existing UGB

Prior to pursuing a UGB expansion, the City must demonstrate that the land needs cannot reasonably be accommodated on land already inside the UGB. The City is required to evaluate opportunities to provide efficient development of residential land within the existing UGB.

The supply of vacant land inside the UGB is limited. As illustrated on the Building Lands Inventory Map (Figure 1), there are no opportunities for medium- or large-scale residential development, aside from the Brynhill Master Plan/North Expansion Area that has received land use approval to develop at 8.4 dwelling units per acre and is under construction.

Due to the small supply of vacant land in North Plains, it is unlikely that land use efficiency measures will significantly reduce the current land need. However, these measures will apply to UGB expansion areas and therefore promote more efficient use of land in the future.

The City was instructed by DLCD to reference a table of "Measures to Accommodate Housing Needs within the UGB" found in OAR 660-038-0190(5). These measures can be sorted into four provision categories:

- Housing Type Provisions
- Density and Maximum Lot Size Provisions
- Street and Parking Provisions
- Financial Provisions

The City evaluated the land use efficiency measures and determined which would result in a meaningful change in the land development pattern in North Plains. Efficiency measures are presented separately by category in tables 9-12.

Figure 1. Buildable Lands Inventory

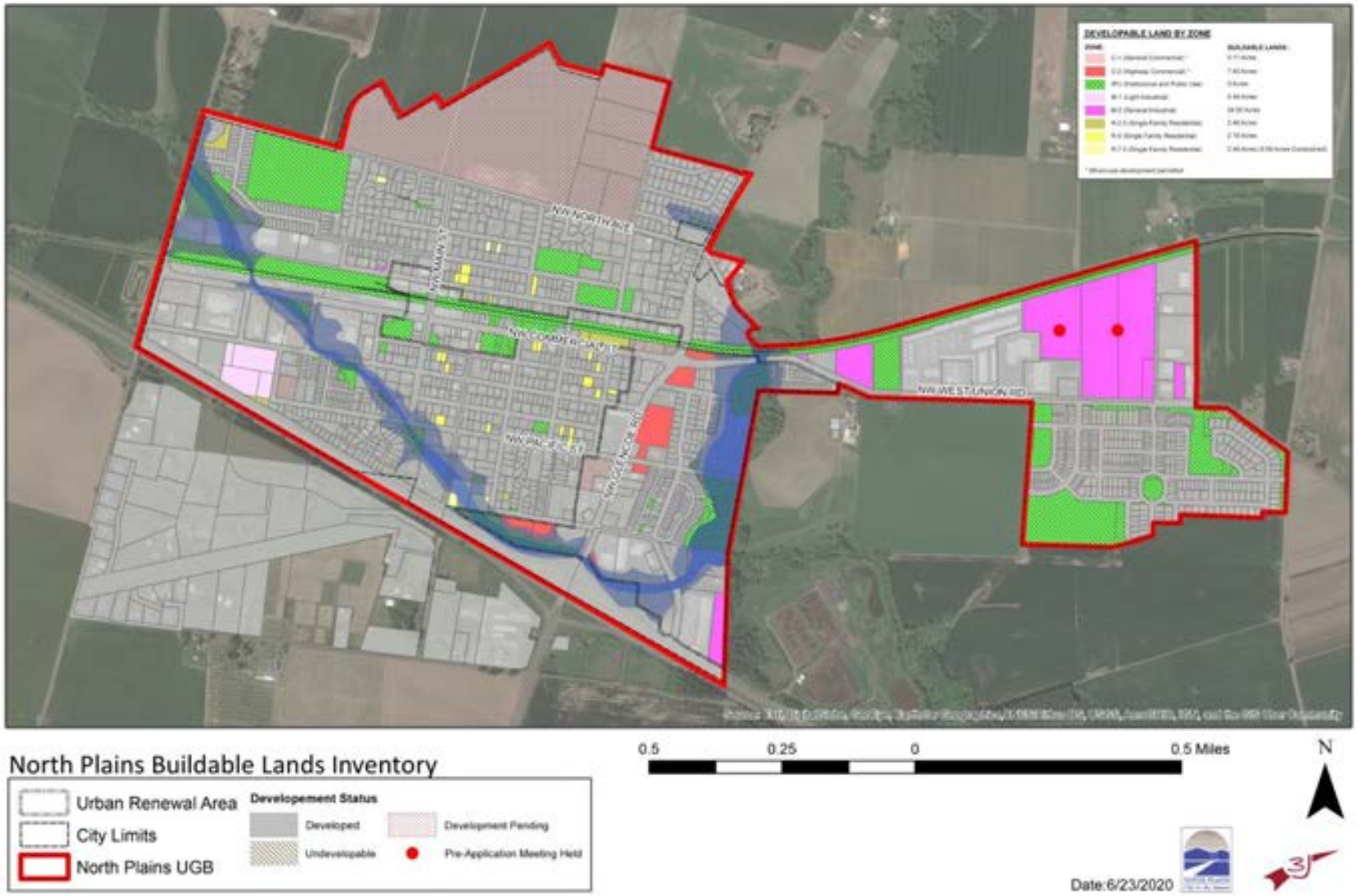


Table 9. Efficiency Measures- Housing Type Provisions

Efficiency Measure	**North Plains Response**
Prohibit detached single-family housing in the high density (R-2.5) zone.	Update Zoning Code to prohibit new detached single-family in the R-2.5 zone
Permit attached single-family housing outright in the medium density (R-5) zone.	Update Zoning Code to permit outright attached single-family housing in the R-5 zone
Permit duplexes outright on all lots where detached single-family housing is permitted with no additional development review standards.	Update Zoning Code to permit outright duplexes in the R-5 zone with no additional development standards (not in the low density, R-7.5 zone)
Adopt a cottage housing code provision authorizing at least 12 dwelling units per acre.	Update Zoning Code to include a cottage housing provision, allowing outright in the R-2.5 zone (17.4 dwelling units/acre max. density)
Limit the development of detached single-family housing in the medium density (R-5) zone to no more than 25% of the residences in a development application, unless the detached home is on a lot less than or equal to 3,000 square feet.	The proposed R-5 zone average density of 8.0 dwelling units/acre results in average lot sizes of 5,445 square feet. The density clearly supports primarily detached single-family housing. A limit on this type of housing in the R-5 zone would effectively prohibit development of housing in the R-5 zone.
Permit accessory dwelling units (ADUs) outright in all zones that permit detached single-family housing with no additional off-street parking requirement, in attached or detached configuration with primary residence, and without an owner occupancy requirement.	The Zoning Code currently permits ADUs outright in all R-zones with no additional off-street parking requirement, in attached or detached configuration with primary residence and without an owner occupancy requirement.
Permit residences in commercial districts (this standard only applies to cities with a population of 10,000).	The City population does not warrant compliance with this efficiency measure.

Table 10. Efficiency Measures- Density and Maximum Lot Size

Efficiency Measure	**North Plains Response**
Set a minimum density of at least 70 percent of maximum density for all residential zoning districts.	Update Zoning Code to set minimum density of at least 70% of maximum density in all R-zones.
Allow a density bonus for affordable housing (with specific provisions)	Update Zoning Code to allow a density bonus in the R-2.5 zone for affordable housing (with specific provisions).

Set a maximum lot size for detached single-family dwellings of 5,000 square feet.	The proposed R-7.5 zone average density of 5.5 dwelling units/acre results in average lot sizes of 7,920 square feet. The proposed R-5 zone average density of 8.8 dwelling units/acre results in average lot sizes of 5,445 square feet. If detached single-family dwellings are not permitted in the R-2.5 zone, there is no zone where a maximum lot size for detached single-family dwellings could be set at 5,000 square feet.

Table 11. Efficiency Measures- Street and Parking Provisions

Efficiency Measure	**North Plains Response**
Reduce public street right-of-way width standard by at least two feet.	This would not impact the efficiency of land use within the existing UGB as the street network is built out.
Change parking requirements to maximum of no more than one space per multi-family dwelling unit. Allow on-street parking to count toward requirement.	This is not feasible in North Plains due to the lack of transit and services within the City limits.

Table 12. Efficiency Measures- Financial Provisions

Efficiency Measure	**North Plains Response**
Allow waiver or deferral of system development charges (SDCs) for certain housing types (such as ADUs, affordable or multifamily)	The City is in the process of reviewing all SDCs and will consider waivers and deferrals as part of that review process.
Exempt certain types of housing (such as affordable or multifamily) from paying property taxes.	The City has very low local property taxes. Property tax exemptions would not have a meaningful impact on efficient land development but would negatively impact the City.

Due to its population (under 10,000) and location (outside of Metro), North Plains is not required to meet the "middle housing" provisions of House Bill 2001 (accessory dwelling unit standards are required and met in the city's development code). However, city decision makers realized that the efficient development of land within the existing UGB would require an expansion of permitted housing types and a reduction in the barriers to the construction of these housing types (such as a conditional use permit). In 2002, the city adopted development code amendments to:

- Prohibit new single-family detached housing in the R-2.5 zoning district.
- Allow outright duplexes, triplexes and townhouses in the R-5 zoning district.
- Add cottage cluster standards and permit this housing type outright in the R-2.5 zoning district.
- Set minimum density at 70% of maximum density in all residential zoning districts.
- Allow density bonus for affordable housing in the R-2.5 zoning district.

The city maintains an on-going review of System Development Charges (SDCs) and has included consideration for waivers and reductions for certain housing types.

3. Establish Study Area

This chapter details the steps taken to establish the North Plains UGB Expansion Study Area:

- Create Preliminary Study Area
- Evaluate Preliminary Study Area/ Exclusion of Lands
- Create Final Study Area

Create Preliminary Study Area

Establishing the land to be considered for expansion, known as the Preliminary Study Area, is dictated by OAR 660-024-0065. It states that the Preliminary Study Area must include all lands in a city's acknowledged urban reserves, and lands within a certain distance from the acknowledged UGB: one-half mile for jurisdictions of less than 10,000 and one mile for jurisdictions of more than 10,000, or land beyond the specified distances at the discretion of the jurisdiction. The city of North Plains has no urban reserves and is surrounded by rural reserves and "undesignated" areas shown in green in Figure 2. The City decided to consider land within one mile of the current UGB, excluding rural reserves, to address its 20-year land need. Since at least a portion of all parcels not designated as rural reserve are within one mile of the current UGB, the City decided to include all undesignated land in the Preliminary Study Area.

Evaluate Preliminary Study Area / Exclusion of Lands

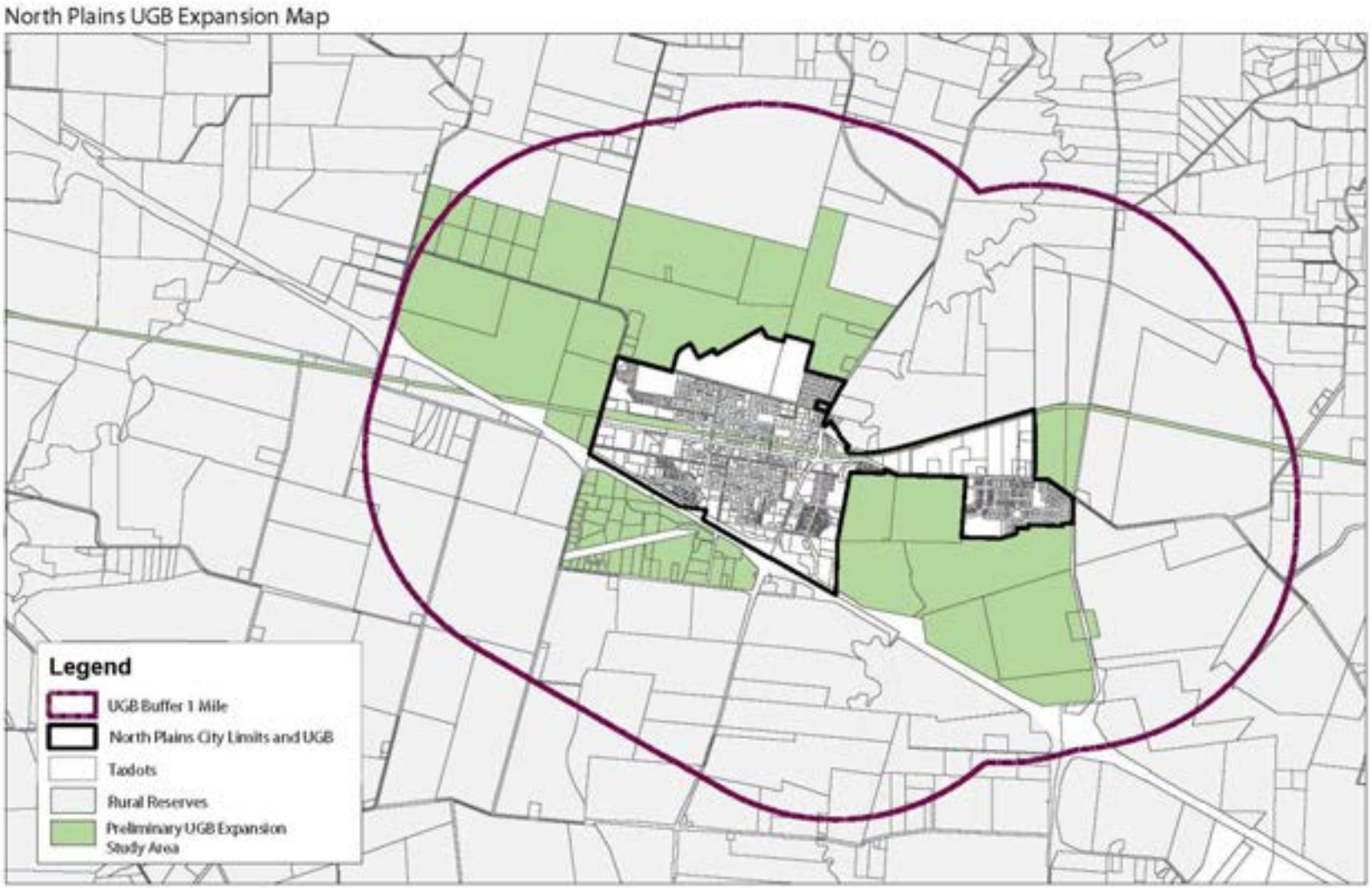
Regulations allow for certain categories of land to be excluded from the preliminary study area, including land that, cannot accommodate a specific industrial or public facility need, is impracticable to serve, is subject to natural hazards, contains a specific scenic, natural, cultural or recreational resource, or is non-urban federal lands.

Specifically, the City of North Plains has determined that certain properties meet the exclusion criteria of Oregon Administrative Rule (OAR) 660-024-0065, state and county airport regulations, and the City's Comprehensive Plan and Transportation System Plan. The City's proposes to exclude a portion of the exception land south of Highway 26 and north of NW Beach Road.

The exclusion area consists primarily of the Sunset Air Strip and surrounding Air Acres and Sunset Orchard Estates residential subdivisions that are bound to the airport by restrictive covenants. The continuing operation of the Sunset Air Strip is a significant impediment to development at urban intensities. Development within the Air Strip and surrounding residential development is unlikely to occur during the planning period as the property owners intend to continue to operate the airport and additional development would impact its operations. Also, the cost of further developing the airport at urban intensities, and specifically developing the transportation network, would be prohibitively expensive, if not impossible in light of ORS 836.608.

Exclusion of these parcels of land is addressed, in detail, in Appendix A of this report.

Figure 2. North Plains UGB Expansion Preliminary Study Area



Create Final Study Area

After excluding the Sunset Air Strip and surrounding Air Acres and Sunset Orchard Estates residential subdivisions, the Final Study Area is reflected in Figure 3.

Figure 3. North Plains UGB Expansion Final Study Area

4. Analyze Study Area

This chapter details the steps taken to analyze the North Plains UGB Expansion Study Area:

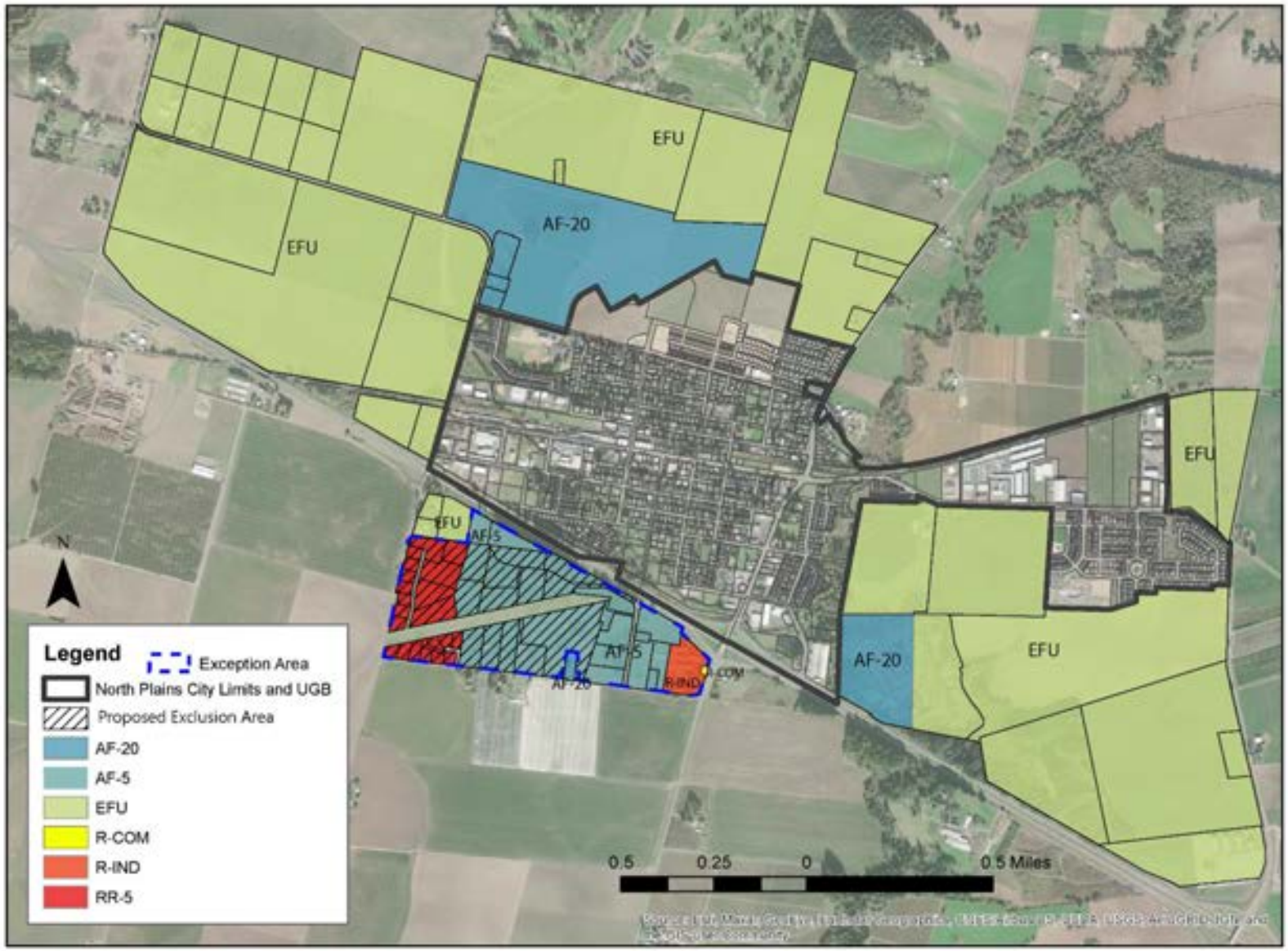
- Establish Parcel Prioritization Using Statutory Priorities (ORS 197A.320)
- Apply Suitability Criteria (OAR 660-024-0067(5))
- Apply Goal 14 Location Factor

Establish Parcel Prioritization

Lands in the Study Area are evaluated against priorities set by OAR 660-024-0067. The First Priority includes urban reserves, exception land, and nonresource land. North Plains does not have any acknowledged urban reserves as it is surrounded by rural reserves and "undesignated" land. The Study Area does contain an area of exception land south of Highway 26, as shown in Figure 4. There are 140.85 acres of exception land in the study area; 125.61 acres when you remove the airstrip exclusion area (15.24 acres). The exception land has County zoning designations of Rural Residential-5 Acres (RR-5), rural Commercial (R-COM), Rural Industrial (R-IND), and Agricultural and Forest District-5 (AF-5).

The Second Priority is marginal lands, of which North Plains has none. The Third Priority is forest or farmland tracts, defined as contiguous parcels under common ownership, that are not predominantly high value. The process for determining the value of farmland was established in response to the passing of Measure 49, passed by Oregon voters in 2007. Measure 49 provides land owners a pathway to claim compensation if land uses restrict their farm practice and reduce the fair market value of their property. The Study Area, minus the exception land, was evaluated for the Third Priority by analyzing Washington County zoning, Washington County assessor records, United Stated Department of Agriculture (USDA) CropScape data, Oregon's Department of Geology and Mineral Industries (DOGAMI) LiDAR topographic data, 2007 National Resources Conservation Service (NRCS) soil data, and Oregon Water Resources data in ArcGIS.

Figure 4. North Plains UGB Expansion Study Area with Zone Designations



As dictated by ORS 195.300 and 215.710, defining high-value farmland relies on a series of soil, crop, water, and topographic analyses. Land is determined high-value farmland if predominantly composed of soils classified as Class I or Class II by NRCS. Class I and Class II soils are high-value soils because they are resilient to damage, easy to manage, and have few limitations for field crops. The Study Area is predominantly, meaning at least fifty percent coverage, composed of Class I or Class II (high-value) soils.

The Study Area is further tested against the remaining sections of ORS 195.300 and 215.710. Land located in EFU zones within irrigation districts or water use permit holdings, the prevalence of wine grape crops, and land containing named high-value soils or specific elevations, slopes, and aspects within the Willamette Valley viticultural area are determined high-value farmland. While these factors are considered in the determination of farmland value, the predominance of Class I or Class II soils is enough standing to consider the Study Area high-value farmland. The Study Area does not contain predominantly low-value farmland based on a series of evaluative steps as listed above. Figure 5 illustrates areas of predominantly high-value and low-value farmland.

The Fourth Priority is areas of predominantly high-value farmland that do not contain prime or unique soils. All land in the Study Area, minus the exception land area to the south, is considered predominantly high-value farmland. The consideration of areas predominantly made up of prime or unique farm soils is only allowed if there is an insufficient amount of land in the previous priority categories to meet the identified land need. As shown in Figure 6, an analysis of prime or unique farmland shows the majority of the Study Area, almost mirroring the high-value farmland area, consists of prime soils as defined by the USDA NRCS.

Apply Suitability Criteria

Applying the suitability criteria analysis to the areas of high-value farmland and prime soils, the “undesignated” lands, contain several areas of natural resources and two cemeteries, as shown in Figure 7. These areas will be included in the analysis, but will not contribute to the acreage needed to meet future housing and employment needs. The acreages of areas listed as wetlands or floodplains will not be removed as those areas may be viable for parks or public facilities. There is a total of 1,307.02 acres of undesignated land (non-exception land) in the study area, and 1,302.59 acres after removing the two cemeteries (4.43 acres). All of the undesignated lands consist of predominantly high-value farmland and prime soils and are eligible to help meet the land need that remains after the exception lands are considered.

Figure 5. Low Value and High Value Farmland, North Plains UGB Study Area

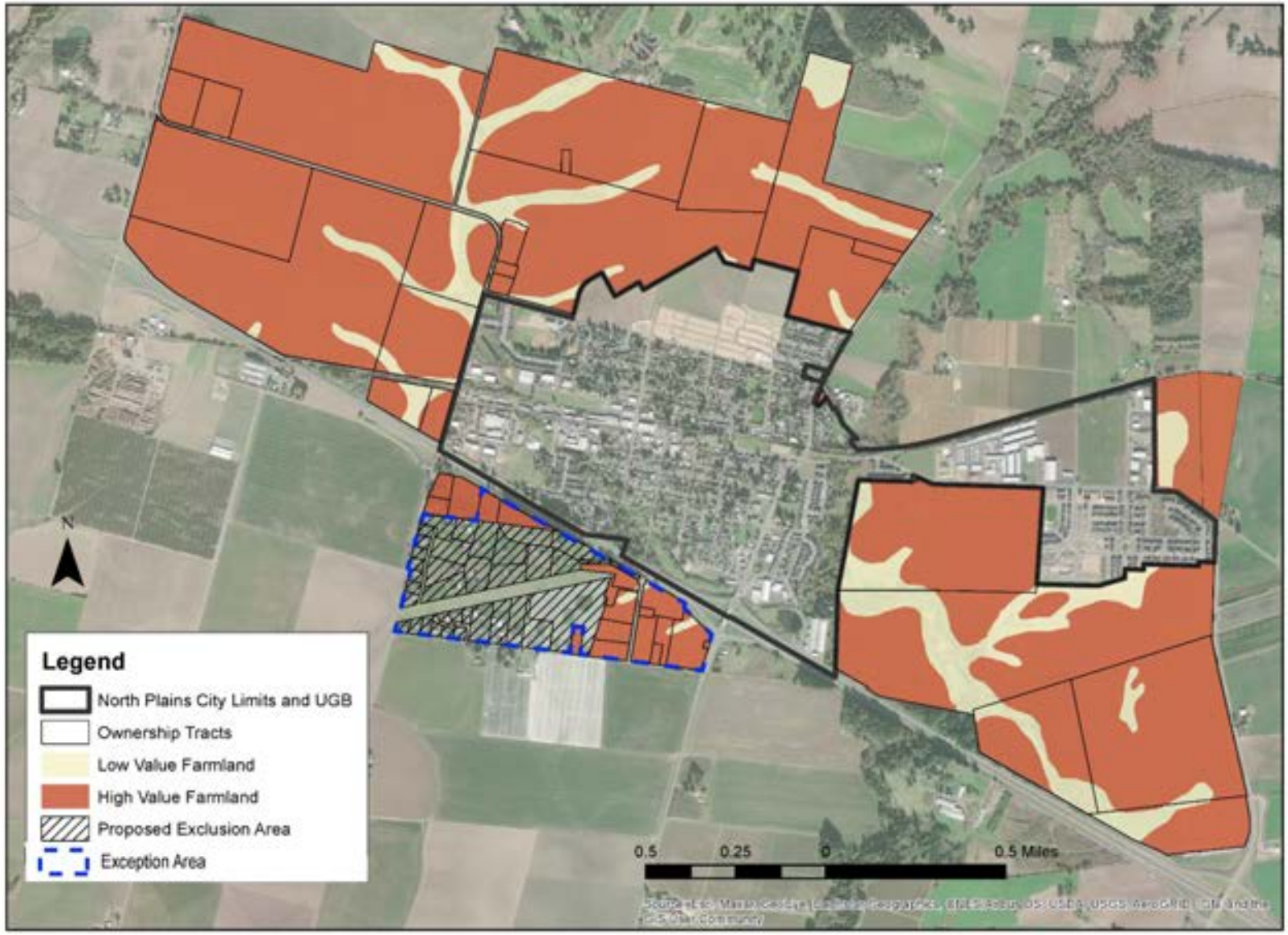


Figure 6. Prime Soils, North Plains UGB Study Area

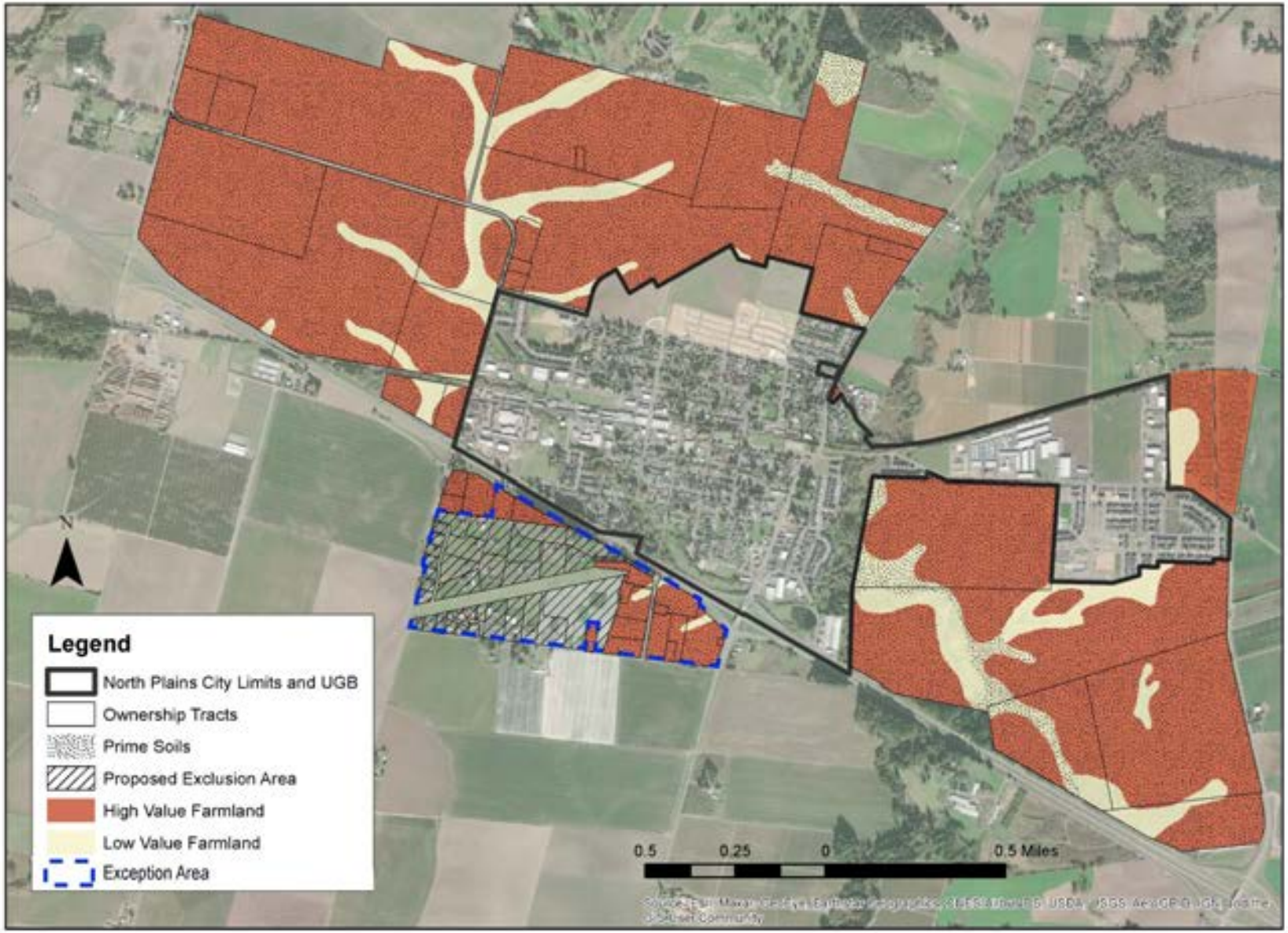
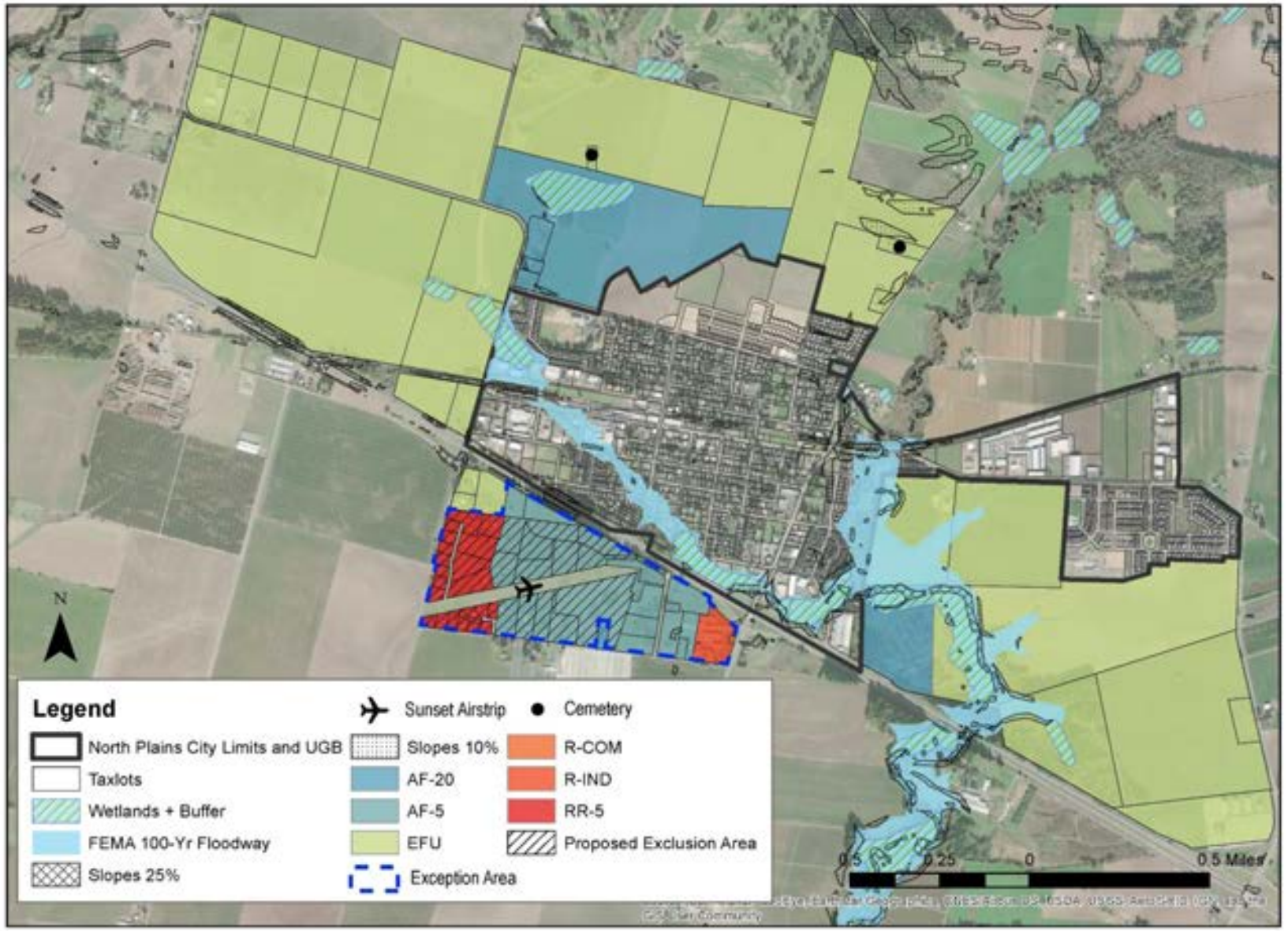


Figure 7. North Plains UGB Expansion Study Area “Suitability”



Apply Goal 14 Location Factors

To expand the UGB, North Plains must complete a boundary location analysis, comparing alternative locations and considering which addition to the UGB will result in the most accommodating and cost-effective boundary, while creating the fewest conflicts with neighboring land uses, and causing the fewest negative environmental, economic, social and energy consequences.

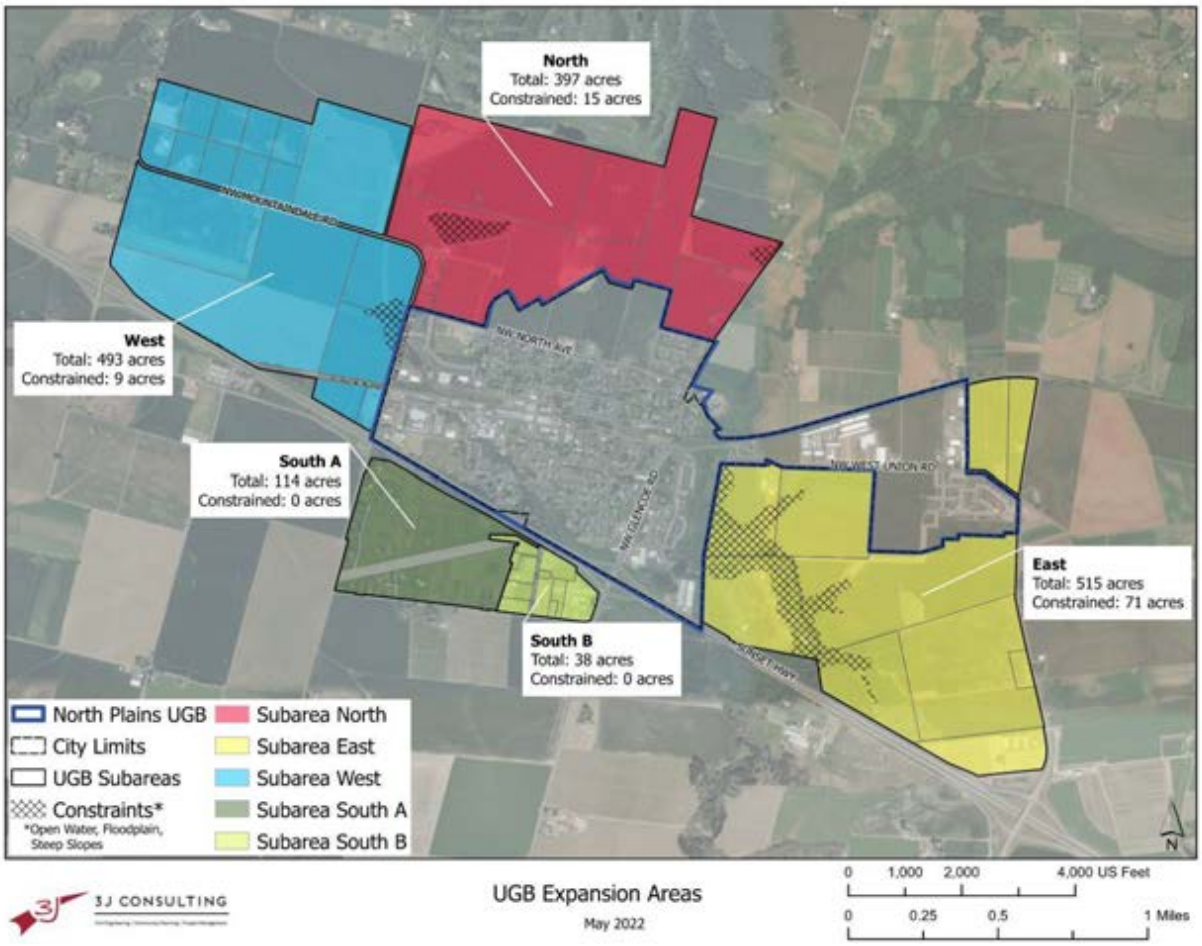
The boundary location analysis process is governed by Goal 14 and ORS 197A.320 and with consideration of the following factors:

1. Efficient accommodation of identified land needs
2. Orderly and economic provision of public facilities and services
3. Comparative environmental, energy, economic and social consequences
4. Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB

The four factors are weighted equally to create a balanced analysis and are considered concurrently rather than sequentially. The analyses that follow do not provide any definitive conclusion as to where the North Plains UGB should be expanded. Rather, they provide the data City leaders need to make an informed decision about how the City should grow over the next 20 years.

In order to apply the Goal 14 Location Factors, the City created subareas within the overall Study Area for evaluation purposes. Taking a cue from the last North Plains UGB expansion process in 2005, the 1,543-acre study area is divided into five subareas, North, South A, South B, West and West, as shown in Figure 8 and Table 13. Subareas were determined based on factors such as environmental features, taxlot lines, and transportation corridors. The southern area is divided into two subareas to make it easier to discuss the parcels the City proposes to exclude from the UGB expansion process (South Subarea A) from those the City intends to include in the expansion (South Subarea B).

Figure 8. North Plains UGB Study Area, Subareas



The **North Subarea** is located just north of the Brynhill Development and south of Pumpkin Ridge Golf Club. The Subarea consists of 11 parcels and has a gross area of 397 acres, including 15 acres with environmental constraints. The Subarea includes four parcels zoned AF-20 and seven parcels zoned EFU. Land use is primarily agriculture. The Subarea contains some wetland constraints. Two small parcels contain cemeteries, which are included in the study area, but will not be considered land that can accommodate North Plains' residential or employment needs.

The **South Subarea A** contains 152 acres on 53 parcels south of Highway 26. The Subarea includes the 141 acres of exception land and no environmental constraints. The South Subarea is divided into two sections.

- South Subarea A is 114 acres on 41 parcels in the western section of the subarea. The area consists of predominantly rural residential uses and includes the Sunset Airstrip. The exception land includes 22 parcels zoned RR-5, 13 parcels zoned AF-5, 1 parcel zones AF-20, and 3 parcels zoned EFU.
- South Subarea B is 38 acres on 12 parcels located on the eastern side of the subarea

consisting of residential and industrial uses. Ten parcels are zoned AF-5, 1 parcel is zoned R-COM, and 1 parcel is zoned R-IND.

The **West Subarea** consists of 493 acres on 16 parcels, with about 9 acres with environmental constraints. All parcels are zoned EFU and land use is primarily agriculture.

The **East Subarea** includes 515 acres on 10 parcels located near the Sunset Ridge Development and bordered by Highway 26 to the south, Jackson School Road to the west, and North Plains city limits to the west and north. Current uses are primarily agricultural, though most of the westernmost portion is occupied by the Recology Organics processing facility. There is also approximately 71 acres of wetlands and areas within the 100-year floodway on the western portion of the site. One parcel is zoned AF-20 and eight are zoned EFU, and one parcel is split between AF-20 and EFU zones.

Table 13. North Plains UGB Expansion Study Area Zoning and Acres by Subarea and Section

Subarea	Zoning	Parcels	Gross Acres	Acres w/o Env Const	Exception Land Acres
North	AF-20	4	132.42	120.80	0.00
	EFU	7	264.75	261.64	0.00
South A	AF-5	15	72.83	72.83	72.83
	AF-20	1	1.40	1.40	0.00
	EFU	3	9.80	9.80	0.00
	RR-5	22	30.07	30.07	30.07
South B	AF-5	10	29.17	29.17	29.17
	R-COM	1	0.20	0.20	0.20
	R-IND	1	8.75	8.75	8.75
West	EFU	16	493.10	483.67	0.00
East	AF-20	1	42.36	18.18	0.00
	AF-20	1	34.82	26.63	0.00
	EFU		28.82	10.71	0.00
	EFU	8	409.12	388.48	0.00
TOTAL		*90*	*1,557.61*	*1,462.33*	*38.02*

When evaluating the priority of land for inclusion the city must first evaluate the approximately 140 acres of exception land south of Highway 26 and north of NW Beach Road and select as much of the land as necessary to satisfy the 855-acre land need. Since the acreage of the exception land is less than the established land need, the city will also evaluate the remaining 1,391 gross acres (1,294

acres without environmental constraints) within the study area, all of which is considered predominantly high-value farmland.

1. EFFICIENT ACCOMMODATION OF IDENTIFIED LAND NEEDS

The City is using several criteria to determine where the City could most efficiently meet its land needs for the next 20 years – proximity, parcel size, and buildable land. Proximity to schools, employment, commercial areas, and amenities relieves pressure on the transportation system and provides more access to daily needs to higher concentrations of residents, resulting in a decrease in vehicle miles traveled (VMT). Parcelization is an indicator of both availability for development and the ability to develop an area in an efficient, coordinated manner. Looking at the gross acres available in an area may be misleading if there are environmental or other constraints on the land. Buildable land indicates how much of the land is available to be developed.

Proximity

The proximity criterion is based on the idea that land adjacent to the existing UGB offers the City multiple benefits:

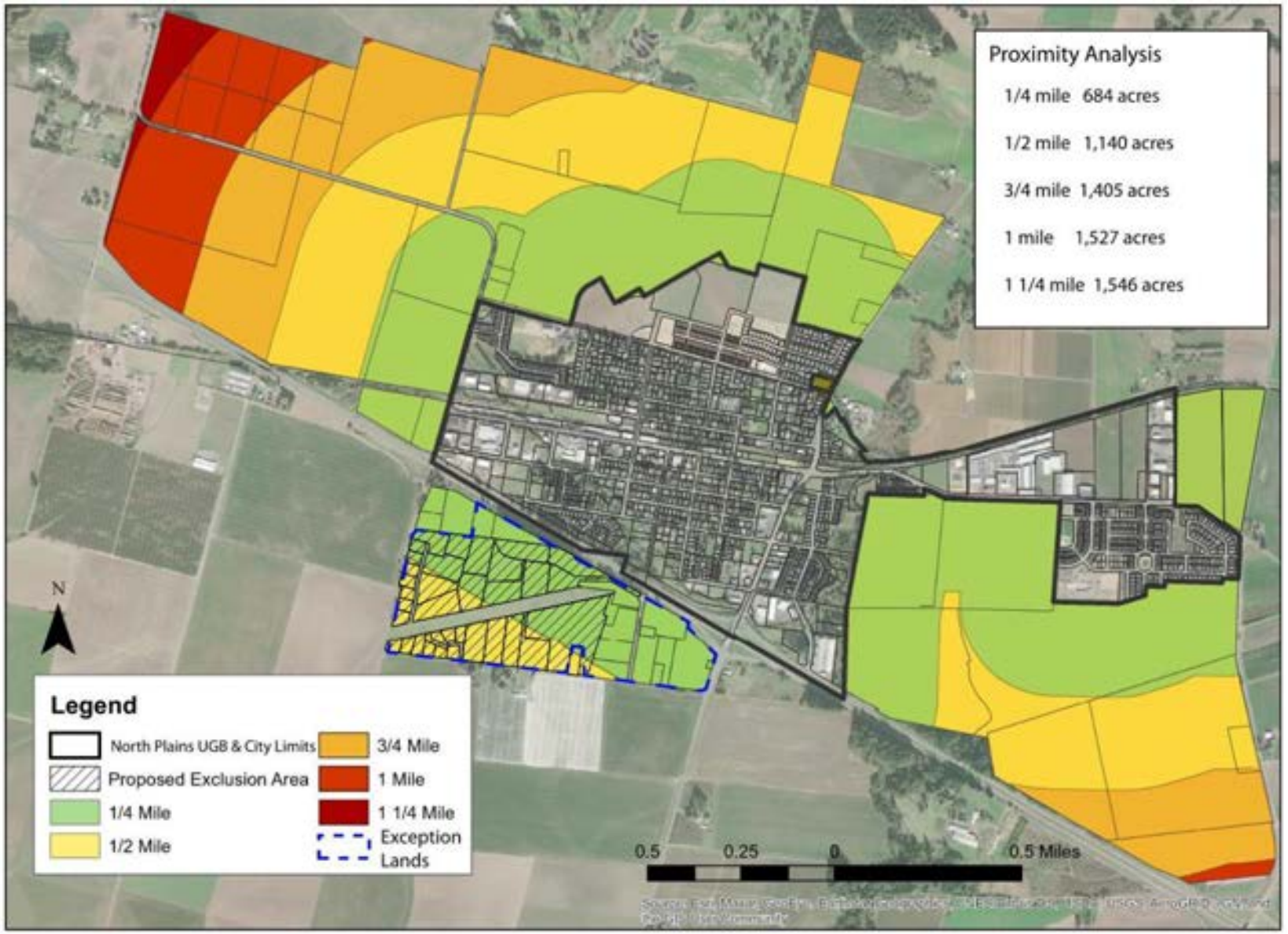
- Leverages prior infrastructure investments
- Provides access to current services and amenities
- Supports downtown businesses
- Reduces VMT and supports active modes of transportation (walking and biking)
- Increases housing choice and promotes affordability
- Preserves valuable agriculture and forest land

"Leapfrog" development bypasses available land located closer to the city, requiring new infrastructure investments, car-dependency, and greater land consumption.

Figure 9 illustrates the distance parcels within the study area are from the existing UGB. In general, parcels within ¼ mile (green) can meet the city's needs more efficiently than those within ¼ and ½ mile (yellow), which are in turn better suited than parcels between ½ and ¾ miles away. There are about 618 gross acres of land within ¼ mile of the existing UGB, but that does not necessarily mean that all of this land should be brought into the UGB. The proximity criterion does not take land characteristics and other considerations into account. For example, the East Subarea includes significant environmental constraints and is the location of the Recology Organics processing facility.

The entire South Subarea, including all of the Exception Land, is within ½ mile of the UGB. It is important to note that the South Subarea is separated from the rest of the city by Highway 26, which makes it less suitable for residential development, as the highway is a barrier to walking and biking as well as access to shopping and services in the city.

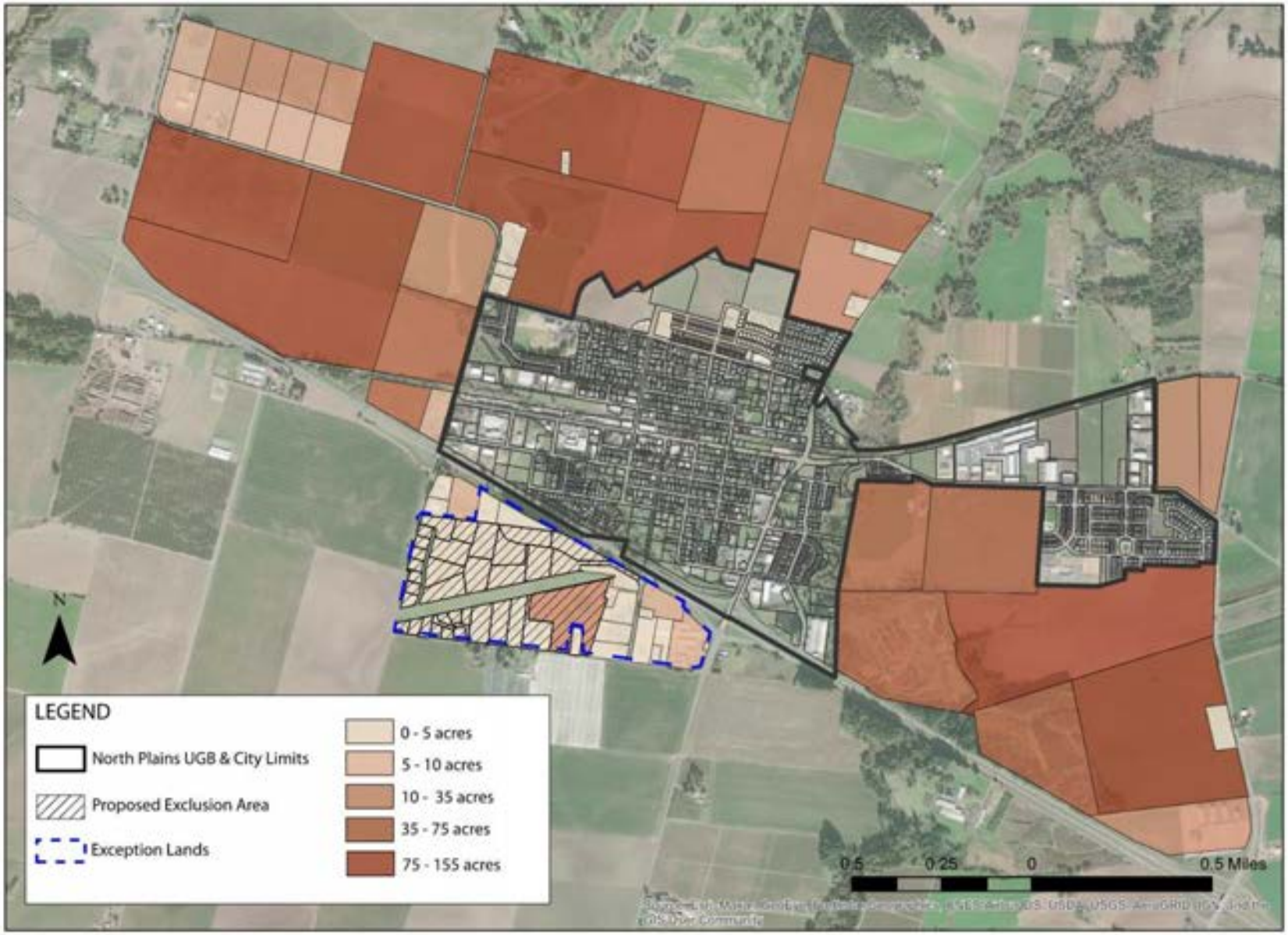
Figure 9. Proximity of Study Area Parcels to the Existing Urban Growth Boundary



Parcel Size

The next criterion is parcel size or parcelization. Larger parcels facilitate new development more efficiently than smaller parcels which often times need to be consolidated. The development of larger tracts of land tends to have a higher return on investment than the development/ redevelopment of smaller tracts of land. However, a diversity of sizes is also advantageous to meeting residential and neighborhood-scale commercial needs. Figure 10 shows the range of parcel sizes and can be viewed together with the North Plains' Economic Opportunity Analysis, which details the parcel sizes needed for various employment uses, or the Housing Needs Analysis to determine residential suitability. Table 7 from Chapter 2 shows specific site characteristics needed to accommodate target services and industries, as identified in the 2022 EOA.

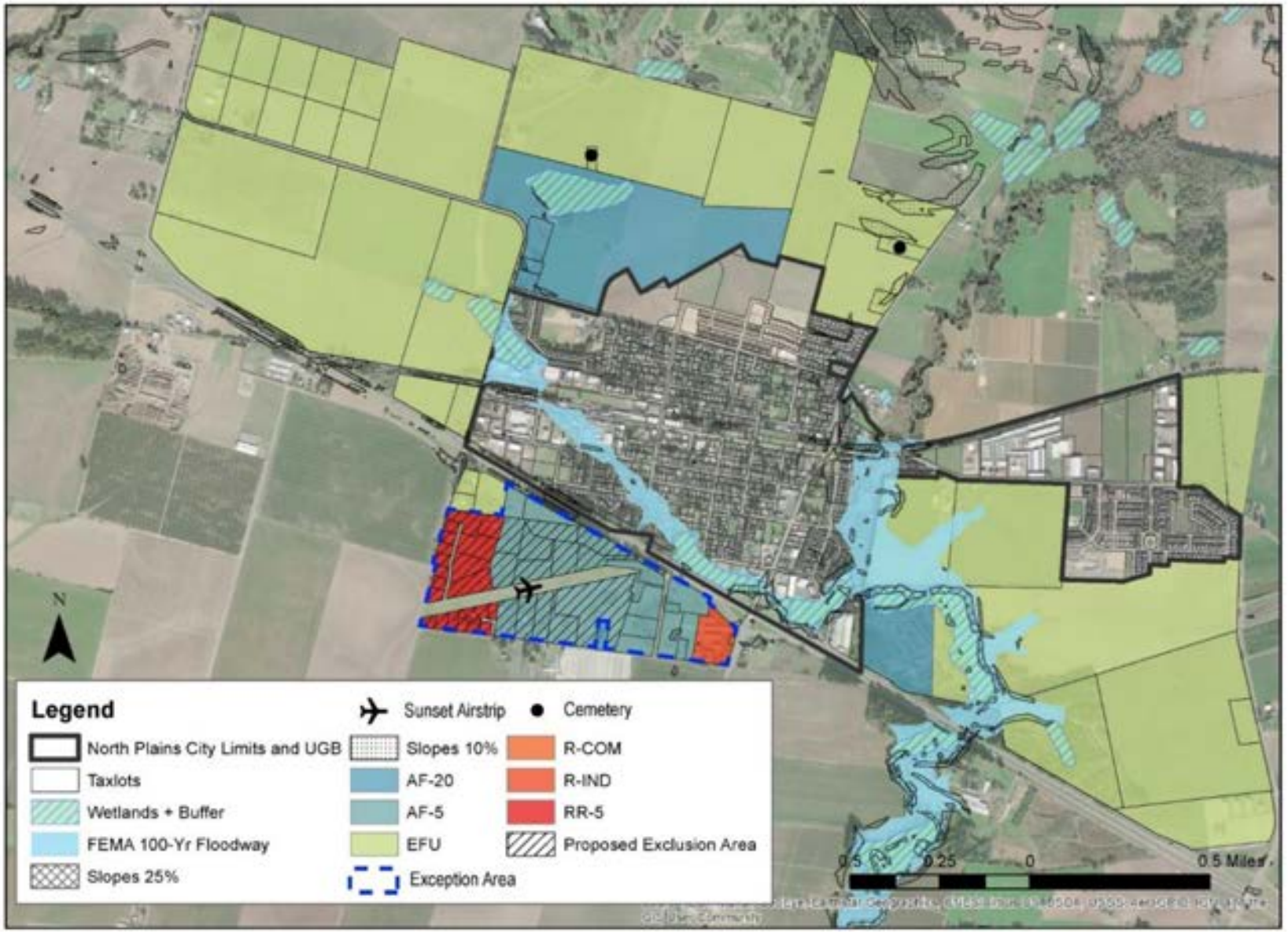
Figure 10. Study Area Parcel Sizes



Buildable Land

Buildable land is the land that remains for development after existing structures and environmental constraints are removed. Though a vast majority of the study area is currently used for agriculture and is free from existing structures, there are some subareas and specific parcels with residential or commercial buildings and uses that reduce the amount of buildable land available or may hinder or prevent future development. Figure 11 shows environmental constraints in the study area.

Figure 11. Study Area Environmental Constraints



Tables 14-18 provide an analysis of the Subareas relative to Goal 14, Factor 1, the efficient accommodation of identified land needs. Subareas are scored on a scale of 0 to 2 based on the three criteria: proximity, parcel size, and buildable land.

Table 14: Factor 1 North Subarea Summary and Evaluation

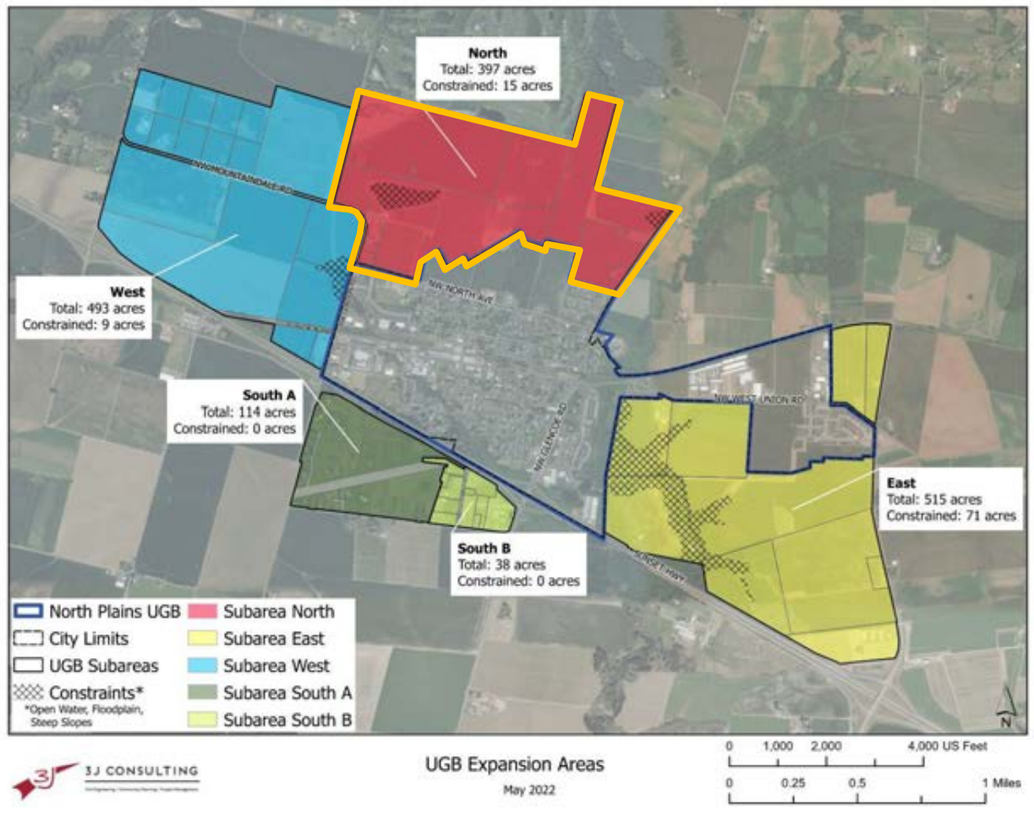
<table>
<tr><th colspan="2">NORTH SUBAREA</th><th colspan="2">Evaluation Criteria</th><th colspan="2">Evaluation Results</th></tr>
<tr><th>Description and Illustration</th><th>Evaluation Criteria</th><th>Ideal Definition</th><th>Score</th><th>Comments</th></tr>
<tr><td rowspan="4">The North Subarea is bounded by Pumpkin Ridge Golf Club (north), Pumpkin Ridge Road and Mountaindale Road (west), North Avenue and recently incorporated, undeveloped land (south), and Shadybrook Road (east).
 
</td><td>Proximity</td><td>Area is directly adjacent to the current UGB without major barriers and all land is within ¼ mile of the UGB.</td><td>+1</td><td>The North Subarea is adjacent to the current UGB. Most of the land is within ½ mile of the UGB. Lands uses south of the North Subarea are primarily residential.</td></tr>
<tr><td>Parcel Size</td><td>Larger tracts of land are more conducive to development and meeting the city's specific commercial and industrial land needs.</td><td>+2</td><td>The North Subarea consists of 13 parcels totaling 397 acres. Larger parcels in the North Subarea make it more conducive to development.
<table><tr><th>Parcel Size</th><th>Parcels</th></tr><tr><td>50 or more</td><td>3</td></tr><tr><td>25 – 50</td><td>2</td></tr><tr><td>10 – 25</td><td>0</td></tr><tr><td>5 – 10</td><td></td></tr><tr><td>Less than 5</td><td>8</td></tr></table></td></tr>
<tr><td>Buildable Land</td><td>Land free from environmental constraints and existing structures is better suited to facilitate future development.</td><td>+2</td><td>The subarea is primarily farmland and mostly free from environmental constraints, with the exception of the Lind Reservoir. There are around 10 homes and associated structures located along the edges of the area.</td></tr>
<tr><td colspan="4">Summary</td></tr>
<tr><td colspan="4">The North Subarea is adjacent to the UGB and includes large, unconstrained parcels making it, and especially the southern portion of the subarea, well-suited for UGB expansion.</td></tr>
</table>

Table 15: Factor 1 South Subarea A Summary and Evaluation

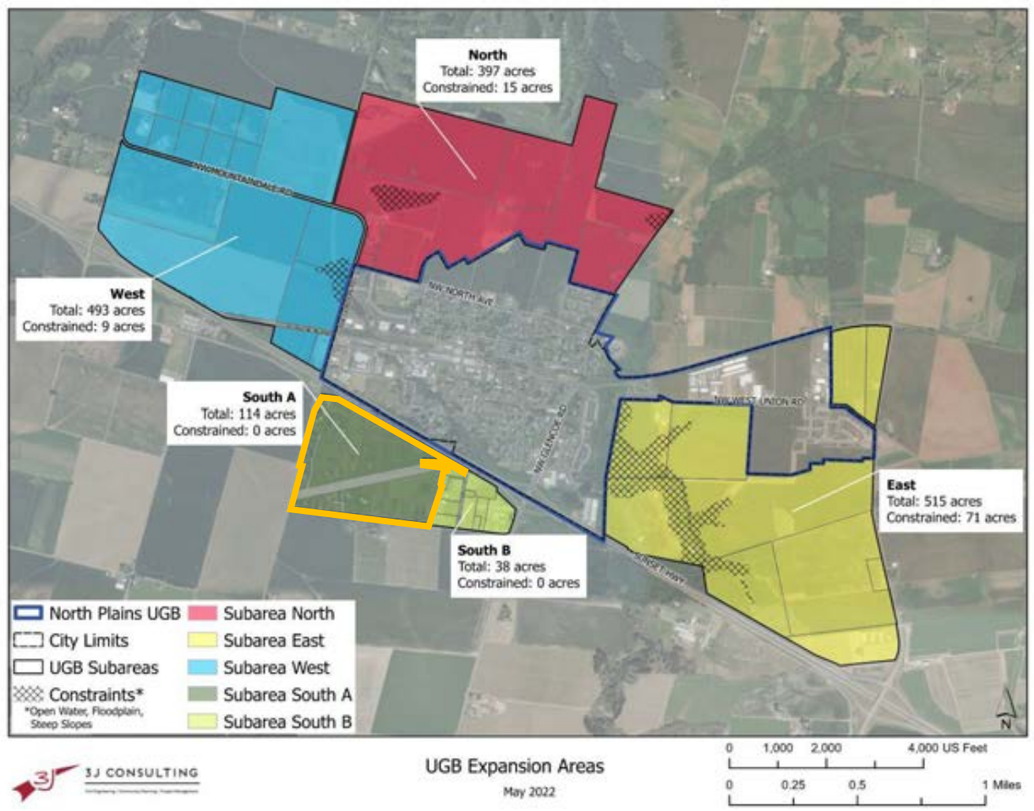
<table>
<tr><th colspan="2">SOUTH SUBAREA A</th><th colspan="2">Evaluation Criteria</th><th colspan="2">Evaluation Results</th></tr>
<tr><th colspan="2">Description and Illustration</th><th>Evaluation Criteria</th><th>Ideal Definition</th><th>Score</th><th>Comments</th></tr>
<tr><td colspan="2" rowspan="3">South Subarea A is bounded by US 26 (north/northeast), NW Gordon Road (west), and NW 316th Place (east). South Subarea A is largely built out with large lot residential parcels. The subarea is divided by the Sunset Air Strip, a private airport managed and owned by the residential neighborhood located within South Subarea A.
 
</td><td>Proximity</td><td>Area is directly adjacent to the current UGB without major barriers and all land is within ¼ mile of the UGB.</td><td>0</td><td>South Subarea A is adjacent to and entirely within ½ mile of the current UGB, but separated from the city by Hwy 26, which makes it less suitable for residential development. It does have access to the transportation network via NW Beach Rd.</td></tr>
<tr><td>Parcel Size</td><td>Larger tracts of land are more conducive to development and meeting the city's specific commercial and industrial land needs.</td><td>0</td><td>South Subarea A consists of 41 parcels totaling 114 acres. All but two of the parcels are less than five acres. This parcelization makes it less conducive to development.
<table><tr><th>Parcel Size</th><th>Parcels</th></tr><tr><td>50 or more</td><td>0</td></tr><tr><td>25 – 50</td><td>0</td></tr><tr><td>10 – 25</td><td>1</td></tr><tr><td>5 – 10</td><td>1</td></tr><tr><td>Less than 5</td><td>39</td></tr></table></td></tr>
<tr><td>Buildable Land</td><td>Land free from environmental constraints and existing structures is better suited to facilitate future development.</td><td>+1</td><td>Most of the site is covered with rural residences associated with the air strip, which is not conducive to additional development . The exception is the 18-acre parcel currently used for agricultural purposes.</td></tr>
<tr><td colspan="6">Summary</td></tr>
<tr><td colspan="6">Given its isolated location, smaller parcel sizes, and development status, South Subarea A is not a good candidate for UGB expansion.</td></tr>
</table>

Table 16: Factor 1 South Subarea B Summary and Evaluation

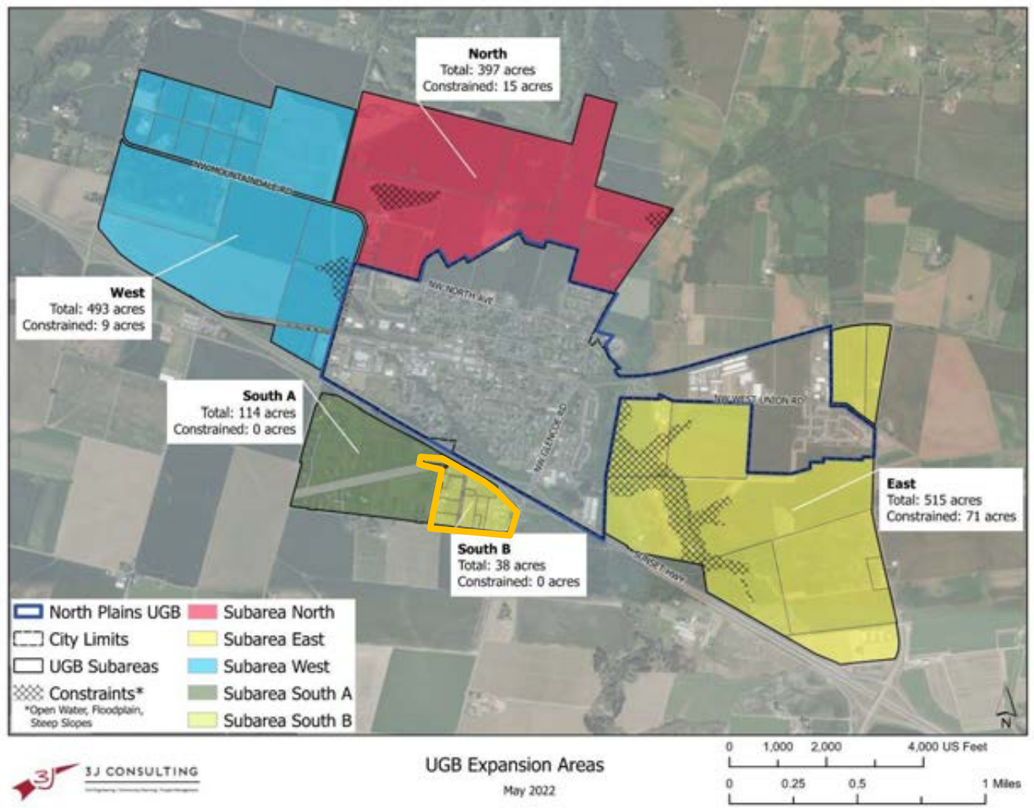
<table>
<tr><th colspan="2">SOUTH SUBAREA B</th><th colspan="2">Evaluation Criteria</th><th colspan="2">Evaluation Results</th></tr>
<tr><th>Description and Illustration</th><th>Evaluation Criteria</th><th>Ideal Definition</th><th>Score</th><th>Comments</th></tr>
<tr><td rowspan="4">South Subarea B is bounded by US 26 (north), NW 316th Place (west), NW Beach Road (south), and NW Glencoe Road (east).
 
</td><td>Proximity</td><td>Area is directly adjacent to the current UGB without major barriers and all land is within ¼ mile of the UGB.</td><td>+1</td><td>South Subarea B is adjacent to and entirely within ¼ mile of the current UGB, but separated from the city by Hwy 26, which makes it less suitable for residential development. The subarea does have frontage on Glencoe Road, which has good visibility for commercial development.</td></tr>
<tr><td>Parcel Size</td><td>Larger tracts of land are more conducive to development and meeting the city's specific commercial and industrial land needs.</td><td>+1</td><td>South Subarea B consists of 12 parcels totaling 38 acres. Only two parcels are between five and ten acres. This parcelization makes it less conducive to development.
<table><tr><th>Parcel Size</th><th>Parcels</th></tr><tr><td>50 or more</td><td>0</td></tr><tr><td>25 – 50</td><td>0</td></tr><tr><td>10 – 25</td><td>0</td></tr><tr><td>5 – 10</td><td>2</td></tr><tr><td>Less than 5</td><td>10</td></tr></table></td></tr>
<tr><td>Buildable Land</td><td>Land free from environmental constraints and existing structures is better suited to facilitate future development.</td><td>+1</td><td>The subarea is mostly farmland with no environmental constraints and just a few rural residences. There are numerous agricultural/industrial structures proximate to Glencoe Road.</td></tr>
<tr><td colspan="4">Summary</td></tr>
<tr><td colspan="4">South Subarea B is separated from the city by Highway 26 and includes smaller parcel sizes, but does have frontage on Glencoe Road making it a candidate for UGB expansion for commercial development/redevelopment.</td></tr>
</table>

Table 17: Factor 1 West Subarea Summary and Evaluation

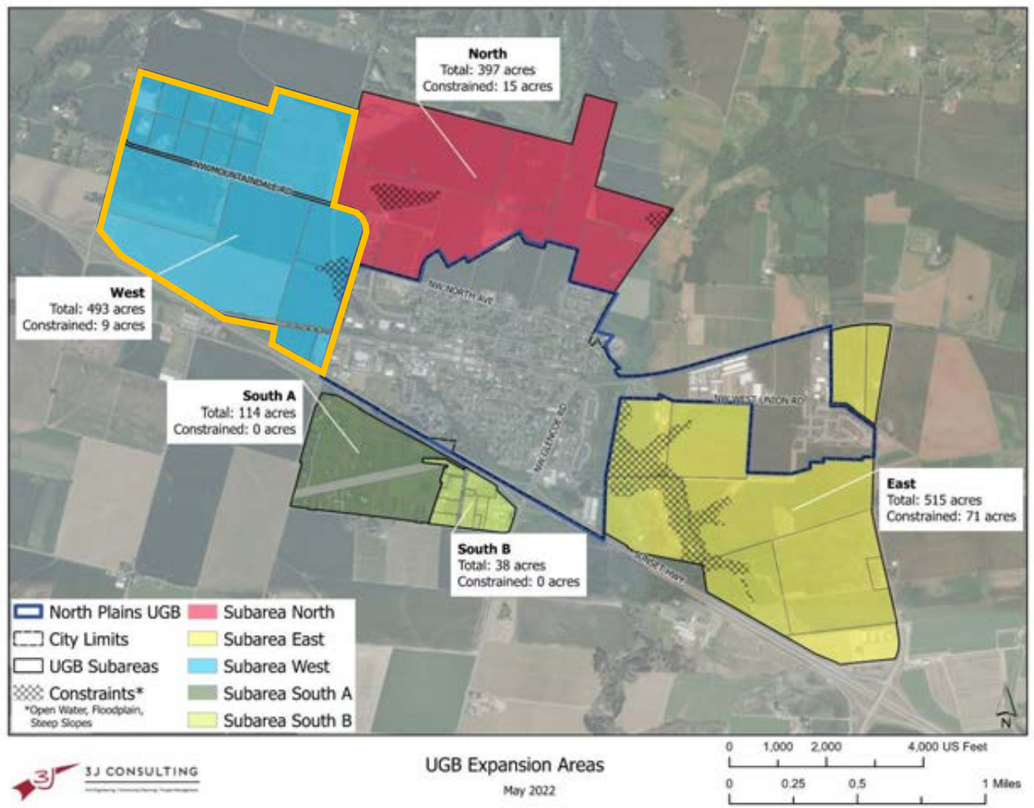
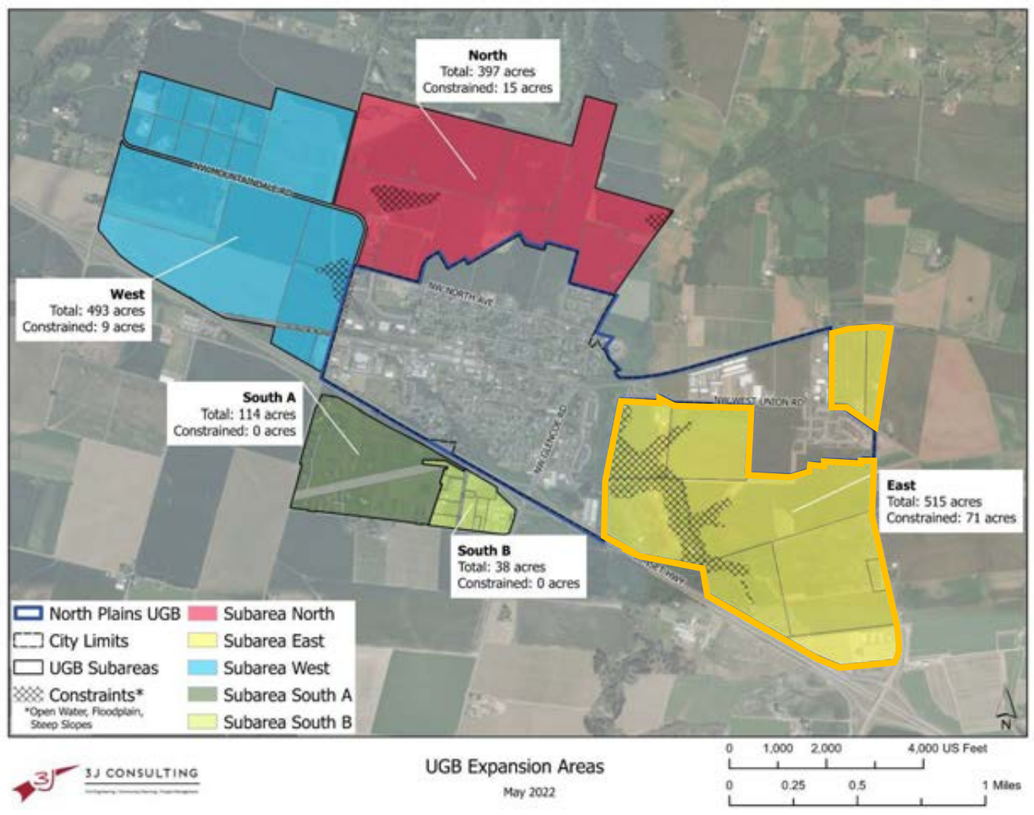
WEST SUBAREA	Evaluation Criteria		Evaluation Results	
Description and Illustration	Evaluation Criteria	Ideal Definition	Score	Comments
The West Subarea is bounded by Dersham Road (west), US 26 (south), and NW Gordon Road (east). The northern boundary of West Subarea is not confined by a physical limitation. 	Proximity	Area is directly adjacent to the current UGB without major barriers and all land is within ¼ mile of the UGB.	+1	The West Subarea is adjacent to the UGB. More than 25% of the subarea is within ¼ mile of the UGB and 50% within ½ mile. Land uses to the east are primarily industrial.
	Parcel Size	Larger tracts of land are more conducive to development and meeting the city's specific commercial and industrial land needs.	+2	The West Subarea consists of 15 parcels totaling 493 acres. All parcels are more than five acres and three are more than 50 acres. Larger parcels in the North Subarea make it more conducive to development. Parcel Size / Parcels 50 or more: 3 25 – 50: 2 10 – 25: 4 5 – 10: 6 5 or less: 0
	Buildable Land	Land free from environmental constraints and existing structures is better suited to facilitate future development.	+2	The West Subarea is mostly farmland with a few wetlands near the eastern edge and few rural residences.
	Summary			
	Given its location relative to the existing UGB and large, mostly unconstrained parcels, the West Subarea is well-suited for UGB expansion.			

Table 18: Factor 1 East Subarea Summary and Evaluation

<table>
<tr><th>EAST SUBAREA</th><th colspan="2">Evaluation Criteria</th><th colspan="2">Evaluation Results</th></tr>
<tr><th>Description and Illustration</th><th>Evaluation Criteria</th><th>Ideal Definition</th><th>Score</th><th>Comments</th></tr>
<tr><td rowspan="4">The East Subarea is broken up into two portions. The larger portion is bounded by NW West Union Road (north), new residential development and Atfalati Ridge Elementary School (north), US 26 (south) and NW Jackson School Road (east). The smaller portion of the East Subarea is bounded by the railroad (north), industrial land uses adjacent to NW 298th Place (west), NW Jackson School Road (east) and NW West Union Road (south).

 
</td><td>Proximity</td><td>Area is directly adjacent to the current UGB without major barriers and all land is within ¼ mile of the UGB.</td><td>+2</td><td>The East Subarea is adjacent to the existing UGB and about half of the subarea is within ¼ mile of the UGB. Surrounding land uses are a mix of residential and industrial.</td></tr>
<tr><td>Parcel Size</td><td>Larger tracts of land are more conducive to development and meeting the city's specific commercial and industrial land needs.</td><td>+2</td><td>The East Subarea consists of 10 parcels totaling 515 acres. Only one parcel is less than ten acres. Large parcels in the East Subarea make it more conducive to development.

<table><tr><th>Parcel Size</th><th>Parcels</th></tr><tr><td>50 or more</td><td>4</td></tr><tr><td>25 – 50</td><td>4</td></tr><tr><td>10 – 25</td><td>1</td></tr><tr><td>5 – 10</td><td>1</td></tr><tr><td>Less than 5</td><td>0</td></tr></table></td></tr>
<tr><td>Buildable Land</td><td>Land free from environmental constraints and existing structures is better suited to facilitate future development.</td><td>+2</td><td>The East Subarea is mostly farmland with significant environmental constraints in the western portion along with the Recology Organics processing site. The remainder of the site is mostly free of constraints other than several rural residences and farm-related structures.</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>Summary</td><td colspan="3"></td></tr>
<tr><td colspan="4">The East Subarea is a good candidate for UGB expansion given its location relative to the existing UGB and large, parcels even though the amount of buildable land is lower due to environmental constraints.</td></tr>
</table>

2a. ORDERLY AND ECONOMIC PROVISION OF PUBLIC FACILITIES AND SERVICES: TRANSPORTATION

OAR Chapter 660 Division 12, Transportation Planning was reviewed to identify relevant goals and objectives, applicable for the development of the transportation evaluation criteria for the North Plains Urban Growth Boundary Expansion. The relevant objectives included as part of Chapter 660 are identified below:[2]

(a) Promote the development of transportation systems adequate to serve statewide, regional and local transportation needs and the mobility needs of the transportation disadvantaged;

(b) Encourage and support the availability of a variety of transportation choices for moving people that balance vehicular use with other transportation modes, including walking, bicycling and transit in order to avoid principal reliance upon any one mode of transportation;

(c) Provide for safe and convenient vehicular, transit, pedestrian, and bicycle access and circulation;

(d) Facilitate the safe, efficient and economic flow of freight and other goods and services within regions and throughout the state through a variety of modes including road, air, rail and marine transportation;

(e) Protect existing and planned transportation facilities, corridors and sites for their identified functions;

(f) Provide for the construction and implementation of transportation facilities, improvements and services necessary to support acknowledged comprehensive plans;

~~(g) Identify how transportation facilities are provided on rural lands consistent with the goals;~~

~~(h) Ensure coordination among affected local governments and transportation service providers and consistency between state, regional and local transportation plans; and~~

(i) Ensure that changes to comprehensive plans are supported by adequate planned transportation facilities.

[2] Objectives shown in strikethrough are not relevant to this project.

Subarea Evaluation and Transportation Criteria

The transportation evaluation criteria were developed to qualitatively assess the five (5) subareas considered for potential urban growth boundary (UGB) expansion. The criteria development was largely influence by the relevant objective identified in Chapter 660 Division 12, Transportation Planning, and the Goals and Objectives identified in the North Plains Transportation System Plan (TSP – Reference 1). The transportation evaluation criteria are defined below:

- Local Mobility
- Regional Mobility
- Safe Access
- Environmental
- Feasibility
- Balanced System

Evaluation Methodology

Subareas were evaluated based on the set of six (6) criteria with a scoring scale of 0 - +2, as shown in Tables 19-23. The "Ideal Definition" summarizes the description in achieving the highest value (+2). Subareas that do not meet the ideal definition are scored zero (0), while subareas that partially meet the ideal definition are score one (+1).

Explanatory narrative describing the justification and reasoning of the evaluation scoring for each subarea is provided under the "Comment" column. The evaluation criteria were applied to the subareas based on a subarea to subarea comparative approach.

Table 19: Factor 2 Transportation North Subarea Summary and Evaluation

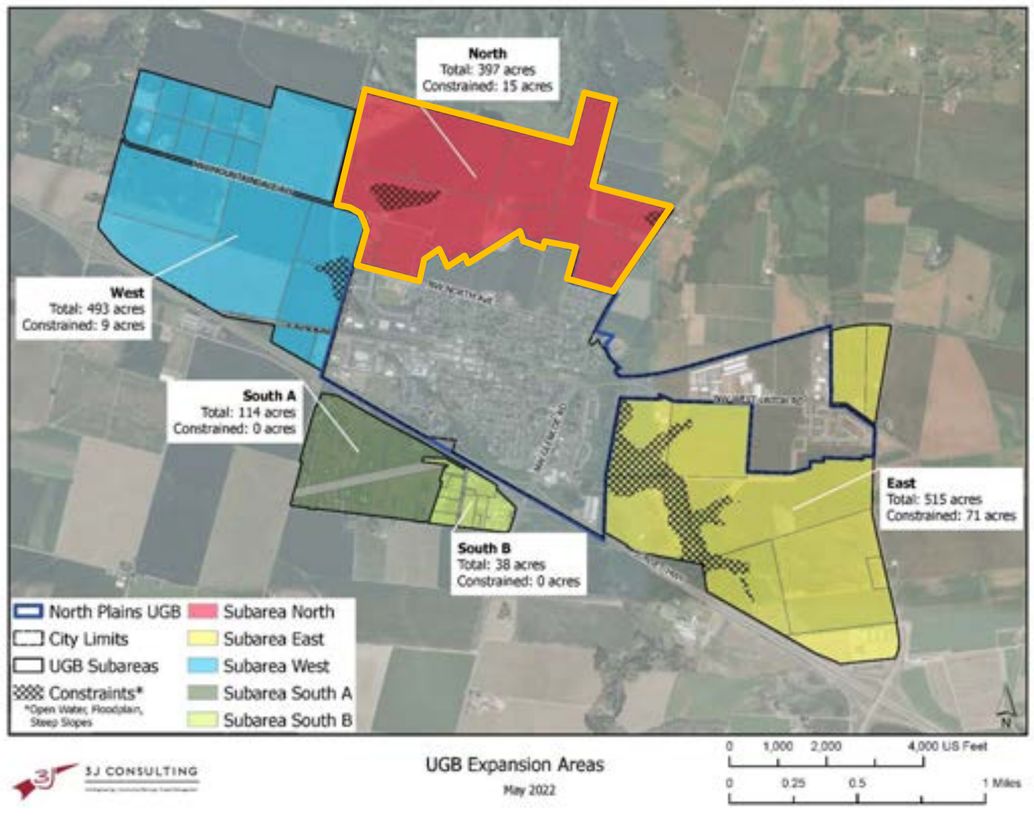
NORTH SUBAREA	Transportation Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score** *(0 - +2)*	**Comments**
The North Subarea is bounded by Pumpkin Ridge Golf Club (north), Pumpkin Ridge Road and Mountaindale Road (west), North Avenue and recently incorporated, undeveloped land (south), and Shadybrook Road (east). 	**Local Mobility**	Has close proximity to established roadway and active transportation infrastructure, allowing for numerous multi-modal connections that are intuitive and feasible.	**+2**	Local street extensions from the adjacent North Avenue development are feasible. There are opportunities to integrate collector street connections to NW North Avenue and NW Shadybrook Road.
	Regional Mobility	Has direct, convenient, and efficient access to regional travel infrastructure.	**0**	Regional connections are available via NW Mountaindale Road, NW Old Pumpkin Ridge Road, and NW Shadybrook Road. However, these connections to interchange areas are less direct and require travel through alternative subareas or existing UGB.
	Safe Access	Has safe and convenient access to schools, parks, shopping, and employment centers.	**+2**	Area is in close proximity to North Plains Elementary School, access across NW North Avenue to essential destinations (parks, library, downtown amenities).
	Environmental	Has no environmentally sensitive areas such as wetlands, streams, and exclusion areas.	**+1**	Area has minor environmental constraints associated with Lind Reservoir. Future development must consider the Lind Reservoir and establish appropriate buffers.
	Feasibility	Can support future development without fundamental changes to existing and planned infrastructure identified in adopted planning documents.	**+1**	Urban standard roadway upgrades would be needed along portions of NW Old Pumpkin Ridge Road and NW Mountaindale Road. NW North Avenue and NW Shadybrook Road will require more moderate upgrades.
	Balanced System	Can support a balanced transportation network and avoids reliance upon any one travel mode.	**+1**	Future development can be integrated into the adjacent multimodal system due to its proximity with the new North Avenue development.
	Summary			
	The North Subarea has the potential to naturally tie into the existing North Plains transportation infrastructure. However much of this infrastructure will require urban upgrades to support future development. Although large in area, significant portions of the North Subarea are in close proximity to the established portions of North Plains. As such, it has strong, safe, and convenient multimodal access to essential destinations. In comparison to other subareas, regional mobility is limited due to the lack of direct, convenient, and efficient access to regional travel infrastructure.			

Table 20: Factor 2 Transportation South Subarea A Summary and Evaluation

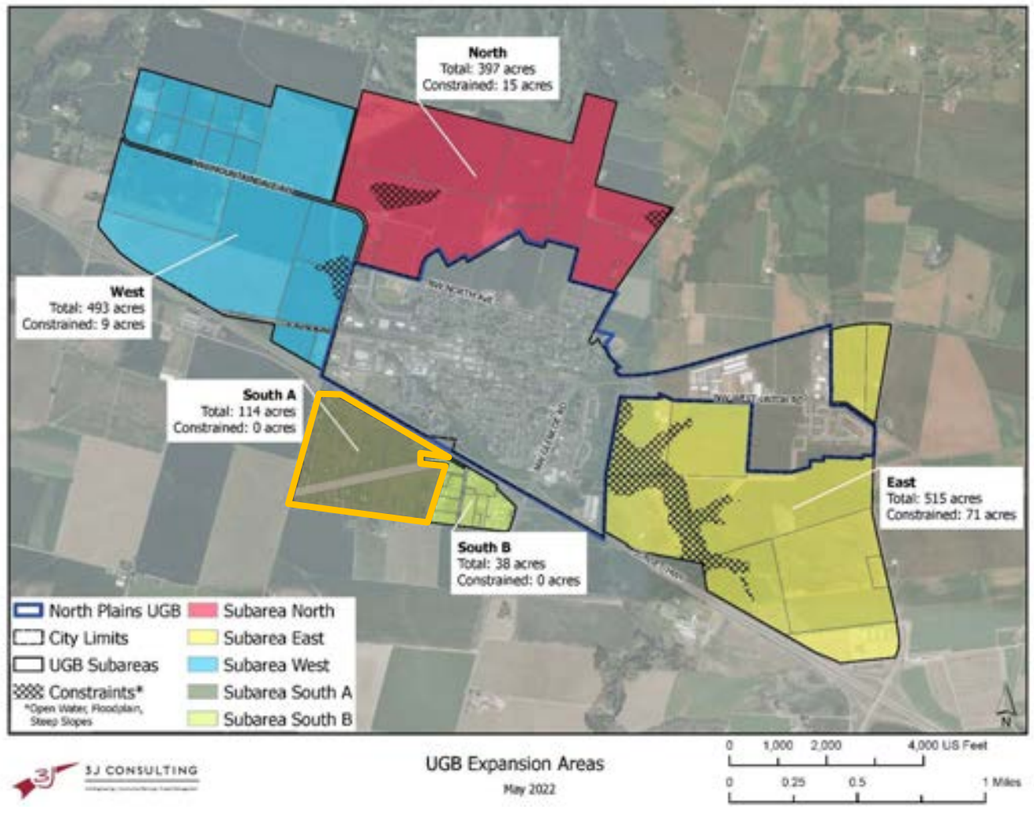
SOUTH SUBAREA A	Transportation Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score** *(0 - +2)*	**Comments**
South Subarea A is bounded by US 26 (north/northeast), NW Gordon Road (west), and NW 316th Place (east). South Subarea A is largely built out with large lot residential parcels. The subarea is divided by the Sunset Air Strip, a private airport managed and owned by the residential neighborhood located within South Subarea A. 	**Local Mobility**	Has close proximity to established roadway and active transportation infrastructure, allowing for numerous multi-modal connections that are intuitive and feasible.	**0**	Area is located south of US 26 which has minimal local street connectivity to the established North Plains grid network. A connection is available via NW Gordon Road, but the bridge across US 26 does not accommodate bicycle and pedestrian movements.
	Regional Mobility	Provides direct, convenient, and efficient access to regional travel infrastructure.	**+1**	Despite being located adjacent to US 26, regional mobility is not direct and is dependent upon unimproved Washington County roadways to either the US 26/Glencoe Road and US 26/NW Dersham Road interchanges.
	Safe Access	Has safe and convenient access to schools, parks, shopping, and employment centers	**0**	Area is isolated with residential parcels built out with large lots. Access to and from the area are vehicle centric with no walking, biking, or rolling facilities to/from the subarea.
	Environmental	Avoids environmental impacts, including those to wetlands, streams, and exclusion areas.	**+2**	No known environmental or sensitive areas have been identified.
	Feasibility	Avoids necessary changes to existing and planned infrastructure identified in adopted planning documents.	**0**	The US 26/NW Glencoe Road Interchange Area Management Plan assumed limits future development within the area bounded by US 26, NW Gordon Road, and NW Beach Road. Future urbanization assumptions would require an updated IAMP to reevaluate and assess interchange infrastructure and access management upgrades. Urban standard upgrades would be needed along NW Beach Road and NW Gordon Road. The development of local infrastructure to serve long-term redevelopment will be a challenge.
	Balanced System	Provides equal opportunity of transportation choices and avoids reliance upon any one mode	**0**	Development will attract vehicular centric activity in an area with no active transportation connectivity. NW Gordon Rd and NW Beach Rd will need to be upgraded to provide balanced modal options accessing the sub area.
	Summary			
	South Subarea A has good regional mobility characteristics, but they are not as strong as South Subarea B. The existing land uses, and residential parcels occupy the majority of South Subarea A with limited inter subarea connectivity available due to the air strip. US 26 serves as a barrier to South Subarea A and limits future connectivity to the urbanized segments of North Plains.			

Table 21: Factor 2 Transportation South Subarea B Summary and Evaluation

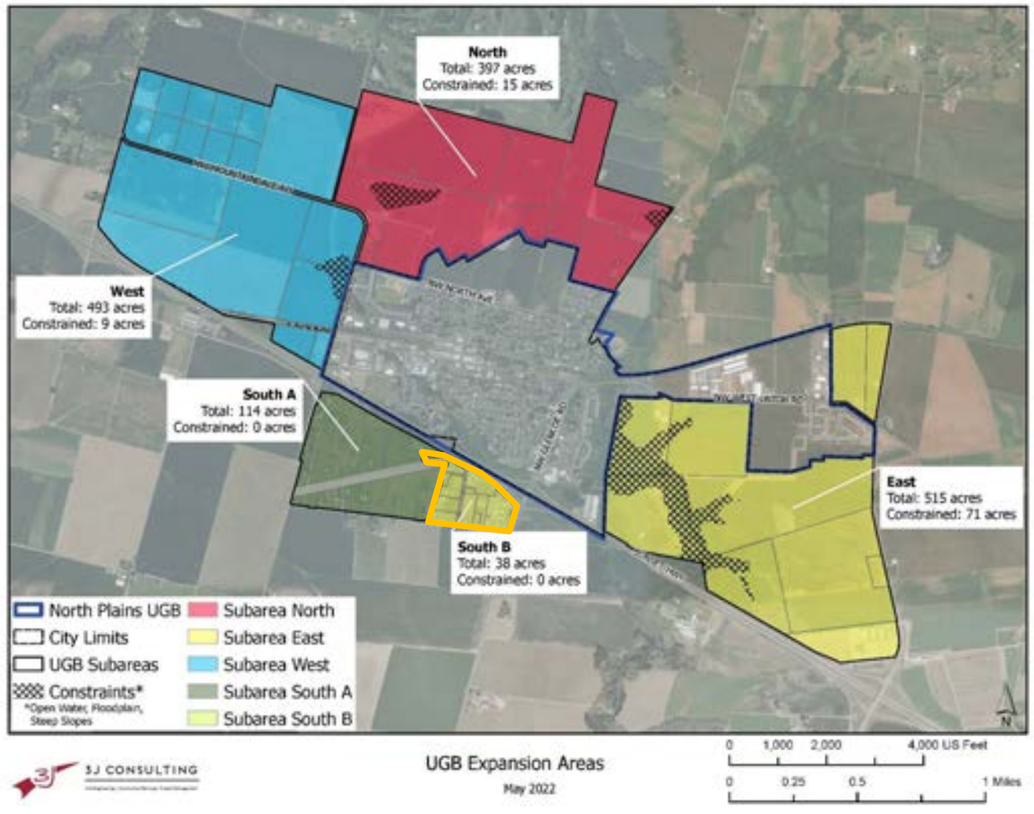
SOUTH SUBAREA B	Transportation Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score** *(0 - +2)*	**Comments**
South Subarea B is bounded by US 26 (north), NW 316th Place (west), NW Beach Road (south), and NW Glencoe Road (east). 	**Local Mobility**	Has close proximity to established roadway and active transportation infrastructure, allowing for numerous multi-modal connections that are intuitive and feasible	**0**	Area is located south of US 26 which has no local street connectivity to the established North Plains grid network. A connection is available via NW Glencoe Road, but traversing this corridor is not ideal for all ages and abilities.
	Regional Mobility	Provides direct, convenient, and efficient access to regional travel infrastructure.	**+2**	Regional mobility is direct and convenient via NW Glencoe Road and the adjacent US 26/NW Glencoe Road interchange.
	Safe Access	Has safe and convenient access to schools, parks, shopping, and employment centers	**0**	Adjacent land uses and infrastructure are vehicle centric with limited access for people walking, biking, rolling. Access to essential destinations will require traversing the US 26/NW Glencoe Road interchange.
	Environmental	Avoids environmental impacts, including those to wetlands, streams, and exclusion areas.	**+2**	No known environmental or sensitive areas have been identified.
	Feasibility	Avoids necessary changes to existing and planned infrastructure identified in adopted planning documents.	**0**	The US 26/NW Glencoe Road Interchange Area Management Plan assumed limited future development/urbanization along the NW Beach Road corridor. Future urbanization assumptions would require an updated IAMP to reevaluate and assess interchange infrastructure and access management upgrades. Urban standard upgrades would be needed along NW Beach Road and NW Glencoe Road.
	Balanced System	Provides equal opportunity of transportation choices and avoids reliance upon any one mode	**0**	Development will attract vehicular centric activity in an area with limited active transportation connectivity.
	Summary			
	South Subarea B has strong regional mobility potential due to its proximity to the NW Glencoe Road interchange. However, US 26 serves as a barrier to South Subarea B and limits future connectivity to the urbanized segments of North Plains.			

Table 22: Factor 2 Transportation West Subarea Summary and Evaluation

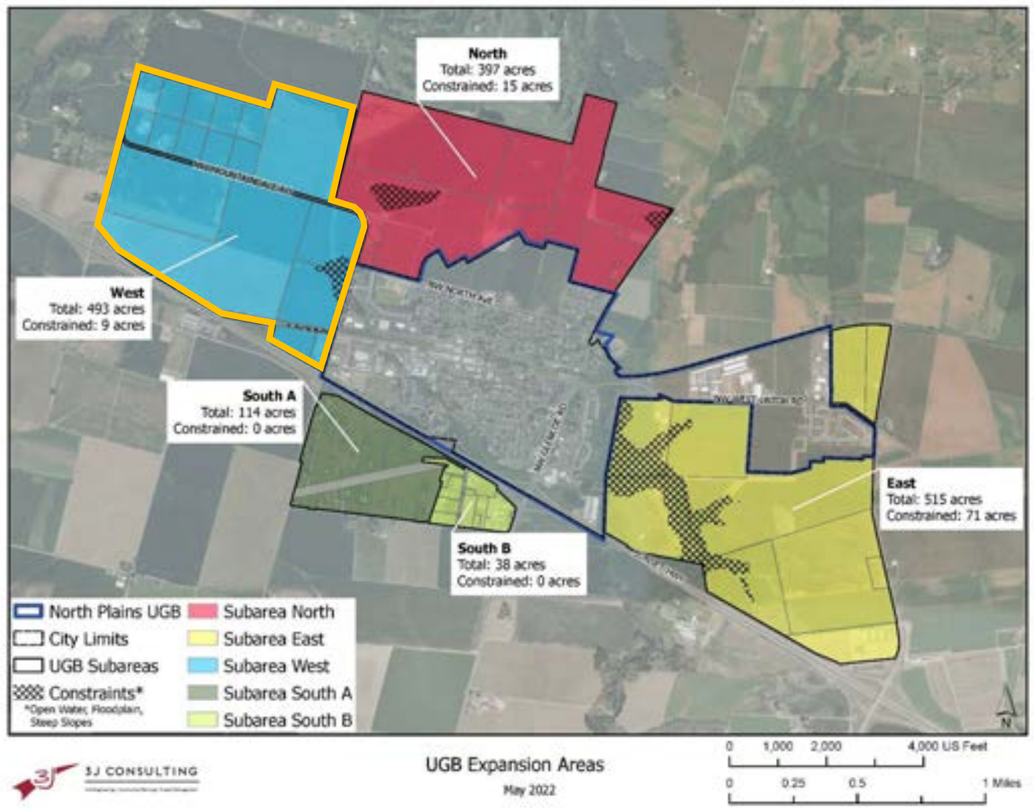
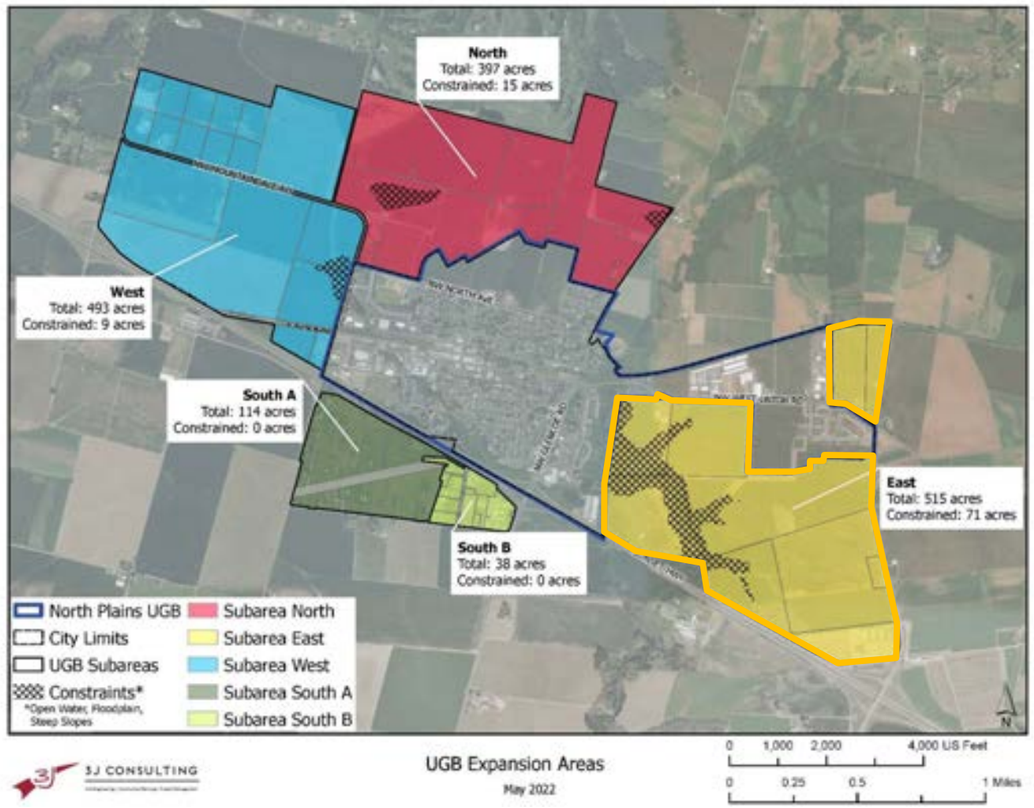
WEST SUBAREA	Transportation Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score** *(0 - +2)*	**Comments**
The West Subarea is bounded by Dersham Road (west), US 26 (south), and NW Gordon Road (east). The northern boundary of West Subarea is not confined by a physical limitation. 	**Local Mobility**	Has close proximity to established roadway and active transportation infrastructure, allowing for numerous multi-modal connections that are intuitive and feasible	**+1**	Local street extensions across NW Gordon Road are limited based on existing development patterns and environmentally sensitive areas. There are opportunities to integrate collector street extensions via NW North Avenue, NW Commercial Street, and NW Cottage Street.
	Regional Mobility	Provides direct, convenient, and efficient access to regional travel infrastructure	**+2**	Regional connections are more directly available to the US 26/NW Dersham Road interchange via NW Mountaindale Road and NW Dersham Road. Significant levels of potential development may require modernization and upgrades of the US 26/Dersham Road interchange.
	Safe Access	Has safe and convenient access to schools, parks, shopping, and employment centers	**0**	Access to NW North Avenue and NW Commercial Street provide connections to essential destinations (North Plains Elementary School, parks, library, downtown amenities). Area connectivity will rely on upgrades to rural unimproved County roadways.
	Environmental	Avoids environmental impacts, including those to wetlands, streams, and exclusion areas.	**+1**	A small portion of the eastern area has some known environmental constraints.
	Feasibility	Avoids necessary changes to existing and planned infrastructure identified in adopted planning documents.	**0**	Railroad infrastructure splits the lower portion of the Area limiting the ability to integrate potential extensions of the NW Commercial Street and NW Cottage Street corridors. Development will require urban standard roadway upgrades to NW Mountaindale Road, NW Gordon Road, NW Dersham Road, and Pumpkin Ridge Road.
	Balanced System	Provides equal opportunity of transportation choices and avoids reliance upon any one mode	**+1**	Future development can integrate into the adjacent multimodal system, but it will require the extension and integration of new connections across the NW Gordon Road and NW Mountaindale Road. Transportation choices for the northern area will be most convenient and accessible through vehicular travel.
	Summary			
	The West Subarea has strong regional mobility potential to its proximity to the NW Dersham Road interchange. Integration with existing North Plains multimodal infrastructure to the east is challenged in many locations due to development patterns that limit local street connectivity, environmental constrains, and a railroad splitting the lower portion of the area. To establish connectivity, the eastern portion of the area would need to develop first and integrate into existing street networks. Development will rely on extension of NW North Avenue and urban upgrades of NW Mountaindale Road.			

Table 23: Factor 2 Transportation East Subarea Summary and Evaluation

EAST SUBAREA	Transportation Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score** *(0 - +2)*	**Comments**
The East Subarea is broken up into two portions. The larger portion is bounded by NW West Union Road (north), new residential development and Atfalati Ridge Elementary School (north), US 26 (south) and NW Jackson School Road (east). The smaller portion of the East Subarea is bounded by the railroad (north), industrial land uses adjacent to NW 298th Place (west), NW Jackson School Road (east) and NW West Union Road (south).	**Local Mobility**	Has close proximity to established roadway and active transportation infrastructure, allowing for numerous multi-modal connections that are intuitive and feasible	**+1**	While close in proximity to the established local street network, local street extensions to the west are challenging due to McKay Creek. Local mobility will need to rely on access via NW West Union Road or a future connection over McKay Creek.
	Regional Mobility	Provides direct, convenient, and efficient access to regional travel infrastructure.	**+2**	Regional connections are available via NW West Union Road and NW Jackson School Road. The southeast portion has direct access to the NW Jackson School Road interchange which provides convenient regional mobility to the US 26 corridor.
	Safe Access	Has safe and convenient access to schools, parks, shopping, and employment centers	**+1**	Atfalati Ridge School and Sunset Ridge Park are located within the Subarea. Access to destinations in downtown are limited to NW West Union Road by McKay Creek. A shared use path along NW West Union Road provides safe access; however, the distance and reliance of a single connection are less favorable.
	Environmental	Avoids environmental impacts, including those to wetlands, streams, and exclusion areas.	**0**	Large portions of the East Area, primarily the western half are traversed by McKay Creek.
	Feasibility	Avoids necessary changes to existing and planned infrastructure identified in adopted planning documents.	**+1**	Future development in the eastern portion can occur without major investment upgrades to existing system as recent development in the Sunset Ridge subdivision was built to accommodate future roadway connections. The western portions of the East Area will require connections that navigate McKay Creek.
	Balanced System	Provides equal opportunity of transportation choices and avoids reliance upon any one mode	**+1**	Area provides an opportunity to balance transportation choices (if Mckay Creek can be spanned) while also serving regional connections.
	Summary			
	In the East subarea, local mobility, safe access, and balanced multimodal connectivity to the established North Plains infrastructure to the west are limited by the need to span the McKay Creek corridor or rely on NW West Union Road. The western portion of the Subarea contains a large swath of environmentally sensitive land. The eastern portion of the Subarea has strong regional access and connectivity NW Jackson School Road interchange. The Subarea has strong opportunity for a mix of uses and development types.			



2b. ORDERLY AND ECONOMIC PROVISION OF PUBLIC FACILITIES AND SERVICES: PUBLIC UTILITIES

The following presents utility-related assessments for the City of North Plains to evaluate the serviceability for water, sanitary sewer, and storm drainage in UGB expansion subareas.

Subarea Evaluation and Utility Criteria

Utility improvements required to serve the proposed UGB expansion subareas were evaluated by reviewing relevant plans and policies, City Master Plans, existing infrastructure mapping, location of subareas, and other relevant information obtained from City staff.

Utility service needs of the UGB expansion areas are evaluated based on the following utility criteria:

Sanitary Sewer Service

- Does the subarea have existing sanitary infrastructure to support development?
- Does the subarea have planned sanitary infrastructure upgrades to support development?
- Is a mainline extension required to serve the subarea?
- Are there any identified deficiencies within or adjacent to the subarea?
- Relative to other options, what is the cost to provide service?

Storm Drainage Service

- Does the subarea have existing storm infrastructure to support development?
- Does the subarea have planned storm infrastructure upgrades to support development?
- Is a mainline extension required to serve the subarea?
- Are there any identified deficiencies within or adjacent to the subarea?
- Relative to other options, what is the cost to provide service?

Water Service

- Does the subarea have existing water infrastructure to support development?
- Does the subarea have planned water infrastructure upgrades to support development?
- Is a mainline extension required to serve the subarea?
- Are there any identified deficiencies within or adjacent to the subarea?
- Relative to other options, what is the cost to provide service?

Evaluation Methodology

A scoring matrix was created to evaluate each subarea's utility service needs. The subareas are evaluated on Sanitary Sewer, Storm Drainage and Water with a scoring scale of 0 – +2.

The "Ideal Definition" summarizes the description in achieving the highest value (+2). Subareas that do not meet the ideal definition are scored zero (0), while subareas that partially meet the ideal definition are scored one (+1).

Tables 24-28 list evaluation criteria, results, and an overall utility service summary.

Summary of Findings

The East Subarea is the best prepared for expansion. The subarea has the best existing and planned utility infrastructure to support development with a low cost to provide utility service to the subareas. The North Subarea is the next best for development with existing water and storm infrastructure support, however, sanitary upsizing would be required.

South A Subarea, South B Subarea and West Subarea are the least prepared for expansion based on the utility evaluations. These subareas require the most infrastructure development and cost to provide utility service.

Table 24: Factor 2 Public Utilities North Subarea Utility Summary and Evaluation

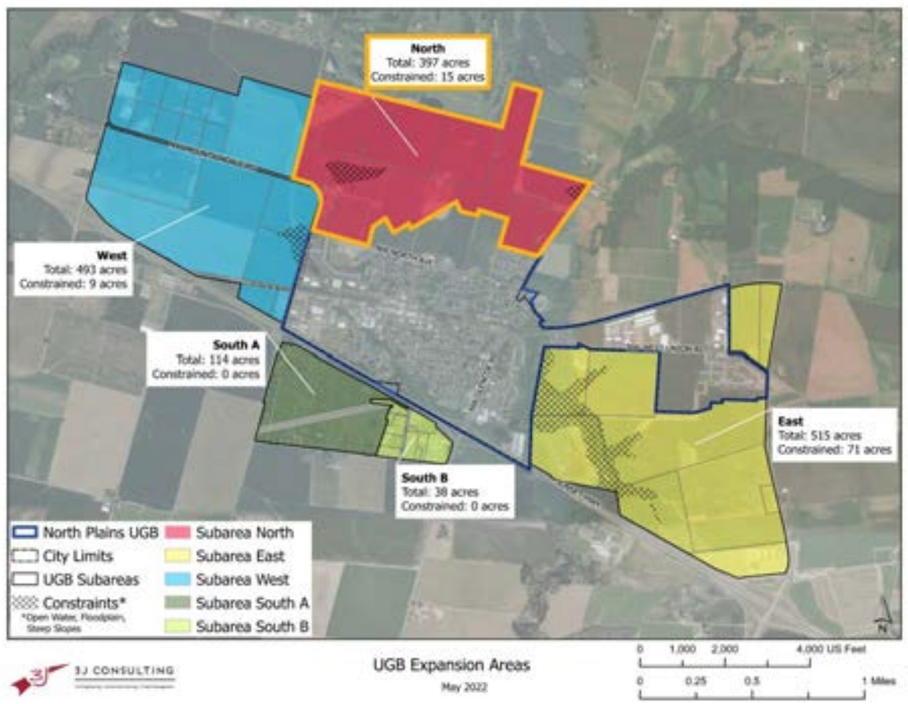
NORTH SUBAREA	Utility Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score (0 - 2)**	**Comments**
The North Subarea is bounded by Pumpkin Ridge Golf Club (north), Pumpkin Ridge Road and Mountaindale Road (west), North Avenue and recently incorporated, undeveloped land (south), and Shadybrook Road (east). 	**Sanitary Service**	Has existing sanitary infrastructure or planned sanitary infrastructure to support development.	0	Existing sanitary facilities located just South of Subarea are not sized for expansion. Sanitary connections will be present, but downstream upgrades are required to serve the subarea.
	Storm Service	Has existing storm infrastructure or planned storm infrastructure to support development.	2	Existing storm facilities located just South of Subarea are adequately prepared for expansion. Storm connections will be present with the planned development to the south.
	Water Service	Has existing water infrastructure or planned water infrastructure to support development.	2	Proposed water facilities spread through entire region just South of Subarea. Water connections will be present with the planned development to the south.
	Summary			
	North Subarea has the potential to naturally tie into existing or planned storm and water infrastructure without the need for mainline extensions. The area just south of North Subarea is currently under development and will be completed within the next few years. Sanitary infrastructure exists in several regions just South of the Subarea, which will provide multiple tie in points but the system will likely need to be upsized to support the subarea development. The storm infrastructure has multiple tie in locations; but ditches also remain. The water system should provide many tie in points as there are many proposed locations adjacent North Subarea. The cost to support the North Subarea is moderate since the downstream sanitary system will need upsizing.			

Table 25: Factor 2 Public Utilities South Subarea A Utility Summary and Evaluation

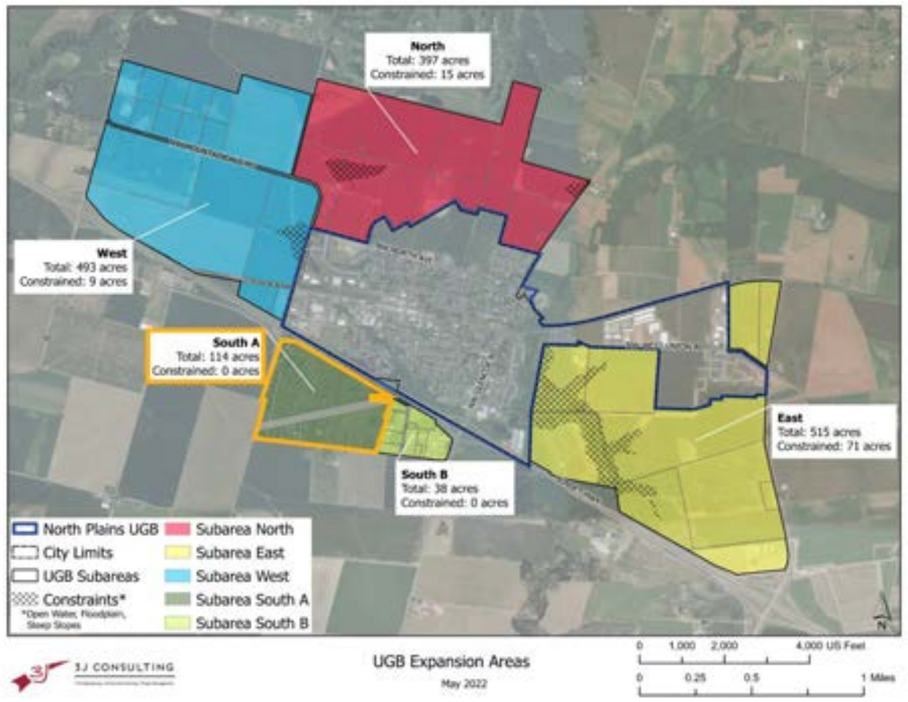
SOUTH SUBAREA A	Utility Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score (0 - 2)**	**Comments**
South Subarea A is bounded by US 26 (north/northeast), NW Gordon Road (west), and NW 316th Place (east). South Subarea A is largely built out with large lot residential parcels. The subarea is divided by the Sunset Air Strip, a private airport managed and owned by the residential neighborhood located within South Subarea A. 	**Sanitary Service**	Has existing sanitary infrastructure or planned sanitary infrastructure to support development.	0	No existing or proposed sanitary infrastructure on South side of US 26 near or adjacent to the subarea.
	Storm Service	Has existing storm infrastructure or planned sanitary infrastructure to support development.	0	No existing or proposed sanitary infrastructure on South side of US 26 near or adjacent to the subarea.
	Water Service	Has existing water infrastructure or planned sanitary infrastructure to support development.	0	Nearest water infrastructure is on other side of US 26; JWC Supply Pipeline runs through South B Subarea, but will require PRV for service in the area.
	Summary			
	South A Subarea does not have readily available sanitary, storm, or water infrastructure to tie into. Existing and proposed sanitary and storm infrastructure exist on the other side of US 26 (east side) and nearby water infrastructure located in South Subarea B relies on an addition of a PRV to the JWC Supply Pipeline. Mainline extensions for sanitary, storm and water would be required to service the subarea. The cost to support the South A Subarea would be significant comparatively to other subareas due to the need to build supportive utility infrastructure to service the area.			

Table 26: Factor 2 Public Utilities South Subarea B Utility Summary and Evaluation

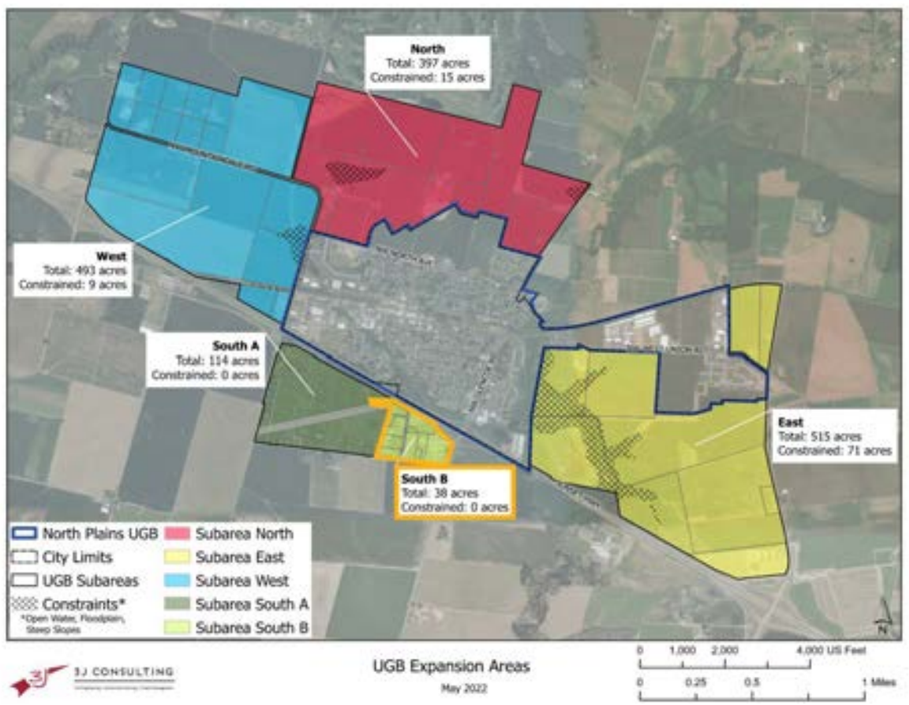
SOUTH SUBAREA B	Utility Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score (0 - 2)**	**Comments**
South B Subarea is bounded by US 26 (north), NW 316th Place (west), NW Beach Road (south), and NW Glencoe Road (east). 	**Sanitary Service**	Has existing sanitary infrastructure or planned sanitary infrastructure to support development.	0	No existing or proposed sanitary infrastructure on South side of US 26 between Gordon Rd and Glencoe Rd.
	Storm Service	Has existing storm infrastructure or planned sanitary infrastructure to support development.	0	No existing or proposed sanitary infrastructure on South side of US 26 between Gordon Rd and Glencoe Rd.
	Water Service	Has existing water infrastructure or planned sanitary infrastructure to support development.	1	Nearest water infrastructure is on other side of US 26. JWC Supply Pipeline runs through the subarea, but will require PRV for service in the area.
	Summary			
	South B Subarea does not have readily available sanitary or storm infrastructure to tie into; available water infrastructure relies on an addition of a PRV to the JWC Supply Pipeline. Existing and proposed sanitary and storm infrastructure exist on the other side of US 26 (east side). Mainline extensions for sanitary and storm would be required to service the subarea. The cost to support the South B Subarea would be significant comparatively to other subareas due to the need to build supportive utility infrastructure to service the area.			

Table 27: Factor 2 Public Utilities West Subarea Utility Summary and Evaluation

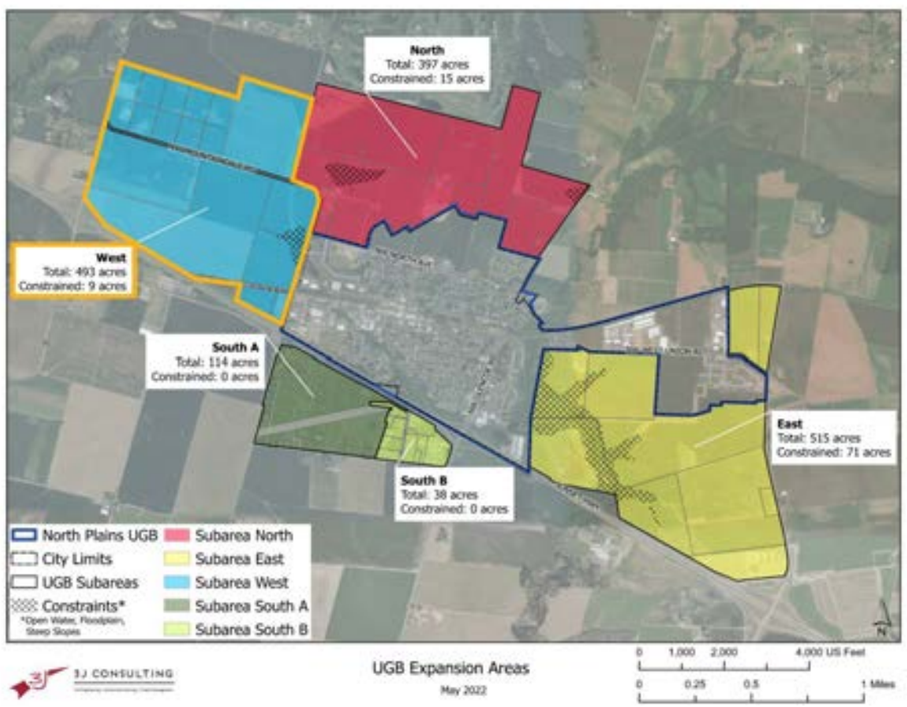
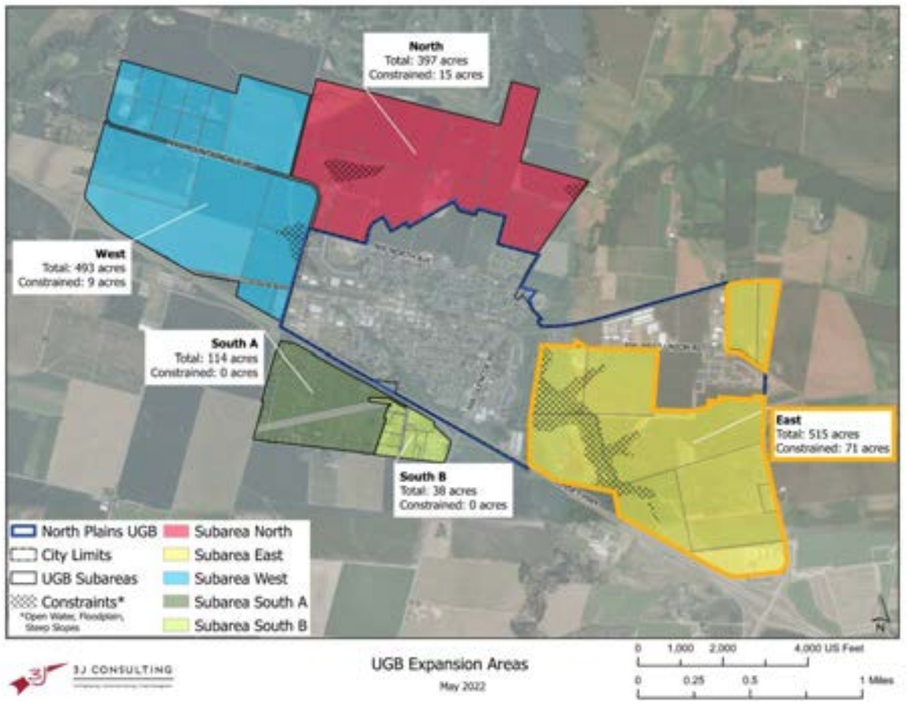
WEST SUBAREA	Utility Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score (0 - 2)**	**Comments**
The West Subarea is bounded by Dersham Road (west), US 26 (south), and NW Gordon Road (east). The northern boundary of West Subarea is not confined by a physical limitation. 	**Sanitary Service**	Has existing sanitary infrastructure or planned sanitary infrastructure to support development.	0	Existing sanitary infrastructure exists at the southeastern edge of West Subarea and existing infrastructure near the northeastern edge isn't far. A pump station and mainline extension will likely be required to support the entire subarea.
	Storm Service	Has existing storm infrastructure or planned sanitary infrastructure to support development.	1	Existing storm infrastructure exists along the eastern edge of the subarea. Ditches and creeks exist along the eastern portion of the UGB. Mainline extension or downstream deficiency upgrades would be required to support the entire subarea.
	Water Service	Has existing water infrastructure or planned sanitary infrastructure to support development.	1	Existing and proposed water infrastructure adjacent UGB and West Subarea. Upgrades to identified deficiencies would need to occur.
	Summary			
	West Subarea has the potential to naturally tie into storm infrastructure for some portions of the subarea. A sanitary pump station will likely be required to support the subarea. Existing water infrastructure adjacent to the West Subarea has identified deficiencies which would need to be upgraded to support servicing subarea. The potential need for sanitary or storm mainline extension would likely be required to support the entire subarea. The cost to support the West Subarea would be significant comparatively to other subareas.			

Table 28: Factor 2 Public Utilities East Subarea Utility Summary and Evaluation

EAST SUBAREA	Utility Evaluation Criteria		Evaluation Results	
Concept Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score (0 - 2)**	**Comments**
The East Subarea is broken up into two portions. The larger portion is bounded by NW West Union Road (north), new residential development and Atfalati Ridge Elementary School (north), US 26 (south) and NW Jackson School Road (east). The smaller portion of the East Subarea is bounded by the railroad (north), industrial land uses adjacent to NW 298th Place (west), NW Jackson School Road (east), and NW West Union Road (south). 	**Sanitary Service**	Has existing sanitary infrastructure or planned sanitary infrastructure to support development.	2	Existing sanitary facilities exist at the north, south and middle of the subarea. The subarea is adequately prepared for expansion.
	Storm Service	Has existing storm infrastructure or planned sanitary infrastructure to support development.	2	Existing storm facilities are adjacent to subarea and McKay Creek runs through the western portion of the subarea. The subarea is adequately prepared for expansion.
	Water Service	Has existing water infrastructure or planned sanitary infrastructure to support development.	2	Existing water facilities are adjacent to subarea to the north and planned water is adjacent to the subarea to the east. The subarea is adequately prepared for expansion. A fire flow deficiency has been identified at the most northeastern portion of the subarea where upgrades are required.
	Summary			
	East Subarea has the potential to naturally tie into the existing sanitary, storm, and water infrastructure. Sanitary infrastructure passes through the subarea and provides multiple tie in possibilities. Storm infrastructure is adjacent to the subarea along with McKay Creek running through the western portion of the subarea. Existing and planned water infrastructure is adjacent to the subarea in multiple locations, however, there is an identified fire flow deficiency at the northeastern most portion of the subarea which will need to be fixed prior to developemnt of that portion. With multiple tie in points for each of the previously listed utilities, the area is well equipped for expansion. The cost to support the East Subarea is low since most infrastructure exists or is already planned.			

3. OCOMPARATIVE ENVIRONMENTAL, ENERGY, ECONOMIC AND SOCIAL CONSEQUENCES

The Goal 14 Boundary Location Factor Analysis requires research of the Economic, Social, Environmental, and Energy (ESEE) consequences of developing within each proposed subarea. The ESEE consequences were used to determine potential positive or negative consequences of development. Like the other boundary location analyses, the ESEE analysis does not provide a definitive conclusion as to where the North Plains UGB shouldbe expanded but contains information to help inform decision makers.

The ESEE consequences were identified using several points of data. Information was gleaned from Metro's Regional Land Information System, Google Earth, Washington County, and USDA Cropscape datasets. Each ESEE category was measured against a set metrics, and given a score from 0 to +2, with 0 being the lowest/most likely for negative consequences, and 2 being the highest/most likely for positive consequences. Each ESEE category was given a score based on potential **Residential** or **Employment** (industrial and commercial) uses, as shown in Tables 29-33.

Economic

The economic consequences of developing each subarea include:

- Cost of land/transportation facilities/utilities/services
- Parcel size (employment- specific uses)
- Development potential (i.e., existing uses)
- Balancing residential and employment priorities for a diversified tax base

Social

The social consequences of developing each subarea include:

- Ease of access to services such as schools, parks, library, commercial services
- Community health indicators such as increased physical activity via active transportation and recreational offerings
- Compatible nearby uses
- Cost of construction (i.e., cost of land and utility provision per unit or lot)
- Balancing residential and employment priorities to reverse the bedroom community trend

Environmental

The environmental consequences of developing each subarea include:

- Hazard Risk (slope, floodplain)
- Goal 5 resources present

Energy

The energy consequences of developing each subarea include:

- Ability to reduce VMT of development
- Alternate modes of transportation feasible
- Heating/cooling of structures (i.e., existing large trees)

- Table 29: Factor 3 North Subarea Summary and Evaluation

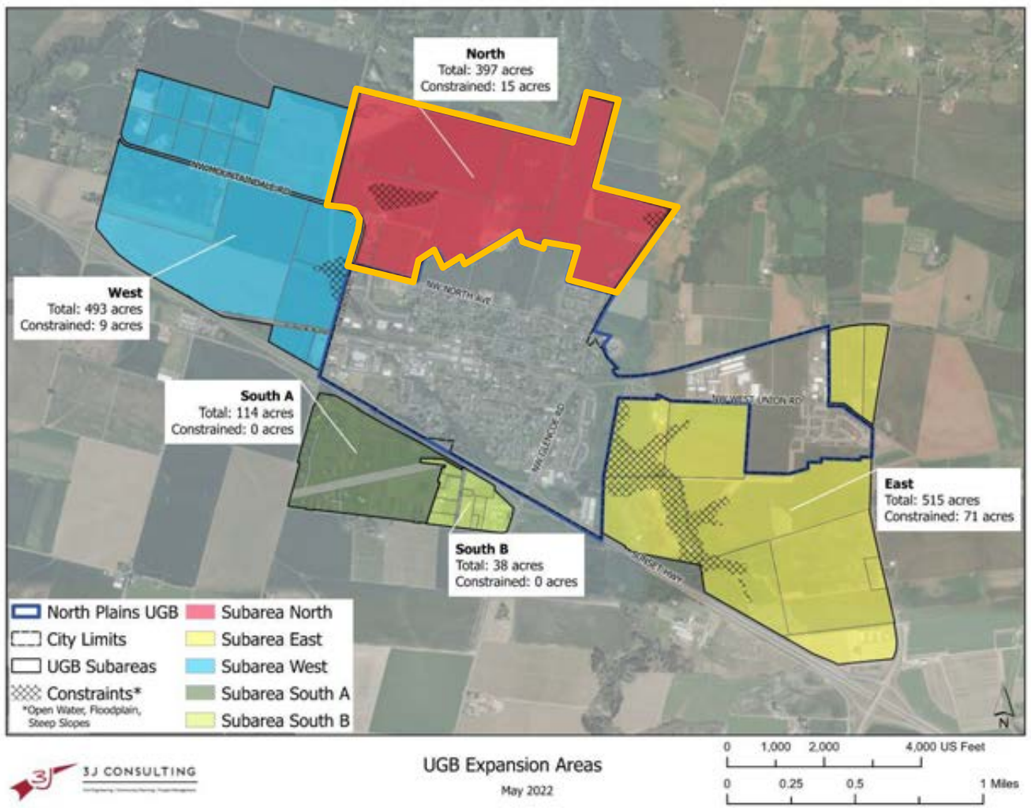
NORTH SUBAREA	Evaluation Criteria		Evaluation Results	
Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score**	**Comments**
The North Subarea is bounded by Pumpkin Ridge Golf Club (north), Pumpkin Ridge Road and Mountaindale Road (west), North Avenue and recently incorporated, undeveloped land (south), and Shadybrook Road (east).  	**Economic**	• Low cost of land/transportation facilities/utilities/services • Variety of parcel sizes • High development potential	**R=2** **E=1**	Land uses south of the North Subarea are predominantly residential (R-2.5 and R-7.5). The new Brynhill Development adds about 500 residential units and the new North Plains Elementary School. The North Subarea consists of large parcels, which may have positive outcomes for development return on investment, and sanitary sewer and water service can efficiently tie into existing and planned infrastructure. Plans to extend Main Street north are conducive to development.
	Social	• Easy access to services • Active transportation and recreational offerings • Compatible nearby uses • Lower cost of construction	**R=2** **E=1**	No steep slopes or other hazards exist in the subarea. The North Subarea abuts residential uses and the North Plains Elementary School to the south. The subarea is in close proximity to commercial activities in downtown North Plains. Due to these considerations, the North Subarea has the potential for continuous and safe multimodal transportation networks, which is a safety benefit to residents, students, and visitors. The subarea does contain two cemetery sites on small lots, and the Lind Reservoir area is likely to development as park land in the future.
	Environmental	• No presence of Goal 5 resources • Low hazard risks	**R=2** **E=2**	Future development in the North Subarea will need to account for the Lind Reservoir, which is classified as a wetland, and a few smaller environmental constraints. The area does not contain steep slopes, streams, or otherareas of environmental constraints.
	Energy	• Opportunities to reduce VMT of development • Opportunities for alternate modes of transportation • Presence of heating/cooling structures	**R=1** **E=1**	As opportunities exist to connect North Subarea to the urbanized areas of North Plains via NW North Ave and Main St, the subarea has strong potential to provide multimodal transportation options to residents and visitors, resulting in decreased VMT. The area does not currently have a vast or established tree canopy as agricultural uses cover muchof the area.
	Summary			
	The North Subarea, consists of large, unconstrained parcels, is adjacent to residential uses and can tie in efficiently to city utilities and existing and planned vehicle and active transportation networks. The Lind Reservoir could develop as park land, creating recreational opportunities for residents, and the ease of access to commercial services in the subarea, as well as nearby areas, reduces VMT.			

Table 30: Factor 3 South A Subarea Summary and Evaluation

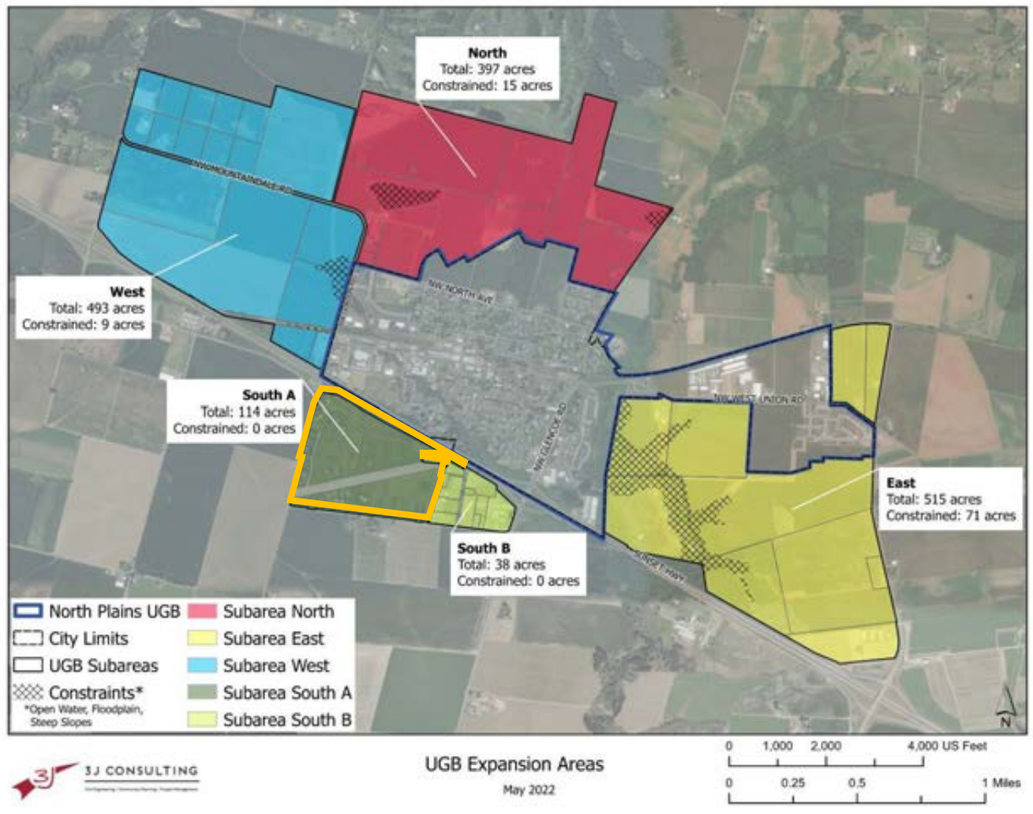
SOUTH SUBAREA A	Evaluation Criteria		Evaluation Results	
Description and Illustration	**Evaluation Criteria**	**Metrics**	**Score**	**Comments**
South Subarea A is bounded by US 26 (north/northeast), NW Gordon Road (west), and NW 316th Place (east). South Subarea A is largely built out with large lot residential parcels. The subarea is divided by the Sunset Air Strip, a private airport managed and owned by the residential neighborhood located within South Subarea A. 	**Economic**	• Low cost of land/transportation facilities/utilities/services • Variety of parcel sizes • High development potential	**R=0** **E=0**	Parcels south of South Subarea A are primarily residential and agricultural. Zoning includes 22 parcels of RR-5, 15 parcels of AF-5, one parcel of AF-20, and three parcels of EFU. Most of the area is within the Air Acres development and the Sunset Airstrip overlay districts. Compared to other subareas, many of the lots in South Subarea A are small and considered exception land. Highway 26 provides regional mobility, but is a barrier to reaching North Plains' civic and commercial amenities by walking or biking. Internal circulation would be a challenge due to the air strip. Utilities development would be costly as mainline extensions would be required for water and sanitary sewer.
	Social	• Easy access to services • Active transportation and recreational offerings • Compatible nearby uses • Lower cost of construction	**R=0** **E=1**	Highway 26 separates South Subarea A from the current North Plains UGB.This physical and mental barrier may have negative social consequences forresidents and visitors traveling to and from South Subarea A. Air Acres residences to the south of South Subarea A hold restrictive covenants and development specifications in accordance with the airport overlay district, which could create a disjointed residential area. Utilities development would be costly as mainline extensions would be required for water and sanitary sewer.
	Environmental	• No presence of Goal 5 resources • Low hazard risks	**R=2** **E=2**	South Subarea A does not contain wetlands, steep slopes, or floodplains.
	Energy	• Opportunities to reduce VMT of development • Opportunities for alternate modes of transportation • Presence of heating/cooling structures	**R=0** **E=0**	While South Subarea A is connected regionally via Highway 26, the area isseparated from urbanized North Plains via the highway. Ultimately, this may cause auto-centric development, which has negative implication for VMT and alternative modes of transportation. Current agricultural uses do not support an established and extensive tree canopy.
	Summary			
	South Subarea A is not well-suited for future development. Highway 26 creates a physical and mental barrier to the urbanized areas of North Plains. The adjacent Air Acres development and the airport overlay district hold restrictive covenants or development specifications, which could create a disjointed residential area, and vehicle-centric development in the area would increase VMT.			

Table 31: Factor 3 South Subarea B Summary and Evaluation

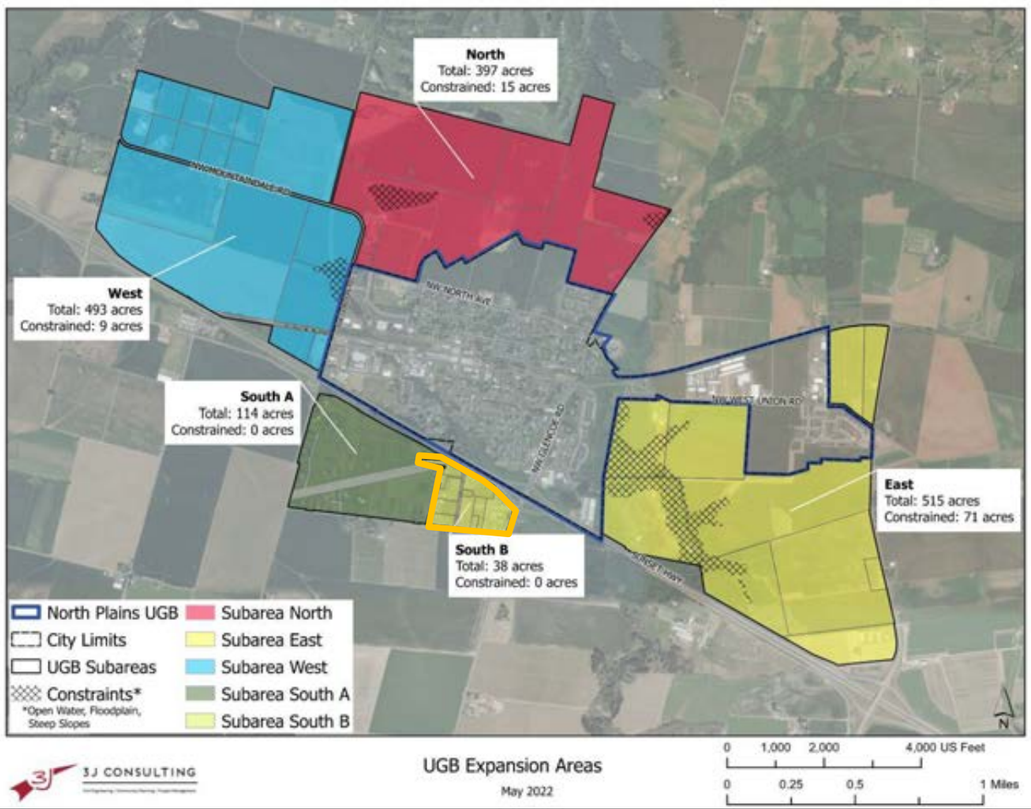
SOUTH SUBAREA B	Evaluation Criteria		Evaluation Results	
Description and Illustration	**Evaluation Criteria**	**Metrics**	**Score**	**Comments**
South Subarea B is bounded by US 26 (north), NW 316th Place (west), NW Beach Road (south), and NW Glencoe Road (east). 	**Economic**	• Low cost of land/transportation facilities/utilities/services • Variety of parcel sizes • High development potential	**R=0** **E=2**	Current uses in South Subarea B are agricultural and rural industrial (R-IND) and rural commercial (R-COM), including a retail and wholesale seed company, Jewett Cameron Seed Company, on the R-IND and R-COM parcels. The subarea is predominantly exception land. Highway 26 and Glencoe Rd provide regional and local access, and adjacent uses to the north include C-2 (Highway Commercial) and North Plains Veteran Park. Highway 26 provides visibility to commercial uses in the subarea. Utilitiesfor water, sanitary sewer, and stormwater would have to be developed in the subarea.
	Social	• Easy access to services • Active transportation and recreational offerings • Compatible nearby uses • Lower cost of construction	**R=0** **E=2**	Highway 26 and Glencoe Road provide visibility to commercial uses in the subarea, but it is abarrier for residential uses. Current land uses and zoning in the subarea are supportive of commercial or industrial development.
	Environmental	• No presence of Goal 5 resources • Low hazard risks	**R=2** **E=2**	South Subarea B does not contain steep slopes, wetlands, or floodplains.
	Energy	• Opportunities to reduce VMT of development • Opportunities for alternate modes of transportation • Presence of heating/cooling structures	**R=0** **E=1**	Residential development of South Subarea B would encourage auto-centric development as Highway 26 makes it difficult to connect via alternative modes of transportation. This would have negative implicationsfor VMT. The area is currently used as industrial and commercial spaces, soredevelopment with similar uses would be more efficient.
	Summary			
	Land uses and zoning in South Subarea B support commercial and industrial uses, increasing the diversity of economic offerings in North Plains. Highway 26 acts as a benefit to auto-centric commercial activities due to accessibility and visibility.			

Table 32: Factor 3 West Subarea Summary and Evaluation

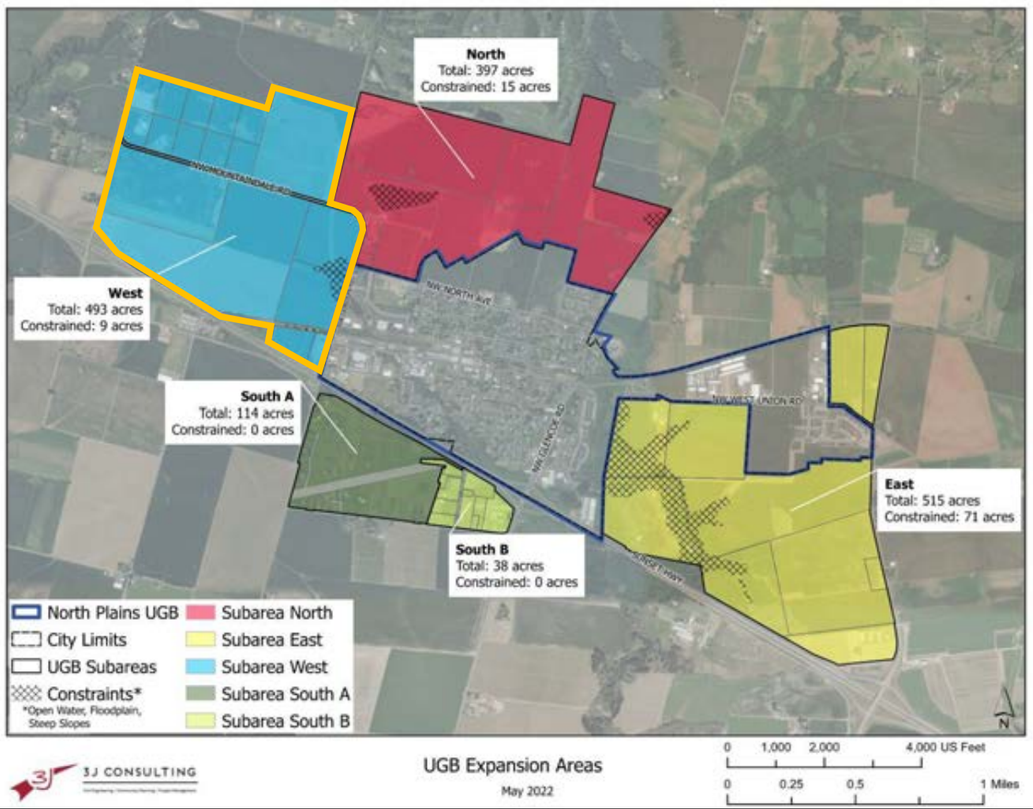
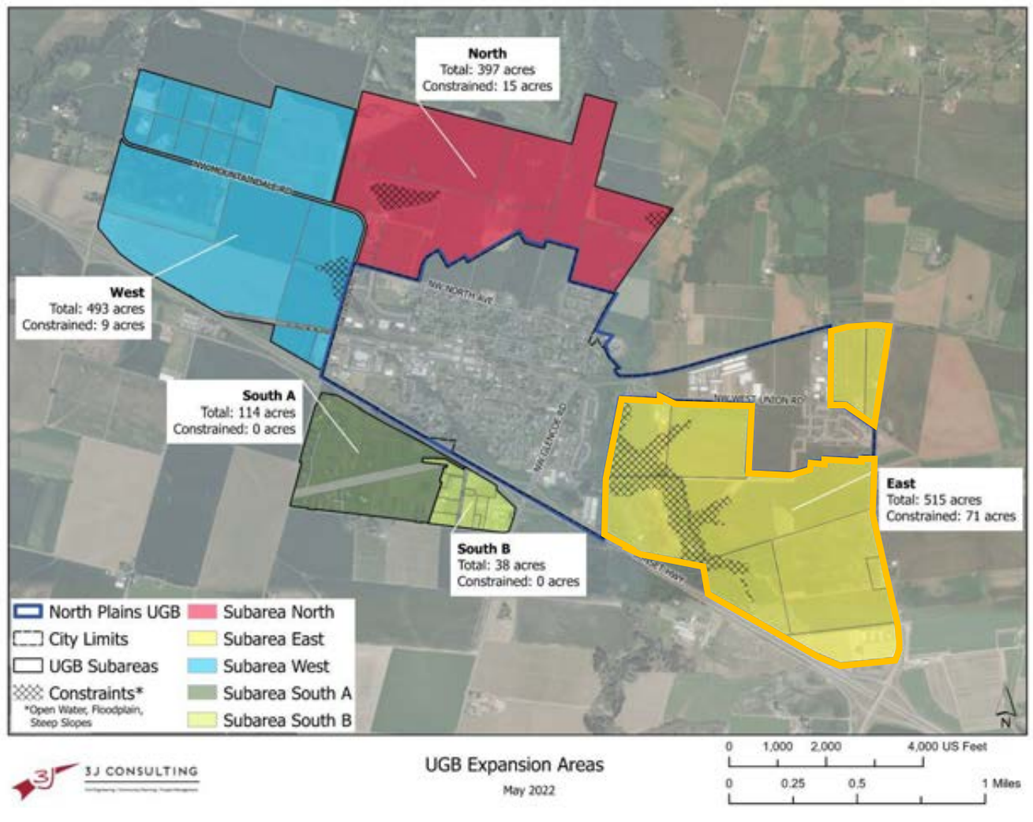
WEST SUBAREA	Evaluation Criteria		Evaluation Results	
Description and Illustration	**Evaluation Criteria**	**Metrics**	**Score**	**Comments**
The West Subarea is bounded by Dersham Road (west), US 26 (south), and NW Gordon Road (east). The northern boundary of West Subarea is not confined by a physical limitation. 	**Economic**	• Low cost of land/transportation facilities/utilities/services • Variety of parcel sizes • High development potential	**R=2** **E=2**	Areas adjacent to city limits in the West Subarea are conducive to future development. Land uses east of the subarea are primarily industrial. Large, unconstrained lots and access to Highway 26 and local connectors such as NW Gordon Rd and NW Commercial St support future development. Eastern portions of the subarea could efficiently tie into existing sanitary sewer and water utilities. Development further west would be contingent upon development to the east to tie into the local street network and utilities.
	Social	• Easy access to services • Active transportation and recreational offerings • Compatible nearby uses • Lower cost of construction	**R=2** **E=2**	The subarea is adjacent to the North Plains Elementary School and residential uses to the east. Downtown North Plains is also in close proximity and multimodal transportation options are available via NW Commercial Street. For industrial uses, the area is accessible via the Highway 26/NW Dersham Rd interchange by way of NW Mountaindale Rdand NW Dersham Rd. Development in areas further north and west would be contingent upon development in the eastern portions.
	Environmental	• No presence of Goal 5 resources • Low hazard risks	**R=2** **E=2**	The West Subarea contains a small amount of wetlands in its eastern portion. EastFork Dairy Creek runs along the western portion of the subarea. There are no steep slopes orfloodplain concerns.
	Energy	• Opportunities to reduce VMT of development • Opportunities for alternate modes of transportation • Presence of heating/cooling structures	**R=1** **E=2**	There is potential for multimodal transportation options in the subarea and industrial development could create job opportunities for North Plains residents, decreasing VMT. Development in areas further north and west would be contingent upon development in the eastern portions. Current agricultural uses mean the subarea does not have an extensive existing tree canopy.
	Summary			
	Proximity of the Dersham Rd interchange to the West Subarea is conducive to industrial development. There is also convenient access from the eastern portions of the subarea to downtown North Plains via NW Commercial Street. Opportunities for multimodal facilities and conditions conducive to industrial development could decrease commute time for residents.			

Table 33: Factor 3 East Subarea Summary and Evaluation

EAST SUBAREA	Evaluation Criteria		Evaluation Results	
Description and Illustration	**Evaluation Criteria**	**Metrics**	**Score**	**Comments**
The East Subarea is broken up into two portions. The larger portion is bounded by NW West Union Road (north), new residential development and Atfalati Ridge Elementary School (north), US 26 (south) and NW Jackson School Road (east). The smaller portion of the East Subarea is bounded by the railroad (north), industrial land uses adjacent to NW 298th Place (west), NW Jackson School Road (east) and NW West Union Road (south). 	**Economic**	• Low cost of land/transportation facilities/utilities/services • Variety of parcel sizes • High development potential	**R=2** **E=2**	The East Subarea B is well-suited for development, with access to the Jackson School Road interchange with Highway 26 that provides visibility and regional mobility. The western portion of the subarea contains wetland and floodplain constraints, though a significant amount of developable land free of constraints remains. The western portion of the subarea adjacent to city limits also contains the Recology Organics, which is not currently suitable for redevelopment. The subarea abuts the new Sunset Ridge development, which is mainly residential, and Atfalati Ridge Elementary School, as well as industrial uses to the north across NW Union Rd.
	Social	• Easy access to services • Active transportation and recreational offerings • Compatible nearby uses • Lower cost of construction	**R=2** **E=2**	McKay Creek Corridor poses challenges to development, though a future east-west connection to downtown North Plains is planned and would potentially connect residential and employment uses. Access to Atfalati Ridge Elementary School, Sunset Ridge Park, and residential uses to the north The McKay Creek Trail System extension could be conducive to recreational activities, and the lands surrounding McKay Creek are likely to develop aspark land.
	Environmental	• No presence of Goal 5 resources • Low hazard risks	**R=1** **E=1**	The majority of the subarea is free of environmental constraints. There are some 25% slope areas in the western portion of the subarea, andthe McKay Creek Corridor poses flooding hazards. An identifiedFEMA 100-Year Floodplain also follows the McKay Creek in this area.
	Energy	• Opportunities to reduce VMT of development • Opportunities for alternate modes of transportation • Presence of heating/cooling structures	**R=1** **E=1**	The East Subarea is connected to surrounding areas via local connectors such as NW Union Rd, and the Highway 26/Jackson School Rd interchange. VMT reduction is possible as residents, students, and visitors can easily access Atfalati RidgeElementary School, Sunset Ridge Park, and potential future employment centers. The McKay Creek Corridor does pose a challenge to east-west connectivity. Tree canopy exists in the western portion, but the remaining area is currently used for agricultural purposes, and therefore, does not have an existing tree canopy.
	Summary			
	The East Subarea is well-suited to future development. There is good access to the adjacent Sunset Ridge development, Atfalati Ridge Elementary, and several parks, and a connection to downtown is planned. The McKay Creek Trail System extension could increase access to recreational activities, which has positive community health benefits. Highway 26/Jackson School Rd interchange and active transportation options via West Union Rd could decrease VMT.			

4. COMPATABILITY OF THE PROPOSED URBAN USES WITH NEARBY AGRICULTURAL AND FOREST ACTIVITIES ON FARM AND FOREST LAND OUTSIDE THE UGB

As part of the Goal 14 Location Factor analysis, the City researched the adjacent agricultural and forest uses per subarea. The agricultural and forest uses were determined via data from USDA CropScape (Figure 12), Google Earth, and Washington County land use datasets. This compatibility analysis was conducted to identify the potential conflicts between current agricultural uses and proposed uses for each subarea. Criteria were established to consider how specific agricultural uses, such as livestock or poultry processing operations, may interact with proposed development. A dairy operation, for example, has the potential for year-round continuous and daily operations, which could result in complaints from nearby residential uses about noise, odor, hours of operation, and create pet and livestock conflicts. New residents may complain about increased traffic, spray drift, or specific farming practices. Urbanizing an area could also have negative implications for agricultural uses and could increase the risk of trespassing, litter, or vandalism. The agricultural and forest compatibility analysis is an additional guide for decision makers in determining the best area(s) for UGB expansion.

The following criteria were used to determine potential levels of conflict between each subarea and adjacent agricultural or forest uses, as shown in Table 34. The subareas with the least potential conflict with surrounding agricultural and forest uses scored a 2-low potential conflict. The majority of subareas scored a 1-moderate potential conflict. There were no subareas that ranked 0-high potential conflict.

0-high potential conflict	Intensive livestock or poultry processing operations, feedlots, dairies, etc.	Potential for year-round continuous/ongoing, or daily conflicts and impacts; potential for pet and livestock interaction and conflict; potential for trespass/litter/nuisance/vandalism; potential for complaints about noise, odor, hours of operation.
1-moderate potential conflict	Commodity crops, row crops, orchards, vineyards, hay, grass seed	Potential for seasonal conflicts and impacts, potential seasonal beehives; potential for complaints about noise, odor, spray drift, hours of operation, burning; potential for trespass/litter/nuisance/vandalism
2- low potential conflict	Woodlots, pasture, grazing, passive management uses	Potential for infrequent conflicts or no significant continuous impacts, may be multi-year cycle for harvest for certain uses, or routine harvest of only a portion of the resource (woodlot, etc.). Routine resource management activities may also be low impact. Potential for trespass/litter/nuisance/vandalism; potential for complaints about certain resource management and harvest operations.

Figure 12. USDA CropScape Map of Surrounding Agricultural Uses:

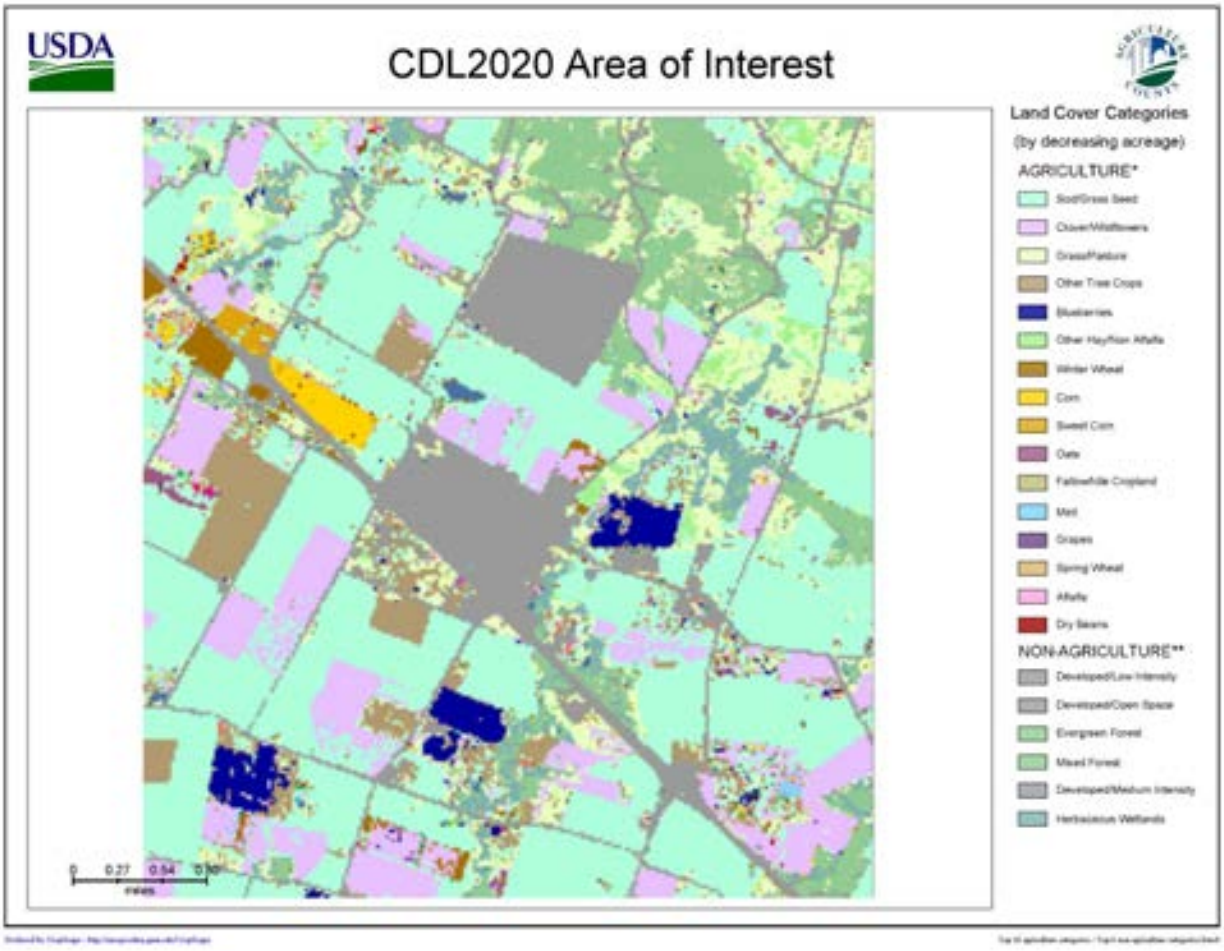
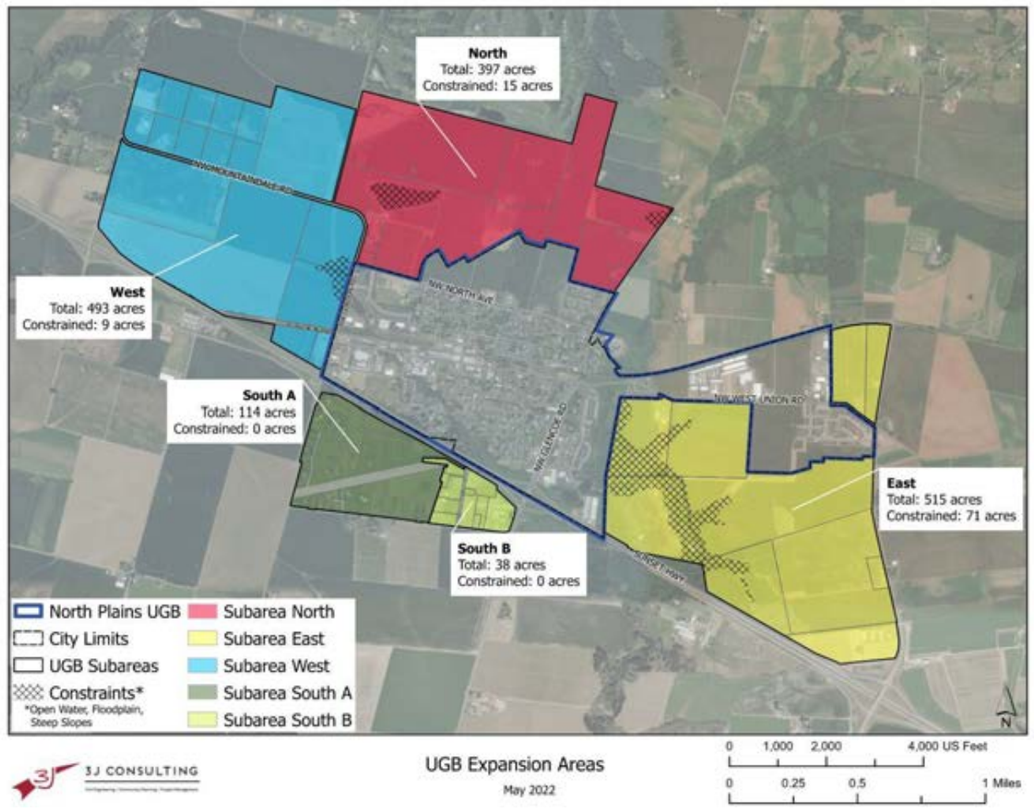


Table 34: Agricultural and Forestry Compatibility Analysis

Agricultural and Forestry Compatibility Analysis	Evaluation Criteria		Evaluation Results	
Description and Illustration	**Evaluation Criteria**	**Ideal Definition**	**Score**	**Comments**
 3J CONSULTING UGB Expansion Areas May 2022	**Potential conflict with adjacent farm and forest uses.** Potential for infrequent conflicts or no significant continuous impacts, may be multi-year cycle for harvest for certain uses, or routine harvest of only a portion of the resource (woodlot, etc.). Routine resource management activities may also be low impact. Potential for trespass/litter/nuisance/vandalism; potential for complaints about certain resource management and harvest operations.		**+2**	Zoned EFU, AF-20 and AF-5, the **North Subarea** is adjacent to predominantly sod/grass seed farming, clover/wildflower farming, tree crops, and grass/pasture; Pumpkin Ridge Golf Course to the north of the subarea
			+1	Zoned EFU and R-IND, **South Subarea A** is adjacent to urbanized North Plains to the north; and predominantly sod/grass seed, clover/wildflower, tree crops, and corn to the south and west. Pacific Fiber Products operates a wood chip and trucking business northwest of the subarea.
			+1	Zoned EFU, AF-5, and R-COM, **South Subarea B** is adjacent to urbanized North Plains to the north, commercial uses and grass/pasture to the west, and predominantly pasture/grass, sod/grass seed, wildflower/clover farming to the south and east. Blueberry farming is present to the southeast of the subarea.
			+1	Zoned EFU and R-IND, the **West Subarea** is adjacent to urbanized North Plains to the east, predominantly clover/wildflower farming, sweet corn, and pasture/grass to the west, predominantly winter wheat, sod/grass seed and farming, and a variety of fruits/vegetable farming to the southwest. Pacific Fiber Products operates wood chip and trucking business to the south of the subarea.
			+1	Zoned EFU and AF-20, the **East Subarea** is predominantly adjacent to clover/wildflower farming, sod/grass seed farming, tree crops, and grass/pasture. Other adjacent agricultural uses include blueberry farming, fruit/vegetable farming, and other hay/non alfalfa agricultural uses. A turkey and vegetable farm and Christmas Tree farm are found further east. A vineyard, and horse stables further south of Highway 26.
	Summary			
	Adjacent to urbanized North Plains and the Pumpkin Ridge Golf Course, the North Subarea is best-suited for UGB expansion relative to adjacent agriculture and forest uses. All other subareas are also well-suited with moderate potential for conflict.			

5. Evaluate Urbanization Potential

This chapter details the steps taken to analyze the North Plains UGB Expansion Study Area:

- Evaluate/Revise Comprehensive Plan Policies
- Examine Efficiency Measures in Existing UGB
- Develop Urbanization/Serviceability Analysis
- Finalize Expansion Recommendation

Evaluate/Revise Comprehensive Plan Policies

The North Plains Comprehensive Plan was last updated in 2019 subsequent to approval of the 2017 Housing Needs Analysis (HNA) and 2018 Economic Opportunities Analysis (EOA). All policies were reviewed and approved by the North Plains Planning Commission and City Council at that time. The recent City Council Vision and adopted 2022 EOA resulted in significant changes to cities policy direction for economic development that are reflected in amendments that were made to the Comprehensive Plan. The 2022 HNA Update did not result in a significant change in population projection or housing needs, therefore the policies contained in the 2019 Comprehensive Plan are current. No other changes to the Comprehensive Plan are required at this time, though Comprehensive Plan policies will be reviewed again as part of the Concept Plan process for the UGB expansion area, expected to begin in Fall 2023.

Examine Efficiency Measures in Existing UGB

As stated in Chapter 2, prior to pursuing a UGB expansion, the City must demonstrate that identified land needs cannot reasonably be accommodated on land already inside the UGB. The City is required to evaluate opportunities to provide efficient development of residential land within the existing UGB.

The City evaluated possible land use efficiency measures and determined which would result in a meaningful change in the land development pattern in North Plains. Efficiency measures adopted in 2022 include:

- Prohibit new single-family detached housing in the R-2.5 zoning district.
- Allow outright duplexes, triplexes and townhouses in the R-5 zoning district.
- Add cottage cluster standards and permit this housing type outright in the R-2.5 zoning district.
- Set minimum density at 70% of maximum density in all residential zoning districts.
- Allow density bonus for affordable housing in the R-2.5 zoning district.

Develop Urbanization/Serviceability Analysis

An analysis of urbanization/serviceability was included in Chapter 4 relative to transportation, water, sanitary sewer, and stormwater services. The information provided in the analysis was used by the Project Advisory Committee, Planning Commission, and City Council when making their final UGB

Expansion Recommendation. The City will expand on this analysis when preparing a Concept Plan for the UGB expansion area.

Finalize Expansion Recommendation

Once the Goal 14 Location Factor Analysis was complete, the PAC used that information to deliberate various options for the direction of the UGB Expansion over the course of three meetings. At PAC meeting #6 on August 4, 2022, the PAC discussed possible 40-year growth scenarios that envisioned the best location for various land uses when the City is full built out. At meeting #7 on February 2, 2023, the PAC discussed a Proposed UGB Expansion that was based on the previous meetings discussion. Three variations of the Proposed UGB Expansion were created for PAC discussion at meeting #8 on February 28, 2023. Ultimately, the PAC decided to recommend Scenario 2 (Figures 13 and 14) for Planning Commission consideration. The final location of specific land uses will be determined through the Concept Plan process. The distribution of land in the various subareas to meet the 855.2-acre land need is shown in Table 35.

Table 35. Recommended UGB Expansion by Subarea

Subarea	Buildable Acres
North	90.1
South B	34.0
West	319.1
East	412.0
Total	855.2

The 34 buildable acres in South Subarea B was the first priority as it is exception land and must be considered first. In line with the City Council vision, the next top priority was the majority (412 acres) of the East Subarea since the land is most development-ready. This does not include eastern-most 64 acres of the East Subarea as that area is already fully-occupied by the operations for Recology, a waste management and resource recovery company. The third priority was the 90.1 acres in the North Subarea, which is the location envisioned for a large community park. The remaining 319.1 acres was allocated to the West Subarea as it is the least development ready, with an emphasis on the southern portion of that Subarea. The UGB expansion area also includes a small triangle of land located west of NW 314th Avenue and north of Highway 26. An existing structure and Highway 26 right-of-way leave just 0.5 acres of buildable land on the two-acre parcel. A narrative description of the new North Plains Urban Growth Boundary is included in Appendix B.

The PAC recommendation was not unanimous. Two PAC members were concerned about the traffic that would be generated by growth in the North Subarea and would like to see a different configuration in that Subarea that completes the road network of the Sunset Ridge Subdivision. One PAC member would like to see more residential uses in the East Subarea and less in the North Subarea.

Figure 13. Proposed North Plains UGB Expansion Proposed by Project Advisory Committee with Land Uses

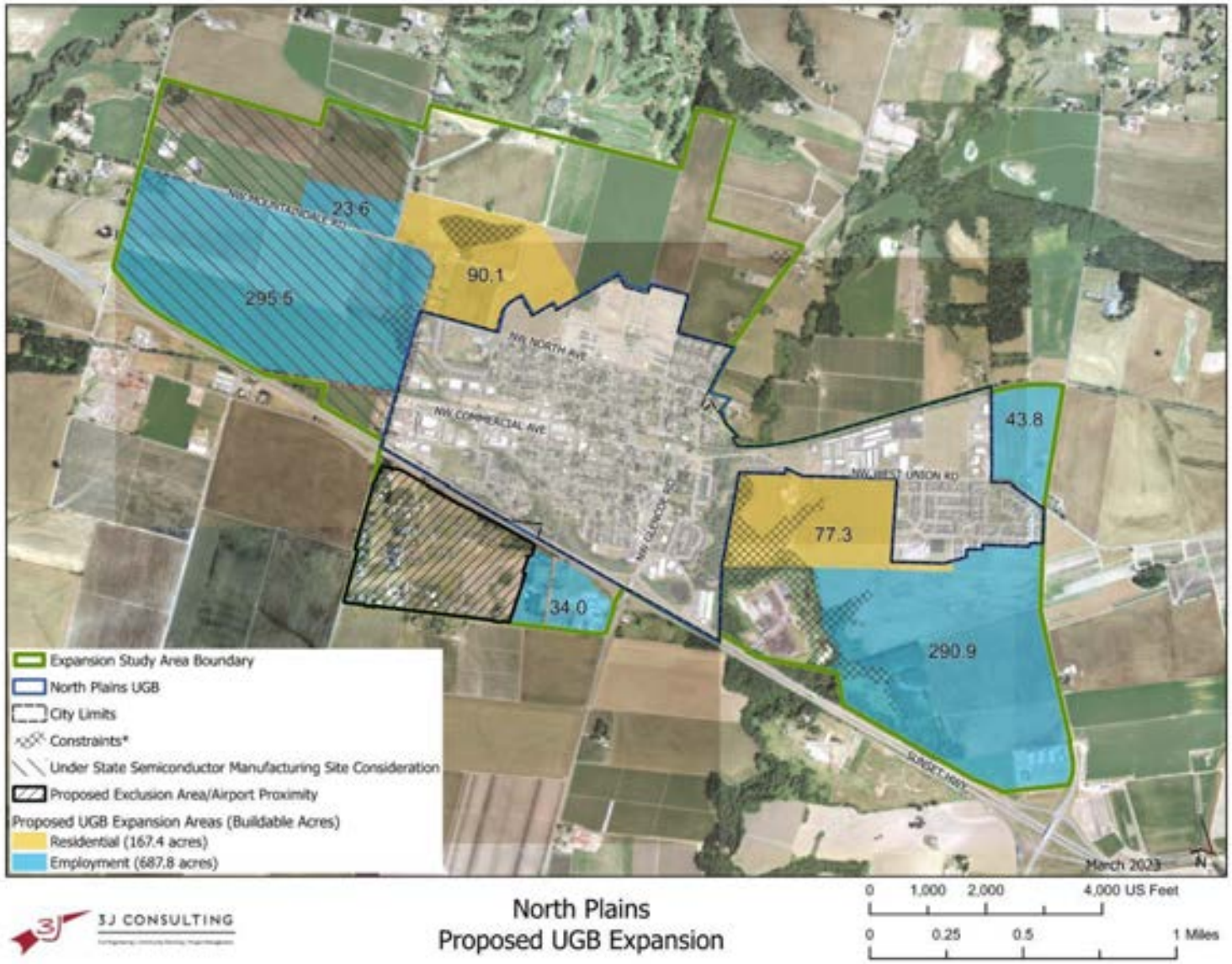
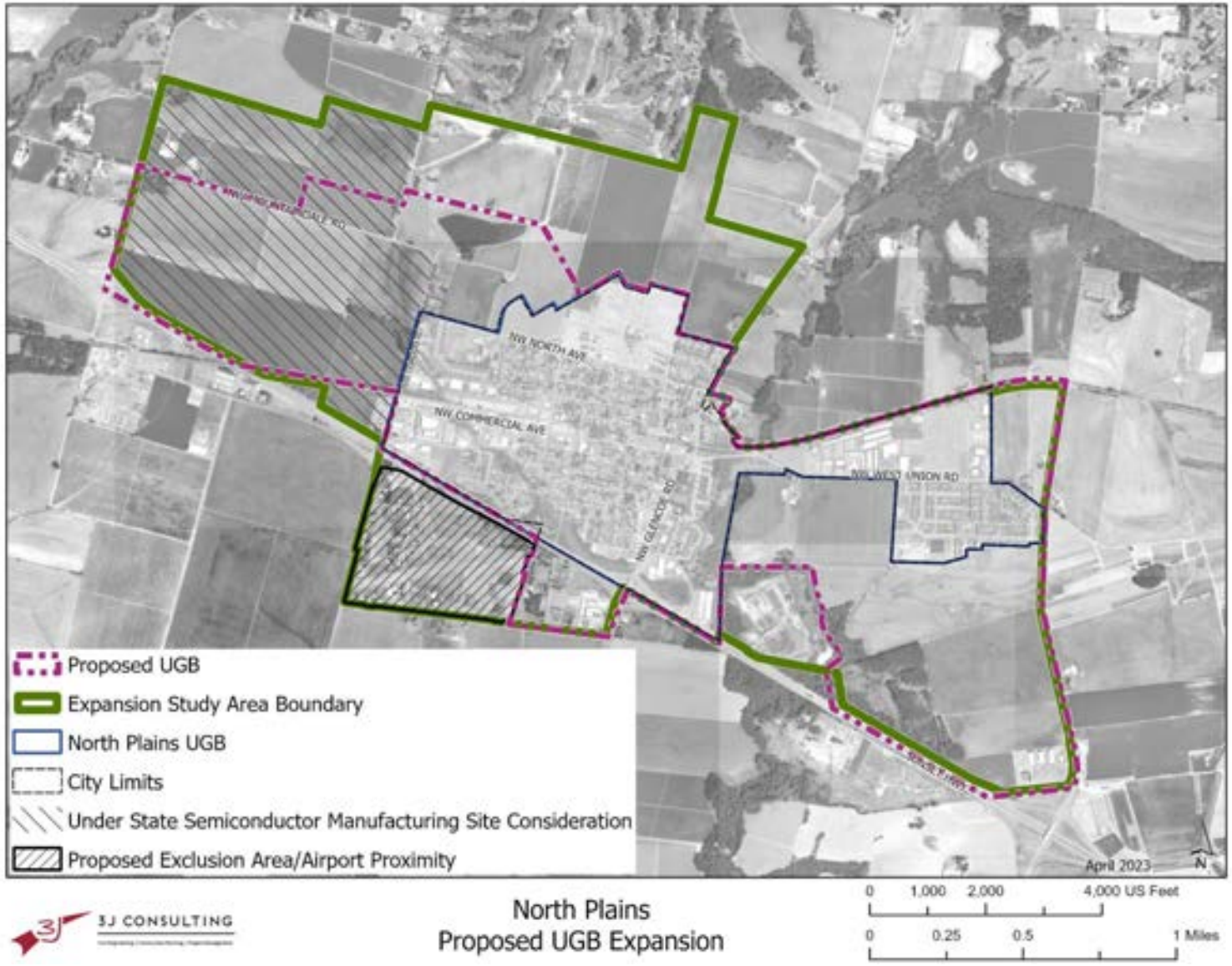


Figure 14. Proposed North Plains UGB Expansion Proposed by Project Advisory Committee



6. Review and Acknowledgement

The City of North Plains must complete the following steps to complete the North Plains UGB Expansion process:

- Receive City and County Approval
- Submit Post-Acknowledgement Plan Amendment (PAPA) to DLCD
- Submit Final Ordinance and Record to DLCD (for review in manner of periodic review)
- Await Conclusion of 21-day Period for Participant Filing of Objections
- Review Director Decision Including Consideration of Objections (if any) (within 120 days from date the department receives a complete submittal)
- Participate in LCDC Meeting to Acknowledge Expansion (if DLCD Director Forwards the
- Application to LCDC

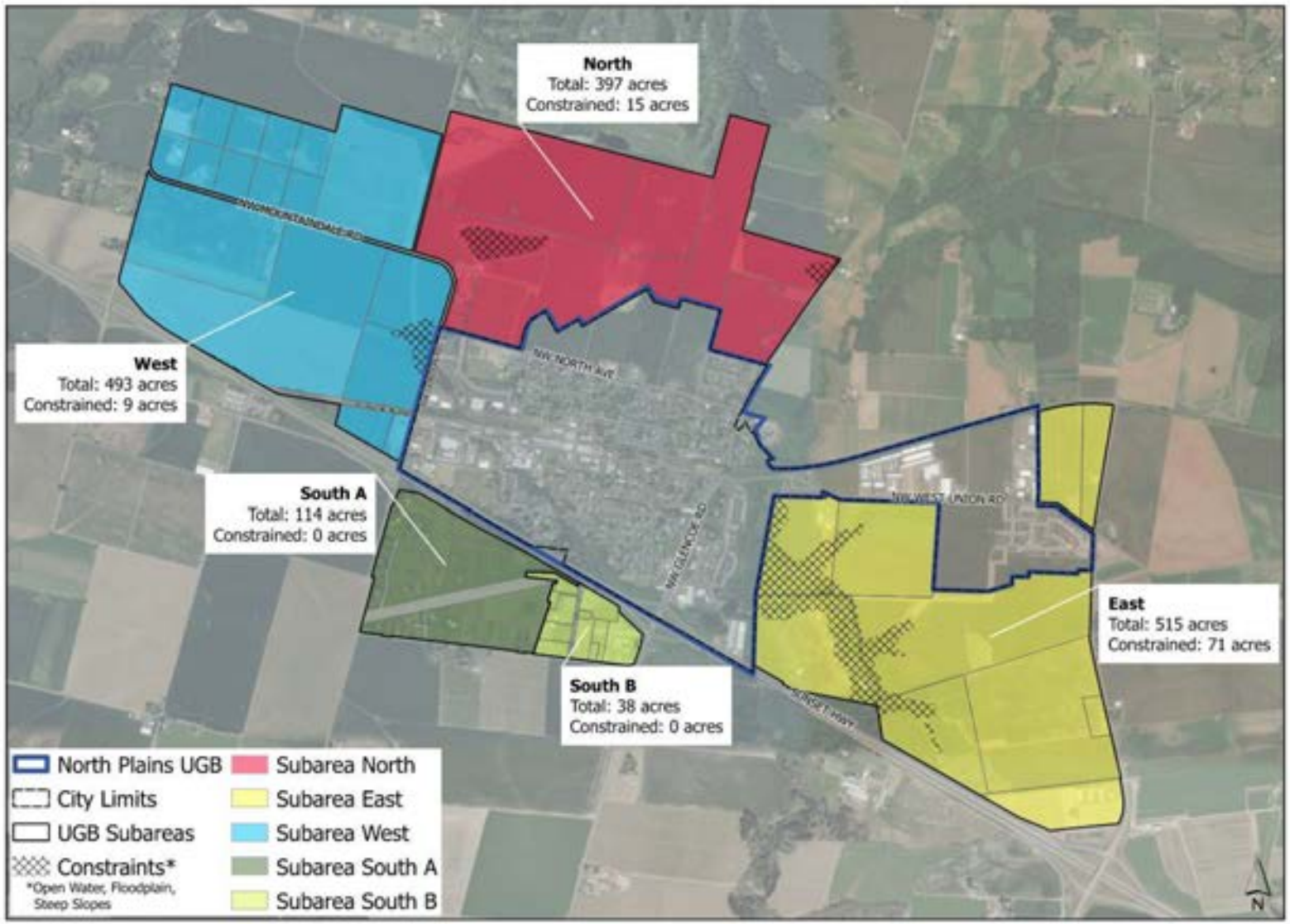
The City has scheduled a series of meetings for the Planning Commission and City Council to finalize and approve the Proposed UGB Expansion:

- April 16 Joint Planning Commission and City Council Work Session
- May 10 Planning Commission Hearing
- June 5 City Council Hearing

A PAPA notice was submitted to DLCD along with this report on April 5, 2023. Following adoption of the UGB Expansion by City Council, the City will work with Washington County to approve the UGB Expansion before completing the final steps in the process with DLCD and the Land Conservation and Development Commission.

Appendix A. South Subarea A Exclusion

In determining the preliminary study area of the UGB Expansion project, the City of North Plains has determined that certain properties, identified on Figure A-1 as “South Subarea A”, meet the criteria for exclusion from the UGB study area. South Subarea A, as well as South Subarea B, are considered “Exception Lands” and are therefore considered high priority when the city is conducting the UGB expansion boundary analysis. The City acknowledges the Exception Land designation and therefore does not propose exclusion of the entire South Subarea from the UGB study area. Documentation of compliance with the applicable criteria for exclusion for South Subarea A are detailed in this appendix.



3J CONSULTING

UGB Expansion Areas

May 2022

0 1,000 2,000 4,000 US Feet

0 0.25 0.5 1 Miles

OAR 660-024-0065 Establishment of Study Area to Evaluate Land for Inclusion in the UGB

Applicable subsections of OAR 660-024-0065:

(4) The city may exclude land from the preliminary study area if it determines that:

(a) Based on the standards in section (7) of this rule, it is impracticable to provide necessary public facilities or services to the land;

(7) For purposes of subsection (4)(a), the city may consider it impracticable to provide necessary public facilities or services to the following lands:

(b) Land that is isolated from existing service networks by physical, topographic, or other impediments to service provision such that it is impracticable to provide necessary facilities or services to the land within the planning period. The city's determination shall be based on an evaluation of:

(A) The likely amount of development that could occur on the land within the planning period;

(B) The likely cost of facilities and services; and,

(C) Any substantial evidence collected by or presented to the city regarding how similarly situated land in the region has, or has not, developed over time.

(c) As used in this section, "impediments to service provision" may include but are not limited to:

(A) Major rivers or other water bodies that would require new bridge crossings to serve planned urban development;

(B) Topographic features such as canyons or ridges with slopes exceeding 40 percent and vertical relief of greater than 80 feet;

(C) Freeways, rail lines, or other restricted access corridors that would require new grade separated crossings to serve planned urban development;

(D) Significant scenic, natural, cultural or recreational resources on an acknowledged plan inventory and subject to protection measures under the plan or implementing regulations, or on a published state or federal inventory, that would prohibit or substantially impede the placement or construction of necessary public facilities and services.

FINDINGS regarding OAR 660-024-0065:

Subsection (7)(b)(A), above, identifies "the likely amount of development that could occur on the land within the planning period" as a reason to exclude certain lands from the UGB study area. The properties proposed for exclusion from the preliminary study area, South Subarea A, are developed primarily with single-family homes, the majority of which have airplane hangars and access to the airfield. There are certain amounts of land and access needed by these lots to allow maneuvering of private aircraft between the individual lots and the airfield.

Significant redevelopment of this area to accommodate residential or employment needs for the City of North Plains would impact the use and practicality of the airstrip. The airstrip is shared by 33 property owners (many of whom own plane hangars abutting the airfield.) The airport is licensed by the state, and subject to deed restrictions governing its use and maintenance. Abandoning the

airport requires a majority vote of the property owners, and a vote may not occur more than once every 10 years. The current property owners within the air-acre subdivision at issue have expressed their desire to maintain use of the airfield. In addition to the airstrip, the private streets in this area are an impediment to infill or redevelopment of this area, as access is severely limited to the majority of the area. Due to the presence of the airstrip and the private streets, the lots proposed for exclusion are unlikely to redevelop within the 20-year planning period of the UGB expansion, allowing the City to consider it impracticable to provide necessary public facilities or services to these lots based on Subsection (7)(b)(A), above.

Subsection (7)(b)(B), above, identifies "the likely cost of facilities and services" as a reason to exclude certain lands. The area proposed for exclusion is developed with residential properties and, as such, if included in the UGB Expansion Area, would be included for residential development. The small number of residential units that could redevelop within the area proposed for exclusion would require extensive facilities and services, with an extremely high utility cost per residential dwelling unit, making provision of such impracticable to provide, satisfying the provisions of Subsection (7)(b)(B), above.

Subsection (7)(b)(C), above, identifies "any substantial evidence collected by or presented to the city regarding how similarly situated land in the region has, or has not, developed over time" as a reason to exclude certain lands from the UGB study area. The City has collected evidence that the presence of the airport has an impact on the residential designation of any surrounding lands and would result in conflicts between homeowners and airport operations. Noise, vibration, overflights and other issues arise between airports and their residential neighbors. The city of Portland has faced constant issues of takings because of the residential designations placed around the Portland International Airport and has been required to place an overlay zone on lands surrounding that airport to require those residential uses to include noise insulation to prevent further nuisance suits against both the city and the Port of Portland.

In addition, the problematic land economics matters described above, which are unlikely to result in development of South Subarea A in the 20-year planning period, have played out elsewhere in the region, including at the former Exception Land Area in the nearby Hillsboro Industrial Area along both sides of NW Sewell Road between NW Evergreen and NW Meek Road that contains approximately 530 acres of land occupied by a long-established rural residential community which were added to the Metro UGB in 2005. Land redevelopment impediments such as significantly-higher rural residential land values than industrial land values (which persists even more in 2021 due to limited residential land supply), and land assembly and acquisition difficulties due to many owners of strategically-located rural properties needed for industrial developments – and for new supporting urban infrastructure - unwilling to sell their properties to interested industrial developments (which further exacerbated already then-existing high costs of infrastructure provision) have precluded urban infill development ever since the Area was added to the UGB in 2005.

The substantial evidence of residential development near airport facilities and land economics that the City has collected satisfies the provisions of Subsection (7)(b)(C), above.

Subsection (7)(c), above, identifies some of the "impediments to service provision" that may be used to determine exclusion of certain areas in the UGB study area. Specifically, subsection (C) identifies "freeways, rail lines, or other restricted access corridors that would require new grade separated crossings to serve planned urban development" as impediments. The airport itself serves as an "other restricted access corridor" that would limit the provision of transportation and utility services within South Subarea A. In addition, NW Redhaven Street and NW 236th Place are private streets and an eastern extension of NW Beach Court is precluded by a 1'x50' Tract (see 'Tract A' on Air Acres No. 2 Plat, recorded May 3, 1972), further limiting the feasibility of providing transportation and utility services. These restricted access corridors within South Subarea A limit the inclusion of these properties in the UGB study area, meeting the provisions of Subsection (7)(c)(C), above.

State and County Airport Regulations

Applicable State Regulations

Oregon Revised Statutes (ORS) 836.600 to 836.630 deal with Local Government Airport Regulation. The policy of these statutes is "to encourage and support the continued operation and vitality of Oregon's airports." ORS 836.608(1) declares continued operation and vitality of airports as a matter of state concern.

ORS 836.608(2) states that a local government shall recognize in its planning documents the location of private-use airports and establish a boundary showing areas in airport ownership, or subject to long-term lease, that are developed or committed to airport uses. Areas committed to airport uses shall include those areas identified by the airport owner that the local government determines can be reasonably expected to be devoted to airport uses allowed under 836.616(2). ORS 836.616(3)(a) goes on to say that "a local government shall not impose limitations on the continued operation of uses described in ORS 836.616(2) that existed at any time during 1996 at an airport described in subsection (2) of this section.

ORS 836.616(2) authorizes customary and usual aviation-related activities and uses within airport boundaries that include but are not limited to takeoffs, landings, aircraft hangars, tie-downs, construction and maintenance of airport facilities, fixed-based operator facilities and other activities incidental to the normal operation of an airport, and those aeronautic recreational and sporting activities that may occur on the airport site.

Applicable County Regulations

Policy 42 of the Washington County Comprehensive Framework Plan states that "It is the policy of Washington County to protect the function and economic viability of existing public use airports, while

ensuring public safety and compatibility between airport uses and surrounding land uses for public use airports and for private use airports identified by the Oregon Department of Aviation (DOA)."

"Policy 42 outlines implementing strategies which, in part, set forth Airport Overlay Districts to regulate safety concerns, land uses and land use compatibility issues on airport properties and within surrounding areas. These are structured to address state-recognized airports in two categories, generally referred to herein as Public Use Airports and Private Use Airports."

Policy 42, Implementing Strategy 'a' states that the County will "Adopt and implement Airport Overlay Districts consistent with LCDC Airport Planning Rules and ORS Chapter 836 in order to… 2. Protect privately owned, private use airports identified by the DOA. Each airport's specific level of risk and usage shall be used to guide the continued safe aeronautical access to and from these airports, considering the type of aircraft approved to use the field." Washington County Development Code, Article III, Sections 385-386 carry out implement state regulations and County policies.

FINDINGS regarding Airport Regulations:

Roth Development is the owner of the Sunset Airstrip (airport code 1OR3) a private residential airpark located in Washington County, south of the City of North Plains and south of Highway 26. Roth Development's 33 shareholders are the owners of Air Acres, Air Acres 2, Sunset Orchard Estates 1 and Sunset Orchard Estates 2 (identified as "South Subarea A" in the UGB Expansion boundary analysis). The airstrip qualifies as an airport under Oregon Revised Statutes (ORS) 836.605(2) as it was the base for 25 aircraft on December 31, 1994 as shown on ODOT records.

The airport that exists in the exception area lies diagonally across 18 lots zoned Rural Residential-5. These homesites, landing strip, and associated aviation facilities comprise the Air Acres Subdivision. All of the lots are occupied and all the facilities are actively used. The Air Acres subdivision has existed on this site since before the area was zoned in the early 1970s and has had a licensed airport since 1970.

Urban development of the area surrounding the Sunset Airstrip would limit the normal operation of the airport in violation of state and county regulations. Air Acres is subject to deed restrictions governing its use and maintenance. Abandoning the airport requires a majority vote of the property owners, and a vote may not occur more than once every 10 years. The current property owners within the air-acre subdivision at issue have expressed their desire to maintain use of the airfield. Therefore, the City finds that the RR-5 and AF-5 land near the airport cannot reasonably accommodate the City's residential or employment land need.

Due to the orientation of this airstrip, development of the area with additional dwellings would necessitate abandoning the facility, which is shared by 33 property owners, many who own plane hangers abutting the airfield. The continuing operation of the Sunset Airstrip is a significant impediment to development at urban intensities. As stated previously regarding land economics,

residential development would be the appropriate use for inclusion of South Subarea A in the UGB study area; however, infill residential development is extremely unlikely to occur during the planning period as the property owners intend to continue to operate the airport and additional development would impact its operations.

North Plains Comprehensive Plan

As this land is developed residentially, any future UGB expansion into South Subarea A would be for residential uses. Therefore, the policies identified from the North Plains Comprehensive Plan address Statewide Planning Goal 10: Housing.

Goal 10: Housing

Objective 4: To require that land that is brought into the UGB primarily to meet residential land needs is concept planned before it is annexed into the city limits, and master planned before development is allowed.

> *Policy 3): Newly developed residential areas will be in master planned areas that may include parks, schools, public services and facilities, shopping, services, and activity centers, providing pedestrian access to these amenities.*
>
> *Policy 4): Newly developed residential areas will include landscaping and open space to provide an amenity to the residential development and reduce potential conflicts with surrounding uses.*

FINDINGS regarding North Plains Comprehensive Plan:

A new residential development in South Subarea A would not have sufficient land to include parks, schools, shopping, services, and activity centers with pedestrian access.

A new residential development in South Subarea A would not be able to provide sufficient open space to reduce conflicts with the Sunset Airstrip. The presence of the airport has an impact on the residential designation of any surrounding lands and would result in conflicts between homeowners and airport operations. Noise, vibration, overflights and other issues arise between airports and their residential neighbors. Redevelopment of these properties with additional residential dwelling units would not meet the identified provisions of the North Plains Comprehensive Plan.

North Plains Transportation System Plan

1. Objective: To create a multi-modal transportation system for all users. All users will have safe and convenient access.

> *Policy 1.D): Provide complete access for pedestrians and bicycles to key locations.*

5. Objective: To encourage design and improvements that reduce the environmental impact of the transportation system.

> *Policy 5.A): Reduce emissions by encouraging connectivity and design that reduces vehicle miles traveled.*

FINDINGS regarding North Plains Transportation System Plan:

Complete access for pedestrians and bicycles to key locations within the City of North Plains is extremely limited from this location. Residents of new housing units in South Subarea A would not have safe and convenient access to key locations for pedestrians and bicycles. New residential development or redevelopment in South Subarea A would not encourage connectivity to reduce vehicle miles traveled as the airport limits connectivity and the existing roadway network is comprised of privately owned streets and tracts. Development of new residential units in this area would not meet the applicable objectives of the Transportation System Plan.

RESULTS OF EXCLUSION ANALYSIS

The City of North Plains finds that the South Subarea A properties identified on the map at the beginning of this appendix meet the criteria for exclusion from the preliminary UGB study area. The properties identified for exclusion meet the applicable criteria of OAR 660-024-0065, as demonstrated within this appendix. Further evidence supporting exclusion of these properties from the preliminary study area are found in the findings related to the State and County Airport Regulations, North Plains Comprehensive Plan and North Plains Transportation System Plan.

The City acknowledges that South Subarea A is considered Exception Lands and is therefore compelled to consider these lands first for inclusion in the UGB; however, the City finds that urbanization of South Subarea A would be incompatible with the operation of the Air Acres airport and that South Subarea A is incapable of reasonably meeting any portion of the City's residential or employment land need over the 20-year planning horizon.

Appendix B. North Plains UGB Description

A. Begin at centerline of the intersection of Highway 26 and Glencoe Road, following the centerline of Highway 26 east to the western boundary of Tax Lot 1N2070000200.
A. Exclude Tax Lot 1N2070000200, follow western property boundary of 1N2070000200 south and follow western boundaries and include tax lots 1N2070001400 and 1N2070000300 back to centerline of Highway 26.
A. From the intersection of the southwest corner of tax lot 1N2070000300 and Highway 26, follow the centerline of Highway 26 east to the southern boundary of tax lot 1N2070000400.
A. Follow the southern boundary of tax lot 1N2070000400 to the centerline of NW Jackson School Road.
A. Follow the centerline of NW Jackson School Road to the northern boundary of tax lot 1N2050000401.
A. Include tax lots 1N2050000401 and 1N2060000151 but not the ODOT railroad Right-of-Way. Connect to existing UGB heading west along northern boundary of Brynhill.
A. At a point approximately 90 feet northeast of where NW Main Street is approved to intersect the existing UGB line per the Brynhill Master Plan design, head northwest to the northern property line of tax lot 1N3010000400 (south of Jackson Cemetery).
A. Head west along the northern boundary of tax lot 1N3010000400 for 2,400 feet to the centerline of Old Pumpkin Ridge Road.
A. Head south along the centerline of Old Pumpkin Ridge Road 245 feet, then head west within tax lot 2N3350000900 to the western boundary of this tax lot.
A. At the western boundary of 2N3350000900, head south to the centerline of NW Mountaindale Road.
A. Follow the centerline of NW Mountaindale Road to its intersection with the centerline of NW Dersham Road, then head south along the centerline of NW Dersham Road to the centerline of Highway 26.
A. Follow the centerline of Highway 26 east to the southern boundary of tax lot 1N3020000402.
A. Follow the southern boundary of tax lot 1N3020000402 east, excluding the ODOT railroad right-of-way, but include the portion of tax lot 1N3020000200 that is north of the ODOT railroad right-of-way.
A. Connect to the existing UGB. Head south of NW Gordon Road to the centerline of Highway 26. This stretch of existing UGB does not follow the center line of NW Gordon Road.
A. Follow the centerline of Highway 26 to the point where heading south would connect with the western property boundary of tax lot 1N312B000100.
A. This includes the western, triangle-shaped portion of Tax Lot 1N301CD02200 that was specifically identified by the Planning Commission for inclusion in the UGB Boundary Expansion in their recommendation on May 10, 2023.
A. Follow the western boundary of 1N312B000100 to the western boundaries of tax lots 1N312B000101, 1N312B000201 and 1N312B000200 to the centerline of NW Beech Street.
A. Follow the centerline of NW Beech Street east to the centerline of NW Glencoe Road.
A. Follow the centerline of NW Glencoe Road to the centerline of NW Highway 26.

Before the Planning Commission of the City of North Plains

In the matter of an application for the City of North Plains UGB Amendment and Comprehensive Plan Amendment and Updated Housing Needs Analysis (HNA)
City of North Plains, APPLICANT

) **RECOMMENDATION TO CITY COUNCIL**
) **CPA 23-056 (1) and (2) -** UGB Expansion
) & Updated Housing Needs Analysis (HNA)
) **PC Hearing Date: May 10, 2023**

Whereas, the City of North Plains adopted an update to the City's Housing Needs Analysis (HNA) on December 4, 2017 with Ordinance No. 449; and

Whereas, Portland State University Population Research Center (PRC) prepared a new Coordinated Population Forecast for Washington County, its Urban Growth Boundaries (UGB), and Areas Outside UGBs, 2020-2070 on June 30, 2020 that included an updated forecast of population for the City of North Plains' UGB for that timeframe; and

Whereas, to provide a current City Housing Needs Analysis reflective of the most recent Portland State University PRC forecast of population for the North Plains UGB, the City initiated an update to the City's HNA to inform both a broader proposed Comprehensive Plan amendment and proposed Urban Growth Boundary amendment; and

Whereas, the Planning Commission conducted a duly-noticed public hearing, and reviewed the proposed UGB Amendment and Comprehensive Plan Amendment and Updated Housing Needs Analysis (HNA) and staff reports at its meeting on May 10, 2023; and

Whereas, the Planning Commission considered the submitted staff report and reviewed the proposed UGB Amendment and Comprehensive Plan Amendment and Updated Housing Needs Analysis (HNA) for compliance with the North Plains Comprehensive Plan, which incorporates the Statewide Planning Goals, and

Whereas, having considered the application, public testimony and the evidence in the record, the Planning Commission adopted a motion to recommend approval to the City Council of file **23-056 (1) and (2)** Amended Housing Needs Analysis and Comprehensive Plan and Amended Urban Growth Boundary with the following modifications: adjust the UGB boundary so it takes in the small "triangle" of land associated with the property located at 10105 NW 314th Ave., and all county roadways to the extent feasible, and instructed staff to prepare findings and conclusions in a written recommendation.

Now therefore, it is hereby recommended by the North Plains Planning Commission:

The Planning Commission recommends approval to the City Council of the proposed UGB Amendment and Comprehensive Plan Amendment and Updated Housing Needs Analysis (HNA), based on the findings and conclusions contained in Exhibit A (attached) along with the following modifications: adjust the UGB boundary so it takes in the small "triangle" of land associated with the property located at 10105 NW 314th Ave., and all county roadways to the extent feasible, which the Planning Commission hereby adopts as its findings, and determines to be reasonable.

Stewart King - Chairperson

Date 5/16/2023

North Plains UGB Expansion and Updated Housing Needs (HNA) Analysis
File# CPA 23-056(1) and (2)
Planning Commission Recommendation to City Council
Exhibit A FINDINGS

General Findings

1. Finding: Applications for an Urban Growth Boundary (UGB) amendment, Comprehensive Plan text amendment, updated Housing Needs Analysis (HNA) and/or zoning map amendments require Type IV legislative reviews and decisions. The Planning Commission conducts a public hearing on the matter and forwards a recommendation to the City Council. The City Council is the City's decision-making body.

2. Finding: The proposed Urban Growth Boundary (UGB) amendment, Comprehensive Plan text amendment, and updated Housing Needs Analysis (HNA) is applicable citywide. As such, public notice was posted on the City's webpage at least ten (10) days prior to the public hearing.

3. Finding: The proposed amended Urban Growth Boundary (UGB) amendment, Comprehensive Plan text amendment, and updated Housing Needs Analysis (HNA) complies with Section 155.127 of the North Plains Zoning Ordinance, specifically subsection (A) Comprehensive Plan & Zoning Amendments Review Criteria, Text Amendment, as addressed in the staff report to Planning Commission dated May 3, 2023. The proposed amended Urban Growth Boundary (UGB) amendment, Comprehensive Plan text amendment, and updated Housing Needs Analysis (HNA) complies with the North Plains Comprehensive Plan and Statewide Planning Goals.

4. Finding: *Procedures:* In accordance with ZOO Chapter 155.032 Application Review and Procedures, on May 10, 2023, the Planning Commission conducted a public hearing to discuss and make a recommendation regarding this application.

Specific Findings based on North Plains Municipal Code (NPMC)

(Code text is **Bold.** All findings are from the Staff Report to Planning Commission)

COMPLIANCE WITH CITY OF NORTH PLAINS MUNICIPAL CODE
COMPREHENSIVE PLAN & ZONING AMENDMENTS

Urban Growth Boundary (UGB) Amendment and Comprehensive Plan Text Amendment

COMPLIANCE WITH CITY OF NORTH PLAINS MUNICIPAL CODE

COMPREHENSIVE PLAN & ZONING AMENDMENTS
§155.127 Review Criteria

(A) Text Amendment

An amendment to the text of the Comprehensive Plan or this Ordinance shall be based upon a need for such an amendment identified by the City Council or the Planning Commission. Such an amendment shall be consistent with the following review criteria:

(1) Impact of the proposed amendment on land use and development patterns within the city, as measured by:

(a) Traffic generation and circulation patterns in compliance with the Transportation System Plan (TSP);
(b) Demand for public facilities and services, in compliance with the City utility master plans;
(c) Level of park and recreation facilities;
(d) Economic activities;
(e) Protection and use of natural resources;
(f) Compliance of the proposal with existing adopted special purpose plans or programs, such as public facilities improvements.

Finding: The City Council and Planning Commission identified a need for the UGB expansion and supporting comprehensive plan text amendments based on the lack of available land for the city to support identified employment and residential growth over the next 20 years. The City Council has a stated goal to overturn the "bedroom community" dynamic in the city with robust planning and for employment land development over the coming years. The amount of land identified for inclusion in the UGB expansion is based on the adopted Economic Opportunities Analysis (EOA) and an updated Housing Needs Analysis (HNA) that is being approved concurrently with this UGB expansion. The included UGB Expansion Report provides high-level analysis of traffic generation and circulation patterns, public facilities and services, parks and recreation facilities, economic activities, protection and use of natural resources and compliance with existing and adopted special purpose plans and programs. As part of their recommendation on the UGB amendment to the City Council, the Planning Commission recommended at their May 10th hearing that the UGB boundary be modified to include the small "triangle" shaped piece of land associated with the property located at 10105 NW 314th Ave., as well as all county roadways within the proposed UGB boundary to the extent feasible.

The next step in the UGB expansion process is to concept plan the UGB areas. This will allow the city to dig deeper into the details of these city services and determine the impact of each on land use and development patterns within the existing city limits and within the proposed UGB expansion areas. This standard is met.

(2) The proposed amendment complies with all applicable Statewide Planning Goals and administrative rule requirements.

Finding: Oregon's 19 Statewide Planning Goals are addressed below. Though several of the goals are not applicable to the proposed UGB expansion and comprehensive plan text amendments, those that are applicable are responded to in detail.

Goal 1 Citizen Involvement
The North Plains Urban Growth Boundary Expansion Project Advisory Committee (UGB PAC), comprised of elected and appointed officials, community residents, local business owners and agency representatives, met eight (8) times over the course of three (3) years in publicly noticed, hybrid in-person/virtual open meetings. Public testimony was always received at each UGB PAC meeting. The Planning Commission and City Council also held two publicly noticed joint work sessions with opportunity for public comment. The city maintained a robust website throughout the project, https://www.northplains.org/planning/page/urban-growthboundary-expansion, allowing full access to up-to-date project documents and information about upcoming opportunities to participate via a scheduled PAC meeting or connection with City staff.

This land use process to approve the proposal is subject to a City of North Plains Type IV land use review, which includes a significant citizen involvement component. This process has been established by the city and determined to be consistent with this goal. The mandatory public notice of the action and decision, and the hearings on this case before the Planning Commission and City Council are all avenues of citizen participation.

***Goal 2* Land Use Planning**
This statewide goal requires that land use decisions 1) have an adequate factual base, 2) that alternatives have been considered, and 3) that implementation measures are consistent with and adequate to carry out comprehensive plan. The proposed UGB expansion area was established utilizing the guidance provided by Statewide Planning Goal 14 (Urbanization) which incorporates the requirements of ORS 197A.300 to 197A.325, which establishes requirements for a factual basis. Alternatives to the proposed expansion were reviewed and discussed throughout the eight (8) Project Advisory Committee Meetings and two (2) joint Planning Commission-City Council Work Sessions. The proposed UGB expansion and associated comprehensive plan text amendment are consistent with and adequate to carry out the Comprehensive Plan.

***Goal 3* Agricultural Lands and *Goal 4* Forest Lands**
This goal does not apply because the City does not include areas designated for agricultural or forest use. The areas designated for UGB expansion are all within either the "exception land" or "undesignated" urbanization categories. No "rural reserves" are proposed for inclusion in the UGB expansion.

***Goal 5* Open Spaces, Scenic and Historic Areas, and Natural Resources**
There are no proposed changes to text regarding Goal 5 open spaces, scenic and historic areas and natural resources. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 6* Air, Water and Land Resources Quality**
There are no proposed changes to text regarding air, water, or land resources. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 7* Areas Subject to Natural Hazards**
There are no proposed changes to text regarding areas subject to natural hazards. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 8* Recreational Needs**
The proposed UGB expansion includes 40 acres of parks and open space to meet the need identified in the Housing Needs Analysis (HNA) to support current and future residents of the city. This amount of parks and open space land included in the UGB expansion area calculation is consistent with Goal 8.

***Goal 9* Economic Development**
The proposed UGB Expansion includes 515 acres to accommodate industrial land needs and 172 acres to meet commercial land needs through 2038, including infrastructure such as roadways. This employment land need was established through the city's adopted Economic Opportunities Analysis. The city is also in on-going discussions with the State of Oregon regarding potential designation of 500 acres as a special opportunity area for semi-conductor manufacturing and related business development. The proposed UGB expansion and associated Comprehensive Plan Text Amendments support the city's ongoing compliance with Goal 9.

***Goal 10* Housing**
The proposed UGB Expansion includes 167 acres to meet residential land needs through 2038, including parks and infrastructure. This residential land need was established through the city's updated Housing Needs Analysis. The proposed UGB expansion and associated Comprehensive Plan Text Amendments support the city's ongoing compliance with Goal 10.

***Goal 11* Public Facilities and Services**
There are no proposed changes to text regarding public facilities and services. The UGB Expansion includes land for provision of public roadways and infrastructure. The intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 12* Transportation**

The Transportation Planning Rule (TPR), OAR 600-012.0060, requires that, where an amendment to a comprehensive plan or zoning regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures that assure that allowed land uses are consistent with the function, capacity, and performance standards of the facility. The proposed UGB Expansion and associated Comprehensive Plan Text Amendment do not propose any changes to an existing or planned transportation facility and, as such, the proposal does not affect the transportation system of the City. More detail regarding transportation analysis will be included with the city's UGB Concept Planning Process, which will commence once the UGB Expansion is adopted and finalized.

Goal 13 Energy Conservation
There are no identifiable energy consequences of this land use action. The city continues to be in compliance with Goal 13 through adopted Comprehensive Plan policies.

Goal 14 Urbanization
The UGB Expansion Report follows the guidance provided by Statewide Planning Goal 14 (Urbanization), which incorporates the requirements of ORS 197A.300 to 197A.325 Amendment of Urban Growth Boundary Outside Metro. The report answers the following questions to justify a UGB expansion for North Plains: 1. Is any additional land needed for one or more urban uses, and if so, how much? 2. If additional land is needed, how much can be accommodated within the current UGB? 3. If additional land is needed outside the UGB, where is the best place to expand the boundary? 4. What other amendments are needed to comply with the statewide planning goals? The UGB Expansion Report details the analysis of the above questions and provides a logical, efficient expansion of the city's UGB to include an additional 855.2 acres to meet the city's 20year land need. The proposed UGB Expansion and Comprehensive Plan Text Amendment meet the provisions of Goal 14.

Goal 15 Willamette River Greenway
Goal 16 Estuarine Resources
Goal 17 Coastal Shorelands
Goal 18 Beaches and Dunes
Goal 19 Ocean Resources
The City is not within the plan boundary for the Willamette River Greenway, does not have any estuarine resources, and is not on the Oregon Coast, so goals 15 through 19 do not apply. As discussed above, the proposed UGB Expansion and Comprehensive Plan Text Amendment area generally consistent with all of the applicable Oregon Statewide Planning Goals.

(3) The amendment is appropriate as measured by at least one of the following criteria:
(a) It corrects identified error(s) in the provisions of the plan.
(b) It represents a logical implementation of the plan.
(c) It is mandated by changes in federal, state, or local law.
(d) It is otherwise deemed by the City Council to be desirable, appropriate, and proper.

Finding: The proposed UGB expansion and Comprehensive Plan Text Amendment have been deemed to be desirable, appropriate and proper accommodate the city's projected residential and employment growth over the next 20 years. The proposed amendment is appropriate as measured by at least one of the criteria and this standard is met.

(4) Compliance with the statewide Transportation Planning Rule. When a development application includes a Comprehensive Plan, Zone Map or Text Amendment, the proposal shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule. "Significant" means the proposal would:

- ***(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors). This would occur, for example, when a street classification, requiring traffic to exceed the levels associated with a "collector" street classification, requiring a change in the classification to an "arterial" street as identified by the City's Transportation System Plan (TSP);***

or

- ***(b) Change the standards implementing a functional classification system; or***
- ***(c) As measured at the end of the planning period identified in the North Plains TSP or Comprehensive Plan; or***
- ***(d) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance identified in the North Plains TSP or Comprehensive Plan; or***
- ***(e) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the North Plains TSP or Comprehensive Plan.***

(5) Amendments that affect Transportation Plans. Except as provided in subsection 6 Exceptions, amendments to the Comprehensive Plan or land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity and level or service of the facility identified in the North Plains TSP. This shall be accomplished by one of the following:

- ***(a) Adopting measures that demonstrate that allowed land uses are consistent with the planned function of the transportation facility; or***
- ***(b) Amending the North Plains TSP or Comprehensive Plan to provide transportation facilities, improvements, or services adequate to support the proposed land uses; such amendments shall include a funding plan to ensure the facility, improvement , or service will be provided by the end of the planning period; or***
- ***(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes of transportation; or***
- ***(d) Amending the planned function, capacity or performance standards of the transportation facility; or***
- ***e) Providing other measures as a condition of development or through a development agreement or similar funding method, specifying when such measures will be provided.***

(6) Exceptions. Amendments to the Comprehensive Plan or land use regulation with a significant effect on a transportation facility, where the facility is already performing below the minimum acceptable performance standard identified in the North Plains TSP or Comprehensive Plan, may be approved when all of the following criteria are met:

- ***(a) The amendment does not include property located in an interchange area, as defined under applicable law;***
- ***(b) The currently planned facilities, improvements or services are not adequate to achieve the standard;***
- ***(c) The currently planned facilities, improvements or services at a minimum mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development; and***
- ***(d) The road authority provides a written statement that the proposed funding and timing for the proposed development mitigation are sufficient to avoid degradation to the facility.***

Finding: The proposed UGB Expansion and Comprehensive Plan Text Amendment do not include changes to the Transportation System Plan or significantly affect a transportation facility. The proposal is to approve the UGB expansion area, but does not include land use designations or roadway alignments within the UGB area. A more detailed analysis of transportation system impact will be forthcoming with UGB Concept Planning. Approval of the proposed UGB Expansion and Comprehensive Plan Text Amendment will comply with the Transportation Planning Rule.

§155.129 Findings
Findings justifying a decision on an application shall be made in writing, and shall be provided to the applicant.

Finding: The City Council's final decision will include written findings. As the City is the applicant, they will have the findings.

§155.129 Conditions

The granting of an approval of any land use action under Chapter 16.200 may be subject to such conditions as are reasonably necessary to protect the public health, safety or general welfare from potentially damaging effects resulting from approval of the permit, or to fulfill the public need for service demands created by approval of the request.

Finding: Staff does not find it necessary to subject this decision to any conditions of approval.

CONCLUSION

The Planning Commission is considering a recommendation to the City Council of the proposed UGB expansion and comprehensive plan text amendment. The Planning Commission may recommend that the City Council approve, approve with Conditions or deny the proposal.

Staff recommends the Planning Commission recommend approval of City File Number **CPA 23-056(1)**, Urban Growth Boundary Expansion and Comprehensive Plan Text Amendment, to the City Council for a public hearing at their regularly scheduled meeting on June 5, 2023.

Housing Needs Analysis (HNA) Update

COMPLIANCE WITH CITY OF NORTH PLAINS MUNICIPAL CODE

COMPREHENSIVE PLAN & ZONING AMENDMENTS
§155.127 Review Criteria

(A) Text Amendment
An amendment to the text of the Comprehensive Plan or this Ordinance shall be based upon a need for such an amendment identified by the City Council or the Planning Commission. Such an amendment shall be consistent with the following review criteria:

- ***(1) Impact of the proposed amendment on land use and development patterns within the city, as measured by:***
  - ***(a) Traffic generation and circulation patterns in compliance with the Transportation System Plan (TSP);***
  - ***(b) Demand for public facilities and services, in compliance with the City utility master plans;***
  - ***(c) Level of park and recreation facilities;***
  - ***(d) Economic activities;***
  - ***(e) Protection and use of natural resources;***
  - ***(f) Compliance of the proposal with existing adopted special purpose plans or programs, such as public facilities improvements.***

Finding: The City Council and Planning Commission identified a need for this proposed update to the HNA to ensure the base residential land need assumptions used for the UGB expansion project were as up-to-date and reliable as possible. The proposed HNA update includes estimated residential land need through the year 2040, including supporting transportation and utility services. Park and recreation facilities are specifically included in the HNA with an estimated need of 40 acres over the planning horizon, as identified on Pages 60-61, Exhibit 57. Economic activities are addressed in the city's adopted Economic Opportunities Analysis (EOA). Chapter 2 of the HNA, and specifically Exhibits 5 and 6, include the Buildable Lands Inventory (BLI), which identifies natural resources (floodplain) and would identify any applicable special purpose plans or programs that would affect residential land growth. The provisions of this standard are met.

- ***(2) The proposed amendment complies with all applicable Statewide Planning Goals and administrative rule requirements.***

Finding: Oregon's 19 Statewide Planning Goals are addressed below. Though several of the goals are not applicable to the proposed update to the HNA, those that are applicable are responded to in detail.

***Goal 1* Citizen Involvement**

The proposed update to the HNA was reviewed by the North Plains Urban Growth Boundary Project Advisory Committee (UGB PAC), comprised of elected and appointed officials, community residents, local business owners and agency representatives. All UGB PAC meetings were open to the public with public comment opportunity. In addition, this land use process to approve the proposal is subject to a City of North Plains Type IV land use review, which includes a significant citizen involvement component. This process has been established by the city and determined to be consistent with this goal. The mandatory public notice of the action and decision, and the hearings on this case before the Planning Commission and City Council are all avenues of citizen participation.

***Goal 2* Land Use Planning**

This statewide goal requires that land use decisions 1) have an adequate factual base, 2) that alternatives have been considered, and 3) that implementation measures are consistent with and adequate to carry out comprehensive plan. The proposed HNA update is based on the 2020 certified population estimate from the PSU Population Research Center. The state of Oregon has determined this resource to be the factual basis on which cities shall base population growth assumptions. Through this HNA update and the concurrent UGB expansion process, the city identified and implemented several land use efficiency measures to accommodate as much of the projected growth as possible within the existing city limits. Alternative land use efficiency measures were considered and those projected to have the most impact on efficient development of land were adopted by the city. The proposed HNA update is consistent with the housing and urbanization chapters of the Comprehensive Plan, which are proposed to be updated in conjunction with this HNA and the UGB expansion project. Therefore, the proposed HNA update is consistent with and adequate to carry out the city's comprehensive plan.

***Goal 3* Agricultural Lands**

This goal does not apply because the City does not include area designated for agricultural use.

***Goal 4* Forest Lands**

This goal does not apply because the City does not include area designated for forest use.

***Goal 5* Open Spaces, Scenic and Historic Areas, and Natural Resources**

There are no proposed changes regarding Goal 5 open spaces, scenic and historic areas and natural resources. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 6* Air, Water and Land Resources Quality**

There are no proposed changes regarding air, water, or land resources. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 7* Areas Subject to Natural Hazards**

There are no proposed changes regarding areas subject to natural hazards. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 8* Recreational Needs**

The proposed HNA update includes an analysis and identified need for 40 additional acres of parks and open space land to support the city's growth over the planning horizon. This analysis and identification of land need is consistent with Goal 8 as the city is accommodating the recreational needs of its current and future residents.

Goal 9 Economic Development There are no proposed changes regarding economic development. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

Goal 10 Housing
Goal 10 is "to provide for the housing needs of citizens of the state" by estimating population growth, establishing a buildable lands inventory and planning for residential land development to accommodate the need. The proposed HNA update includes the population growth estimate and buildable lands inventory needed by the city to provide for the housing needs of the current and future residents of North Plains and therefore this proposed HNA update complies with Goal 10.

Goal 11 Public Facilities and Services
There are no proposed changes to text regarding public facilities and services. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

Goal 12 Transportation
The Transportation Planning Rule (TPR), OAR 600-012.0060, requires that, where an amendment to a comprehensive plan or zoning regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures that assure that allowed land uses are consistent with the function, capacity, and performance standards of the facility. The proposed HNA update does not propose any changes to an existing or planned transportation facility and, as such, the HNA update does not affect the transportation system of the City.

Goal 13 Energy Conservation
There are no identifiable energy consequences of this land use action. The proposed text amendments will not result in any appreciable difference in waste production or recycling compared with development under the existing zoning.

Goal 14 Urbanization
The proposed update to the city's HNA will support the city's reasonable and efficient urbanization of UGB expansion areas. Land use efficiency measures were identified and adopted with the first phase of the UGB expansion project that will help accommodate some of the city's residential growth within the current city boundary. Additional growth projected between now and 2040 would need to be accommodated within an expanded UGB, which is being proposed in compliance with the provisions of Goal 14 for urbanization. This proposed updated HNA supports the city's continued compliance with Goal 14.

Goal 15 Willamette River Greenway
Goal 16 Estuarine Resources
Goal 17 Coastal Shorelands
Goal 18 Beaches and Dunes
Goal 19 Ocean Resources
The City is not within the plan boundary for the Willamette River Greenway, does not have any estuarine resources, and is not on the Oregon Coast, so goals 15 through 19 do not apply. As discussed above, the proposed update to the city's Housing Needs Analysis is generally consistent with all of the applicable Oregon Statewide Planning Goals.

(3) The amendment is appropriate as measured by at least one of the following criteria:
- ***(a) It corrects identified error(s) in the provisions of the plan.***
- ***(b) It represents a logical implementation of the plan.***
- ***(c) It is mandated by changes in federal, state, or local law.***
- ***(d) It is otherwise deemed by the City Council to be desirable, appropriate, and proper.***

Finding: The proposed updated HNA generally represents a logical implementation of the Comprehensive Plan and has been deemed by the City Council to be desirable, appropriate and proper to establish the city's residential land need through 2024. The proposed amendment is appropriate as measured by at least two of the criteria and this standard is met.

(4) Compliance with the statewide Transportation Planning Rule. When a development application includes

a Comprehensive Plan, Zone Map or Text Amendment, the proposal shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule. "Significant" means the proposal would:

- ***(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors). This would occur, for example, when a street classification, requiring traffic to exceed the levels associated with a "collector" street classification, requiring a change in the classification to an "arterial" street as identified by the City's Transportation System Plan (TSP); or***
- ***(b) Change the standards implementing a functional classification system; or***
- ***(c) As measured at the end of the planning period identified in the North Plains TSP or Comprehensive Plan; or***
- ***(d) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance identified in the North Plains TSP or Comprehensive Plan; or***
- ***(e) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the North Plains TSP or Comprehensive Plan.***

(5) Amendments that affect Transportation Plans. Except as provided in subsection 6 Exceptions, amendments to the Comprehensive Plan or land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity and level or service of the facility identified in the North Plains TSP. This shall be accomplished by one of the following:

- ***(a) Adopting measures that demonstrate that allowed land uses are consistent with the planned function of the transportation facility; or***
- ***(b) Amending the North Plains TSP or Comprehensive Plan to provide transportation facilities, improvements, or services adequate to support the proposed land uses; such amendments shall include a funding plan to ensure the facility, improvement , or service will be provided by the end of the planning period; or***
- ***(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes of transportation; or***
- ***(d) Amending the planned function, capacity or performance standards of the transportation facility; or***
- ***(e) Providing other measures as a condition of development or through a development agreement or similar funding method, specifying when such measures will be provided.***

(6) Exceptions. Amendments to the Comprehensive Plan or land use regulation with a significant effect on a transportation facility, where the facility is already performing below the minimum acceptable performance standard identified in the North Plains TSP or Comprehensive Plan, may be approved when all of the following criteria are met:

- ***(a) The amendment does not include property located in an interchange area, as defined under applicable law;***
- ***(b) The currently planned facilities, improvements or services are not adequate to achieve the standard;***
- ***(c) The currently planned facilities, improvements or services at a minimum mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development; and***
- ***(d) The road authority provides a written statement that the proposed funding and timing for the proposed development mitigation are sufficient to avoid degradation to the facility.***

Finding: The proposed updated HNA does not include changes to the Transportation System Plan or significantly affect a transportation facility. The proposed updated HNA is in compliance with the Transportation Planning Rule.

§155.129 Findings
Findings justifying a decision on an application shall be made in writing, and shall be provided to the applicant.

Finding: The City Council's final decision will include written findings. As the City is the applicant, they will have the findings. §155.129 Conditions The granting of an approval of any land use action under Chapter 16.200 may be subject to such conditions as are reasonably necessary to protect the public health, safety or general welfare from potentially damaging effects resulting from approval of the permit, or to fulfill the public need for service demands created by approval of the request. Finding: Staff does not find it necessary to subject this decision to any conditions of approval.

CONCLUSION

The Planning Commission is considering a recommendation to the City Council of the proposed updated Housing Needs Analysis (HNA). The Planning Commission may recommend that the City Council approve, approve with Conditions or deny the updated HNA. Staff recommends the Planning Commission recommend approval of City File Number CPA 23056(2), updated Housing Needs Analysis, to the City Council for a public hearing at their regularly scheduled meeting on June 5, 2023.

Ordinance No. 490
Exhibit C

Approved by
Ordinance No. 459
6/3/2019

Updated by Ordinance
No. 477 484
~~4/20/2022~~ 11/21/2022

NORTH PLAINS
COMPREHENSIVE PLAN

May ~~2019~~2023

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ACKNOWLEDGEMENTS

CITY COUNCIL

Mayor Teri Lenahan
Councilor Garth Eimers
Councilor James Fage
Councilor Robert "Butch" Kindel
Councilor Cameron Martinez
Councilor Russ Sheldon
Councilor Rickey Smith

PLANNING COMMISSION

Stewart King, Chair
Heather LaBonte, Vice Chair
Tom Hauth
Lonnie Knodel
Ryan Landon
Douglas Nunnenkamp
John Vater

COMPREHENSIVE PLAN WORK GROUP

Theresa Baird
Don Boone
Garth Eimers
David Hatcher
Rudy Kadlub
Stewart King
Sambo Kirkman
Heather LaBonte
Mayor Teri Lenahan
Karen Murphy
Trista Papen
Jason Reynolds

CITY STAFF

Andy Varner, City Manager
Don Otterman, Interim City Manager
Blake Boyles, Public Works Director
Lori Lesmeister, City Recorder

CONSULTANT

Steve Faust, 3J Consulting
Heather Austin, 3J Consulting
Anais Mathez, 3J Consulting
Sean Edging, 3J Consulting

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INTRODUCTION

The City of North Plains is a rural residential community located in western Washington County on the western fringe of the Portland metropolitan area. Platted in 1910, the community was incorporated in 1963. In 1980 the community had approximately 750 residents. By 2010, the population reached 1,970, and by 2021, the certified population estimate was 3,455. Population ~~population~~ forecasts indicate that the City will continue to grow rapidly.

While maintaining its small town character, the citizens and elected officials of North Plains look to continued growth and prosperity. To this end, the City has embarked on a comprehensive land use planning process designed to:

- Address the statewide planning goals of the Land Conservation and Development Commission (LCDC);
- Encourage orderly and coordinated urban growth and provide urban level services in an efficient and economic manner;
- Enhance community livability and encourage economic expansion; and
- Preserve the community's character and natural resources for future generations.

TERMINOLOGY USED IN COMPREHENSIVE PLAN

GOAL: The Statewide Planning Goal as determined by the State Legislature and administered by the Land Conservation and Development Commission.

OBJECTIVE: The specific City concerns toward which effort is to be directed.

POLICY: The policy statements set forth a guide to City courses of action which are intended to carry out the Goals and Objectives of the Plan. The policy statements present to City officials and potential developers a clear picture of the City Council's position on matters pertaining to physical improvements and developments.

PLAN ELEMENT: A section of the Plan. Each section begins with a general statement of conclusions on which the policies are based.

INVENTORY: The known facts (supportive material) that are applicable to the plan element.

IMPLEMENTATION: The process by which policy will be realized in the community.

VISION STATEMENT

The people of the City of North Plains have seen many changes in their community. They have decided to create this Vision Statement as the foundational document for:

1. Taking a pro-active approach to controlling their own destiny by creating a new community identity for the Year 2035.

2. Improving their ability to accommodate future growth by expanding their jurisdictional boundaries, where appropriate.

3. Enhancing the livability of and encouraging pride in the community by stressing the City's unique character that includes, but is not limited to, North Plains' agricultural and forest products, railroad legacy and pioneer heritage. To plan for growth that is compatible and well-connected with the existing city, the City shall make a livable, walkable community a key element of the City's future.

4. Striving to be a complete community that provides a place for its citizens to live, work, shop and have convenient access to schools, and maximizes access to fire, life and safety services.

5. Striving also to be a sustainable community by providing jobs and services within the city. Maintaining a compact urban form while having access to jobs and services will reduce the reliance on the automobile and vehicle miles traveled. This will lead to improvement in air quality and further enhancement of the livability of North Plains.

6. Providing guidance to the City for interpreting and amending the Comprehensive Plan and Zoning and Development Ordinance.

NORTH PLAINS VISION STATEMENT

In the year 2035, residents of North Plains enjoy a safe and welcoming community as a livable place for people of all ages. North Plains is an independent community within Washington County that maintains a small town character while accommodating current and future residents. Citizen participation is strong and community members can see the results of their involvement. Community gathering places and events form the heart of North Plains.

Community

Our events are inclusive and connect neighbors frequently. Residents and visitors enjoy events such as the North Plains Elephant Garlic Festival and a rich variety of social and cultural activities to celebrate the city, its history and its people. North Plains' residents are active and engaged in civic events and decision-making processes.

Neighborhoods

Historic structures are maintained and rehabilitated to accommodate new homes and businesses. There is a range of quality housing for all ages and income levels. Housing is attractive, compatible and builds upon historic North Plains' patterns. Land uses and housing types transition cohesively among neighborhoods.

Connectivity

North Plains is a well planned and connected city where residents and visitors enjoy pedestrian and bicycle paths between neighborhoods and to downtown. Walking is safe. Bicyclists understand designated routes and share the road safely. North Plains is connected to surrounding recreational, economic and cultural amenities.

Economic Opportunity

Downtown North Plains retains its old town atmosphere and is a vibrant, walkable, attractive place to shop, dine and gather. Glencoe Road and Commercial Street supply business-friendly, mixed-use areas for residential and commercial development. Employment areas provide land for industrial and other employment opportunities. Proximity to US 26 provides easy access to well paying jobs in the region. North Plains is recognized as a gateway to the Oregon Coast.

Heritage & Natural Resources

North Plains' agricultural heritage is visible and accessible in places like Lakeview Farms. City policies preserve natural assets and areas, such as McKay Creek and Ghost Creek tributaries.

ENVISION NORTH PLAINS' FUTURE

Public Services

North Plains' families and visitors enjoy the City's parks, trails, community center and recreational opportunities. The library continues its vital role as a place of learning. Residents value first responders, community policing, fire prevention and emergency preparedness. Proficient government agencies maintain existing city assets and coordinate future development. Transportation routes for freight, automobiles, bicycles and pedestrians are well-marked and communicated. Parks and recreation activities are easily accessible, including walking, bicycling and golfing.

CITIZEN INVOLVEMENT

The opportunity for active participation by residents and landowners in the preparation of a community's comprehensive plan is not just mandated by state law, but is the only realistic means of assuring that the community's planning efforts will be worthwhile and meaningful endeavors.

A community's leaders must not only provide the public with a chance to view and respond to the planning documents and studies, but also affirmatively seek out the involvement of the community's citizens. Otherwise, all of the citizen feedback will come during the final hearings on the plan and a great deal of it may be negative due to the lack of participation throughout the process. Furthermore, small communities, such as the City of North Plains, do not have the resources to prepare, adopt, and revise plans that have limited support from its citizens.

Goal 2 of the Statewide Planning Goals also provides that "opportunities shall be provided for review and comment by citizens and affected governmental units during preparation, review, and revision of plans and implementation ordinances." Just as the involvement of North Plains' residents is important to preparation of the plan, review by providers of governmental services (e.g., Washington County, Hillsboro, School District, Tualatin Valley Fire & Rescue), public utilities (e.g., power, gas, and communications), and transportation services (e.g., public transit, railroad) is essential.

The community's businesses and industries also must be involved, as these activities are not only often strongly influenced by the results of a comprehensive planning effort, but are also, due to their impact on the economic health of the area through payrolls and taxes, often an important means by which the goals and objectives of a community may be achieved.

Many of the mechanisms for involvement of the area's residents are also appropriate for governmental, public utility, and transportation providers as well as businesses and industries.

STATEWIDE PLANNING GOAL 1

To develop a Citizen Involvement Program that insures the opportunity for citizens to be involved in all phases of the planning process.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To maintain an effective Citizen Involvement Program, recognize an official body Committee for Citizen Involvement (CCI) to be responsible for overseeing and reviewing the effectiveness and impact of the program (ORS 197.160(b)).**

   POLICIES:

   1) The Citizen Involvement Program will be directed by the City's Planning Commission sitting as the Committee for Citizen Involvement.
   2) The Planning Commission shall evaluate the City's Citizen Involvement Process annually and report its findings in writing to the City Council along with recommendations as appropriate for improving the program.

2. **OBJECTIVE: To recognize the need for a number of different forms of communication in the Citizen Involvement Program.**

   POLICIES:

   1) Information about the City's planning activities and notices of upcoming meetings shall be included in the City newsletter.
   2) Notices of public hearings regarding the plan shall be mailed to all persons within the affected area and affected agencies.
   3) Opportunities to present the planning process before community organizations shall be actively sought.
   4) Maintain a dedicated webpage on the City's website to provide information about current and historic planning processes and documents.

3. **OBJECTIVE: To provide citizens the opportunity to be involved in all phases of the planning process.**

   POLICIES:

   1) Citizen assistance in the preparation of each phase of the planning process shall be actively encouraged.
   2) Strategies to reach underrepresented populations shall be implemented, as needed.

4. **OBJECTIVE: To present technical information that serves as the foundation of the plan in an understandable form.**

   POLICIES:

   1) Information necessary to reach policy decisions shall be available in a simplified and understandable form.
   2) Upon written request, information shall be made available in languages other than English within 10 working days.
   3) A copy of all technical information shall be available at the North Plains City Hall and on the City's website. Upon written request, assistance in interpreting and using technical information shall be provided within 10 working days.

5. **OBJECTIVE: To ensure all citizens receive a response from policy makers.**

   POLICIES:

   1) Recommendations resulting from the citizen involvement program shall be retained and made available for public assessment. Citizens who have participated in this program shall receive a response from policy makers. The rationale used to reach land use policy decisions shall be available in the form of a written record.

6. **OBJECTIVE: To allocate adequate human, financial, and informational resources to the Citizen Involvement Program.**

   POLICIES:

   1) The level of funding and human resources allocated to the Citizen Involvement Program should be an amount that will make citizen involvement an integral part of the planning process.

LAND USE PLANNING

The North Plains Comprehensive Plan was compiled and adopted in March 2000. In 2014, the City determined that a major revision to the Comprehensive Plan was necessary to address rapid population growth. Over the next four years, the City completed the following tasks in preparation for the Comprehensive Plan update:

- Reviewed the North Plains Comprehensive Plan and Development Code
- Made revisions to streamline and clarify the Development Code
- Prepared an economic opportunities analysis
- Prepared a housing needs analysis and buildable lands inventory
- Conducted a community design study and public workshop
- Updated the North Plains Parks and Recreation Master Plan
- Initiated an update to the Transportation System Plan

The City ~~is~~ used ~~using~~ the information compiled in these planning documents to prepare the 2019 North Plains Comprehensive Plan. The process was ~~is~~ guided by the Comprehensive Plan Work Group comprised of residents, business owners and elected officials. The Comprehensive Plan consists of:

- Vision – developed through a community-wide process
- Elements – correspond to applicable Oregon Statewide Planning Goals and consist of background information, goals, objectives and policies
- Inventories – the known facts and supportive materials that are applicable to the plan element
- Land Use Map – depicts a long-term vision of how and where the city will grow over the next 20 years

The 2019 Comprehensive Plan ~~is scheduled to be~~ was adopted in ~~May~~ June 2019. ~~Once adopted, the~~ The Plan ~~becomes~~ is the official policy statement of the City Council of the City of North Plains. The City will interpret the standards and requirements of the text and maps of the Comprehensive Plan pursuant to the adopted process. The City Council shall have final authority for the interpretation of the plan when such matters come before the City Council for consideration.

~~Upon completion of those revisions, the~~ The City will reviews and updates the Development Code on an on-going basis to ensure it is aligned with the Comprehensive Plan. The City expects to review the Comprehensive Plan approximately every 10 years to ensure the Plan remains a workable framework for development.

Land use categories ensure an adequate supply of land for residential, commercial and industrial development purposes and other uses that provide for a complete community. The following land use categories have been developed for use in the Comprehensive Plan map, which serves as the basis for the City's zoning map:

Residential: Historically, about 85% of North Plains housing was single-family detached. In order to address the City's housing needs identified in the housing needs analysis, the City will provide opportunity for development through zoning policies. ~~sufficient to allow: 70% of new housing will be single-family detached, 30% will be single-family attached and multi-family.~~ While 70% of new housing in North Plains is forecast to be single-family detached, the City will need to provide opportunities for development of new single-family attached (10% of new housing) and new multifamily (20% of new housing), which includes a wide range of housing types (e.g., duplexes, triplexes, apartments).

> *Low Density Residential:* Areas suited primarily for development of single family dwellings at a density not to exceed 5.8 dwelling units per net acre (a minimum lot size of 7,500 square feet per single family dwelling). Corresponds to R7.5 on the zoning map.
>
> *Medium Density Residential:* Areas suited for development of single dwellings, duplexes, attached two family and manufactured home parks and subdivisions at a density not to exceed 9.6 single-family detached, duplex or triplex dwelling units per net acre (a minimum lot size of 5,000 square feet per lot). The density of townhomes is not to exceed 14.5 dwelling units per net acre (a minimum lot size of 3,000 square feet per lot). Corresponds to R5 on the zoning map.
>
> *High Density Residential:* Areas suitable primarily for multi-family dwellings and manufactured home parks and subdivisions including townhouses (single-family attached dwellings). In this category, residential densities are not to exceed 21.8 dwellings units per net acre for new townhouse, multifamily and cottage cluster developments (a minimum lot size of 2,000 square feet per dwelling unit). The density of duplexes and triplexes shall be based on the minimum required lot size of 3,000 square feet for this type of dwelling. Corresponds to R2.5 on the zoning map.

Neighborhood Community: This comprehensive plan designation ~~is~~ was designed for the non-exception expansion areas brought into the City's urban growth boundary (UGB) in 2003 to 2023 ~~or after~~. This designation recognizes that a concept planning effort will be conducted prior to annexation into the city limits. The Concept Plan ensures a mix of residential and non-residential uses that meet the needs of the City.

~~Once land is annexed, a Master Plan is required prior to development of any portions of those areas. The master planning process should recognize the land needs identified in the Concept Plan. More information on growth management can be found in the section on Urbanization. Corresponds to Neighborhood Community (NC) on the zoning map.~~

Commercial: Encourages development of commercial uses supportive of the surrounding community and visitors. Includes areas to accommodate retail trade, service, banking, office and related cultural and governmental uses. Corresponds to C1 (General Commercial) and C2 (Highway Commercial) on the zoning map.

Industrial: Areas appropriate for wholesale trade and manufacturing activities. Corresponds to Light Industrial (M1) and General Industrial (M2) on the zoning map.

Public Facilities: Areas for necessary institutional uses such as schools and churches, and public and semipublic uses such as parks, a local government center and other governmental and public service uses. Corresponds to Institutional and Public Use Zone (IPU) on the zoning map.

In addition, three overlay zones have been created:

Flood Plain: Denotes areas lying within the 100-year flood plains of McKay Creek and Ghost Creek as shown in the comprehensive plan chapter on Goal 7.

for proposed alterations and demolitions.

Significant Natural Resources: Identifies significant natural resources, including significant wetlands and riparian corridors as identified in comprehensive plan chapters on Goal 5 and Goal 7.

STATEWIDE PLANNING GOAL 2

To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual basis for such decisions.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To maintain a Comprehensive Plan that identifies issues, inventories and related data for use in the land use planning and decision making process.**

   POLICIES:

   1) Maintain a Comprehensive Plan that designates a range of land use areas based on findings with respect to:
      - Natural resource capacity and environmental quality;
      - Projected population and economic growth;
      - Location and capacity of services;
      - Existing land use patterns;
      - Projected land use needs;
      - Community land use needs; and
      - Energy conservation and resources.

   2) Keep the Comprehensive Plan and supporting documents on file and available to the public through the City Recorder at the North Plains City Hall.

2. **OBJECTIVE: To provide opportunities to community members and potentially affected government agencies to give input during the preparation, review and revision of plans and implementing ordinances by the City.**

   POLICIES:

   1) Encourage and provide ample opportunity for community members to provide input into the planning process for the City.
   2) Use intergovernmental agreements with Washington County and other public agencies as needed to establish areas of mutual interest and coordination procedures relative to urban growth management and green corridors.

3. **OBJECTIVE: To review the Comprehensive Plan and implementing ordinances periodically so that the City can keep the planning process dynamic and the comprehensive plan responsive to change.**

   POLICIES:

   1) Review the Comprehensive Plan and update or amend the plan every ten years.
   2) Review data inventories and projections used in the Comprehensive Plan as part of the update.

4. **OBJECTIVE: To ensure the Comprehensive Plan is the basis for specific implementation measures which are consistent with and adequate to carry out the Comprehensive Plan.**

POLICIES:

1) Development proposals shall be required to conform to the City's Zoning, Subdivision and Design Review Ordinances.

NATURAL RESOURCES, SCENIC AND HISTORIC AREAS, AND OPEN SPACES

The McKay Creek flood plain includes other resources which may include riparian corridors, wetlands, and stream corridors. Development in such areas is restricted by the City's Significant Natural Resources Overlay Zone and flood plain ordinance. The only allowable alteration of the flood plain is governed by the flood plain ordinance.

Based on the resource inventory, the City of North Plains contains no known:

- Rare or endangered species of flora and fauna;
- Commercially valuable mineral and aggregate resources;
- Outstanding scenic views and sites;
- Indigenous energy sources;
- Wilderness areas;
- Potential and approved Oregon recreation trails; or
- State/Federally designated wild and scenic waterways.

STATEWIDE PLANNING GOAL 5

To conserve open space and protect natural and scenic resources.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To protect and enhance the natural resources of the area through proper use and development, especially McKay Creek and its tributaries.**

   POLICIES:

   1) Protect the fish and wildlife habitats in the McKay Creek and Ghost Creek stream corridors through application of its design review, zoning and significant natural resources and flood plain overlay zone districts.

2. **OBJECTIVE: To continually explore ways to develop and maintain an open-space network.**

   POLICIES:

   1) Maintain and update the master storm water management plan to encourage preservation of all natural drainageways.
   2) Provide and preserve greenways and open space along creeks or other water features for recreational purposes and visual aesthetics.

3. **OBJECTIVE: To identify sites and structures relating to the history of the State and the City that should be identified, protected and enhanced.**

POLICIES:

1) Utilize the Historic Resource Overlay District to identify and protect significant historic sites and structures. The City's list of significant historic sites and structures shall be maintained in the Comprehensive Plan Inventory.
2) Develop a program using public and private resources to revitalize those older residential structures which have been identified as having some historical or architectural significance.
3) Investigate the possibilities of receiving funding and tax benefits from the federal, state, and local levels in order to support historic preservation.
4) Cooperate with the Washington County Museum and the State Historic Preservation Office to identify and protect significant cultural resources.
5) Recognize and comply with applicable State and Federal Statutes governing the protection of cultural resources.
6) Seek to protect all archaeological sites found in the city.

4. **OBJECTIVE: To protect the groundwater supply essential to clean water and natural vegetation.**

POLICIES:

1) Work to preserve and maintain the quality of groundwater.

AIR, WATER AND LAND RESOURCES QUALITY

The City of North Plains maintains air and water quality, and noise level standards in accordance with the following federal laws:

- Clean Air Act (42 U.S.C. Section 7401 et seq);
- Clean Water Act (33 U.S.C Section 1251-1376);
- Safe Drinking Water Act (42 U.S.C. Section 300f et seq);
- Resource Conservation and Recovery Act (U.S.C. Section 6901 et seq);
- Noise Control Act (42 U.S.C. Section 4901 et seq);

and state laws:

- Pollution Control (ORS 468);
- Sewage Treatment & Disposal System (ORS 454);
- Solid Waste Control Act (ORS 467); and
- Noise Control Act (ORS 467)

AIR QUALITY

Air quality is monitored by the Oregon Department of Environmental Quality (DEQ). According to the 2015 Oregon Air Quality Data Summaries (July 2016) the Hillsboro area, which is the nearest monitoring point, generally enjoys good air quality. As Washington County grows in population more detailed information is developed to describe the air quality. The Hillsboro area is regularly monitored for a variety of pollutants of which the greatest concern are:

- Fine particulate matter mostly from wood smoke, other combustion sources, cars and dust, known as PM2.5 (2.5 micrometers and smaller diameter)
- Air toxics, such as benzene and acetaldehyde
- Ground-level ozone, commonly known as smog
- Greenhouse gas (GHG) emissions

The following scale is used to interpret the air quality condition:

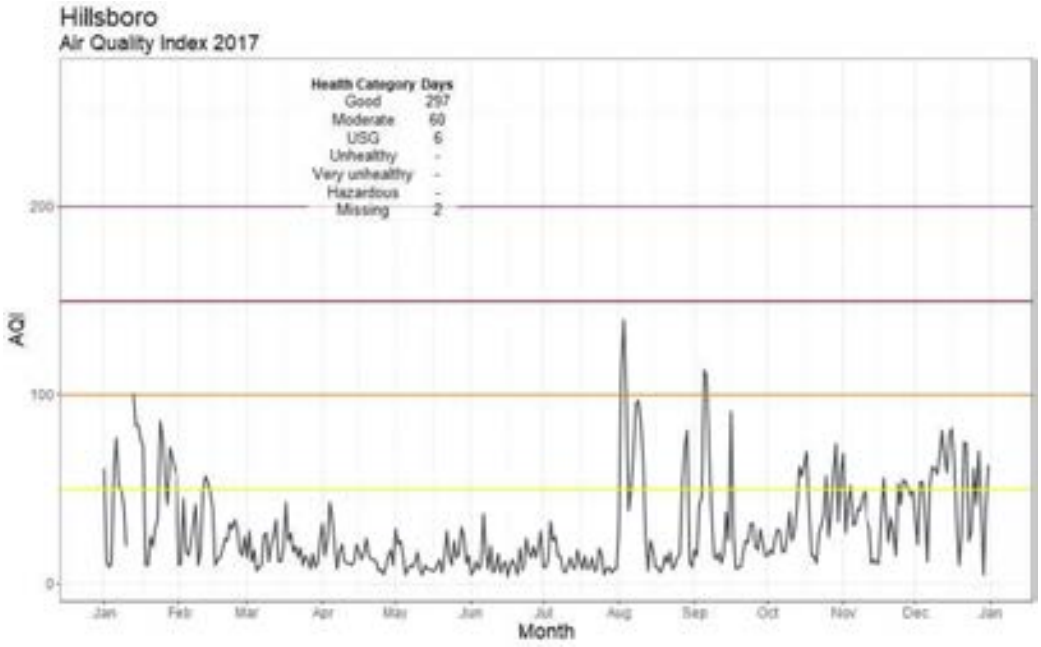
Air Quality Condition Scale

Air Quality	AQI	Health Advisory
Good	0-50	No health impacts expected .
Moderate	51-100	Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.
Unhealthy for Sensitive Groups	101-150	People with heart disease, respiratory disease (such as asthma), older adults, and children should reduce prolonged or heavy exertion. Active healthy adults should also limit prolong outdoor exertion.
Unhealthy	151-200	People with heart disease, respiratory disease (such as asthma), older adults, and children should avoid prolonged or heavy outdoor exertion. Everyone else should reduce prolonged or heavy outdoor exertion.
Very Unhealthy (Alert)	201-300	People with heart disease, respiratory disease (such as asthma), older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.

Air Quality Index Summary, Per Day 2006 – 2015

Year	Good	Moderate	UFSG	Unhealthy	Missing
2006	311	48	1	3	2
2007	306	48	10	1	0
2008	310	51	4	0	1
2009	288	62	7	0	8
2010	331	33	1	0	0
2011	308	50	7	0	0
2012	302	58	2	1	3
2013	281	71	8		4
2014	324	40	1	0	2
2015	309	54	1	1	0

When graphed, air quality in Hillsboro shows clear trends. Air quality tends to be best in the late spring, and the poorest in the winter months, when the air is more still and particulates cannot disperse. Forest fires can have a significant impact and were the cause of several spikes during the late summer months in 2017.



WATER QUALITY

The City operates and maintains the city's water system and is committed to delivering safe, high quality water to meet the health needs of residents and businesses. North Plains' water comes from the Tualatin River and is purchased from the City of Hillsboro and the Joint Water Commission. The City meets all state and federal requirements. Crews regularly inspect and service the water system. The City also administers a cross connection program to prevent contamination of the water supply by private wells. The Oregon Drinking Water Quality Act (OAR 333-061) implements state and national standards that limit the amount of contaminants in water provided by public water systems. The Water Quality Table below lists all of the drinking water contaminants that were detected in 2017.

Water Quality Table, City of North Plains, 2017

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Range Low	Range High	Sample Date	Violation	Typical Source
Disinfectants & Disinfectant By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Haloacetic Acids (HAA5) (ppb)	NA	.06	.03	NA		2017	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	.08	.02	NA		2017	No	By-product of drinking water disinfection
Inorganic Contaminants								
Nitrate [measured as Nitrogen] (ppm)	10	10	0.49	0.12	0.49	2017	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Wastewater treatment for North Plains is provided by Clean Water Services (CWS) at its Hillsboro facility. Since completion of the Hillsboro facility expansion in 1997, every parameter of the National Pollution Discharge Elimination System (NPDES) permit has been met.

NOISE, LIGHT AND ODOR POLLUTION

DEQ monitors noise pollution in the State of Oregon. The State has standards for motor vehicles, industry and commerce, motor sports vehicles and facilities and airports. Enforcement of these standards is conducted by DEQ. The single largest source of noise in the community is Highway 26 on the southern city limits. A moderate amount of noise can be heard at all hours of the day associated with freeway traffic. Vehicular traffic on local streets also is commonly heard at moderate levels. The Portland Hillsboro Airport is located nearby. Intermittent jet, airplane and helicopter traffic can be heard in North Plains. Burlington Northern Railway operates trains through town 2-6 times per day, mostly in the evening and early morning hours. While the trains do not stop they are required by Federal Law to signal their presence with horns. Several industrial facilities are located in and near the city, including Oregon Canadian Forest Products which operates a lumber mill on the eastern end of the City. Some noise also can be heard from industrial facilities in Cornelius off Vadis Road. Generally these facilities only operate day and swing shifts, and cannot be heard during evening hours. Locally, the City enforces the nuisance ordinance which addresses local sources of noise not regulated by the State or Federal government.

Light pollution has become a problem in many cities and rural communities. Light pollution disturbs wildlife, wastes energy and obscures the night sky. The City should consider local ordinances and regulations to minimize light pollution and glare, and preserve dark skies as a feature of rural character.

Emissions to the land, air or water can result in nuisance conditions that harm quality of life. State laws prohibit regulated facilities or sources from emitting odors which cause a nuisance. DEQ is responsible for implementing those laws and has developed a strategy for responding to odor complaints. The City should consider ways to support DEQ in efforts to prevent persistent and noxious odors from impacting its residents and businesses.

STATEWIDE PLANNING GOAL 6

To maintain and improve the quality of the air, water, and land resources of the state.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To ensure all discharges from existing and future development are within the limits set forth in applicable state or federal environmental quality statutes and standards.**

   POLICIES:

   1) Enforce standards that enhance air and water quality, reduce noise and light pollution and meet or exceed state and federal environmental quality standards.
   2) Participate in appropriate environmental quality planning efforts on a regional level.
   3) Educate residents about and encourage them to prevent nonpoint source pollution.
   4) Encourage lighting design and practices that reduce the negative impacts of light pollution, including sky glow, glare, energy waste, impacts to public health and safety, disruption of ecosystems and hazards to wildlife.
   5) Explore measures to prevent nuisance odors from causing negative impacts to residents and businesses.

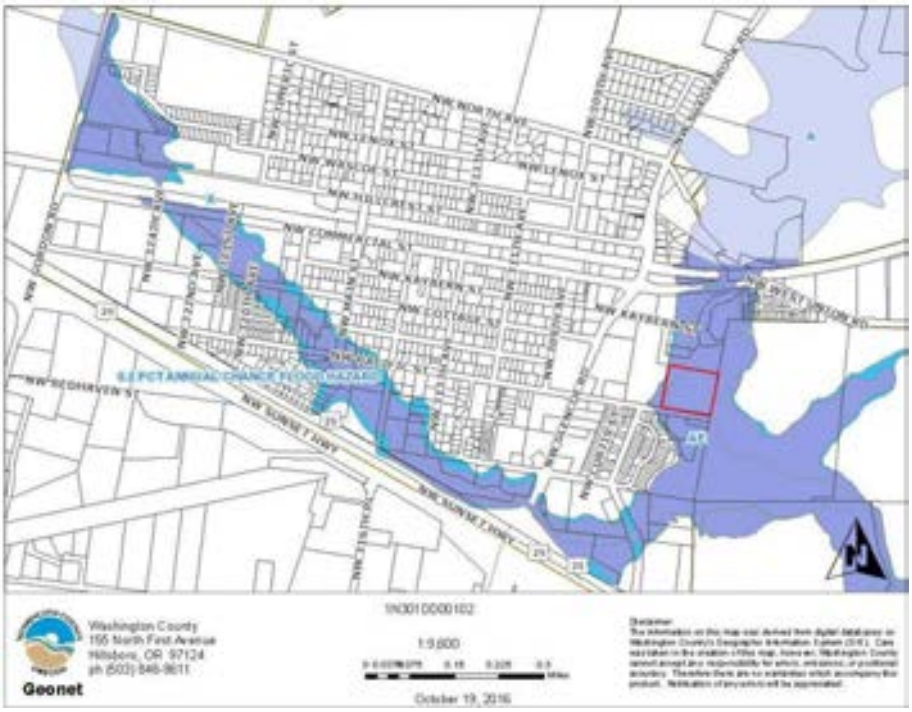
NATURAL HAZARDS

AREAS SUBJECT TO NATURAL DISASTERS AND HAZARDS

Steep slopes pose no significant hazard to development within the City of North Plains. However, there is a potential threat to life and property due to the following.

FLOODING

The City works with the Federal Emergency Management Agency (FEMA) to periodically update the delineation of the 100-year flood plain. The City contains approximately 77 acres of land located within the 100-year flood plain of McKay Creek, which lies at the eastern edge of the City, and Ghost Creek, a tributary that traverses the City from its northwest to southeast corners.



SOIL LIMITATIONS

Approximately 14% of the soils in North Plains have “moderate potential” for shrink-swell, which affects the stability of building foundations and roadways. Approximately 13% of the soils in the community are identified as having a seasonable high water table within 24 inches of the surface, which affects construction and development. Most of these soils are associated with or are in the vicinity of the 100-year flood plains.

STATEWIDE PLANNING GOAL 7

To protect people and property from natural hazards.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To concentrate urban uses on suitable lands based on research of available information showing the absence of known hazards including but not limited to flooding, unfavorable soil conditions, and seasonally high water table.**

   POLICIES:

   1) Require specific information clearly identifying the degree of hazard present from applicants who seek approval to develop residential, commercial, or industrial uses within known areas of natural disasters and hazards.
   2) Prohibit development or land form alterations in areas with natural development limitations except upon showing that design or engineering techniques can eliminate any public harm or adverse effects to surrounding persons or properties.

2. **OBJECTIVE: To limit development in flood plains and natural drainageways.**

   POLICIES:

   1) Permit limited use of certain flood plain lands for recreational and agricultural purposes which do not endanger public health, safety or welfare.
   2) Any alteration to a drainageway shall be engineered and constructed in a manner to allow for the least possible change in the natural flow of water which existed prior to the alteration.
   3) To not allow construction or grading that will:
      - Cause any restriction which could cause backup of water and flood upstream properties;
      - Cause an increase in flow rate to downstream properties; or
      - Cause an increase of flood potential for the property which is undergoing alteration.
   4) Rely on the most recently adopted flood plain maps provided by the Federal Government as the basis for the flood plain Overlay District.
   5) Utilize the flood plain Overlay District to accomplish these policies, which will apply to private land owners, as well as city, county, and state projects.

3. **OBJECTIVE: To protect life and property from harm or loss due to construction on weak foundation soils.**

POLICIES:

1) Maintain procedures to advise applicants for development permits of the areas known to have a potential for weak foundation soils.
2) Require a soils report by a qualified soils engineer or consulting geologist licensed or registered by the State of Oregon in areas of known weak foundation soils.

4. **OBJECTIVE: To protect life and property from harm or loss due to activity or construction in areas of high groundwater.**

POLICIES:

1) Establish land development policies and regulations which take into consideration existing and evolving groundwater conditions.

RECREATION

The City of North Plains currently manages 6.24 acres of land designated as parks, open spaces, trails and recreation facilities. The City has three developed mini parks: Pacific Purple, LaMordden and Frank Wing Parks. Jessie Mays Park is North Plains' only neighborhood park and includes a Community Hall and picnic areas. Vern Galaway Park is a trailhead for the McKay Creek Trail. When Sunset Ridge Park is added to the existing park inventory, the total park acreage will increase to 7.24.

North Plains Elementary School has 10 acres of sports fields, playgrounds and recreation facilities that are available to the public during non-school hours. The McKay Creek Crossing, Sunset Terrace and Cottage Point Open Spaces are privately owned and the Community Garden on Commercial Street is leased by the City from a private property. Other outdoor activities, such as horseback riding, hiking, fishing, biking, gliding, golf, zipline, camping, and disc golfing are available in the surrounding countryside. The City of North Plains provides limited parks and recreation programs. Additional recreation programs are available through the North Plains Senior Center, Hillsboro School District and the City of Hillsboro Parks Department.

In the most recent Parks and Recreation Master Plan, the City determined that existing facilities are inadequate to meet future population growth needs. The Master Plan includes a list of needed improvements for existing park facilities and a need to acquire more park land to accommodate future growth. This includes the acquisition and development of at least one new community park and smaller improvements throughout the park system to enhance accessibility, safety and usability of park features. To connect North Plains' residents to destinations throughout the City and provide options for walking and biking, the Plan proposes development of 5.5 miles of new trails. Several of these new trail connections follow creekways to connect residents to nature and between parks.

NORTH PLAINS PARKS AND RECREATION VISION

To provide our community with safe parks, open spaces, recreational opportunities and a trail system that connects all neighborhoods, parks, schools and regional trails to enhance health and livability.

STATEWIDE PLANNING GOAL 8

To satisfy the recreational needs of the citizens of the state and visitors.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To encourage and support public involvement in park and recreation issues.**

   POLICIES:

   1) Support the Parks & Recreation Board as the forum for public discussion of parks and recreation issues and conduct joint sessions as necessary between Board and City Council to improve coordination and discuss policy matters of mutual interest.
   2) Involve residents and stakeholders in park and recreation facility planning and design in order to solicit community input, facilitate project understanding and engender public support.
   3) Continue to promote and distribute information about recreational activities, programs, community services and events, and volunteer activities sponsored by the City and partner agencies and organizations.
   4) Use a variety of methods, such as the City's website, social media and news articles, to publicize and increase resident awareness about recreational opportunities available in local neighborhoods and citywide.
   5) Prepare, publish and promote a park and trail facilities map for online and print distribution to highlight existing and proposed sites and routes.
   6) Promote volunteer park improvement, beautification and clean-up projects from a variety of individuals, service clubs, churches and businesses.
   7) Promote and expand special events and recreational programming to enhance community identity, community activity and environmental education.

2. **OBJECTIVE: To acquire and develop a high-quality, diverse system of parks that provides adequate and equitable park access to all residents.**

   POLICIES:

   1) Provide a level of service standard of 6.25 acres per 1,000 residents of developed core parks (community, neighborhood and mini parks).
   2) Strive to provide a distributed network of parks and trails, such that all city residents live within one-half mile of a developed park.
   3) Provide a variety of active and passive park features and amenities, distributed equitably throughout the park system, to ensure residents have access to a range of park and recreation experiences.
   4) Identify and prioritize lands for inclusion in the parks system based on their potential contribution to level of service, ability to serve currently underserved residents, opportunities to improve connectivity, and provide enhanced recreational opportunities for residents.

5) Develop and maintain minimum design and development standards for park and recreation amenities within private developments to address community facility needs, equipment types, accessibility and installation procedures.

6) Formulate illustrative master plans for the development or redevelopment of each City park, as appropriate, to take advantage of grant or other funding opportunities.

3. OBJECTIVE: To preserve distinctive natural areas and features for their scenic, recreation and habitat value, as well as their contribution to North Plains' rural atmosphere, including riparian habitat along McKay and Ghost Creeks.

POLICIES:

1) Pursue low-cost and/or non-purchase options to preserve natural areas, including conservation easements, development agreements, and partnerships with public agencies.

2) Prioritize the preservation of natural drainageways, wetlands, and areas that are flood-prone as natural areas.

3) Coordinate with adjacent jurisdictions, Washington County and Clean Water Services to plan for and create a regional habitat corridor along McKay Creek and its tributaries.

4) Manage vegetation in natural areas to support or maintain native plant and animal species, habitat function and other ecological values; remove and control non-native or invasive plants as appropriate.

4. OBJECTIVE: To plan for a parks system that is efficient to maintain and operate, while protecting capital investment.

POLICIES:

1) Develop and maintain all parks and facilities in a manner that keeps them in safe and attractive condition. Repair or remove damaged components immediately upon identification. Maintain and update an inventory of assets including condition and expected useful life.

2) Design and maintain parks and facilities to offer universal accessibility for residents of all physical capabilities, skill levels and age as appropriate; assess planned and existing parks and trails for compliance with the recently adopted Americans with Disabilities Act (ADA) Standards for Accessible Design for requisite upgrades.

3) Establish and utilize design standards to provide continuity in furnishings (e.g., signage, trash cans, tables, benches, fencing) and construction materials to reduce inventory and maintenance costs and improve park appearance.

4) Estimate the maintenance costs and staffing levels associated with the acquisition, development or renovation of parks or open spaces, and pursue adequate long-term maintenance, life-cycle replacement and operation funding.

5. OBJECTIVE: To develop a network of shared-use pedestrian and bicycle trails to enable connectivity between parks, neighborhoods, schools, and public amenities.

POLICIES:

1) Strive to provide safe and convenient pedestrian and bicycle access to all new and existing park and open space areas.

2) Coordinate on- and off-street trail planning and development with the City's Transportation System Plan to provide a comprehensive pedestrian and bicycle network.

3) Coordinate with Washington County and ODOT to provide safe crossings on Glencoe Road.
4) Coordinate with Washington County and Metro to facilitate connections to regional trail corridors, such as the Banks-Vernonia Trail.
5) Coordinate with the Planning Department and integrate the siting of proposed trail segments and on-street improvements into the development review process. Require development projects along designated routes to be designed to incorporate trail segments as part of the project.
6) Partner with local utilities, public agencies and private landowners to secure easements and access to open space for trail and greenway connections.
7) Implement the Trail Guidelines adopted in the Community Trails Plan for trail siting, design and construction to provide recreational access.
8) Provide trailhead accommodations, as appropriate, at the terminus of the McKay Creek and Ghost Creek Greenway Trails to include parking, wayfinding signage, restrooms and other facilities.
9) Implement trail, route and wayfinding signage for trails and associated facilities, informational maps and materials identifying existing and planned trail facilities.

6. OBJECTIVE: To facilitate and promote a varied suite of recreation programs that accommodate a spectrum of ages, interests and abilities.

POLICIES:

1) Implement and support special events, festivals, concerts and cultural programming to promote arts, health and wellness, community identity and tourism, and to foster civic pride.
2) Leverage City resources by forming and maintaining partnerships with other public, non-profit and private recreation providers to deliver recreation services and secure access to existing facilities for community recreation.
3) Emphasize programming for children, teens, seniors, and other populations with limited access to market-based recreation options.
4) Partner and coordinate with the Hillsboro School District for access to existing facilities (e.g. schools gymnasiums, tracks, fields) for community recreational use, and to encourage provision of community education programming at schools.
5) Coordinate with public, private and non-profit providers, such as organized sports leagues, to plan for projects to expand facilities for athletic fields.

7. OBJECTIVE: To develop and manage a citywide system of parks, trails, and recreational facilities in a planned manner consistent with community goals and available resources.

POLICIES:

1) Update the comprehensive Parks Master Plan periodically to ensure facilities and services meet current and future community needs.
2) Periodically review and amend the North Plains Development Code's requirements for dedication of parkland and trails and system development charges.
3) Actively manage North Plains' park and recreation assets to ensure consistent service delivery, reduce unplanned reactive maintenance, and minimize economic, public health, and environmental risks.
4) Pursue traditional and new funding sources to adequately and cost effectively maintain and enhance the quality of North Plains' park and recreation system.

ECONOMIC DEVELOPMENT

North Plains' residents value their high quality of life stemming from affordable housing, a small-town feel and proximity to outdoor recreation activities. The City's location along Highway 26 provides good transportation access and makes it a gateway to the Oregon Coast. It also is close to major employment centers in western Washington County and has good access to the regional workforce. North Plains is located in an agricultural region, with a diverse offering of agricultural products including fruits, wheat, wine, and nursery plants.

North Plains' businesses attract workers from across the Portland Metro region. Approximately 17% of people who work in North Plains commute from Hillsboro, 8% from Portland, 6% from Beaverton, and 5% from Forest Grove. The remaining workers commute from elsewhere in Washington County and the Portland Metro region. The sectors with the greatest number of employees in 2014 were: Manufacturing (25%), Constructing and Agriculture (20%), and Food Services (16%).

North Plains had 823 covered employees in 2014 and an estimated 914 total employees within the urban growth boundary (UGB) in 2014. North Plains will have an estimated 2,612 employees within the UGB by 2038, an increase of 1,646 employees (170%) over the next 20 years. North Plains will need 162 additional acres of employment land to accommodate employment growth over the next 20 years.

Target industries for North Plains are based on the City's goals for economic development, economic conditions in North Plains and Washington County, and the city's competitive advantages. The target industries identified as having potential for growth in North Plains are:

- Small-scale manufacturing: electronics and computers, machinery, fabricated metal, specialty food and beverages, renewable and alternative energy.
- Small-scale warehouse, distribution and wholesale.
- Professional services: software development, research or environmental services.
- Services for residents: grocery store, other retail, restaurants, and government services, especially primary education.
- Services for seniors: assisted living facilities, retirement centers, and related medical services.
- Services for visitors: restaurants or a hotel.

STATEWIDE PLANNING GOAL 9

To diversify and improve the economy of the state.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To plan for a 20-year supply of suitable commercial and industrial land on sites with a variety of characteristics (e.g., site sizes, locations, visibility).**

   POLICIES:

   1) Provide for an adequate supply of commercial and industrial land to accommodate the types and amount of economic development and growth anticipated in the future. The supply of commercial and industrial land should provide a range of site sizes and locations to accommodate the market needs of a variety of commercial and industrial employment uses.
   2) Provide for opportunities for development of commercial services along Glencoe Road and Commercial Street for residents and visitors to North Plains.
   3) Allow for development of small-scale commercial services to support local community needs.
   4) Support development of a grocery store or market to support local community needs.

2. **OBJECTIVE: To support development and redevelopment in downtown for commercial services, especially locally serving businesses.**

   POLICIES:

   1) Continue to implement policies and programs to support and encourage commercial development in downtown.
   2) Develop policies and programs to encourage infill and redevelopment in downtown as a way to use land and existing infrastructure efficiently.
   3) Support mixed-use development in downtown, such as development of two-story buildings with commercial uses on ground floor and residential uses on the second floor.
   4) Support actions that encourage business activities and events in downtown.

3. **OBJECTIVE: To create conditions that encourage growth of existing businesses, entrepreneurs, and attraction of new businesses to create jobs with a range of wages for North Plains' residents with the goal of increasing employment for people living in North Plains and improving the jobs-housing imbalance.**

   POLICIES:

   1) Develop a broader economic development plan that promotes and supports a diverse economic base through growth of businesses, such as the types of businesses identified in the Economic Opportunities Analysis.
   2) Encourage the planning and development of a sufficient amount of industrial lands for

manufacturing and other export-oriented businesses[1] that do not have negative impacts on surrounding areas while accommodating future City economic growth and development prescribed in the Comprehensive Plan.

3) Support development of tourism-related businesses to attract visitors to North Plans as a destination for day tourism.
4) Support growth of existing businesses and entrepreneurs by sharing technical resources, maintaining open communications with local business people, and providing available staff support for economic development projects initiated by the business community.
5) Coordinate economic development efforts with local and regional economic development organizations, including the North Plains Chamber of Commerce, the Westside Economic Alliance and Business Oregon.
6) Ensure that the City's building permitting and land use entitlement processes support business growth.

4. OBJECTIVE: To provide adequate infrastructure efficiently and fairly to support employment growth.

POLICIES:

1) Coordinate capital improvement planning to ensure infrastructure availability on employment land and pursue funding for needed infrastructure to support economic development activities.
2) Support home occupations and workers that telecommute by working with telecommunications and other service providers to improve services in North Plains.

5. OBJECTIVE: To work with community partners to support workforce and entrepreneurial training opportunities to meet the needs of North Plains' businesses.

POLICIES:

1) Provide strategic contributions in staff or dollars to partners to support workforce development.
2) Support workforce development of independent contractors and entrepreneurs in North Plains.

1 "Export-oriented businesses" are businesses that produce goods or services for consumption outside of North Plains, to serve needs in Washington County, the Portland metropolitan area, and beyond. Export-oriented businesses typically have higher wages than "locally serving" businesses. Many export-oriented businesses are manufacturing. Locally serving businesses include businesses such as retail, restaurants, or health care.

HOUSING

The City wishes to encourage a range of quality housing for all ages and income levels. Housing will be attractive, compatible and build upon historic North Plains patterns.

In 2020, the population of North Plains was estimated at 3,410 and forecast to grow to 7,076 by 2040. This increase in 3,666 people represents a 3.7% annual growth rate and will require approximately 1,348 new dwelling units in this 20-year timeframe to accommodate this growth. Of the needed 1,348 new dwelling units, 504 are expected to be built in the Brynhill Area, which is over halfway built-out in 2023. Outside of the Brynhill development, North Plains will need to provide about 844 new dwelling units to accommodate forecast population growth by 2040.

Of the 844 needed new dwelling units, about 591 (70%) will be single-family detached types, which includes manufactured dwellings. About 84 (10%) will be single-family attached, and 169 (20%) will be multifamily, which includes structures with four or more dwellings. Duplexes and triplexes are permitted in the R-2.5 zone and are included in the multifamily housing type percentage.

This mix represents a shift from the existing mix of housing, in which eighty-eight percent of the housing stock is single-family detached housing. The shift in mix is in response to the need for a wider range of relatively affordable housing types, including housing types such as duplexes, townhouses, and apartments. In addition, North Plains has need for relatively affordable smaller single-family attached and detached housing.

According to the 2023 Housing Needs Analysis (HNA), there is capacity for approximately 54 new dwelling units within the existing city limits in residentially-zoned districts. Therefore, an identified need of approximately 111 additional acres of residentially-designated property is identified by the HNA to accommodate 790 dwelling units at approximately 7.1 dwelling units per net acre average. When combined with needed parks, trails, open space and infrastructure (such as roads and sidewalks), the total land need for residential development in the 2023 Urban Growth Boundary expansion is 167.4 acres.

In 2017, North Plains has 356 acres of lands zoned for residential use inside the urban growth boundary (UGB). Approximately 148 acres of the residential lands are suitable for development, the majority of which are located in two UGB expansion areas. The two expansion areas were annexed into the North Plains city limits and are zoned Neighborhood Community. The East Expansion Area contains about 46 undeveloped acres, 10 of which will be used for a school. The North Expansion Area contains about 73 acres of undeveloped land, 15.5 of which is planned to be used for commercial, institutional and municipal parks. The two parcels contain approximately 87 acres that will be used for streets, parks, greenways and housing and will be developed at a minimum of 8.4 dwelling units per net acre.

~~According to the North Plains Housing Needs Analysis (HNA), the number of dwelling units increased from 637 units to 793 units between 2000 and 2014. The mix of new units is approximately 85% single-family detached, 3% single-family attached, and 12% multifamily, which is largely consistent with the pre-existing housing stock. About 78% of North Plains' households own their own home. Nearly all North Plains' homeowners (96%) live in single-family detached housing. The majority of renters (57%) live in multifamily units.~~

~~average of 2.6 persons per household, the City will need 1,547 dwelling units to accommodate the increased population, 70% of which will be single-family detached and 30% will be single-family attached and multi-family.[1] The City's existing vacant land can accommodate 755 dwelling units, leaving a deficit of 791 units. Using the housing mix described above, the city will need an additional 118 acres to accommodate the remaining need. This will require an expansion of North Plains' UGB.~~

1 More information on housing needs, including needed housing by income level, can be found in the adopted North Plains Housing Needs Analysis.

STATEWIDE PLANNING GOAL 10

To provide for the housing needs of citizens of the state.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To plan to accommodate residential growth within the existing urban growth boundary if possible and plan for expansions of the urban growth boundary as necessary.**

   POLICIES:

   1) Insure adequate vacant land is zoned to meet residential land needs as defined in the housing needs analysis.
   2) Maintain specific and enforceable design standards for single-family housing, manufactured homes, single-family attached housing, and multifamily housing.
   3) Provide opportunities for efficient development of residential land within the urban growth boundary.
   4) Land newly brought into the urban growth boundary will be concept and master planned (per Objective 4). The plan will provide opportunity for development of the housing needs identified in the HNA through zoning sufficient land to allow: 70% of new housing will be single-family detached and 30% single-family attached and multifamily.
   5) Monitor residential land development to ensure that there is enough residential land to accommodate the long-term forecast for population growth.

2. **OBJECTIVE: To provide opportunities for needed housing types including: attached and detached single-family housing, and multifamily housing for both owner and renter occupancy, government assisted housing, and manufactured dwelling parks.**

   POLICIES:

   1) Allow flexibility in development of innovative housing types to meet medium and high density housing as described in the HNA.
   2) Accommodate the housing needs of retirees and assisted living housing where possible in locations within easy walking distance of business and commercial areas.

3. **OBJECTIVE: To encourage development of low-income households and moderate-income housing (as defined by HUD) through land use policies that allow and encourage affordable housing production and working with agencies and developers of affordable housing.** [1]

POLICIES:

1) Work with the Housing Authority of Washington County to identify sites, projects and developers to provide assisted housing units for low- and moderate-income households.
2) Develop regulations to encourage development of low- and moderate-income affordable housing.

4. **OBJECTIVE: To require that land that is brought into the UGB primarily to meet residential land needs is concept planned before it is annexed into the city limits, and master planned before development is allowed.**

POLICIES:

1) When land is brought into the UGB, a concept plan will be developed for the area, prior to annexation. Residential densities for the UGB expansion area will be established in the concept plan.
2) Lands newly annexed into the city limits will have the NC zone applied concurrent with annexation.
3) Newly developed residential areas will be in master planned areas that may include parks, schools, public services and facilities, shopping, services, and activity centers, providing pedestrian access to these amenities.
4) Newly developed residential areas will include landscaping and open space to provide an amenity to the residential development and reduce potential conflicts with surrounding uses.
5) Coordinate capital improvements planning with concept and master planning of land newly brought into the urban growth boundary to make land ready for residential development.

1 The U.S. Department of Housing and Urban Development (HUD) sets a Median Family Income (MFI) for each county in the nation based on information from the U.S. Census' American Community Survey. The MFI is meant to approximate the income of an average family. In 2018, Washington County's MFI was $81,400. Households earning less than 50% of MFI ($40,700 in 2018) are considered low-income households and those earning 50% to 80% of MFI ($40,700 to $65,120 in 2018) are considered moderate-income households.

PUBLIC FACILITIES AND SERVICES

Ongoing public facilities planning for the City of North Plains is necessary to keep pace with growth and population increase over the 20-year planning horizon.

The City of North Plains first adopted a "Water System Master Plan" in April 1980, and the "Sanitary Sewer Collection System", in January 1978. The existing Sewer Master Plan and Water Master Plan are updated by the City periodically and serve as the specific development and policy documents for the provision of water and sanitary sewer services. There is no Storm Water Master Plan for the City as the City relies upon Clean Water Services to oversee stormwater management.

WATER SYSTEM MASTER PLAN

The Water Master Plan planning horizon is 20 years. The Joint Water Commission (JWC) is the regional water supplier and a partnership of the Cities of Hillsboro, Forest Grove, Beaverton, Tigard and the Tualatin Valley Water District. Currently, the City of North Plains and the JWC have an agreement for a maximum rate of flow not to exceed 875 gallons per minute with a maximum volume of water not to exceed 1.05 million gallons per day. One of the City's existing groundwater wells, Well No. 3, is available as an emergency backup supply source, if needed.

Water System Planning and Capacity

The City's water supply and transmission systems must be capable of providing for estimated maximum day demands for the 20-year planning horizon. The Water System Master Plan analysis found that to provide for the anticipated growth over the planning horizon, the City will need to spend approximately $12.0 million for recommended improvements. The plan recommended funding the City's capital improvement program at $600,000 annually for storage, pumping, and distribution piping improvements.

SANITARY SEWER MASTER PLAN

Clean Water Services (CWS), a service district of Washington County, provides sewage services in the City of North Plains. CWS serves a 122-square mile area in the Tualatin River watershed, including 12 member cities. The Plan evaluations include development conditions representing 2006 (existing), 2015 and an undetermined buildout date. North Plains is served by the Hillsboro Treatment Facility. In 2004, the reported population in the Hillsboro Treatment Plant Basin was 34,564. The approximate population based on residential average daily water flow was 61,900 in 2015 and 121,300 at buildout.

Sewer System Planning and Capacity

The Plan analysis determined that upgrades to existing gravity sewers and to two existing pump stations and force mains are needed to meet service demands at buildout. In addition, CWS will need to construct more than 72,000 feet of new gravity sewer extensions and four new pump stations and force mains.

EMERGENCY SERVICES

The North Plains Police Department employs 2.5 full time equivalent officers (FTE) and six reserve officers. The department does not provide 24-hour coverage, but does receive rapid response for priority calls. North Plains contracts with the City of Hillsboro for report and evidence management and Washington County Justice Court to adjudicate traffic tickets.

Fire protection and emergency medical response within North Plains is provided by the Tualatin Valley Fire and Rescue. Station 17 is centrally located in downtown North Plains on Commercial Street next to City Hall. The station is a full-time career station staffed with four personnel: one officer, one driver and two firefighters. Equipment includes two engines, one tank truck, one rescue unit and one brush control truck.

EDUCATIONAL FACILITIES

The City of North Plains is within the Hillsboro School District. North Plains Elementary School was opened in 1954 and occupies 15 acres in the northwest corner of North Plains. There are no immediate plans for capital improvements. A new elementary school is planned as part of the east expansion area, recently annexed into city limits. Most North Plains' students attend Evergreen Junior High School and Glencoe High School in Hillsboro.

LIBRARY SERVICES

North Plains Public Library, constructed in 2006, is part of the Washington County Cooperative Library System. The cooperative allows all County residents to borrow from any municipal or other public library in the County, providing access to over a million items in its cumulative collection.

OTHER PUBLIC UTILITIES: GAS, ELECTRICAL, TELEPHONE, INTERNET

A variety of private companies provide these services to residents and businesses in North Plains.

STATEWIDE PLANNING GOAL 11

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban development consistent with the City's vision.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To program and provide municipal facilities in the most efficient and cost-effective manner to adequately serve existing population and anticipated growth, in accordance with the Comprehensive Plan.**

   POLICIES:

   1) Prepare detailed public facility and utility studies to maintain current inventories of needs and costs.
   2) Develop, maintain, update, and expand water and sewer systems, and storm drains as necessary to provide adequate, efficient and cost-effective facilities and services to the community.
   3) Plan public facilities, utilities, and services to meet the expected demand through development of a capital improvement program.
   4) Work with the City of Hillsboro, Tualatin Valley Fire and Rescue and other agencies to provide emergency services to North Plains residents and businesses.
   5) Cooperate with agencies involved in providing and coordinating library and other community services.
   6) Coordinate with the Hillsboro School District to project all school land needs and to determine the location of future school sites.
   7) Work with Washington County and the Metropolitan Service District to insure adequate provision for and control of solid waste disposal sites.
   8) Work with private utility companies (gas, electric, telephone, internet) to ensure equitable access to services throughout the City.

2. **OBJECTIVE: To establish and utilize criteria to guide the location and design of new public facilities.**

POLICIES:

1) Weigh the following factors when determining public facility location:
   - Availability and cost of usable land;
   - Degree of disruption of residential areas;
   - Operational efficiency of alternate locations;
   - Geographic restrictions and requirements; and
   - Overall Comprehensive Plan objectives and the 2035 Vision.

3. **OBJECTIVE: To seek federal, state and other revenue sources to fund public facility needs and utilize these for capital improvements.**

POLICIES:

1) Complete local planning for high priority public facilities so that outside revenue sources can be used on short notice.
2) Develop local funding adequate to meet "matching" requirements of outside revenue sources.
3) Require equitable sharing of most public facility costs between new development and the existing community through means such as system development charges, local improvements districts, or other possible means.

TRANSPORTATION

TRANSPORTATION SYSTEM PLAN

The City of North Plains regularly updates the Transportation System Plan (TSP). The TSP provides the city with a long-range vision for the transportation system. Through coordination with Washington County, ODOT, and the community of North Plains, the TSP helps guide the priorities and budgeting to address transportation needs.

Transportation System Needs

North Plains is a small community located along US 26 with a majority of commercial, housing, and employment centered within a 1.5-mile walking distance. It has the potential to have a well-utilized pedestrian network with improvements to sidewalks and street crossings. Bicycle travel is important to safely accommodate travel within the city as it allows for trips longer than 1.5 miles. To comply with OAR-660-045, bikeways need to be provided along arterial and collector streets in North Plains.

As North Plains grows, there will be an increase in vehicle travel throughout the city, and accommodating this growth will require improvements to safety, mobility, connectivity, complete streets, and traffic calming to ensure safe and efficient vehicle travel. Traffic within the City is anticipated to increase along the key arterials of Glencoe Road and West Union Road as well as on key collectors including North Avenue and Gordon Road.

The city is currently served by a fixed transit route service through Ride Connection and a service provided by the Tillamook County Transportation district called “The Wave”. As the population of North Plains increases, there will be an increased need for transit improvements including additional stops and larger service areas.

The TSP outlines strategies and projects to accommodate a balanced and safe transportation system and enhance the quality of life for North Plains residents. The plan is intended to provide the City with flexibility on the timing and implementation of projects and to allow the city to make improvements responsive to how the community grows in the next 20 years.

STATEWIDE PLANNING GOAL 12

To provide and encourage a safe, convenient and economic transportation system.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To create a multi-modal transportation system for all users. All users will have safe and convenient access.**

   POLICIES:

   1.A) Identify and plan for an expansion in the transit system.

   1.B) Prioritize projects that encourage and facilitate pedestrian and bicycle travel.

   1.C) Provide a network of interconnected streets to allow for efficient travel and reduction of out-of-direction travel.

   1.D) Provide complete access for pedestrians and bicycles to key locations.

   1.E) Ensure future connectivity to parcels that could be added to the UGB in the future.

2. **OBJECTIVE: To prioritize improvements and new projects that provide convenient access for pedestrians and bicycle routes to key destinations.**

   POLICIES:

   2.A) Identify and improve system gaps for pedestrian and bicycles.

   2.B) Improve safe access to key destinations.

   2.C) Identify potential or needed sidewalk and crossing improvements.

   2.D) Identify bikeway improvements.

   2.E) Integrate the City Parks and Trails Master Plan vision and applicable goals.

3. **OBJECTIVE: To encourage design and provide facilities that improve safety of all users of the transportation system.**

   POLICIES:

   3.A) Improve areas where crash risk factors are present.

   3.B) Improve and maintain transportation infrastructure to safe standards.

   3.C) Establish and design for safe routes to schools from residential neighborhoods.

   3.D) Transportation facilities should be designed to meet safety standards.

   3.E) City shall implement plans to educate public and provide enforcement on transportation safety.

4. **OBJECTIVE: To improve the economic vitality of North Plains businesses by providing safe and convenient access for all users.**

POLICIES:

4.A) Develop a system that provides safe and efficient movements of goods.

4.B) Create a system that allows for good access to businesses within the community.

4.C) Support improvements that make downtown and access to businesses safe and convenient for pedestrians and bicycles.

4.D) Design roadways and intersections for intended use based on street classification and needs of adjacent land uses.

4.E) Design a transportation system that reduces travel time and vehicle miles traveled.

5. **OBJECTIVE: To encourage design and improvements that reduce the environmental impact of the transportation system.**

POLICIES:

5.A) Reduce emissions by encouraging connectivity and design that reduces vehicle miles traveled.

5.B) Design and development that encourages walking and biking.

5.C) Design and development that minimizes impacts to waterways and other sensitive environments.

5.D) Encourage street cross sections to include width and storm water treatment systems that minimize environmental impacts.

5.E) Encourage strategies to reduce single vehicle occupancy trips.

ENERGY CONSERVATION

Energy conservation efforts lower the cost of energy for the City and its residents and reduce the production of harmful greenhouse gases. Transportation systems and city development patterns are two areas where energy use is highest and most likely to be affected. It is in these areas that energy policy is directed.

The objective of energy conservation reinforces the importance of focusing public facilities and urbanization toward infill development and redevelopment and connecting residential areas to downtown and employment, educational and recreational areas.

STATEWIDE PLANNING GOAL 13

To conserve energy.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: For new development to minimize the consumption of fuels and maximizes the efficiency of utilities.**

   POLICIES:

   1) The City will encourage land use patterns that:
   - Locate various land use activities (residential, employment, recreation, education, etc.) in close proximity;
   - Reduce or shorten energy consuming trips by increasing density and intensity of new development

   2) The City will encourage energy efficient development and redevelopment.
   - Encourage energy conservation in new development through site planning, landscaping and construction practices that take advantage of climatic conditions of light, heat, cooling, and ventilation, such as the Energy Star or PGE Savings by Design Programs.
   - Review possible ways of developing weatherization and insulation programs, especially in pre-1950 homes.
   - Encourage the use of solar energy in residential developments.
   - Encourage the reuse and recycling of materials resulting from the demolition of old buildings in compliance with Uniform Building Code.

2. **OBJECTIVE: To develop a transportation system that provides for a variety of travel options, including driving, biking and walking.**

   POLICIES:

   1) Design and build bicycle and pedestrian connections.
   2) Explore opportunities to increase public transit services.

3. **OBJECTIVE: To reuse and recycle materials, whenever feasible, to save money and reduce solid waste.**

   POLICIES:

   1) The City will educate residents on the benefits of recycling and waste prevention.
   2) The City will reuse City-owned materials when possible and recycle them when reuse is not possible.
   3) The City will support or facilitate required and voluntary measures to meet City recycling goals.

URBANIZATION

From 2020-2023, the City coordinated with state, regional and county agencies to provide a land supply enabling existing and future citizens to enjoy a livable North Plains consistent with its character as a rural town but acknowledging the City's goals of increasing the tax base and overcoming the status as a "bedroom community". This Urban Growth Boundary (UGB) expansion process included a project advisory committee comprised of community members, business owners, agency partners and appointed and elected officials who met eight times to consider how and where the City should expand. The resulting 2023 UGB Expansion includes 854 acres of land surrounding the existing City limits that should accommodate the residential and employment growth needs of North Plains for the next 20 years.

The acreage included in the UGB includes residential and employment land need estimates. The City's 2017 (updated in 2022) Housing Needs Analysis (HNA) identifies a need for 167 acres of land, to meet residential demands through 2037, including land for parks and infrastructure. The 2018 Economic Opportunities Analysis (EOA), updated in 2022, identifies a need for 515 acres to meet industrial land needs and 172 acres to meet commercial land needs through 2038, including land for infrastructure. Combined, these studies estimate a need for 854 acres to meet the city's 20-year land need.

~~In 2005, the City coordinated with state, regional and county agencies to provide a land supply enabling existing and future citizens to enjoy a livable North Plains consistent with its character as a rural town. The City identified land needed to provide a connected, walkable and non-auto oriented environment, supportive of the town center and east industrial area. The unanimous recommendation from the TGM Study was to increase density within the existing urban growth boundary (UGB) and amend the UGB to allow residential growth to the north and east, rather than expand to an "exception" area south of Highway 26 that would divide the city. Therefore, the City created an urbanizable land supply north of the freeway, connecting the downtown core and industrial areas with established and future neighborhoods.~~

~~Rapid residential growth following the Great Recession and state legislation passed in 2016 allowing certain annexations without voter approval resulted in the annexation of approximately 122 acres to the city in 2016 with plans for approximately 738 new homes and a new elementary school. The current Housing Needs Analysis (HNA) projects North Plains' population to grow and indicates that the City will need an additional 82 to 118 acres to accommodate future housing need.~~

URBAN GROWTH PROCESS

A Concept Plan is required for land brought into the UGB prior to annexation. The purpose of the Concept Plan is to ensure that areas brought into the UGB are urbanized efficiently and contribute to mixed-use, pedestrian-friendly, and multi-modal communities. The Concept Plan will generally identify the location of land uses and an overall average density. Land designations must accommodate needs identified in an adopted ~~HNA~~ housing needs analysis, economic opportunities analysis and other urban growth management plans. The Concept
Plan must demonstrate the ability of residential land to allow for 70% of new housing to be single-family detached and 30% to be single-family attached and multifamily. The Concept Plan also will identify potential funding sources for infrastructure improvements.

A Master Plan is required for properties within the city limits prior to any development. The master planning process encourages innovative and imaginative site planning to develop a sense of place where amenities, facilities, features and overall urban design could not be achieved through application of individual or combinations of zones. The master plan is intended to ensure that property will develop in a manner consistent with the previously approved concept plan. The Master Plan must include the locations of applicable land uses, including residential, commercial, industrial and institutional uses, transportation facilities, utilities, and parks, open space and natural areas.

STATEWIDE PLANNING GOAL 14

To provide for an orderly and efficient transition from rural to urban land use.

CITY OBJECTIVES AND POLICIES

1. **OBJECTIVE: To identify and utilize accepted growth management techniques in a manner that will implement the Comprehensive Plan vision statement, goals, objectives and policies.**

POLICIES:

1) Carry out implementation of the vision statement using accepted land use planning and management techniques to include, but not limited to, the following:

- Refine and update the 2005 Washington County-North Plains Urban Planning Area agreement. Proposed expansions of the area of interest shall be based upon an analysis of both short-term and long- term need for urban expansion in accordance with state law.
- Intergovernmental agreements with Washington County concerning planning, land division, land uses, and management of land uses and provision of public facilities and services within the City's area of interest. The City shall take an active role in the land use planning and development process for lands located in the area of interest. Through the intergovernmental agreement, the City shall assume this greater involvement, including delegation by the County to the City for planning and development regulation responsibilities in the area of interest. The agreement also shall require annexation, or a pre-annexation agreement, prior to development of urban uses outside of the City's UGB, and concerning the regulation of land divisions pursuant to ORS 92.042.
- Urban reserves. OAR 660 Division 21 authorizes planning for areas outside urban growth boundaries to be reserved for eventual inclusion of an urban growth boundary and to be protected from patterns of development which would impede urbanization. The City is adjacent to several undesignated areas. The authority provided by OAR 660 Division 21 provides the City a mechanism through which it can influence and affect the pattern of development outside the urban growth boundary, so that it does not conflict with the City's long-term plans for urbanization.
- Urban Growth Boundary amendments.
- The City will seek to influence, manage and control the transition from rural to urban uses on lands outside the City's urban growth boundary which are logically within the City's area of interest for future growth.
- The urban growth boundary will be updated and expanded when conditions exist that satisfy adopted local and state standards for amendments to urban growth boundaries.
- The City has an established urban growth boundary. Growth and development will be directed and encouraged within this area on developable lands. Development will be consistent with the capacity and capability of public services.

Commented [HA1]: Perhaps this was already done?

2. **OBJECTIVE: To ensure annexation to the city occurs in an orderly and coordinated manner, and public facilities are provided to support urban growth consistent with the 2035 Vision.**

POLICIES:

1) The following conditions should be met prior to or concurrent with the City processing of any annexation request:
   - The subject site should be located within the North Plains Urban Growth Boundary.
   - The subject site should be contiguous to the existing city limits.
   - The subject site should have an adopted Concept Plan that identifies the general location of land uses and an overall average density.
2) The proposed use for the site shall comply with the North Plains Comprehensive Plan and with the designation on the North Plains Comprehensive Plan Map. If a re-designation of the Plan Map is requested concurrent with annexation, the uses allowed under the proposed designation must comply with the Comprehensive Plan.
3) An adequate quantity and quality of urban services must be available, or there is evidence that it is feasible that they can be made available within a reasonable period of time after annexation. Annexation can be conditioned upon the provision of services through a Concept Plan. Increased levels of urban service shall not place unreasonable burdens on the service providers or existing users. An adequate level of urban services shall be defined as:
   - Municipal sanitary sewer and water service.
   - Roads with an adequate design capacity for the proposed use and projected future uses.
   - Police, fire, and school facilities and services.

   The burden of providing the above findings is placed upon the applicant.
4) Coordinate annexation requests with affected public and private agencies.
5) If water and sewer lines are proposed outside the UGB to serve an annexation, the annexation and extra-territorial utility extension request shall be coordinated.
~~6) Apply the NC zone to lands newly annexed into the city limits concurrent with annexation.~~
6) Newly developed residential areas will be in master planned areas that may include parks, shopping, services, and activity centers, providing pedestrian access to these amenities.
7) Coordinate capital improvements planning with concept and master planning of land newly brought into the urban growth boundary to make land ready for development.
8) Concept and Master Plans will provide an opportunity for development of the housing needs identified in the HNA through zoning sufficient land to allow: 70% of new housing single-family detached and 30% single-family attached and multifamily. Residential densities for the UGB expansion area will be established in the concept plan.

3. **OBJECTIVE: To establish a planning program and an efficient direction for growth that allows for complete and connected neighborhoods.**

POLICIES:

1) Promote the efficient use of land, including appropriate in-fill, redevelopment and new development at higher density than currently on the ground in the City.
2) Plan for complete and connected neighborhoods, either singularly or in conjunction with adjacent areas.
3) Encourage the city to grow its existing neighborhoods, amenities, town center and industrial areas into one connected compact city.
4) Reinforce geographic separation between North Plains' and Metro's urban growth boundary/ urban reserves.
5) Provide separation between urban and rural land uses to the extent possible, consistent with state law.

PLAN IMPLEMENTATION

as of March 2019

ZONING

Zoning is an official land use control established "for public interest, health, comfort, convenience, preservation of the public peace, safety, morals, order and the public welfare".[1] Zoning represents one means of carrying out the objectives set forth in the Comprehensive Plan.

Zoning must be consistent with the Comprehensive Plan in that a more intensive use of the land than permitted by the Plan cannot be allowed by the Zoning Ordinance.[2] Changes to the Zoning Ordinance or Comprehensive Plan can be requested and will be reviewed, but the burden of proof is upon the one seeking the change.[3] The requested change must be justified by proof that:

- The change is in conformance with the Comprehensive Plan, and
- The change has met the procedures and regulations of the Zoning and Development Ordinance; and,
- The change is consistent with the statewide planning goals.

ANNEXATION

Areas can be annexed to the city upon request~~,~~ and approval by Council ~~and approval of the majority of the electorate per City Charter Chapter I, Section 4. Additionally, areas can be annexed without vote with a petition submitted by all owners of land within the area, the area is within the urban growth boundary and at least one parcel in the area is contiguous to city limits.~~ All annexations must comply with the Comprehensive Plan and statewide planning goals. The burden of proof is on the proponents of the annexation, and the City must base its decision on findings of fact.

SUBDIVISION AND PARTITION

The subdivision and partition clause of the zoning code establishes procedures and standards for land partitioning, and subdividing of four or more lots.

1 ORS 227.220
2 Baker vs. Milwaukie
3 Fasano vs. Washington County Board of Commissioners

COOPERATIVE AGREEMENTS

Realization of the Comprehensive Plan can also be facilitated by certain cooperative agreements. Such agreements may include any agreement between two or more agencies, whether public, semi-public, or private, wherein any projects related to the Comprehensive Plan may be jointly or cooperatively planned, financed, constructed, administered, or any combination of these in a manner which is beneficial to the public.

The City and County have entered into a formal agreement by which both are fully cognizant of the governance and procedural aspects of the area external to the city and within the urban growth boundary. This agreement is entered into pursuant to Oregon Revised Statutes for the purpose of facilitating the orderly transition from rural to urban land use. The information will include, but not be limited to:

Introductory Information - Adoption dates, procedures, and similar background data.

General Provisions - Reference to appropriate zoning and subdivision ordinances, statements of consistency with appropriate statutes and case law, and with statewide planning goals.

Subdivision Applications - Statements of which and whose ordinances shall apply in regulation of properties within the area, and procedures to be followed.

Zone Change Applications - Statements of whose ordinances shall apply in the event that land use changes are requested, and the procedures therefore.

Conditional Use, Variance, and Major Partition Applications - Statements of applicable procedures and approval criteria.

City Services - Statement of the conditions for the extension of services into the urban growth area, requirements imposed and procedures, as specified in the Policies of the Comprehensive Plan and the ordinances of the City.

Annexation - Reference to the appropriate statutes and ordinances.

Roads and Streets – Jurisdiction and maintenance responsibility is defined for county roads, new public roads, future arterials, and the procedures for resolution of mutual public right of way matters.

Arbitration - Procedures.

Review and Amendment - Annual Review and Procedures.

NEXT STEPS

The Comprehensive Plan is intended to be a general guide to future community development and should not deal with detailed site planning. Therefore, to supplement the Comprehensive Plan, detailed planning should be undertaken to work out the specifics of the various Plan proposals.

PLANNING INVENTORY

NATURAL CONDITIONS

Description of Location

North Plains is in the northwestern portion of the Tualatin Valley near the edge of the Tualatin Drainage Basin. It is about two miles south of the rolling hills of the Tualatin Range. Topography in the area is generally flat with a gradient toward the southeast. The terrain includes several intermittent drainageways generally flowing south and east to McKay Creek. North Plains is located about four miles north of Hillsboro, the County seat, and is about 19 miles westerly from Portland. It is situated on Highway 26, a major regional corridor linking Portland with the coast.

History

North Plains is one of several small communities dispersed in the predominantly agricultural areas of central Washington County. Originally founded as the community of Glencoe in the mid-1800s, the community's first plat was created in 1910 by a predecessor of the Spokane, Portland, and Seattle Railway to serve as a processing and shipping point for locally grown farm and forest products. The City of North Plains was incorporated June 25, 1963.

Climate, Geology and Topography

North Plains has a moderate valley-type climate. Temperature extremes are rare and usually of short duration. Winters are mild and the frost-free season is usually between 160 and 250 days. There are few days with temperatures below 20 degrees and about 10 days below 28 degrees. An average year has 10 days with temperatures above 90 degrees. Rainfall is sporadic during all seasons. The principal rainy season is from mid-November through March. Yearly average rainfall is 45.5 inches for North Plains. The chart below reflects averages for Hillsboro, OR, the closest reporting weather station to North Plains.

Climate Hillsboro - Oregon

	Jan	Feb	Mar	Apr	May	Jun
Avg high in F	45	50	56	62	69	75
Avg low in F	32	34	36	39	44	49
Avg precipitation in inches	7.3	5.7	4.8	2.7	2.0	1.4
	Jul	Aug	Sept	Oct	Nov	Dec
Avg high in F	82	83	76	64	52	46
Avg low in F	52	52	47	41	37	34
Avg precipitation in inches	0.4	0.7	1.5	3.4	7.4	8.2

Hillsboro Weather Averages

Annual high temperature:	63.3°F
Annual low temperature:	41.3°F
Average temperature:	52.3°F
Average annual precipitation - rainfall:	45.5 in

Source: www.weatherbase.com

Winds are seldom a problem in the North Plains area. Average wind velocity is about 8 mph. West and northwest winds are predominant during the winter rainy months; southern and eastern winds are predominant in the summer months.

Alluvial valley fill and semi-consolidated sedimentary rock underlie the North Plains study area. Surface material includes unconsolidated, fine-grained deposits of silt, sand and gravel. Ground water occurs in unconfined conditions. Columbia River Basalt is between 300 and 400 feet below the surface of the valley soils at North Plains. Ground water in pressurized aquifers is typically found in the basalt formations.

The topography of the North Plains study area is characterized by the flat lowlands of the Northwestern portion of the Tualatin Valley. Stream, valleys, such as McKay Creek, are typically 20 feet below the main plain. The average elevation of North Plains is 200 feet above sea level. It gently slopes from 210 feet in the northwest portion of the City to about 190 feet in the southeast. The elevation rapidly falls to about 170 feet along McKay Creek along the east side of the City.

Forest Resources

Commercial: There are no commercial timber growing lands in the North Plains planning study area. Forest products are processed in the City: saw milling, lumber milling, and some fabrication.

Non-Commercial: The major non-commercial forest resources in North Plains are east of the city and form visual buffers along Highway 26 on the southern edge of town. Stands of hardwood and various conifers also line McKay Creek and related drainageways. Timber resources in and adjacent to North Plains are minimal, making Goal 4 inapplicable.

Open Space, Scenic, Historic and Natural Resouces

The City of North Plains manages 6.24 acres of land designated as parks, open spaces, trails and recreational facilities. The several year-round and intermittent waterways, including McKay Creek and Ghost Creek present excellent opportunities for usable open space within North Plains. The surrounding countryside provides abundant open space, ranging from orderly crop land, orchards, and truck farms to natural habitats found along waterways and in isolated tree stands.

Fish and Wildlife

McKay Creek supports a variety of resident game fish including rainbow trout (Salmo gairdneri), cutthroat trout (Salmo clarki), largemouth bass (Micropterus psalmodies), and yellow perch (Perca flavescens). Bullheads (Ptychocheilus oregonensis) are the principal non-game fish.

Black-tailed deer (Odocoileus columbianus) are found in the agricultural and woodlands throughout the year. There do not seem to be any fur-bearing animals of economic importance in the streams or on land. However, beaver (Castor Canadensis), weasels (Mustela erminea), skunks (Mephitis mephitis), and nutria (Myocaster coypus) are to be found.

The principal upland game birds in the area are ring-necked pheasants (Phascianus colchius), California quail (Lophortyx californicus), mourning doves (Zenaidura macroura), band-tailed pigeons (Columba fasciata) and ruffled grouse (Dendragapus obscurus). Several waterfowl species overfly the area in their migrations. There is no significant nesting of waterfowl in the area. The species who use the flyway for immigration are Canada Geese (Branta canadensis), mallards (Anas platyrhynchos), American widgeons (Maraca americana), wood ducks (Aix sponsa), and pintails (Anus acuta).[1]

Vegetation

The area around North Plains consists of bottom-lands. Principal crops are small grains, pasture, hay and some specialty crops. Interspersed with the farms are small tracts of timber. The vegetative cover on these tracts consists primarily of Douglas Fir (Pseudotsuga menziesii), big leaf maple (Acer macrophyllum), dogwood (Cornus stolonifera), snowberry (Symphoricarpos albus), blackberry (Rubus allegheniensis), and Poison Oak. There are no known rare or endangered plant species.

1 Environmental Assessment for United Sewerage Agency, Nero & Associates, July, 1977.

Historic Resources

When the Comprehensive Plan was acknowledged by the Land Conservation and Development Commission in 1981, the Plan identified the Walter Blacksmith Shop on West Union Road as the only historic structure in the North Plains area. The 1983 Plan amendment states: "There are no structures or sites of historic importance located within North Plains."

In 1983-84, researchers from the Washington County Museum identified three structures within North Plains for inclusion on the Washington County Cultural Resources Inventory. The three structures are:

a. True Value Hardware/Knights of Pythias Friendship Temple building (1914) 31520 NW Commercial St.
b. North Plains Commercial Bank building (1911) 31594 NW Commercial Street, currently home to the Last Waterin' Hole.
c. Residence at 31379 SW Kaybern (1911).

The Knights of Pythias Friendship Temple and the former North Plains Commercial Bank are cited as significant because they are two remaining commercial brick buildings which were built in the early 1900s, the years associated with land development and railway promotion. The home at 31379 Kaybern is one of the early residences constructed during the railroad boom. The house is in excellent condition.

All three properties are included in the City's historic overlay zone.

The 1989 Washington County Cultural Resources Inventory cites a number of historic and cultural resources in and around North Plains.

Other Goal 5 Resources

Within the City limits /UGB of North Plains, there are no:

- Commercially valuable mineral and aggregate resources;
- Ecologically and scientifically significant areas;
- Outstanding scenic views and sites;
- Indigenous energy sources;
- Wilderness areas;
- Potential and approved Oregon recreation trails; and
- State/federally designated wild and scenic waterways.

Soil Constraints

North Plains' soils, like most of the Northern Tualatin Valley, can require special engineering techniques for building. The techniques can include artificial drainage, runoff control, extended sewage absorption fields or soil excavation. Data provided in this section is from the Soil Conservation Service, (SCS).

About 83% of the area soils are the Willamette and Woodburn soil units. These soils are not as subject to soil engineering requirements and are relatively free of constraints to development. These soils are considered "primary buildable".

The remaining 17% of the urban area is designated “secondary buildable” because it has some development constraints and costly engineering requirements. The Chehalis, Aloha, and Dayton soil units are subject to a high water table within 24” of the surface. Amity, McBee, Wapato, Cove and Verboot soil units are subject to flooding and possible high water table conditions.

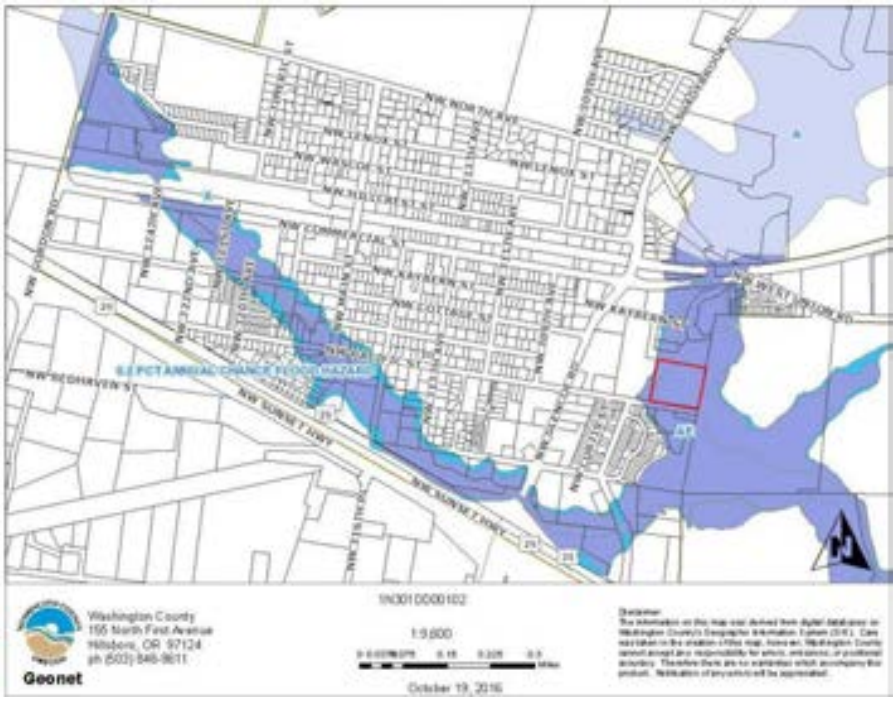
Natural Hazards

Flooding is the most serious hazard in the North Plains area. The City is located within the 100-year flood plains of McKay Creek, located on the city’s east boundary, and Ghost Creek, which runs from the northwest corner near the intersection of Wascoe Street and Gordon Road to the southeast corner at the intersection of Glencoe Road and Sunset Highway connecting to McKay Creek. Serious flooding has been reported in the past.

Undersized culverts were replaced at Glencoe Road, 314th Avenue, and Pacific, Cottage, Commercial, Hillcrest and Wascoe Streets. However, those improvements have simply displaced the flooding which now occurs near Gordon and Wascoe.

The U.S. Army Corps of Engineers has identified the elevations of the 100-year floodplain for both the creeks. Based on this data, Washington County has adopted a floodplain ordinance (No. 126) which essentially prohibits development in flood plain areas except where, after filling, construction can occur one foot above the flood elevation. However, filling permits are subject to stringent conditions.

Washington County calculated that the city has a total of 77 acres of land located within the 100-year flood plain of McKay Creek.



PUBLIC FACILITIES AND SERVICES

Supply and Storage

The City of North Plains is supplied domestic water by the Joint Water Commission (JWC) of Washington County. The primary transmission main from Hillsboro was installed in 2005. The JWC supplies potable water adequate to support both the residential, commercial and industrial uses as needed. The JWC treats the water with chlorine to disinfect it. The water is not fluoridated.

North Plains has a pressurized system, wherein water is pumped into a storage tank, directly from the transmission main and then into the distribution system. City staff is certified by the State of Oregon to maintain the system, and performs most repairs and some capital improvements.

The City has one 1.2-million-gallon storage tank which is adequate for domestic consumption and fire suppression over a short period and is building a new 3-million-gallon storage tank to prepare for future growth. The City has retained its rights to pump water from the local aquifer. The City has an approved capital program for the water system that is updated annually.

Distribution

The City maintains more than 13 miles of water mains, with appurtenant hydrants, valves and pumping systems. A plan for maintenance and improvements of the system is included in the Water System Master Plan.

Sanitary Sewage Systems

Clean Water Services owns and maintains the sanitary sewer collection system within the City of North Plains. The sewage flows by gravity to the southeast corner of the city to a pumping station located near the intersection of Highland Court and 307th Avenue. From there it is pumped through to Clean Water Service's Hillsboro treatment facility, which has adequate capacity to accommodate the city's sewage for the foreseeable future.

Storm Drain

North Plains has a limited storm drainage system that includes ditching and culverts that send storm water to the two major drainageways and Clean Water Services storm lines. Clean Water Services maintains all storm drainage facilities over 10 inches in size. The City maintains storm drain lines under 10 inches in size.

Solid Waste Disposal

Residential solid waste, recyclables and greenwaste is managed by Garbarino Disposal Services, which operates a corporation yard on Hillcrest Street. Prices are subject to periodic renegotiation between the collector and the Washington County Commission.

Emergency Services

The North Plains Police Department employs 2.5 full time equivalent officers (FTE) and six reserve officers. The department does not provide 24 hour coverage, but does receive rapid response for priority calls. The Police Department responds to dispatched calls, provides uniform patrol, interacts with the community, conducts criminal investigations, provides traffic enforcement, crime prevention, training and mutual aid to surrounding police agencies and supports other City departments. Detention and jail facilities are available through the Washington County jail located in Hillsboro, four miles away. North Plains contracts with the City of Hillsboro for report and evidence management and Washington County Justice Court to adjudicate traffic tickets.

Fire protection and emergency medical response within North Plains is provided by the Tualatin Valley Fire & Rescue. Station 17 is centrally located in downtown North Plains on Commercial Street next to City Hall. Station 17 is a full-time career station with four personnel: one officer, one driver and two firefighters. Equipment includes two engines, one tank truck, one rescue unit and one brush control truck.

The Washington County Emergency Medical Services (EMS) system serves the City of North Plains and includes an exclusive ambulance transportation franchise, seven fire department first response agencies, air medical scene support, four primary receiving hospitals and two level-1 trauma centers, and an advanced 911-E dispatch center. Regulatory oversight and direction for this system comes from Washington County and the State of Oregon.

Educational Facilities

The City of North Plains is within the Hillsboro School District. North Plains Elementary School was opened in 1954 and occupies 15 acres in the northwest corner of North Plains. There are no immediate plans for capital improvements. A new elementary school is planned as part of the east expansion area, recently annexed into city limits. North Plains' students attend the Evergreen Junior High Schools in Hillsboro. Most students rely on school-provided transportation. North Plains' students attend Glencoe High School in Hillsboro, which features athletic fields and an auditorium. Portland Community College offers post-graduate educational services to the North Plains area.

Library Services

North Plains Public Library, constructed in 2006, is part of the Washington County Cooperative Library System. The cooperative allows all County residents to borrow from any municipal or other public library in the County, providing access to over a million items in its cumulative collection.

Other Public Utilities: Telephone, Internet, Gas, Electrical

A variety of private companies provide these services to residents and businesses in North Plains.

Transportation Facilities

North Plains is located 19 miles from Portland and four miles north of Hillsboro and is outside the contiguous metropolitan urban growth boundary. However, it is not isolated due to several transportation advantages.

The Sunset Highway (US 26) is a major regional route connecting Portland with the coast. It forms the southern boundary of the existing City limits and is easily accessible via the Glencoe, Dersham, and Jackson Road interchanges. Highway 26 is a 4-lane highway and connects with Interstate 405 and is listed on the State Bicycle System.

Glencoe Road is maintained by Washington County as a two-lane rural highway. It connects North Plains with Hillsboro, and with the Dixie Mountain pass to the Columbia River Highway, about 12 miles north.

Of the 10.94 miles of currently platted right-of-way in North Plains, 8.18 miles are improved and in use. Of that total, 4.24 miles or 52% is paved and in good condition, and an additional 36% is graveled. Most of the residential streets in the south and west portions of town are hard packed gravel.

Commercial Street, North Avenue and Hillcrest Street are the most traveled east-west streets through North Plains. Glencoe, 311th and Main Streets are the most traveled north-south streets.

North Plains is served by a number of special transportation services including:

a. Ride Connection, which provides free transportation to TriMet facilities in Hillsboro and locations in Banks and Forest Grove, “Ride About” and “Door to Door” services for senior citizens.

b. Tillamook “Wave” bus service that connects Tillamook to Portland.

North Plains is served by a variety of other modes of transportation. The following are the most prominent for planning purposes:

- The Burlington Northern Railroad contains a single track line through the center of North Plains connecting Banks with the Portland rail yards. At least 4-5 times a day trains carry forest products and milled lumber as well as various seeds and produce from Portland.
- The residents of the Air Acres subdivision, in the unincorporated area immediately south of Highway 26, maintain a landing strip complete with lights and wind socks. This is a private field, available to the public for emergencies only. It is 3,000 feet long and can accommodate small, general aviation aircraft.
- The Port of Portland operates the Hillsboro Airport about five miles from North Plains. The Hillsboro Airport is an FAA-approved general aviation airport with two runways (4,050’ and 6,600’ lengths) that accommodate prop and small jet traffic. Hangar space and repair and maintenance services are available. The Port of Portland’s International Airport is in Portland, about 35 miles from North Plains.

ECONOMY

The Highway 26 Sunset Corridor is a major employment center in the Portland area and includes the greatest concentration of high tech industries in the state. The high-tech industries in the Sunset Corridor offer North Plains entrepreneurs the opportunity to provide supporting products and equipment to existing and developing businesses. More information on the local and regional economy can be found in the current Economic Opportunities Analysis.

THE PEOPLE OF NORTH PLAINS

US Census 2010 information indicates the following about North Plains based on the 2010 census: (www.factfinder2.census.gov). 2010 population was estimated at 1,947 persons. About 15% of residents are over age 60, and 31% are 19 or under. The median age is 36.5 years.

2010 Demographic Information

Subject	Number	Percent
Age		
Total population	1,947	100.0
Under 5 years	143	7.3
5 to 9 years	140	7.2
10 to 14 years	163	8.4
15 to 19 years	135	6.9
20 to 24 years	95	4.9
25 to 29 years	110	5.6
30 to 34 years	143	7.3
35 to 39 years	152	7.8
40 to 44 years	154	7.9
45 to 49 years	149	7.7
50 to 54 years	158	8.1
55 to 59 years	110	5.6
60 to 64 years	115	5.9
65 to 69 years	58	3.0
70 to 74 years	37	1.9
75 to 79 years	27	1.4
80 to 84 years	33	1.7
85 years and over	25	1.3
Median age (years)	36.5	(X)

Almost 63% of households have families with children, and half of these households have children under 18 years of age. About 17% of households, include a person 65-years-old or older. Almost 24% of households consist of one person living alone.

Households by Type

Total households	786
Family households (families)	493
With own children under 18 years	256
Married couple family	420
Male householder, no wife present, family	19
With own children, under 18 years	3
Female householder, no husband present, family	54
With own children under 18 years	37
Nonfamily households	293
Householder living alone	191
65 years and over	64
Households with one or more people under 18 years	262
Households with one or more people 65 years and over	133
Average household size	2.36
Average family size	2.98

The average household size is 2.36 persons. Family households are slightly larger at 2.98.

Some 581 children (31% of residents) were present in North Plains in 2010, with almost 200 attending grade school, and another 100 attending high school.

School Enrollment

Population 3 years and over enrolled in school	385
Nursery school, preschool	7
Kindergarten	5
Elementary school (grades 1-8)	197
High school (grades 9-12)	107
College or graduate school	69

English is the only language spoken by 84% of residents over age 5. About 8.7% speak Spanish. The remaining 8% speak other languages.

Per capita income (all population divided by earnings) in North Plains is $31,597. Median household income in North Plains is relatively high for the area at $71,346. Other area communities have lower medians.

Area	Median Household Income
North Plains	$71,346
Washington County	$63,814
Hillsboro	$64,197
Banks	$65,417
Beaverton	$55,155
Cornelius	$48,788
Forest Grove	$49,034

Most residents over 25 have completed high school. Almost 30% have attained a college degree, with 17% attaining a 4-year degree or higher.

Category	No.	Percent
Population 25 years and over	1,346	
Less than 9th grade	30	2.2%
9th to 12th grade, no diploma	84	6.2%
High school graduate (includes equivalency)	466	34.6%
Some college, no degree	370	27.4%
Associate's degree	164	12.2%
Bachelor's degree	173	12.8%
Graduate or professional degree	59	4.4%

HOUSING SUPPLY

In 2010, there were 852 housing units in North Plains census tract (which captures some homes outside of the incorporated City limits.) The City experienced substantial growth in the 1990's and early 2000's. Growth has been more gradual since 2005:

Year Structure Built	No.
Total housing units	852
Built 2005 or later	58
Built 2000 to 2004	104
Built 1990 to 1999	418
Built 1980 to 1989	63
Built 1970 to 1979	78
Built 1960 to 1969	31
Built 1950 to 1959	14
Built 1940 to 1949	25
Built 1939 or earlier	61

Most residences have 3 or fewer bedrooms:

Bedrooms	No.
Total housing units	852
No bedroom	12
1 bedroom	93
2 bedrooms	78
3 bedrooms	528
4 bedrooms	127
5 or more bedrooms	14

Of the occupied units at the time of the census, almost 75% were owner occupied.

Housing Tenure	No.
Occupied housing units	786
Owner-occupied	585
Renter-occupied	201
Average household size of owner-occupied unit	2.48
Average household size of renter-occupied unit	2.01

The value of most owner-occupied housing is above $200,000 in 2010.

Value	No.
Owner-occupied units	585
Less than $50,000	15
$50,000 to $99,999	6
$100,000 to $149,999	19
$150,000 to $199,999	150
$200,000 to $299,999	265
$300,000 to $499,999	125
$500,000 to $999,999	3
$1,000,000 or more	2
Median (dollars)	$237,400

About 15% of owners who occupy units (89) have no mortgage on their home.

Mortgages in North Plains tend to be modest in the range of $1,000-$2,000 per month, with a median of $1,601.

Selected Monthly Owner Costs	No.
Housing units with a mortgage	496
Less than $300	0
$300 to $499	3
$500 to $699	0
$700 to $999	14
$1,000 to $1,499	178
$1,500 to $1,999	217
$2,000 or more	84
Median (dollars)	1,601

Residential rental costs also tend to be modest in North Plains. About 23% of the City's residences are rented. Most multi-family units rent for less than $1,000/month, including housing for seniors.

Gross Rent	No.
Occupied units paying rent	198
Less than $200	4
$200 to $299	4
$300 to $499	9
$500 to $749	66
$750 to $999	45
$1,000 to $1,499	55
$1,500 or more	15
Median (dollars)	$887

Most occupied residences have access to vehicles:

Vehicles Available	No.
Occupied housing units	786
No vehicles available	49
1 vehicle available	155
2 vehicles available	320
3 or more vehicles available	262

Updated housing information can be found in the 2017 Housing Needs Analysis.

EXISTING LAND USE

As of October 3, 2017, land uses and acreages in the City of North Plains were as follows:

Zone	Acres
Low density residential (R10)	N/A
Medium/low density residential (R7.5)	100.55
Medium/high density residential (R5)	85.89
High density residential (R2.5)	89.21
Neighborhood community (NC)	24.33
Commercial (C1 and C2)	69.39
Industrial (M1 and M2)	183.75

Ordinance No. 490
Exhibit D

STAFF REPORT TO CITY COUNCIL

Urban Growth Boundary (UGB) Amendment and Comprehensive Plan Text Amendment

City File Number CPA 23-056(1)
Staff Report Date: May 31, 2023

From: Steve Miller, Planning Manager

Public Hearing Date: June 5, 2023

Proposal: The City of North Plains proposes an expansion to the city's current Urban Growth Boundary (UGB) and associated Comprehensive Plan Text Amendment. The City's 2017, updated in 2022, Housing Needs Analysis (HNA) identifies a need for 167 acres of land to meet residential demands through 2037, including land for parks and infrastructure. The 2018 Economic Opportunities Analysis (EOA), updated in 2022, identifies a need for 515 acres to meet industrial land needs and 172 acres to meet commercial land needs through 2038, including land for infrastructure. Combined, these studies estimate a need for 855.2 acres to meet the city's 20-year land need. The proposed UGB Expansion and associated Comprehensive Plan Text Amendment detail the city's analysis in determining how much land to include in the expansion area and where to expand, as well as the policies associated with such an expansion.

Process: The Planning Commission conducted a public hearing on the proposal at their May 10th, 2023, meeting and made a recommendation of approval to the City Council. As part of their recommendation to the City Council, the Planning Commission recommended that the UGB boundary be amended to include the small "triangle" piece of land (i.e. Tax Lot 1N301CD02200) associated with the property located at 10105 NW 314th Ave., which is currently inside the city limits. The Planning Commission also recommended that staff compile a narrative description of the proposed UGB boundary to accompany the Expansion Report. The City Council will review the Planning Commission's recommendation and conduct a public hearing at their June 5th meeting before making the city's final decision on the proposal. The proposed North Plains Urban Growth Boundary Expansion Report and associated text updates to the Comprehensive Plan are included with this staff report.

Background: The city is initiating an Urban Growth Boundary Expansion and an associated legislative comprehensive plan text amendment.

Summary Conclusions: This report includes findings regarding each applicable Comprehensive Plan and Zoning Code criterion, which incorporate the Oregon Statewide Planning Goals. The proposal is consistent with the Comprehensive Plan and Zoning Code criteria for a Comprehensive Plan Text Amendment and UGB Expansion.

COMPLIANCE WITH CITY OF NORTH PLAINS MUNICIPAL CODE

COMPREHENSIVE PLAN & ZONING AMENDMENTS
§155.127 Review Criteria
(A) Text Amendment
An amendment to the text of the Comprehensive Plan or this Ordinance shall be based upon a need for such an amendment identified by the City Council or the Planning Commission. Such an amendment shall be consistent with the following review criteria:

(1) Impact of the proposed amendment on land use and development patterns within the city, as measured by:

(a) Traffic generation and circulation patterns in compliance with the Transportation System Plan (TSP);

(b) Demand for public facilities and services, in compliance with the City utility master plans;

(c) Level of park and recreation facilities;

(d) Economic activities;

(e) Protection and use of natural resources;

(f) Compliance of the proposal with existing adopted special purpose plans or programs, such as public facilities improvements.

Finding: *The City Council and Planning Commission identified a need for the UGB expansion and supporting comprehensive plan text amendments based on the lack of available land for the city to support identified employment and residential growth over the next 20 years. The City Council has a stated goal to overturn the "bedroom community" dynamic in the city with robust planning and for employment land development over the coming years.*

The amount of land identified for inclusion in the UGB expansion is based on the adopted Economic Opportunities Analysis (EOA) and an updated Housing Needs Analysis (HNA) that is being approved concurrently with this UGB expansion. The included UGB Expansion Report provides high-level analysis of traffic generation and circulation patterns, public facilities and services, parks and recreation facilities, economic activities, protection and use of natural resources and compliance with existing and adopted special purpose plans and programs. The next step in the UGB expansion process is to concept plan the UGB areas. This will allow the city to dig deeper into the details of these city services and determine the impact of each on land use and development patterns within the existing city limits and within the proposed UGB expansion areas. This standard is met.

(2) The proposed amendment complies with all applicable Statewide Planning Goals and administrative rule requirements.

Finding: *Oregon's 19 Statewide Planning Goals are addressed below. Though several of the goals are not applicable to the proposed UGB expansion and comprehensive plan text amendments, those that are applicable are responded to in detail.*

Goal 1 Citizen Involvement

The North Plains Urban Growth Boundary Expansion Project Advisory Committee (UGB PAC), comprised of elected and appointed officials, community residents, local business owners and agency representatives, met nine (9) times over the course of three (3) years in publicly noticed, hybrid in-person/virtual open meetings. Public testimony was always received at each UGB PAC meeting. The city maintained a robust website throughout the project,

https://www.northplains.org/planning/page/urban-growth-boundary-expansion, allowing full access to up-to-date project documents and information about upcoming opportunities to participate via a scheduled PAC meeting or connection with City staff.

This land use process to approve the proposal is subject to a City of North Plains Type IV land use review, which includes a significant citizen involvement component. This process has been established by the city and determined to be consistent with this goal. The mandatory public notice of the action and decision, and the hearings on this case before the Planning Commission and City Council are all avenues of citizen participation.

Goal 2 Land Use Planning

This statewide goal requires that land use decisions 1) have an adequate factual base, 2) that alternatives have been considered, and 3) that implementation measures are consistent with and adequate to carry out comprehensive plan.

The proposed UGB expansion area was established utilizing the guidance provided by Statewide Planning Goal 14 (Urbanization) which incorporates the requirements of ORS 197A.300 to 197A.325, which establishes requirements for a factual basis. Alternatives to the proposed expansion were reviewed and discussed throughout the eight (8) Project Advisory Committee Meetings and two (2) joint Planning Commission-City Council Work Sessions. The proposed UGB expansion and associated comprehensive plan text amendment are consistent with and adequate to carry out the Comprehensive Plan.

Goal 3 Agricultural Lands and Goal 4 Forest Lands

This goal does not apply because the City does not include areas designated for agricultural or forest use. The areas designated for UGB expansion are all within either the "exception land" or "undesignated" urbanization categories. No "rural reserves" are proposed for inclusion in the UGB expansion.

Goal 5 Open Spaces, Scenic and Historic Areas, and Natural Resources

There are no proposed changes to text regarding Goal 5 open spaces, scenic and historic areas and natural resources. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

Goal 6 Air, Water and Land Resources Quality

There are no proposed changes to text regarding air, water, or land resources. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

Goal 7 Areas Subject to Natural Hazards

There are no proposed changes to text regarding areas subject to natural hazards. Therefore, the intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 8* Recreational Needs**

The proposed UGB expansion includes 40 acres of parks and open space to meet the need identified in the Housing Needs Analysis (HNA) to support current and future residents of the city. This amount of parks and open space land included in the UGB expansion area calculation is consistent with Goal 8.

***Goal 9* Economic Development**

The proposed UGB Expansion includes 515 acres to accommodate industrial land needs and 172 acres to meet commercial land needs through 2038, including infrastructure such as roadways. This employment land need was established through the city's adopted Economic Opportunities Analysis. The city is also in on-going discussions with the State of Oregon regarding potential designation of 500 acres as a special opportunity area for semi-conductor manufacturing and related business development. The proposed UGB expansion and associated Comprehensive Plan Text Amendments support the city's ongoing compliance with Goal 9.

***Goal 10* Housing**

The proposed UGB Expansion includes 167 acres to meet residential land needs through 2038, including parks and infrastructure. This residential land need was established through the city's updated Housing Needs Analysis. The proposed UGB expansion and associated Comprehensive Plan Text Amendments support the city's ongoing compliance with Goal 10.

***Goal 11* Public Facilities and Services**

There are no proposed changes to text regarding public facilities and services. The UGB Expansion includes land for provision of public roadways and infrastructure. The intent of this goal remains satisfied by the policies of the Comprehensive Plan and implementation in the Zoning Ordinance.

***Goal 12* Transportation**

The Transportation Planning Rule (TPR), OAR 600-012.0060, requires that, where an amendment to a comprehensive plan or zoning regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures that assure that allowed land uses are consistent with the function, capacity, and performance standards of the facility. The proposed UGB Expansion and associated Comprehensive Plan Text Amendment do not propose any changes to an existing or planned transportation facility and, as such, the proposal does not affect the transportation system of the City. More detail regarding transportation analysis will be included with the city's UGB Concept Planning Process, which will commence once the UGB Expansion is adopted and finalized.

Regarding the Planning Commission's recommendation that staff compile a narrative description of the proposed UGB boundary to accompany the Expansion Report. Compiling the description of the proposed UGB boundary, will allow the city to more accurately include either a portion or all of the impacted county roadways. The recommendation will allow the subject streets to be improved to city standards, as opposed to county standards, with the anticipated future development of the UGB lands. By improving these streets to city standards with the future development of the UGB lands, it will establish a system of safe, connected

bicycle/pedestrian paths which will encourage residents and commuters to walk and/or bike thereby reducing reliance on private motor vehicles. Thus, the resulting plan will allow support of a variety of transportation modes and meet the transportation needs of the future land uses within the proposed UGB boundary.

***Goal 13* Energy Conservation**

There are no identifiable energy consequences of this land use action. The city continues to be in compliance with Goal 13 through adopted Comprehensive Plan policies.

***Goal 14* Urbanization**

The UGB Expansion Report follows the guidance provided by Statewide Planning Goal 14 (Urbanization), which incorporates the requirements of ORS 197A.300 to 197A.325 Amendment of Urban Growth Boundary Outside Metro. The report answers the following questions to justify a UGB expansion for North Plains:

1. Is any additional land needed for one or more urban uses, and if so, how much?
2. If additional land is needed, how much can be accommodated within the current UGB?
3. If additional land is needed outside the UGB, where is the best place to expand the boundary?
4. What other amendments are needed to comply with the statewide planning goals?

The UGB Expansion Report details the analysis of the above questions and provides a logical, efficient expansion of the city's UGB to include an additional 855.2 acres to meet the city's 20-year land need.

Regarding the Planning Commission's recommendation to the City Council that the UGB boundary be amended to include the small "triangle" piece of land (i.e. Tax Lot 1N301CD02200) associated with the property located at 10105 NW 314th Ave., which is currently inside the city limits, Staff provides the following findings.

From an urbanizational perspective, the small "triangle" piece of land (i.e. Tax Lot 1N301CD02200) is easily serviceable and provides for the orderly provisions of public facilities via the existing public utilities located in the NW 314th Ave. right-of-way, will have no negative impact to surrounding farm or forest lands or farming/forest activities, protects productive resource lands outside of the proposed UGB boundary, and assists the city with the efficient accommodation of identified land needs. Urban growth boundaries (UGB) are intended to accommodate growth and reduce pressure to urbanize rural lands. By including the small "triangle" piece of land in the UGB boundary, it will assist the city in accommodating growth and reducing pressure to urbanize rural lands.

The proposed UGB Expansion and Comprehensive Plan Text Amendment meet the provisions of Goal 14.

***Goal 15* Willamette River Greenway**
***Goal 16* Estuarine Resources**
***Goal 17* Coastal Shorelands**
***Goal 18* Beaches and Dunes**
***Goal 19* Ocean Resources**

The City is not within the plan boundary for the Willamette River Greenway, does not have any estuarine resources, and is not on the Oregon Coast, so goals 15 through 19 do not apply.

As discussed above, the proposed UGB Expansion and Comprehensive Plan Text Amendment area generally consistent with all of the applicable Oregon Statewide Planning Goals.

(3) The amendment is appropriate as measured by at least one of the following criteria:
(a) It corrects identified error(s) in the provisions of the plan.
(b) It represents a logical implementation of the plan.
(c) It is mandated by changes in federal, state, or local law.
(d) It is otherwise deemed by the City Council to be desirable, appropriate, and proper.

Finding: *The proposed UGB expansion and Comprehensive Plan Text Amendment have been deemed to be desirable, appropriate and proper accommodate the city's projected residential and employment growth over the next 20 years. The proposed amendment is appropriate as measured by at least one of the criteria and this standard is met.*

(4) Compliance with the statewide Transportation Planning Rule. When a development application includes a Comprehensive Plan, Zone Map or Text Amendment, the proposal shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule. "Significant" means the proposal would:

(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors). This would occur, for example, when a street classification,
requiring traffic to exceed the levels associated with a "collector" street classification, requiring a change in the classification to an "arterial" street as identified by the City's Transportation System Plan (TSP); or
(b) Change the standards implementing a functional classification system; or
(c) As measured at the end of the planning period identified in the North Plains TSP or Comprehensive Plan; or
(d) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance identified in the North Plains TSP or Comprehensive Plan; or
(e) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the North Plains TSP or Comprehensive Plan.

(5) Amendments that affect Transportation Plans. Except as provided in subsection 6 Exceptions, amendments to the Comprehensive Plan or land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity and level or service of the facility identified in the North Plains TSP. This shall be accomplished by one of the following:

(a) Adopting measures that demonstrate that allowed land uses are consistent with the planned function of the transportation facility; or
(b) Amending the North Plains TSP or Comprehensive Plan to provide transportation facilities, improvements, or services adequate to support the proposed land uses; such amendments shall include a funding plan to ensure the facility, improvement , or service will be provided by the end of the planning period; or
(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes of transportation; or

(d) Amending the planned function, capacity or performance standards of the transportation facility; or

(e) Providing other measures as a condition of development or through a development agreement or similar funding method, specifying when such measures will be provided.

(6) Exceptions. Amendments to the Comprehensive Plan or land use regulation with a significant effect on a transportation facility, where the facility is already performing below the minimum acceptable performance standard identified in the North Plains TSP or Comprehensive Plan, may be approved when all of the following criteria are met:

(a) The amendment does not include property located in an interchange area, as defined under applicable law;

(b) The currently planned facilities, improvements or services are not adequate to achieve the standard;

(c) The currently planned facilities, improvements or services at a minimum mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development; and

(d) The road authority provides a written statement that the proposed funding and timing for the proposed development mitigation are sufficient to avoid degradation to the facility.

Finding: *The proposed UGB Expansion and Comprehensive Plan Text Amendment do not include changes to the Transportation System Plan or significantly affect a transportation facility. The proposal is to approve the UGB expansion area, but does not include land use designations or roadway alignments within the UGB area. A more detailed analysis of transportation system impact will be forthcoming with UGB Concept Planning. Approval of the proposed UGB Expansion and Comprehensive Plan Text Amendment will comply with the Transportation Planning Rule.*

§155.129 Findings

Findings justifying a decision on an application shall be made in writing, and shall be provided to the applicant.

Finding: *The City Council's final decision will include written findings. As the City is the applicant, they will have the findings.*

§155.129 Conditions

The granting of an approval of any land use action under Chapter 16.200 may be subject to such conditions as are reasonably necessary to protect the public health, safety or general welfare from potentially damaging effects resulting from approval of the permit, or to fulfill the public need for service demands created by approval of the request.

Finding: *Staff does not find it necessary to subject this decision to any conditions of approval.*

CONCLUSION

The City Council is considering a recommendation from the Planning Commission to the City Council of the proposed UGB expansion and comprehensive plan text amendment. The City Council may approve, approve with Conditions or deny the proposal.

Staff recommends City Council approval of City File Number **CPA 23-056(1)**, Urban Growth Boundary Expansion and Comprehensive Plan Text Amendment at their regularly scheduled meeting on June 5, 2023.

Enrolled
House Bill 2003

Sponsored by Representative KOTEK; Representatives FAHEY, KENY-GUYER, WILDE

CHAPTER .....

AN ACT

Relating to buildings; creating new provisions; amending ORS 197.296, 197.299, 197.303, 197.319, 197.320, 215.416, 215.441, 227.175, 227.500 and 455.062 and section 1, chapter 47, Oregon Laws 2018, and section 3, chapter 97, Oregon Laws 2019 (Enrolled Senate Bill 39); and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. (1) As used in this section:

(a) "Area median income" means the median income for households established by the United States Department of Housing and Urban Development.

(b) "Existing housing stock" means housing, by affordability level and type, actually constructed in a city or Metro.

(c) "High income" means above 120 percent of the area median income.

(d) "Housing shortage" means the difference between the estimated housing units of different affordability levels and housing types needed to accommodate the existing population and the existing housing stock, measured in dwelling units.

(e) "Low income" means income above 50 percent and at or below 80 percent of the area median income.

(f) "Metro" means a metropolitan service district organized under ORS chapter 268.

(g) "Moderate income" means income above 80 percent and at or below 120 percent of the area median income.

(h) "Region" has the meaning given that term in ORS 284.752.

(i) "Very low income" means income at or below 50 percent of the area median income.

(2) The Housing and Community Services Department, in coordination with the Department of Land Conservation and Development and the Oregon Department of Administrative Services, shall develop a methodology for calculating:

(a) A regional housing needs analysis that identifies the total number of housing units necessary to accommodate anticipated populations in a region over the next 20 years based on:

(A) Trends in density and in the average mix of housing types of urban residential development;

(B) Demographic and population trends;

(C) Economic trends and cycles; and

(D) Equitable distribution of publicly supported housing within a region.

(b) An estimate of existing housing stock of each city and Metro.

(c) A housing shortage analysis for each city and Metro.

(d) An estimate of the number of housing units necessary to accommodate anticipated population growth over the next 20 years for each city and Metro.

(3) The methodologies for calculating the regional housing needs analysis, the estimate of existing housing stock, the housing shortage analysis and the estimate of housing necessary to accommodate growth that are developed under subsection (2) of this section must classify housing by:

(a) Housing type, including attached and detached single-family housing, multifamily housing and manufactured dwellings or mobile homes; and

(b) Affordability, by housing that is affordable to households with:

(A) Very low income;

(B) Low income;

(C) Moderate income; or

(D) High income.

(4) No later than September 1, 2020, the Housing and Community Services Department, in coordination with the Department of Land Conservation and Development and the Oregon Department of Administrative Services, shall conduct for each region a regional housing needs analysis and, for each city and Metro, shall estimate existing housing stock, conduct a housing shortage analysis and estimate the housing necessary to accommodate growth.

(5) In developing the methodologies and conducting the analyses under this section, the Housing and Community Services Department may:

(a) Consult or contract with subject matter experts, cities and Metro, regional solutions centers described in ORS 284.754 (2) and other jurisdictions that have created or conducted regional housing needs analyses.

(b) Consider the most recent consolidated population forecast produced by the Portland State University Population Research Center in making any relevant calculation or forecast.

(c) Consider any other relevant existing analyses, data and other information collected or produced by state agencies or public entities.

(d) Make changes to the regional boundaries in order to make regions more accurately align with shared employment, transportation or housing market dynamics.

SECTION 2. (1) No later than March 1, 2021, the Housing and Community Services Department, in consultation with the Department of Land Conservation and Development and the Oregon Department of Administrative Services, shall submit a report, in the manner provided in ORS 192.245 to an appropriate committee of the Legislative Assembly, that summarizes the findings of the regional housing needs analysis, estimate of housing stock, housing shortage analysis and estimate of housing necessary to accommodate growth conducted under section 1 (4) of this 2019 Act.

(2) No later than March 1, 2021, the Department of Land Conservation and Development, in consultation with the Oregon Department of Administrative Services and the Housing and Community Services Department, shall submit a report, in the manner provided in ORS 192.245, to an appropriate committee of the Legislative Assembly that evaluates:

(a) Whether a regional housing needs analysis and housing shortage analysis described in section 1 of this 2019 Act could appropriately allocate among the cities or local governments in a region the housing shortage described;

(b) How a regional housing needs analysis and housing shortage analysis may compare to existing assessments of housing need and capacity conducted by local governments under ORS 197.296 (3) and (10) in terms of:

(A) Cost and cost effectiveness;

(B) Reliability and accuracy;

(C) Repeatability; and

(D) Predictability;

(c) How a regional housing needs analysis and housing shortage analysis may relate to statewide planning goals related to housing and any rules and policies adopted pursuant to these goals and ORS 197.295 to 197.314;

(d) Whether different boundaries would be more appropriate for defining regions within the regional housing needs analysis based on:

(A) Relevance of data in appropriately defining a commuting, employment or housing market; or

(B) Ease or cost of collecting or analyzing data;

(e) Other ways in which the regional housing needs analysis or housing shortage analysis could be improved; and

(f) Whether the regional housing needs analysis, or an improved version, could serve as an acceptable methodology statewide for land use planning relating to housing.

(3) In preparing the report required under subsection (2) of this section, the Department of Land Conservation and Development may consult or contract with other state agencies, subject matter experts, private firms, local governments, regional solutions centers described in ORS 284.754 (2) and other jurisdictions that have created or conducted regional housing needs analyses.

SECTION 3. Sections 4 to 6 of this 2019 Act are added to and made a part of ORS 197.295 to 197.314.

SECTION 4. (1) A city with a population greater than 10,000 shall develop and adopt a housing production strategy under this section no later than one year after:

(a) The city's deadline for completing a housing capacity analysis under ORS 197.296 (2)(a);

(b) The city's deadline for completing a housing capacity analysis under ORS 197.296 (10)(b); or

(c) A date scheduled by the Land Conservation and Development Commission following the allocation of housing capacity to the city by a metropolitan service district under ORS 197.299 (2)(d).

(2) A housing production strategy must include a list of specific actions, including the adoption of measures and policies, that the city shall undertake to promote development within the city to address a housing need identified under ORS 197.296 (6) for the most recent 20-year period described in ORS 197.296 (2)(b). Actions under this subsection may include:

(a) The reduction of financial and regulatory impediments to developing needed housing, including removing or easing approval standards or procedures for needed housing at higher densities or that is affordable;

(b) The creation of financial and regulatory incentives for development of needed housing, including creating incentives for needed housing at higher densities or that is affordable; and

(c) The development of a plan to access resources available at local, regional, state and national levels to increase the availability and affordability of needed housing.

(3) In creating a housing production strategy, a city shall review and consider:

(a) Socioeconomic and demographic characteristics of households living in existing needed housing;

(b) Market conditions affecting the provision of needed housing;

(c) Measures already adopted by the city to promote the development of needed housing;

(d) Existing and expected barriers to the development of needed housing; and

(e) For each action the city includes in its housing production strategy:

(A) The schedule for its adoption;

(B) The schedule for its implementation;

(C) Its expected magnitude of impact on the development of needed housing; and

(D) The time frame over which it is expected to impact needed housing.

(4) The housing production strategy must include within its index a copy of the city's most recently completed survey under section 1 (2), chapter 47, Oregon Laws 2018.

(5) The adoption of a housing production strategy is not a land use decision and is not subject to appeal or review except as provided in section 5 of this 2019 Act.

SECTION 5. (1) No later than 20 days after a city's adoption or amendment of a housing production strategy under section 4 of this 2019 Act, a city shall submit the adopted strategy or amended strategy to the Department of Land Conservation and Development.

(2) The submission under subsection (1) of this section must include copies of:

(a) The signed decision adopting the housing production strategy or amended strategy;

(b) The text of the housing production strategy clearly indicating any amendments to the most recent strategy submitted under this section;

(c) A brief narrative summary of the housing production strategy; and

(d) The information reviewed and considered under section 6 (2) of this 2019 Act.

(3) On the same day the city submits notice of the housing production strategy or amended strategy, the city shall provide a notice to persons that participated in the proceedings that led to the adoption of the strategy and requested notice in writing.

(4) Within 10 days of receipt of the submission under subsection (1) of this section, the department shall provide notice to persons described under ORS 197.615 (3).

(5) The notices given under subsections (3) and (4) of this section must state:

(a) How and where materials described in subsection (2) of this section may be freely obtained;

(b) That comments on the strategy may be submitted to the department within 45 days after the department has received the submission; and

(c) That there is no further right of appeal.

(6) Based upon criteria adopted by the Land Conservation and Development Commission, including any criteria adopted under section 6 (2) of this 2019 Act, the department shall, within 120 days after receiving the submission under subsection (1) of this section:

(a) Approve the housing production strategy;

(b) Approve the housing production strategy, subject to further review and actions under section 6 (2) of this 2019 Act; or

(c) Remand the housing production strategy for further modification as identified by the department.

(7) A determination by the department under subsection (6) of this section is not a land use decision and is final and not subject to appeal.

SECTION 6. (1) The Land Conservation and Development Commission, in consultation with the Housing and Community Services Department, shall adopt criteria for reviewing and identifying cities with a population greater than 10,000 that have not sufficiently:

(a) Achieved production of needed housing within their jurisdiction; or

(b) Implemented a housing production strategy adopted under section 4 of this 2019 Act.

(2) The criteria adopted by the commission under subsection (1) of this section may include the city's:

(a) Unmet housing need as described in ORS 197.296 (6);

(b) Unmet housing need in proportion to the city's population;

(c) Percentage of households identified as severely rent burdened as described in section 1, chapter 47, Oregon Laws 2018;

(d) Recent housing development;

(e) Recent adoption of a housing production strategy under section 4 of this 2019 Act or adoption of actions pursuant to a housing production strategy;

(f) Recent or frequent previous identification by the Department of Land Conservation and Development under this section; or

(g) Other attributes that the commission considers relevant.

(3) The Department of Land Conservation and Development may review cities under the criteria adopted under subsection (2) of this section for the purposes of prioritizing actions by the department, including:

(a) Awarding available technical or financial resources;

(b) Providing enhanced review and oversight of the city's housing production strategy;

(c) Requiring a report and explanation if a city does not implement an action within the approximate time frame scheduled within a housing production strategy;

(d) Entering into agreements with the city relating to the city's modification or implementation of its housing production strategy; or

(e) Petitioning the commission to act under ORS 197.319 to 197.335 to require the city to comply with ORS 197.295 to 197.314 or statewide land use planning goals related to housing or urbanization.

SECTION 7. No later than December 31, 2019, the Land Conservation and Development Commission shall adopt a schedule by which metropolitan service districts and cities described in ORS 197.296 (2)(a)(B) and (10)(c)(B) shall demonstrate sufficient buildable lands. Dates in the schedule may not be earlier than two years following the commission's creation of rules implementing sections 4 to 6 of this 2019 Act and the amendments to ORS 197.296 and 197.299 by sections 8 and 9 of this 2019 Act.

SECTION 8. ORS 197.296 is amended to read:

197.296. (1)(a) The provisions of subsections (2) to (9) of this section apply to metropolitan service district regional framework plans and local government comprehensive plans for lands within the urban growth boundary of a city that is located outside of a metropolitan service district and has a population of 25,000 or more.

(b) The Land Conservation and Development Commission may establish a set of factors under which additional cities are subject to the provisions of this section. In establishing the set of factors required under this paragraph, the commission shall consider the size of the city, the rate of population growth of the city or the proximity of the city to another city with a population of 25,000 or more or to a metropolitan service district.

(2)**(a)** [*At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use,*] A local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years**:**

(A) At periodic review under ORS 197.628 to 197.651;

(B) As scheduled by the commission:

(i) At least once each eight years for local governments that are not within a metropolitan service district; or

(ii) At least once each six years for a metropolitan service district; or

(C) At any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use.

(b) The 20-year period shall commence on the date initially scheduled for completion of the [*periodic or legislative*] review **under paragraph (a) of this subsection**.

(3) In performing the duties under subsection (2) of this section, a local government shall:

(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and

(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.

(4)(a) For the purpose of the inventory described in subsection (3)(a) of this section, "buildable lands" includes:

(A) Vacant lands planned or zoned for residential use;

(B) Partially vacant lands planned or zoned for residential use;

(C) Lands that may be used for a mix of residential and employment uses under the existing planning or zoning; and

(D) Lands that may be used for residential infill or redevelopment.

(b) For the purpose of the inventory and determination of housing capacity described in subsection (3)(a) of this section, the local government must demonstrate consideration of:

(A) The extent that residential development is prohibited or restricted by local regulation and ordinance, state law and rule or federal statute and regulation;

(B) A written long term contract or easement for radio, telecommunications or electrical facilities, if the written contract or easement is provided to the local government; and

(C) The presence of a single family dwelling or other structure on a lot or parcel.

(c) Except for land that may be used for residential infill or redevelopment, a local government shall create a map or document that may be used to verify and identify specific lots or parcels that have been determined to be buildable lands.

(5)(a) Except as provided in paragraphs (b) and (c) of this subsection, the determination of housing capacity and need pursuant to subsection (3) of this section must be based on data relating to land within the urban growth boundary that has been collected since the last [*periodic*] review [*or*] **under subsection (2)(a)(B) of this section** [*five years, whichever is greater*]. The data shall include:

(A) The number, density and average mix of housing types of urban residential development that have actually occurred;

(B) Trends in density and average mix of housing types of urban residential development;

(C) Demographic and population trends;

(D) Economic trends and cycles; and

(E) The number, density and average mix of housing types that have occurred on the buildable lands described in subsection (4)(a) of this section.

(b) A local government shall make the determination described in paragraph (a) of this subsection using a shorter time period than the time period described in paragraph (a) of this subsection if the local government finds that the shorter time period will provide more accurate and reliable data related to housing capacity and need. The shorter time period may not be less than three years.

(c) A local government shall use data from a wider geographic area or use a time period for economic cycles and trends longer than the time period described in paragraph (a) of this subsection if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to paragraph (a) of this subsection. The local government must clearly describe the geographic area, time frame and source of data used in a determination performed under this paragraph.

(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need:

(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school districts and the local government that has the authority to approve the urban growth boundary;

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without

expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall monitor and record the level of development activity and development density by housing type following the date of the adoption of the new measures; or

(c) Adopt a combination of the actions described in paragraphs (a) and (b) of this subsection.

(7) Using the analysis conducted under subsection (3)(b) of this section, the local government shall determine the overall average density and overall mix of housing types at which residential development of needed housing types must occur in order to meet housing needs over the next 20 years. If that density is greater than the actual density of development determined under subsection (5)(a)(A) of this section, or if that mix is different from the actual mix of housing types determined under subsection (5)(a)(A) of this section, the local government, as part of its periodic review, shall adopt measures that demonstrably increase the likelihood that residential development will occur at the housing types and density and at the mix of housing types required to meet housing needs over the next 20 years.

(8)(a) A local government outside a metropolitan service district that takes any actions under subsection (6) or (7) of this section shall demonstrate that the comprehensive plan and land use regulations comply with goals and rules adopted by the commission and implement ORS 197.295 to 197.314.

(b) The local government shall determine the density and mix of housing types anticipated as a result of actions taken under subsections (6) and (7) of this section and monitor and record the actual density and mix of housing types achieved. The local government shall compare actual and anticipated density and mix. The local government shall submit its comparison to the commission at the next [*periodic review or at the next legislative*] review of its urban growth boundary[*, whichever comes first*] **under subsection (2)(a) of this section**.

(9) In establishing that actions and measures adopted under subsections (6) and (7) of this section demonstrably increase the likelihood of higher density residential development, the local government shall at a minimum ensure that land zoned for needed housing is in locations appropriate for the housing types identified under subsection (3) of this section and is zoned at density ranges that are likely to be achieved by the housing market using the analysis in subsection (3) of this section. Actions or measures, or both, may include but are not limited to:

(a) Increases in the permitted density on existing residential land;

(b) Financial incentives for higher density housing;

(c) Provisions permitting additional density beyond that generally allowed in the zoning district in exchange for amenities and features provided by the developer;

(d) Removal or easing of approval standards or procedures;

(e) Minimum density ranges;

(f) Redevelopment and infill strategies;

(g) Authorization of housing types not previously allowed by the plan or regulations;

(h) Adoption of an average residential density standard; and

(i) Rezoning or redesignation of nonresidential land.

(10)(a) The provisions of this subsection apply to local government comprehensive plans for lands within the urban growth boundary of a city that is located outside of a metropolitan service district and has a population of less than 25,000.

(b) [*At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan that requires the application of a statewide planning goal relating to buildable lands for residential use,*] **As required under paragraph (c) of this subsection,** a city shall, according to rules of the commission:

(A) Determine the estimated housing needs within the jurisdiction for the next 20 years;

(B) Inventory the supply of buildable lands available within the urban growth boundary to accommodate the estimated housing needs determined under this subsection; and

(C) Adopt measures necessary to accommodate the estimated housing needs determined under this subsection.

(c) The actions required under paragraph (b) of this subsection shall be undertaken:

(A) At periodic review pursuant to ORS 197.628 to 197.651;

(B) On a schedule established by the commission for cities with a population greater than 10,000, not to exceed once each eight years; or

(C) At any other legislative review of the comprehensive plan that requires the application of a statewide planning goal relating to buildable lands for residential use.

[*(c)*] **(d)** For the purpose of the inventory described in this subsection, "buildable lands" includes those lands described in subsection (4)(a) of this section.

SECTION 8a. If House Bill 2001 becomes law, section 8 of this 2019 Act (amending ORS 197.296) is repealed and ORS 197.296, as amended by section 5, chapter _____, Oregon Laws 2019 (Enrolled House Bill 2001), is amended to read:

197.296. (1)(a) The provisions of subsections (2) to (9) of this section apply to metropolitan service district regional framework plans and local government comprehensive plans for lands within the urban growth boundary of a city that is located outside of a metropolitan service district and has a population of 25,000 or more.

(b) The Land Conservation and Development Commission may establish a set of factors under which additional cities are subject to the provisions of this section. In establishing the set of factors required under this paragraph, the commission shall consider the size of the city, the rate of population growth of the city or the proximity of the city to another city with a population of 25,000 or more or to a metropolitan service district.

(2)**(a)** [*At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use,*] A local government shall demonstrate that its comprehensive plan or regional framework plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years**:**

(A) At periodic review under ORS 197.628 to 197.651;

(B) As scheduled by the commission:

(i) At least once each eight years for local governments that are not within a metropolitan service district; or

(ii) At least once each six years for a metropolitan service district; or

(C) At any other legislative review of the comprehensive plan or regional framework plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use.

(b) The 20-year period shall commence on the date initially scheduled for completion of the [*periodic or legislative*] review **under paragraph (a) of this subsection**.

(3) In performing the duties under subsection (2) of this section, a local government shall:

(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and

(b) Conduct an analysis of existing and projected housing need by type and density range, in accordance with all factors under ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.

(4)(a) For the purpose of the inventory described in subsection (3)(a) of this section, "buildable lands" includes:

(A) Vacant lands planned or zoned for residential use;

(B) Partially vacant lands planned or zoned for residential use;

(C) Lands that may be used for a mix of residential and employment uses under the existing planning or zoning; and

(D) Lands that may be used for residential infill or redevelopment.

(b) For the purpose of the inventory and determination of housing capacity described in subsection (3)(a) of this section, the local government must demonstrate consideration of:

(A) The extent that residential development is prohibited or restricted by local regulation and ordinance, state law and rule or federal statute and regulation;

(B) A written long term contract or easement for radio, telecommunications or electrical facilities, if the written contract or easement is provided to the local government; and

(C) The presence of a single family dwelling or other structure on a lot or parcel.

(c) Except for land that may be used for residential infill or redevelopment, a local government shall create a map or document that may be used to verify and identify specific lots or parcels that have been determined to be buildable lands.

(5)(a) Except as provided in paragraphs (b) and (c) of this subsection, the determination of housing capacity pursuant to subsection (3)(a) of this section must be based on data relating to land within the urban growth boundary that has been collected since the last review [*or six years, whichever is greater*] **under subsection (2)(a)(B) of this section**. The data shall include:

(A) The number, density and average mix of housing types of urban residential development that have actually occurred;

(B) Trends in density and average mix of housing types of urban residential development;

(C) Market factors that may substantially impact future urban residential development; and

(D) The number, density and average mix of housing types that have occurred on the buildable lands described in subsection (4)(a) of this section.

(b) A local government shall make the determination described in paragraph (a) of this subsection using a shorter time period than the time period described in paragraph (a) of this subsection if the local government finds that the shorter time period will provide more accurate and reliable data related to housing capacity. The shorter time period may not be less than three years.

(c) A local government shall use data from a wider geographic area or use a time period longer than the time period described in paragraph (a) of this subsection if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to paragraph (a) of this subsection. The local government must clearly describe the geographic area, time frame and source of data used in a determination performed under this paragraph.

(6) If the housing need determined pursuant to subsection (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or both of the following actions to accommodate the additional housing need:

(a) Amend its urban growth boundary to include sufficient buildable lands to accommodate housing needs for the next 20 years. As part of this process, the local government shall consider the effects of measures taken pursuant to paragraph (b) of this subsection. The amendment shall include sufficient land reasonably necessary to accommodate the siting of new public school facilities. The need and inclusion of lands for new public school facilities shall be a coordinated process between the affected public school districts and the local government that has the authority to approve the urban growth boundary.

(b) Amend its comprehensive plan, regional framework plan, functional plan or land use regulations to include new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary. A local government or metropolitan service district that takes this action shall adopt findings regarding the density expectations assumed to result from measures adopted under this paragraph based upon the factors listed in ORS 197.303 (2) and data in subsection (5)(a) of this section. The density expectations may not project an increase in residential capacity above achieved density by more than three percent without quantifiable validation of such departures. For a local government located outside of a metropolitan service district, a quantifiable validation must demonstrate that the assumed housing capacity has been achieved in areas that are zoned to allow no greater than the same authorized density level within the local jurisdiction or a jurisdiction in the same region. For a metropolitan service district, a quantifiable validation must demonstrate that the assumed housing capacity has been achieved in areas that are

zoned to allow no greater than the same authorized density level within the metropolitan service district.

(c) As used in this subsection, "authorized density level" has the meaning given that term in ORS 227.175.

(7) Using the housing need analysis conducted under subsection (3)(b) of this section, the local government shall determine the overall average density and overall mix of housing types at which residential development of needed housing types must occur in order to meet housing needs over the next 20 years. If that density is greater than the actual density of development determined under subsection (5)(a)(A) of this section, or if that mix is different from the actual mix of housing types determined under subsection (5)(a)(A) of this section, the local government, as part of its periodic review, shall adopt measures that demonstrably increase the likelihood that residential development will occur at the housing types and density and at the mix of housing types required to meet housing needs over the next 20 years.

(8)(a) A local government outside a metropolitan service district that takes any actions under subsection (6) or (7) of this section shall demonstrate that the comprehensive plan and land use regulations comply with goals and rules adopted by the commission and implement ORS 197.295 to 197.314.

(b) A local government shall determine the density and mix of housing types anticipated as a result of actions taken under subsections (6) and (7) of this section and monitor and record the actual density and mix of housing types achieved following the adoption of these actions. The local government shall compare actual and anticipated density and mix. The local government shall submit its comparison to the commission at the next [*periodic review or at the next legislative*] review of its urban growth boundary[*, whichever comes first*] **under subsection (2)(a) of this section**.

(9) In establishing that actions and measures adopted under subsections (6) and (7) of this section demonstrably increase the likelihood of higher density residential development, the local government shall at a minimum ensure that land zoned for needed housing is in locations appropriate for the housing types identified under subsection (3) of this section, is zoned at density ranges that are likely to be achieved by the housing market using the analysis in subsection (3) of this section and is in areas where sufficient urban services are planned to enable the higher density development to occur over the 20-year period. Actions or measures, or both, may include but are not limited to:

(a) Increases in the permitted density on existing residential land;

(b) Financial incentives for higher density housing;

(c) Provisions permitting additional density beyond that generally allowed in the zoning district in exchange for amenities and features provided by the developer;

(d) Removal or easing of approval standards or procedures;

(e) Minimum density ranges;

(f) Redevelopment and infill strategies;

(g) Authorization of housing types not previously allowed by the plan or regulations;

(h) Adoption of an average residential density standard; and

(i) Rezoning or redesignation of nonresidential land.

(10)(a) The provisions of this subsection apply to local government comprehensive plans for lands within the urban growth boundary of a city that is located outside of a metropolitan service district and has a population of less than 25,000.

(b) [*At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan that requires the application of a statewide planning goal relating to buildable lands for residential use,*] **As required under paragraph (c) of this subsection,** a city shall, according to rules of the commission:

(A) Determine the estimated housing needs within the jurisdiction for the next 20 years;

(B) Inventory the supply of buildable lands available within the urban growth boundary to accommodate the estimated housing needs determined under this subsection; and

(C) Adopt measures necessary to accommodate the estimated housing needs determined under this subsection.

(c) The actions required under paragraph (b) of this subsection shall be undertaken:

(A) At periodic review pursuant to ORS 197.628 to 197.651;

(B) On a schedule established by the commission for cities with a population greater than 10,000, not to exceed once each eight years; or

(C) At any other legislative review of the comprehensive plan that requires the application of a statewide planning goal relating to buildable lands for residential use.

[*(c)*] **(d)** For the purpose of the inventory described in this subsection, "buildable lands" includes those lands described in subsection (4)(a) of this section.

SECTION 9. ORS 197.299 is amended to read:

197.299. (1) A metropolitan service district organized under ORS chapter 268 shall complete the inventory, determination and analysis required under ORS 197.296 (3) not later than six years after completion of the previous inventory, determination and analysis.

(2)(a) The metropolitan service district shall take such action as necessary under ORS 197.296 (6)(a) to accommodate one-half of a 20-year buildable land supply determined under ORS 197.296 (3) within one year of completing the analysis.

(b) The metropolitan service district shall take all final action under ORS 197.296 (6)(a) necessary to accommodate a 20-year buildable land supply determined under ORS 197.296 (3) within two years of completing the analysis.

(c) The metropolitan service district shall take action under ORS 197.296 (6)(b), within one year after the analysis required under ORS 197.296 (3)(b) is completed, to provide sufficient buildable land within the urban growth boundary to accommodate the estimated housing needs for 20 years from the time the actions are completed.

(d) The metropolitan service district shall consider and adopt new measures that the governing body deems appropriate under ORS 197.296 (6)(b) **and shall allocate any housing capacity that is not accommodated under this section to be accommodated by the application of ORS 197.296 (6)(b) by cities within the metropolitan service district with a population greater than 10,000**.

(e) Cities to which housing capacity is allocated under paragraph (d) of this subsection shall take steps, at least once every six years as scheduled by the Land Conservation and Development Commission, to demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years as required by ORS 197.296 (6)(b).

(3) The [*Land Conservation and Development*] commission may grant an extension to the time limits of subsection (2) of this section if the Director of the Department of Land Conservation and Development determines that the metropolitan service district has provided good cause for failing to meet the time limits.

(4)(a) The metropolitan service district shall establish a process to expand the urban growth boundary to accommodate a need for land for a public school that cannot reasonably be accommodated within the existing urban growth boundary. The metropolitan service district shall design the process to:

(A) Accommodate a need that must be accommodated between periodic analyses of urban growth boundary capacity required by subsection (1) of this section; and

(B) Provide for a final decision on a proposal to expand the urban growth boundary within four months after submission of a complete application by a large school district as defined in ORS 195.110.

(b) At the request of a large school district, the metropolitan service district shall assist the large school district to identify school sites required by the school facility planning process described in ORS 195.110. A need for a public school is a specific type of identified land need under ORS 197.298 (3).

(5) Three years after completing its most recent demonstration of sufficient buildable lands under ORS 197.296, a metropolitan service district may, on a single occasion, revise the determination

and analysis required as part of the demonstration for the purpose of considering an amendment to the metropolitan service district's urban growth boundary, provided:

(a) The metropolitan service district has entered into an intergovernmental agreement and has designated rural reserves and urban reserves under ORS 195.141 and 195.145 with each county located within the district;

(b) The commission has acknowledged the rural reserve and urban reserve designations described in paragraph (a) of this subsection;

(c) One or more cities within the metropolitan service district have proposed a development that would require expansion of the urban growth boundary;

(d) The city or cities proposing the development have provided evidence to the metropolitan service district that the proposed development would provide additional needed housing to the needed housing included in the most recent determination and analysis;

(e) The location chosen for the proposed development is adjacent to the city proposing the development; and

(f) The location chosen for the proposed development is located within an area designated and acknowledged as an urban reserve.

(6)(a) If a metropolitan service district, after revising its most recent determination and analysis pursuant to subsection (5) of this section, concludes that an expansion of its urban growth boundary is warranted, the metropolitan service district may take action to expand its urban growth boundary in one or more locations to accommodate the proposed development, provided the urban growth boundary expansion does not exceed a total of 1,000 acres.

(b) A metropolitan service district that expands its urban growth boundary under this subsection:

(A) Must adopt the urban growth boundary expansion not more than four years after completing its most recent demonstration of sufficient buildable lands under ORS 197.296; and

(B) Is exempt from the boundary location requirements described in the statewide land use planning goals relating to urbanization.

SECTION 10. ORS 197.303 is amended to read:

197.303. (1) As used in ORS [*197.307*] **197.295 to 197.314**, "needed housing" means all housing on land zoned for residential use or mixed residential and commercial use that is determined to meet the need shown for housing within an urban growth boundary at price ranges and rent levels that are affordable to households within the county with a variety of incomes, including but not limited to households with low incomes, very low incomes and extremely low incomes, as those terms are defined by the United States Department of Housing and Urban Development under 42 U.S.C. 1437a. "Needed housing" includes the following housing types:

(a) Attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490;

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions; and

(e) Housing for farmworkers.

(2) Subsection (1)(a) and (d) of this section does not apply to:

(a) A city with a population of less than 2,500.

(b) A county with a population of less than 15,000.

(3) A local government may take an exception under ORS 197.732 to the definition of "needed housing" in subsection (1) of this section in the same manner that an exception may be taken under the goals.

SECTION 10a. If House Bill 2001 becomes law, section 10 of this 2019 Act (amending ORS 197.303) is repealed and ORS 197.303, as amended by section 6, chapter _____, Oregon Laws 2019 (Enrolled House Bill 2001), is amended to read:

197.303. (1) As used in ORS 197.295 to 197.314, "needed housing" means all housing on land zoned for residential use or mixed residential and commercial use that is determined to meet the need shown for housing within an urban growth boundary at price ranges and rent levels that are affordable to households within the county with a variety of incomes, including but not limited to households with low incomes, very low incomes and extremely low incomes, as those terms are defined by the United States Department of Housing and Urban Development under 42 U.S.C. 1437a. "Needed housing" includes the following housing types:

(a) Attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490;

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions; and

(e) Housing for farmworkers.

(2) For the purpose of estimating housing needs, as described in ORS 197.296 (3)(b), a local government shall use the population projections prescribed by ORS 195.033 or 195.036 and shall consider and adopt findings related to changes in each of the following factors since the last [*periodic or legislative review or six years, whichever is greater,*] **review under ORS 197.296 (2)(a)(B)** and the projected future changes in these factors over a 20-year planning period:

(a) Household sizes;

(b) Household demographics [*in terms of age, gender, race or other established demographic category*];

(c) Household incomes;

(d) Vacancy rates; and

(e) Housing costs.

(3) A local government shall make the estimate described in subsection (2) of this section using a shorter time period than since the last [*periodic or legislative review or six years, whichever is greater,*] **review under ORS 197.296 (2)(a)(B)** if the local government finds that the shorter time period will provide more accurate and reliable data related to housing need. The shorter time period may not be less than three years.

(4) A local government shall use data from a wider geographic area or use a time period longer than the time period described in subsection (2) of this section if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to subsection (2) of this section. The local government must clearly describe the geographic area, time frame and source of data used in an estimate performed under this subsection.

(5) Subsection (1)(a) and (d) of this section does not apply to:

(a) A city with a population of less than 2,500.

(b) A county with a population of less than 15,000.

(6) A local government may take an exception under ORS 197.732 to the definition of "needed housing" in subsection (1) of this section in the same manner that an exception may be taken under the goals.

SECTION 11. ORS 197.319 is amended to read:

197.319. (1) Before a person may request adoption of an enforcement order under ORS 197.320, the person shall:

(a) Present the reasons, in writing, for such an order to the affected local government; and

(b) Request:

(A) Revisions to the local comprehensive plan, land use regulations, special district cooperative or urban service agreement or decision-making process which is the basis for the order; or

(B) That an action be taken regarding the local comprehensive plan, land use regulations, special district agreement**, housing production strategy** or decision-making process that is the basis for the order.

(2)(a) The local government or special district shall issue a written response to the request within 60 days of the date the request is mailed to the local government or special district.

(b) The requestor and the local government or special district may enter into mediation to resolve issues in the request. The Department of Land Conservation and Development shall provide mediation services when jointly requested by the local government or special district and the requestor.

(c) If the local government or special district does not act in a manner which the requestor believes is adequate to address the issues raised in the request within the time period provided in paragraph (a) of this subsection, a petition may be presented to the Land Conservation and Development Commission under ORS 197.324.

(3) A metropolitan service district may request an enforcement order under ORS 197.320 (12) without first complying with subsections (1) and (2) of this section.

SECTION 12. ORS 197.320 is amended to read:

197.320. The Land Conservation and Development Commission shall issue an order requiring a local government, state agency or special district to take action necessary to bring its comprehensive plan, land use regulation, limited land use decisions or other land use decisions **or actions** into compliance with the goals, acknowledged comprehensive plan provisions**,** [*or*] land use regulations **or housing production strategy** if the commission has good cause to believe:

(1) A comprehensive plan or land use regulation adopted by a local government not on a compliance schedule is not in compliance with the goals by the date set in ORS 197.245 or 197.250 for such compliance;

(2) A plan, program, rule or regulation affecting land use adopted by a state agency or special district is not in compliance with the goals by the date set in ORS 197.245 or 197.250 for such compliance;

(3) A local government is not making satisfactory progress toward performance of its compliance schedule;

(4) A state agency is not making satisfactory progress in carrying out its coordination agreement or the requirements of ORS 197.180;

(5) A local government has no comprehensive plan or land use regulation and is not on a compliance schedule directed to developing the plan or regulation;

(6) A local government has engaged in a pattern or practice of decision making that violates an acknowledged comprehensive plan or land use regulation. In making its determination under this subsection, the commission shall determine whether there is evidence in the record to support the decisions made. The commission shall not judge the issue solely upon adequacy of the findings in support of the decisions;

(7) A local government has failed to comply with a commission order entered under ORS 197.644;

(8) A special district has engaged in a pattern or practice of decision-making that violates an acknowledged comprehensive plan or cooperative agreement adopted pursuant to ORS 197.020;

(9) A special district is not making satisfactory progress toward performance of its obligations under ORS chapters 195 and 197;

(10) A local government's approval standards, special conditions on approval of specific development proposals or procedures for approval do not comply with ORS 197.307 (4) or (6);

(11) A local government is not making satisfactory progress toward meeting its obligations under ORS 195.065; [*or*]

(12) A local government within the jurisdiction of a metropolitan service district has failed to make changes to the comprehensive plan or land use regulations to comply with the regional framework plan of the district or has engaged in a pattern or practice of decision-making that violates a requirement of the regional framework plan[.]**; or**

(13) A city is not making satisfactory progress in taking actions listed in its housing production strategy under section 4 of this 2019 Act.

SECTION 13. Section 1, chapter 47, Oregon Laws 2018, is amended to read:

Sec. 1. (1) For purposes of this section:

(a) A household is severely rent burdened if the household spends more than 50 percent of the income of the household on gross rent for housing.

(b) A regulated affordable unit is a residential unit subject to a regulatory agreement that runs with the land and that requires affordability for an established income level for a defined period of time.

(c) A single-family unit may be rented or owned by a household and includes single-family homes, duplexes, townhomes, row homes and mobile homes.

(2)(a) The Housing and Community Services Department shall annually provide to the governing body of each city in this state with a population greater than 10,000 the most current data available from the United States Census Bureau, or any other source the department considers at least as reliable, showing the percentage of renter households in the city that are severely rent burdened.

(b) [*The Housing and Community Services Department, in collaboration with*] The Department of Land Conservation and Development, **in consultation with the Housing and Community Services Department,** shall develop a survey form on which the governing body of a city may provide specific information related to the affordability of housing within the city, including[*, but not limited to:*]

[*(A)*] the actions relating to land use and other related matters that the [*governing body*] **city** has taken to **encourage the development of needed housing,** increase the affordability of housing and reduce rent burdens for severely rent burdened households[*; and*]**.**

[*(B) The additional actions the governing body intends to take to reduce rent burdens for severely rent burdened households.*]

(c) [*If the Housing and Community Services Department determines that at least 25 percent of the renter households in a city are severely rent burdened,*] The Department **of Land Conservation and Development** shall provide the governing body of the city with the survey form developed pursuant to paragraph (b) of this subsection.

(d) The governing body of the city shall return the completed survey form to the [*Housing and Community Services Department and the*] Department of Land Conservation and Development [*within 60 days of receipt*] **at least 24 months prior to a deadline for completing a housing production strategy under section 4 of this 2019 Act**.

(3)(a) In any year in which the governing body of a city is informed under this section that at least 25 percent of the renter households in the city are severely rent burdened, the governing body shall hold at least one public meeting to discuss the causes and consequences of severe rent burdens within the city, the barriers to reducing rent burdens and possible solutions.

(b) The Housing and Community Services Department may adopt rules governing the conduct of the public meeting required under this subsection.

(4) No later than February 1 of each year, the governing body of each city in this state with a population greater than 10,000 shall submit to the Department of Land Conservation and Development a report for the immediately preceding calendar year setting forth separately for each of the following categories the total number of units that were permitted and the total number that were produced:

(a) Residential units.

(b) Regulated affordable residential units.

(c) Multifamily residential units.

(d) Regulated affordable multifamily residential units.

(e) Single-family units.

(f) Regulated affordable single-family units.

SECTION 14. Section 15 of this 2019 Act is added to and made a part of ORS chapter 197.

SECTION 15. (1) As used in this section, "public property" means all real property of the state, counties, cities, incorporated towns or villages, school districts, irrigation districts, drainage districts, ports, water districts, service districts, metropolitan service districts, housing authorities, public universities listed in ORS 352.002 or all other public or municipal corporations in this state.

(2) Notwithstanding any land use regulation, comprehensive plan, or statewide land use planning goal, a local government may allow the development of housing on public property provided:

(a) The real property is not inventoried as a park or open space as a protective measure pursuant to a statewide land use planning goal;

(b) The real property is located within the urban growth boundary;

(c) The real property is zoned for residential development or adjacent to parcels zoned for residential development;

(d) The housing complies with applicable land use regulations and meets the standards and criteria for residential development for the underlying zone of the land or the adjacent residential land described in paragraph (c) of this subsection;

(e) At least 50 percent of the residential units provided under this section is affordable to households with incomes equal to or less than 60 percent of the area median income, as defined in ORS 456.270; and

(f) The affordability of the residential units described in paragraph (e) of this subsection is subject to an affordable housing covenant, as described in ORS 456.270 to 456.295, held by the local government or the Housing and Community Services Department and with a duration of no less than 60 years.

(3) Notwithstanding any statewide land use planning goal, a local government may amend its comprehensive plan and land use regulations to allow public property to be used for the purposes described in subsection (2) of this section.

SECTION 16. Notwithstanding ORS 197.646, a local government required to comply with the amendments to ORS 197.312 by section 6, chapter 745, Oregon Laws 2017, shall adopt land use regulations, or adopt amendments to its comprehensive plan, to comply with the amendments to ORS 197.312 by section 6, chapter 745, Oregon Laws 2017, no later than the effective date of this 2019 Act.

SECTION 17. ORS 215.416 is amended to read:

215.416. (1) When required or authorized by the ordinances, rules and regulations of a county, an owner of land may apply in writing to such persons as the governing body designates, for a permit, in the manner prescribed by the governing body. The governing body shall establish fees charged for processing permits at an amount no more than the actual or average cost of providing that service.

(2) The governing body shall establish a consolidated procedure by which an applicant may apply at one time for all permits or zone changes needed for a development project. The consolidated procedure shall be subject to the time limitations set out in ORS 215.427. The consolidated procedure shall be available for use at the option of the applicant no later than the time of the first periodic review of the comprehensive plan and land use regulations.

(3) Except as provided in subsection (11) of this section, the hearings officer shall hold at least one public hearing on the application.

(4)(a) A county may not approve an application if the proposed use of land is found to be in conflict with the comprehensive plan of the county and other applicable land use regulation or ordinance provisions. The approval may include such conditions as are authorized by statute or county legislation.

(b)(A) A county may not deny an application for a housing development located within the urban growth boundary if the development complies with clear and objective standards, including but not limited to clear and objective design standards contained in the county comprehensive plan or land use regulations.

(B) This paragraph does not apply to:

(i) Applications or permits for residential development in areas described in ORS 197.307 (5); or

(ii) Applications or permits reviewed under an alternative approval process adopted under ORS 197.307 (6).

(c) A county may not [*reduce the density of*] **condition** an application for a housing development **on a reduction in density** if:

(A) The density applied for is at or below the authorized density level under the local land use regulations; and

(B) At least 75 percent of the floor area applied for is reserved for housing.

(d) A county may not [*reduce the height of*] **condition** an application for a housing development **on a reduction in height** if:

(A) The height applied for is at or below the authorized height level under the local land use regulations;

(B) At least 75 percent of the floor area applied for is reserved for housing; and

(C) Reducing the height has the effect of reducing the authorized density level under local land use regulations.

(e) Notwithstanding paragraphs (c) and (d) of this subsection, a county may [*reduce the density or height of*] **condition** an application for a housing development **on a reduction in density or height only** if the reduction is necessary to resolve a health, safety or habitability issue or to comply with a protective measure adopted pursuant to a statewide land use planning goal. **Notwithstanding ORS 197.350, the county must adopt findings supported by substantial evidence demonstrating the necessity of the reduction.**

(f) As used in this subsection:

(A) "Authorized density level" means the maximum number of lots or dwelling units or the maximum floor area ratio that is permitted under local land use regulations.

(B) "Authorized height level" means the maximum height of a structure that is permitted under local land use regulations.

(C) "Habitability" means being in compliance with the applicable provisions of the state building code under ORS chapter 455 and the rules adopted thereunder.

(5) Hearings under this section shall be held only after notice to the applicant and also notice to other persons as otherwise provided by law and shall otherwise be conducted in conformance with the provisions of ORS 197.763.

(6) Notice of a public hearing on an application submitted under this section shall be provided to the owner of an airport defined by the Oregon Department of Aviation as a "public use airport" if:

(a) The name and address of the airport owner has been provided by the Oregon Department of Aviation to the county planning authority; and

(b) The property subject to the land use hearing is:

(A) Within 5,000 feet of the side or end of a runway of an airport determined by the Oregon Department of Aviation to be a "visual airport"; or

(B) Within 10,000 feet of the side or end of the runway of an airport determined by the Oregon Department of Aviation to be an "instrument airport."

(7) Notwithstanding the provisions of subsection (6) of this section, notice of a land use hearing need not be provided as set forth in subsection (6) of this section if the zoning permit would only allow a structure less than 35 feet in height and the property is located outside the runway "approach surface" as defined by the Oregon Department of Aviation.

(8)(a) Approval or denial of a permit application shall be based on standards and criteria which shall be set forth in the zoning ordinance or other appropriate ordinance or regulation of the county and which shall relate approval or denial of a permit application to the zoning ordinance and comprehensive plan for the area in which the proposed use of land would occur and to the zoning ordinance and comprehensive plan for the county as a whole.

(b) When an ordinance establishing approval standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.

(9) Approval or denial of a permit or expedited land division shall be based upon and accompanied by a brief statement that explains the criteria and standards considered relevant to the deci-

sion, states the facts relied upon in rendering the decision and explains the justification for the decision based on the criteria, standards and facts set forth.

(10) Written notice of the approval or denial shall be given to all parties to the proceeding.

(11)(a)(A) The hearings officer or such other person as the governing body designates may approve or deny an application for a permit without a hearing if the hearings officer or other designated person gives notice of the decision and provides an opportunity for any person who is adversely affected or aggrieved, or who is entitled to notice under paragraph (c) of this subsection, to file an appeal.

(B) Written notice of the decision shall be mailed to those persons described in paragraph (c) of this subsection.

(C) Notice under this subsection shall comply with ORS 197.763 (3)(a), (c), (g) and (h) and shall describe the nature of the decision. In addition, the notice shall state that any person who is adversely affected or aggrieved or who is entitled to written notice under paragraph (c) of this subsection may appeal the decision by filing a written appeal in the manner and within the time period provided in the county's land use regulations. A county may not establish an appeal period that is less than 12 days from the date the written notice of decision required by this subsection was mailed. The notice shall state that the decision will not become final until the period for filing a local appeal has expired. The notice also shall state that a person who is mailed written notice of the decision cannot appeal the decision directly to the Land Use Board of Appeals under ORS 197.830.

(D) An appeal from a hearings officer's decision made without hearing under this subsection shall be to the planning commission or governing body of the county. An appeal from such other person as the governing body designates shall be to a hearings officer, the planning commission or the governing body. In either case, the appeal shall be to a de novo hearing.

(E) The de novo hearing required by subparagraph (D) of this paragraph shall be the initial evidentiary hearing required under ORS 197.763 as the basis for an appeal to the Land Use Board of Appeals. At the de novo hearing:

(i) The applicant and other parties shall have the same opportunity to present testimony, arguments and evidence as they would have had in a hearing under subsection (3) of this section before the decision;

(ii) The presentation of testimony, arguments and evidence shall not be limited to issues raised in a notice of appeal; and

(iii) The decision maker shall consider all relevant testimony, arguments and evidence that are accepted at the hearing.

(b) If a local government provides only a notice of the opportunity to request a hearing, the local government may charge a fee for the initial hearing. The maximum fee for an initial hearing shall be the cost to the local government of preparing for and conducting the appeal, or $250, whichever is less. If an appellant prevails at the hearing or upon subsequent appeal, the fee for the initial hearing shall be refunded. The fee allowed in this paragraph shall not apply to appeals made by neighborhood or community organizations recognized by the governing body and whose boundaries include the site.

(c)(A) Notice of a decision under paragraph (a) of this subsection shall be provided to the applicant and to the owners of record of property on the most recent property tax assessment roll where such property is located:

(i) Within 100 feet of the property that is the subject of the notice when the subject property is wholly or in part within an urban growth boundary;

(ii) Within 250 feet of the property that is the subject of the notice when the subject property is outside an urban growth boundary and not within a farm or forest zone; or

(iii) Within 750 feet of the property that is the subject of the notice when the subject property is within a farm or forest zone.

(B) Notice shall also be provided to any neighborhood or community organization recognized by the governing body and whose boundaries include the site.

(C) At the discretion of the applicant, the local government also shall provide notice to the Department of Land Conservation and Development.

(12) A decision described in ORS 215.402 (4)(b) shall:

(a) Be entered in a registry available to the public setting forth:

(A) The street address or other easily understood geographic reference to the subject property;

(B) The date of the decision; and

(C) A description of the decision made.

(b) Be subject to the jurisdiction of the Land Use Board of Appeals in the same manner as a limited land use decision.

(c) Be subject to the appeal period described in ORS 197.830 (5)(b).

(13) At the option of the applicant, the local government shall provide notice of the decision described in ORS 215.402 (4)(b) in the manner required by ORS 197.763 (2), in which case an appeal to the board shall be filed within 21 days of the decision. The notice shall include an explanation of appeal rights.

(14) Notwithstanding the requirements of this section, a limited land use decision shall be subject to the requirements set forth in ORS 197.195 and 197.828.

SECTION 18. ORS 227.175 is amended to read:

227.175. (1) When required or authorized by a city, an owner of land may apply in writing to the hearings officer, or such other person as the city council designates, for a permit or zone change, upon such forms and in such a manner as the city council prescribes. The governing body shall establish fees charged for processing permits at an amount no more than the actual or average cost of providing that service.

(2) The governing body of the city shall establish a consolidated procedure by which an applicant may apply at one time for all permits or zone changes needed for a development project. The consolidated procedure shall be subject to the time limitations set out in ORS 227.178. The consolidated procedure shall be available for use at the option of the applicant no later than the time of the first periodic review of the comprehensive plan and land use regulations.

(3) Except as provided in subsection (10) of this section, the hearings officer shall hold at least one public hearing on the application.

(4)(a) A city may not approve an application unless the proposed development of land would be in compliance with the comprehensive plan for the city and other applicable land use regulation or ordinance provisions. The approval may include such conditions as are authorized by ORS 227.215 or any city legislation.

(b)(A) A city may not deny an application for a housing development located within the urban growth boundary if the development complies with clear and objective standards, including [*but not limited to*] clear and objective design standards contained in the city comprehensive plan or land use regulations.

(B) This paragraph does not apply to:

(i) Applications or permits for residential development in areas described in ORS 197.307 (5); or

(ii) Applications or permits reviewed under an alternative approval process adopted under ORS 197.307 (6).

(c) A city may not [*reduce the density of*] **condition** an application for a housing development **on a reduction in density** if:

(A) The density applied for is at or below the authorized density level under the local land use regulations; and

(B) At least 75 percent of the floor area applied for is reserved for housing.

(d) A city may not [*reduce the height of*] **condition** an application for a housing development **on a reduction in height** if:

(A) The height applied for is at or below the authorized height level under the local land use regulations;

(B) At least 75 percent of the floor area applied for is reserved for housing; and

(C) Reducing the height has the effect of reducing the authorized density level under local land use regulations.

(e) Notwithstanding paragraphs (c) and (d) of this subsection, a city may [*reduce the density or height of*] **condition** an application for a housing development **on a reduction in density or height only** if the reduction is necessary to resolve a health, safety or habitability issue or to comply with a protective measure adopted pursuant to a statewide land use planning goal. **Notwithstanding ORS 197.350, the city must adopt findings supported by substantial evidence demonstrating the necessity of the reduction.**

(f) As used in this subsection:

(A) "Authorized density level" means the maximum number of lots or dwelling units or the maximum floor area ratio that is permitted under local land use regulations.

(B) "Authorized height level" means the maximum height of a structure that is permitted under local land use regulations.

(C) "Habitability" means being in compliance with the applicable provisions of the state building code under ORS chapter 455 and the rules adopted thereunder.

(5) Hearings under this section may be held only after notice to the applicant and other interested persons and shall otherwise be conducted in conformance with the provisions of ORS 197.763.

(6) Notice of a public hearing on a zone use application shall be provided to the owner of an airport, defined by the Oregon Department of Aviation as a "public use airport" if:

(a) The name and address of the airport owner has been provided by the Oregon Department of Aviation to the city planning authority; and

(b) The property subject to the zone use hearing is:

(A) Within 5,000 feet of the side or end of a runway of an airport determined by the Oregon Department of Aviation to be a "visual airport"; or

(B) Within 10,000 feet of the side or end of the runway of an airport determined by the Oregon Department of Aviation to be an "instrument airport."

(7) Notwithstanding the provisions of subsection (6) of this section, notice of a zone use hearing need only be provided as set forth in subsection (6) of this section if the permit or zone change would only allow a structure less than 35 feet in height and the property is located outside of the runway "approach surface" as defined by the Oregon Department of Aviation.

(8) If an application would change the zone of property that includes all or part of a mobile home or manufactured dwelling park as defined in ORS 446.003, the governing body shall give written notice by first class mail to each existing mailing address for tenants of the mobile home or manufactured dwelling park at least 20 days but not more than 40 days before the date of the first hearing on the application. The governing body may require an applicant for such a zone change to pay the costs of such notice.

(9) The failure of a tenant or an airport owner to receive a notice which was mailed shall not invalidate any zone change.

(10)(a)(A) The hearings officer or such other person as the governing body designates may approve or deny an application for a permit without a hearing if the hearings officer or other designated person gives notice of the decision and provides an opportunity for any person who is adversely affected or aggrieved, or who is entitled to notice under paragraph (c) of this subsection, to file an appeal.

(B) Written notice of the decision shall be mailed to those persons described in paragraph (c) of this subsection.

(C) Notice under this subsection shall comply with ORS 197.763 (3)(a), (c), (g) and (h) and shall describe the nature of the decision. In addition, the notice shall state that any person who is adversely affected or aggrieved or who is entitled to written notice under paragraph (c) of this subsection may appeal the decision by filing a written appeal in the manner and within the time period provided in the city's land use regulations. A city may not establish an appeal period that is less than 12 days from the date the written notice of decision required by this subsection was mailed. The notice shall state that the decision will not become final until the period for filing a local ap-

peal has expired. The notice also shall state that a person who is mailed written notice of the decision cannot appeal the decision directly to the Land Use Board of Appeals under ORS 197.830.

(D) An appeal from a hearings officer's decision made without hearing under this subsection shall be to the planning commission or governing body of the city. An appeal from such other person as the governing body designates shall be to a hearings officer, the planning commission or the governing body. In either case, the appeal shall be to a de novo hearing.

(E) The de novo hearing required by subparagraph (D) of this paragraph shall be the initial evidentiary hearing required under ORS 197.763 as the basis for an appeal to the Land Use Board of Appeals. At the de novo hearing:

(i) The applicant and other parties shall have the same opportunity to present testimony, arguments and evidence as they would have had in a hearing under subsection (3) of this section before the decision;

(ii) The presentation of testimony, arguments and evidence shall not be limited to issues raised in a notice of appeal; and

(iii) The decision maker shall consider all relevant testimony, arguments and evidence that are accepted at the hearing.

(b) If a local government provides only a notice of the opportunity to request a hearing, the local government may charge a fee for the initial hearing. The maximum fee for an initial hearing shall be the cost to the local government of preparing for and conducting the appeal, or $250, whichever is less. If an appellant prevails at the hearing or upon subsequent appeal, the fee for the initial hearing shall be refunded. The fee allowed in this paragraph shall not apply to appeals made by neighborhood or community organizations recognized by the governing body and whose boundaries include the site.

(c)(A) Notice of a decision under paragraph (a) of this subsection shall be provided to the applicant and to the owners of record of property on the most recent property tax assessment roll where such property is located:

(i) Within 100 feet of the property that is the subject of the notice when the subject property is wholly or in part within an urban growth boundary;

(ii) Within 250 feet of the property that is the subject of the notice when the subject property is outside an urban growth boundary and not within a farm or forest zone; or

(iii) Within 750 feet of the property that is the subject of the notice when the subject property is within a farm or forest zone.

(B) Notice shall also be provided to any neighborhood or community organization recognized by the governing body and whose boundaries include the site.

(C) At the discretion of the applicant, the local government also shall provide notice to the Department of Land Conservation and Development.

(11) A decision described in ORS 227.160 (2)(b) shall:

(a) Be entered in a registry available to the public setting forth:

(A) The street address or other easily understood geographic reference to the subject property;

(B) The date of the decision; and

(C) A description of the decision made.

(b) Be subject to the jurisdiction of the Land Use Board of Appeals in the same manner as a limited land use decision.

(c) Be subject to the appeal period described in ORS 197.830 (5)(b).

(12) At the option of the applicant, the local government shall provide notice of the decision described in ORS 227.160 (2)(b) in the manner required by ORS 197.763 (2), in which case an appeal to the board shall be filed within 21 days of the decision. The notice shall include an explanation of appeal rights.

(13) Notwithstanding other requirements of this section, limited land use decisions shall be subject to the requirements set forth in ORS 197.195 and 197.828.

SECTION 19. ORS 215.441 is amended to read:

215.441. (1) If a church, synagogue, temple, mosque, chapel, meeting house or other nonresidential place of worship is allowed on real property under state law and rules and local zoning ordinances and regulations, a county shall allow the reasonable use of the real property for activities customarily associated with the practices of the religious activity, including:

(a) Worship services.

(b) Religion classes.

(c) Weddings.

(d) Funerals.

(e) Meal programs.

(f) Child care, but not including private or parochial school education for prekindergarten through grade 12 or higher education.

(g) Providing housing or space for housing in a building **or buildings** that [*is*] **are** detached from the place of worship, provided:

(A) At least 50 percent of the residential units provided under this paragraph are affordable to households with incomes equal to or less than 60 percent of the median family income for the county in which the real property is located;

(B) The real property is in an area zoned for residential use that is located within the urban growth boundary; and

(C) The housing or space for housing complies with applicable land use regulations and meets the standards and criteria for residential development for the underlying zone.

(2) A county may:

(a) Subject real property described in subsection (1) of this section to reasonable regulations, including site review or design review, concerning the physical characteristics of the uses authorized under subsection (1) of this section; or

(b) Prohibit or restrict the use of real property by a place of worship described in subsection (1) of this section if the county finds that the level of service of public facilities, including transportation, water supply, sewer and storm drain systems is not adequate to serve the place of worship described in subsection (1) of this section.

(3) Notwithstanding any other provision of this section, a county may allow a private or parochial school for prekindergarten through grade 12 or higher education to be sited under applicable state law and rules and local zoning ordinances and regulations.

(4) Housing and space for housing provided under subsection (1)(g) of this section must be subject to a covenant appurtenant that restricts the owner and each successive owner of [*the*] **a** building or any residential unit contained in [*the*] **a** building from selling or renting any residential unit described in subsection (1)(g)(A) of this section as housing that is not affordable to households with incomes equal to or less than 60 percent of the median family income for the county in which the real property is located for a period of 60 years from the date of the certificate of occupancy.

SECTION 20. ORS 227.500 is amended to read:

227.500. (1) If a church, synagogue, temple, mosque, chapel, meeting house or other nonresidential place of worship is allowed on real property under state law and rules and local zoning ordinances and regulations, a city shall allow the reasonable use of the real property for activities customarily associated with the practices of the religious activity, including:

(a) Worship services.

(b) Religion classes.

(c) Weddings.

(d) Funerals.

(e) Meal programs.

(f) Child care, but not including private or parochial school education for prekindergarten through grade 12 or higher education.

(g) Providing housing or space for housing in a building **or buildings** that [*is*] **are** detached from the place of worship, provided:

(A) At least 50 percent of the residential units provided under this paragraph are affordable to households with incomes equal to or less than 60 percent of the median family income for the county in which the real property is located;

(B) The real property is in an area zoned for residential use that is located within the urban growth boundary; and

(C) The housing or space for housing complies with applicable land use regulations and meets the standards and criteria for residential development for the underlying zone.

(2) A city may:

(a) Subject real property described in subsection (1) of this section to reasonable regulations, including site review and design review, concerning the physical characteristics of the uses authorized under subsection (1) of this section; or

(b) Prohibit or regulate the use of real property by a place of worship described in subsection (1) of this section if the city finds that the level of service of public facilities, including transportation, water supply, sewer and storm drain systems is not adequate to serve the place of worship described in subsection (1) of this section.

(3) Notwithstanding any other provision of this section, a city may allow a private or parochial school for prekindergarten through grade 12 or higher education to be sited under applicable state law and rules and local zoning ordinances and regulations.

(4) Housing and space for housing provided under subsection (1)(g) of this section must be subject to a covenant appurtenant that restricts the owner and each successive owner of [*the*] **a** building or any residential unit contained in [*the*] **a** building from selling or renting any residential unit described in subsection (1)(g)(A) of this section as housing that is not affordable to households with incomes equal to or less than 60 percent of the median family income for the county in which the real property is located for a period of 60 years from the date of the certificate of occupancy.

SECTION 21. ORS 455.062 is amended to read:

455.062. (1) A Department of Consumer and Business Services employee acting within the scope of that employment may provide typical plans and specifications:

(a) For structures of a type for which the provision of plans or specifications is exempted under ORS 671.030 from the application of ORS 671.010 to 671.220 and exempted under ORS 672.060 from the application of ORS 672.002 to 672.325; and

(b) Notwithstanding ORS 671.010 to 671.220 and 672.002 to 672.325, for structures that are metal or wood frame Use and Occupancy Classification Group U structures under the structural specialty code.

(2) A Department of Consumer and Business Services employee, who is licensed or registered under ORS 671.010 to 671.220 or 672.002 to 672.325, who is acting within the scope of that employment and who is providing typical plans and specifications under subsection (1) of this section, is not required to seal or sign the typical plans and specifications and is not subject to disciplinary action under ORS 671.010 to 671.220 or 672.002 to 672.325 based on providing those typical plans and specifications.

[*(2)*] **(3)** A building official or inspector, as those terms are defined in ORS 455.715, when acting within the scope of direct employment by a municipality, may provide typical plans and specifications for structures of a type for which the provision of plans or specifications is exempted under ORS 671.030 from the application of ORS 671.010 to 671.220 and exempted under ORS 672.060 from the application of ORS 672.002 to 672.325.

[*(3)*] This [*section*] **subsection** does not alter any applicable requirement under ORS 671.010 to 671.220 or 672.002 to 672.325 regarding stamps and seals for a set of plans for a structure.

SECTION 21a. If Senate Bill 39 becomes law, ORS 455.062, as amended by section 2, chapter 97, Oregon Laws 2019 (Enrolled Senate Bill 39), and section 21 of this 2019 Act, is amended to read:

455.062. (1) A Department of Consumer and Business Services employee acting within the scope of that employment may provide typical drawings and specifications:

(a) For structures of a type for which the provision of drawings or specifications is exempted under ORS 671.030 from the application of ORS 671.010 to 671.220 and exempted under ORS 672.060 from the registration requirements of ORS 672.002 to 672.325; and

(b) Notwithstanding ORS 671.010 to 671.220 and 672.002 to 672.325, for structures that are metal or wood frame Use and Occupancy Classification Group U structures under the structural specialty code.

(2) A Department of Consumer and Business Services employee, who is licensed or registered under ORS 671.010 to 671.220 or 672.002 to 672.325, who is acting within the scope of that employment and who is providing typical [*plans*] **drawings** and specifications under subsection (1) of this section, is not required to seal or sign the typical [*plans*] **drawings** and specifications and is not subject to disciplinary action under ORS 671.010 to 671.220 or 672.002 to 672.325 based on providing those typical [*plans*] **drawings** and specifications.

(3) A building official or inspector, as those terms are defined in ORS 455.715, when acting within the scope of direct employment by a municipality, may provide typical drawings or specifications for structures of a type for which the provision of drawings or specifications is exempted under ORS 671.030 from the application of ORS 671.010 to 671.220 and exempted under ORS 672.060 from the registration requirements of ORS 672.002 to 672.325. This subsection does not alter any applicable requirement under ORS 671.010 to 671.220 or 672.002 to 672.325 regarding stamps and seals for a set of plans for a structure.

SECTION 21b. If Senate Bill 39 becomes law, section 3, chapter 97, Oregon Laws 2019 (Enrolled Senate Bill 39), is amended to read:

Sec. 3. The amendments to ORS 455.062 and 672.060 by sections 1 and 2 [*of this 2019 Act*]**, chapter 97, Oregon Laws 2019 (Enrolled Senate Bill 39), and section 21a of this 2019 Act** apply to work performed, and offers made, on or after the effective date of [*this 2019 Act*] **chapter 97, Oregon Laws 2019 (Enrolled Senate Bill 39)**.

SECTION 22. In addition to and not in lieu of any other appropriation, there is appropriated to the Department of Land Conservation and Development, for the biennium beginning July 1, 2019, out of the General Fund, the amount of $1,000,000, to provide technical assistance to local governments to implement sections 4 to 6 and 15 of this 2019 Act and the amendments to ORS 197.296, 197.299, 197.303, 197.319, 197.320, 215.416, 215.441, 227.175 and 227.500 and section 1, chapter 47, Oregon Laws 2018, by sections 8 to 13 and 17 to 20 of this 2019 Act.

SECTION 23. In addition to and not in lieu of any other appropriation, there is appropriated to the Housing and Community Services Department, for the biennium beginning July 1, 2019, out of the General Fund, the amount of $655,274, for research, administration and reporting that relate to a regional housing needs analysis described in section 1 of this 2019 Act.

SECTION 24. (1) Sections 4 to 6 of this 2019 Act and the amendments to ORS 197.296, 197.299, 197.303, 197.319 and 197.320 and section 1, chapter 47, Oregon Laws 2018, by sections 8 to 13 of this 2019 Act become operative on January 1, 2020.

(2) The Land Conservation and Development Commission, the Department of Land Conservation and Development and the Housing and Community Services Department may take any action before the operative date specified in subsection (1) of this section that is necessary for the departments and the commission to exercise, on or after the operative date specified in subsection (1) of this section, all of the duties, functions and powers conferred on the departments and the commission by sections 4 to 6 of this 2019 Act and the amendments to ORS 197.296, 197.299, 197.303, 197.319, 197.320 and section 1, chapter 47, Oregon Laws 2018, by sections 8 to 13 of this 2019 Act.

SECTION 25. This 2019 Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this 2019 Act takes effect on its passage.

Passed by House June 26, 2019

.....
Timothy G. Sekerak, Chief Clerk of House

.....
Tina Kotek, Speaker of House

Passed by Senate June 30, 2019

.....
Peter Courtney, President of Senate

Received by Governor:

.....M.,....., 2019

Approved:

.....M.,....., 2019

.....
Kate Brown, Governor

Filed in Office of Secretary of State:

.....M.,....., 2019

.....
Bev Clarno, Secretary of State

ECONOMIC OPPORTUNITIES ANALYSIS
(OREGON STATEWIDE PLANNING GOAL 9)

Prepared For:

City of North Plains, Oregon

February 2022

Amended October 2022

(Reflecting Oregon Semiconductor Competitiveness Task Force opportunity findings)

Acknowledgments

Johnson Economics prepared this report for the City of North Plains. The consulting partners and the City of North Plains thank the many people who helped to develop this document.

City Staff
Andy Varner, City Manager
Bill Reid, Finance Director

Consultants
Jerry Johnson, Johnson Economics
Brendan Buckley, Johnson Economics
Patrick Ribellia, PR Land Use Strategies

Thanks to the Following for Consultation and Background
Colin Sears, Business Oregon
Keith Leavitt, Port of Portland and Oregon Semiconductor Competitiveness Task Force Industrial Lands Subcommittee
Doug Smith, Port of Portland and Oregon Semiconductor Competitiveness Task Force Industrial Lands Subcommittee
Mike Thomas, Colliers Portland
Bradford Fletcher, Newmark
Jeff King, City of Forest Grove, Economic Development Director (retired)
Dan Dias, City of Hillsboro, Director of Economic and Community Development and Oregon Semiconductor Competitiveness Task Force Industrial Lands Subcommittee
Bret Marchant, Greater Portland Inc.
Mike Grella, Grella Partnership Strategies
Mackenzie
Westside Economic Alliance
Washington County, Large Lot Industrial Assessment Project
City of North Plains Economic Development Committee
North Plains Planning Commission
North Plains City Council

Prepared by
Johnson Economics LLC
621 SW Alder Avenue, Suite 605
Portland, OR 97205
(503) 295-7832

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I. INTRODUCTION

This report introduces analytical research presenting an Economic Opportunities Analysis (EOA) for the City of North Plains, Oregon. This analysis is an update of the prior EOA completed in 2018, which relied on population growth rate estimates that have since been revised. This revision created the opportunity to update some of the economic development goals and assumptions underlying the prior analysis. This report also reproduces some analysis from the prior report where still current.Cities are required under the Oregon Statewide Land Use Planning system to periodically prepare estimates of future employment land demand with existing inventories of vacant and redevelopable employment land within their Urban Growth Boundary (UGB). These estimates and the associated analysis of the local economy and policy recommendations are collectively known as an Economic Opportunities Analysis (EOA) and are an adopted ancillary document to the city's Comprehensive Plan. The principal purpose of the analysis is to plan for land supply for economic development and employment growth in the community. Findings on forecasted land need and supply inform land use policies, infrastructure planning, community involvement, and coordination among local governments and the state.

October 2022 Update
Although the EOA was completed in February of 2022, during its undertaking Oregon Governor Kate Brown convened the Oregon Semiconductor Competitiveness Task Force ("Oregon Task Force"), a blue-ribbon panel comprising Oregon-based stakeholders from the semiconductor industry, public sector, and other interests in order to position the State to best leverage the likely billions of dollars in federal funds authorized for investment by the federal CHIPS and Sciences Act ("CHIPS Act") when passed. After the CHIPS Act was signed by President Biden, the Oregon Task Force released a report[1] on August 17, 2022 that included urgent need for a significant variety of sizes and types of larger industrial sites needed to keep Oregon competitive for semiconductor manufacturing and supply chain investment and employment.

Being located at the edge of Oregon's "Silicon Forest" cluster of semiconductor and supply chain businesses and 15 minutes from Intel's Ronler Acres, and being the only city in or near the Silicon Forest actively planning a sizeable UGB expansion to meet significant industry need and opportunity, the City of North Plains communicated with representatives of the Oregon Task Force to coordinate and reflect industrial land planning for its UGB expansion. This report, therefore, includes amendments to reflect substantiation of identified employment land need by Oregon Task Force findings.

To these ends, this report is organized into the following primary sections:

- **Statement of Economic Goals:** This is the community's adopted set of priorities for economic development that help guide this analysis and its findings.
- **Economic Trends:** Provides an overview of national, state, and local economic trends affecting Washington County and the City of North Plains, including population projections, employment growth and a demographic profile.
- **Target Industries:** Analyzes current and projected representation of major industry sectors in North Plains, and implications for future growth and land need.
- **Employment Land Needs:** Presents projections of demand for industrial and commercial land based on anticipated employment growth rates by sector.

[1] http://oregonbusinessplan.org/wp-content/uploads/2022/08/Semiconductor-Task-Force-Report-for-Release1.pdf

- **Capacity:** Summarizes the City's inventory of vacant, partially vacant, and redevelopable industrial and commercial land (employment land) within City of North Plains' corporate limits.
- **Reconciliation:** Compares the projected short- and long-term demand for employment land to the existing land inventory to determine the adequacy and appropriateness of capacity over a five and twenty-year horizon.
- **Conclusions:** Presents a summary of findings and policy implications.

Oregon Statewide Planning Goal 9: Economic Development
In addition to providing an analysis of the City's economic opportunities and needs, this report is intended to meet the requirements of Oregon Statewide Planning Goal 9 and the requirements for an EOA as specified in the administrative rules that implement Goal 9 (OAR 660-009).

II. STATEMENT OF ECONOMIC DEVELOPMENT GOALS

The City Council of North Plains adopted a set of economic development priorities to guide the update of the Economic Opportunities Analysis, other City economic development initiatives, and partnerships with Washington County and the State of Oregon.

PRIORITY 1: Reverse the worsening trend of bedroom community status for North Plains with a thriving jobs-housing balance by expanding and diversifying employment opportunity and industry profile and presence.

PRIORITY 2: Grow business investment in North Plains to encourage expansion and diversification of the City's property tax base to reverse the imbalance created by a growing bedroom community development trend.

PRIORITY 3: Ensure and sustainably fund community-supporting infrastructure, economy-supporting infrastructure, and expanded City services such as recreational offerings that enhance community health and diversify the City economy.

PRIORITY 4: Expand the local presence of important, everyday commercial services for the residents of North Plains which offers a shorter and safer distance rather than at extended and costly distance to other cities.

(Resolution No. 2160, September 2021)

As an adopted statement of community priorities, this list provides the underlying framework for the analysis and recommendations presented in this report.

These priorities derive from and further explain a North Plains Vision for future economic growth adopted by its City Council in Resolution No. 2160 and attached in the Appendices. Both the Vision and Implementing Priorities inform the kinds of new, preferred industries (and their job opportunities) the City

wants to pursue and accommodate by providing the kinds of industry-suitable sites they need within an expanded City UGB boundary.

This visionary UGB expansion approach is rooted in and informed by the EOA work done in this document in accordance with the following Goal 9 Rules in OAR 660-009-0015. In pertinent parts these Rules require the following:

- A City EOA *must "identify the major categories of industrial and other employment uses that could reasonably be expected to locate or expand in the planning area based on information about national, state, regional, county or local trends. A (identified) use or category of use could reasonably be expected to expand or locate in the planning area if the area possesses the appropriate locational factors for the use or category of use."* 660-009-0015(1)

- A City EOA must *"identify the number of sites by type reasonably expected to be needed . . . based on the site characteristics typical of expected uses. Cities are encouraged to examine existing firms in the planning area to identify the types of sites that may be needed for (UGB) expansion. Industrial or other employment uses with compatible site characteristics may be grouped together into common site categories."* 660-009-0015(2)

- A City EOA *"must include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use"*. 660-009-0015(3)

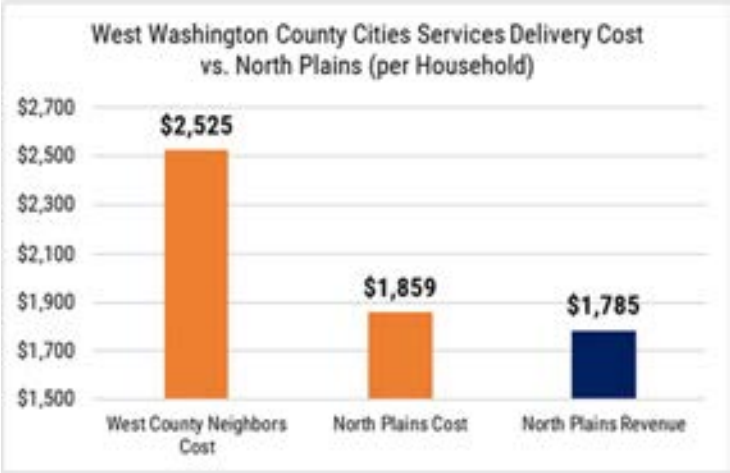
- A City EOA *"must estimate the types and amounts of industrial and other employment uses likely to occur in the planning area . . . and must consider the planning area's economic advantages and disadvantages . . . (that) include but are not limited to . . . availability of transportation facilities for access and freight mobility; labor market factors; access to suppliers and utilities; …." 660—009-0015(4)*

Finally, cities are "*strongly encouraged to assess community economic development potential through a visioning or some other public input-based process in conjunction with state agencies. Cities . . . are strongly encouraged to use the assessment of community development potential to form the community economic development objectives* (that will be city comprehensive plan directives to be accomplished by city UGB amendments that implement those directives)." 660-009-0015(5) and 660-009-0029(1)(a).

As enabled by these Rules, North Plains' pursuit of future, preferred economic development and growth focuses on identifying, attracting, and accommodating the types of new and expanding tech-based and supporting industries and businesses that already successfully exist nearby in the City of Hillsboro and Washington County and continue to seek more sites in the County and Portland Area. North Plains' border-like proximity to a fairly-massive cluster/agglomeration of such businesses and industries in Hillsboro/Washington County support applicability of much of the Goal 9 Rules cited above because that proximity makes it reasonable to expect like-kind businesses and industries to locate – and successfully thrive - at suitable sites within an expanded North Plains UGB.

North Plains' pursuit of such like-kind businesses and industries is driven by the City's "Livability" needs of its current residents and a rapidly growing population and expanding residential neighborhoods. Those needs obligate the City to have the adequate fiscal resources – to be generated largely by such new

industrial growth - that will enable the City to provide the full array of municipal services needed by its residents and businesses going forward.



North Plains wants to reverse its declining service levels and provide its current and future households with the breadth of municipal services and, thus, urban quality of life on par with the services and resulting livability now provided by its four closest City neighbors – Banks, Cornelius, Forest Grove, and Hillsboro – largely due to their broader revenue base. To do that, the City needs enough business investment to compensate for an almost $800-per-household deficit in City cost-of-services to residents versus property tax revenues from each household that will exist at full development of all City residential neighborhoods designated in its acknowledged Comprehensive Plan (see fiscal analysis in Appendix C.)

North Plains Livability needs demonstrates satisfaction of Oregon's Planning Goal 14, Factor 2 requirement that its proposed employment (and housing) land UGB expansion(s) derive from the City's current and future "livability" status and conditions. These priorities guide the discussion of target industries and site needs in North Plains as laid out in this report.

To be clear, this EOA describes and supports North Plains' UGB expansion pursuit of two (2) distinct categories of like-kind businesses in response to OAR 660-009-0025 and 660-024-0040(5):

- Successful, tech-based, large-employment, large-sites businesses that occupy land in the adjoining Hillsboro North Industrial Area to address both short-term and long-term City industrial land need; and,

- An agglomeration of mixed small- and mid-sized businesses that occupy sites directly north of that Industrial Area along NW West Union Road to address its short-term land needs. Some of these small and mid-size businesses support production, manufacturing and distribution/shipment of products made by some larger nearby employers in Hillsboro; others are independent producers of goods and services marketed locally and within and outside Oregon.

The average site size of such existing, nearby businesses in the first category, and the total land area within the second category are templates that can inform and guide the aggregate North Plains' UGB expansion employment land estimate.

III. ECONOMIC TRENDS

This section summarizes long and intermediate-term trends at the national, state, and local level that may influence economic conditions in the City of North Plains over the 20-year planning period. It focuses on potential changes in structural socioeconomic conditions both nationally and globally and considers local growth trends, demographics, and economic performance.

NATIONAL TRENDS

Coming out of the prior recession, the United States enjoyed a sustained economic expansion beginning in 2011, which was sharply curtailed by the Covid-19 pandemic beginning in March 2020. The economic climate of 2020 and 2021 has been volatile. However, as of the time of this report, widespread vaccination and the re-opening of the economy point towards recovery. Remaining challenges include periods of Covid resurgence, and disruptions to the global supply chain which have exacerbated inflation in 2021.

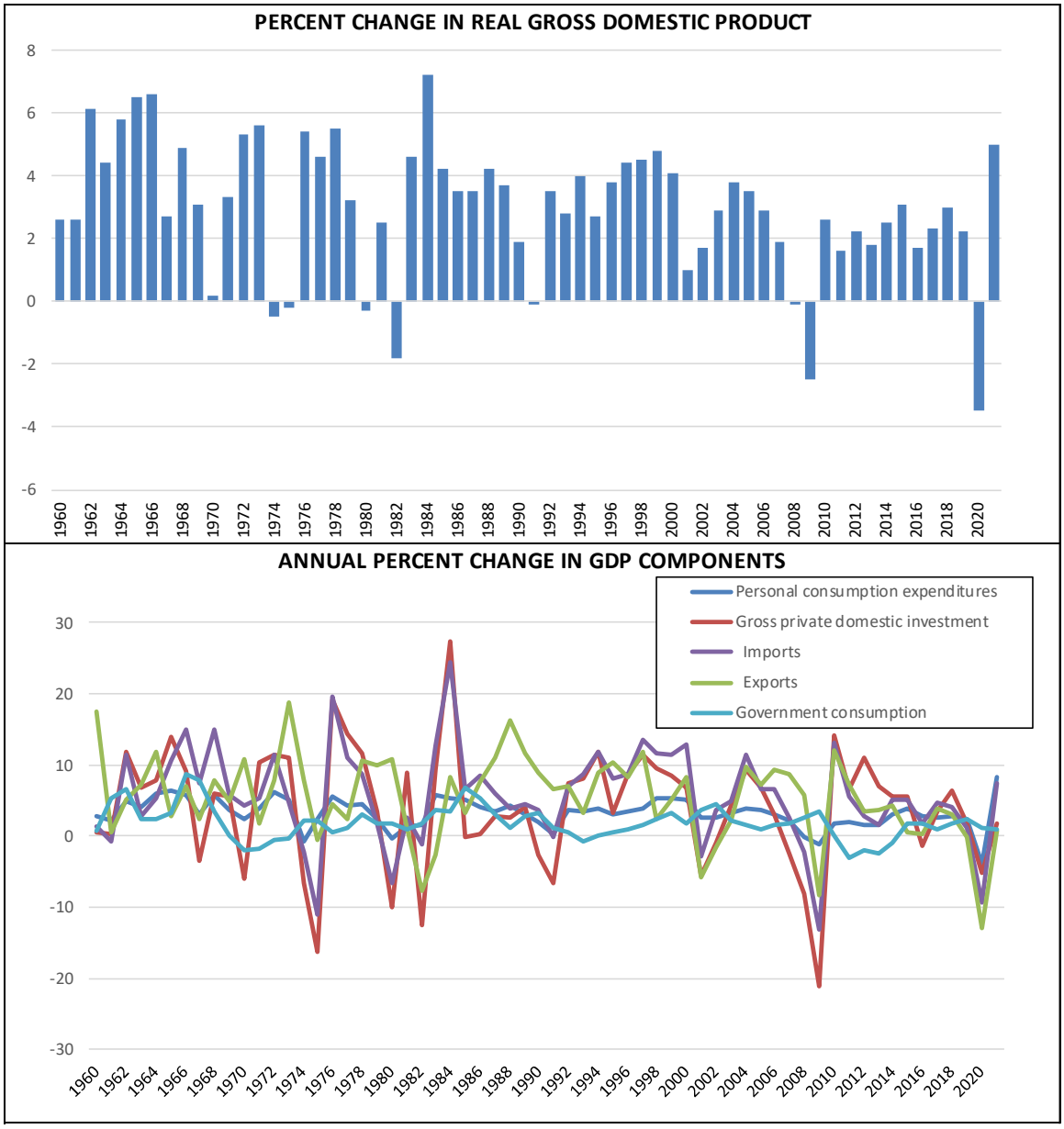
Specific observed and anticipated impacts of the pandemic on the economy will be addressed later in this report. Because of the temporary and extreme nature of the pandemic, much of this discussion focuses on longer-term trends that were in place before this period of disruption. The extent to which the economy will revert to long-term trends, and on which economic measures, is still unresolved at the time of this study.

At a national level there has been an on-going long-term shift within the economy from consumption of domestically produced goods to consumption of services, especially services oriented around personal well-being (health, private education, finance). At the same time, growth in fixed investment (equipment and structures) and government defense spending is moderating.

A measure of economic prosperity is real gross domestic product (GDP). Real GDP is essentially a measure of national wealth adjusted for inflation U.S. real GDP expanded at an average annual rate of 2.3% from 2010 through 2019, before falling 3.5% in 2020 due to the pandemic. To date in 2021, GDP has rebounded strongly from the prior year.

Potential GDP growth indicates future long-term growth at around 2.0% per year (correcting for volatility in inflation). Over the last century, the average annual growth rate has been 1.8%, 2.0% growth would represent a reversion to this mean, after a period of stronger growth over the second half of the 20th Century. Long-term economic growth is more related to broad trends, such as population growth and investment in physical and human capital, than temporary economic fluctuations.

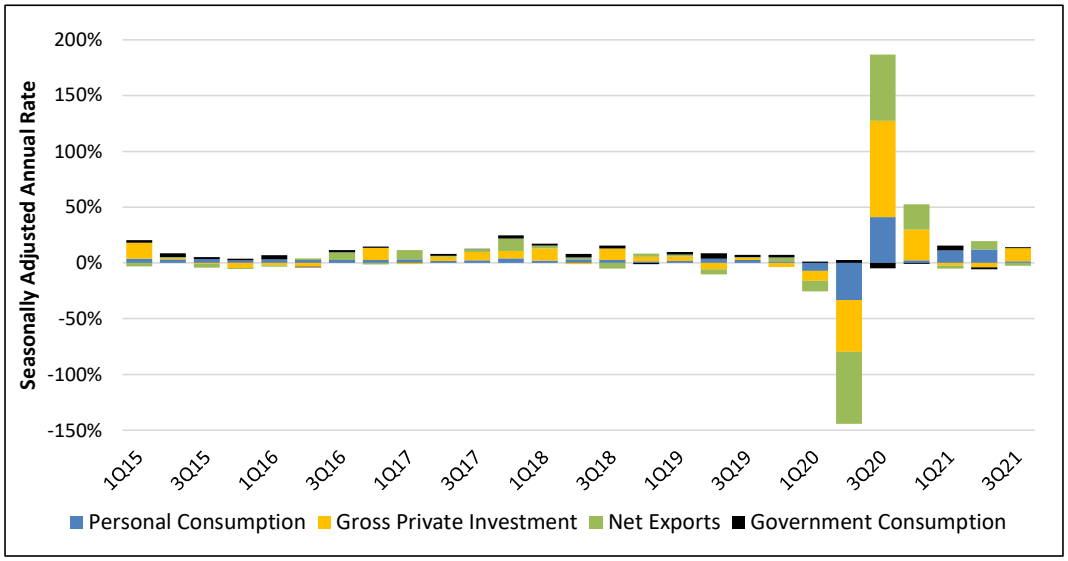
FIGURE 3.01: NATIONAL GROSS DOMESTIC PRODUCT TRENDS



SOURCE: US Bureau of Economic Analysis

The pandemic brought growth to an unprecedented halt in March 2020. Real GDP at the national level declined 5% during the first quarter, and then 31.4% in the second quarter of 2020, before rebounding strongly for the remainder of the year and in to 2021.

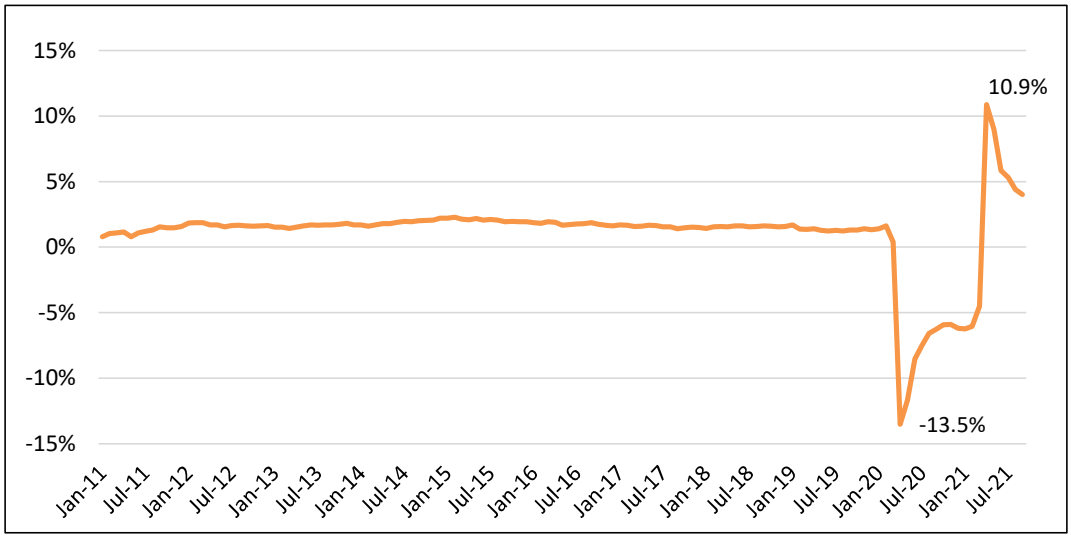
FIGURE 3.02: REAL GDP GROWTH BY CONTRIBUTING SECTOR



U.S. Bureau of Economic Analysis

Employment growth ranged between 1.4% and 2.2% (year-over-year) in the most recent expansion cycle from 2011 but declined an unprecedented 13.5% in Spring of 2020 as many businesses were forced to close. A significant amount of this loss has been recovered as the economy reopens, with recent growth of nearly 11% year-over-year compared to the lows.

FIGURE 3.03: YEAR OVER YEAR EMPLOYMENT GROWTH, UNITED STATES

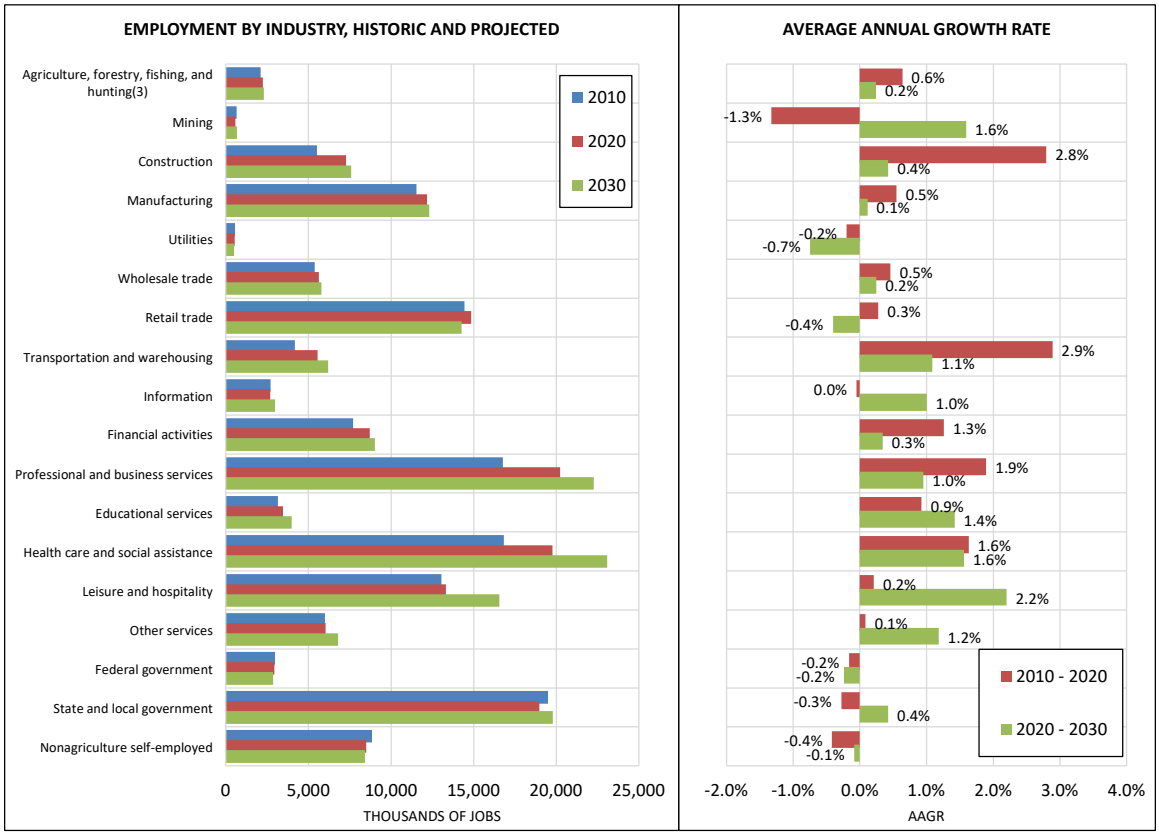


SOURCE: US Bureau of Labor Statistics, CES Data

At a national level, transportation and warehousing, professional services, tourism-related business, construction, and health care have seen some of the fastest growth over the last decade. Professional services and healthcare are now the sectors with the highest employment and are projected to provide the

most new employment going forward, but at a more moderate growth rate. The aging of the population is expected to drive the healthcare sector over the next few decades.

FIGURE 3.04: NATIONAL EMPLOYMENT GROWTH BY SECTOR, HISTORIC AND PROJECTED



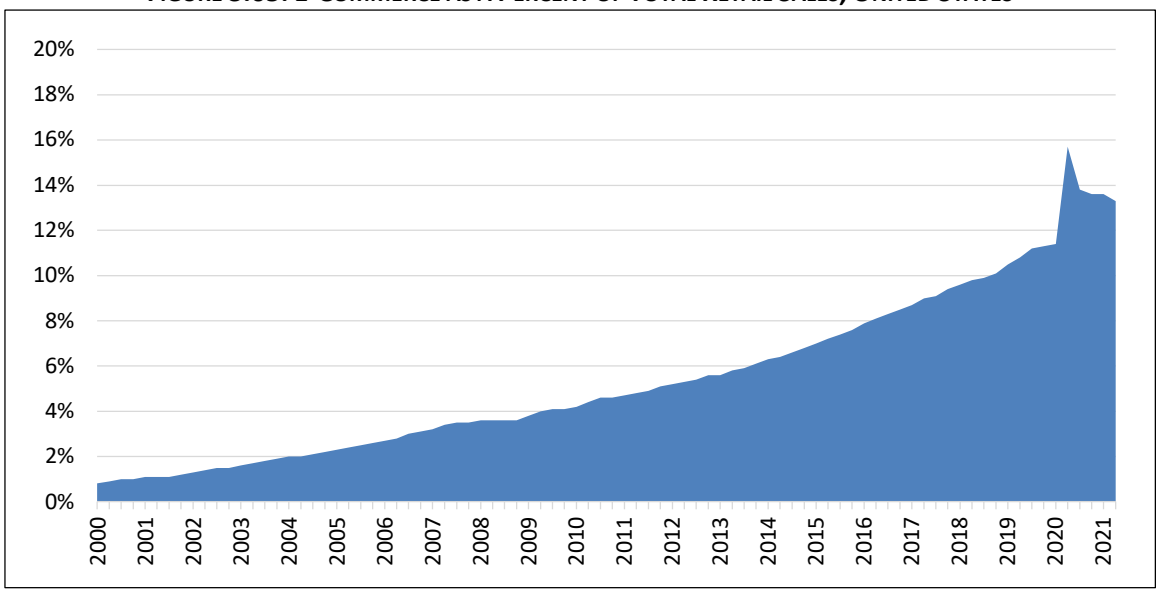
SOURCE: US Bureau of Economic Analysis

E-Commerce Trends: A national trend that is expected to have significant implications for the commercial and industrial real estate market is the anticipated growth in e-commerce. Online shopping is rapidly taking market share from brick-and-mortar retailers. In 2020, the market share of e-commerce jumped dramatically to more than 16% of all sales. It has since fallen to roughly 13% but is likely to remain higher than pre-pandemic levels. In 2020, consumers spent $787.9 billion online with U.S. retailers, up 32% from 2019[2].

This shift toward e-commerce is contributing to an increase in storage needs from retail stores to warehouses and distribution centers. At the same time, increased automation is driving consolidation within the warehousing and distribution industry and increasing the reliance on larger third-party operators able to make heavy investments in warehousing capital and expertise. Automation is also impacting the manufacturing industry, though to a lesser extent and primarily among large industry leaders. Increased productivity through automation continues to reduce the reliance on human labor over time.

2 US Department of Commerce

FIGURE 3.05: E-COMMERCE AS A PERCENT OF TOTAL RETAIL SALES, UNITED STATES



SOURCE: Retail Indicators Branch, US Census Bureau, JOHNSON ECONOMICS

Finally, changes in the use of mobile devices and growth in online services have caused a shift in the tech sector, from hardware manufacturing to software development. This pattern has been reflected in the State of Oregon, with e-commerce employment increasing at the expense of brick-and-mortar retail employment.

Work from Home Trends: A major and sudden shift caused by the shutdown of many workplaces during the Covid-19 pandemic. Many employers and employees were forced to adapt to a work-from-home model. This trend differed greatly across industries and job classification. On-going trends towards increased e-commerce and automation also accelerated.

A national poll conducted by Pew Research[3] in October of 2020 found that those with higher incomes and educational attainment level reported being able to work from home at a much higher rate than those with less education and lower incomes. However, most economists seem to agree that remote work is unlikely to remain at the peak level seen during the pandemic and may even fall significantly.

There is also widespread agreement that the nature of work for many workers has permanently changed, and many of the shifts seen since spring of 2020 will persist at much higher levels than seen before the pandemic. 54% of remote workers in the Pew poll reported that they would like to continue to work remotely, and a larger majority of the respondents reported that most aspects of the transition were easy.

The following are a few of the major trends and implications that are broadly predicted resulting from this unusual period:

- Professional work that typically took place in an office environment is anticipated to remain more flexible for many workers. The expectations of individual employers will matter greatly in whether workers remain remote, hybrid or return to the office full time. How this trend settles out in the

[3] Parker, Kim, Juliana Horowitz, and Rachel Minkin. "How the Coronavirus Outbreak Has - and Hasn't - Changed the Way Americans Work." Pew Research Center. 9 Dec. 2020.

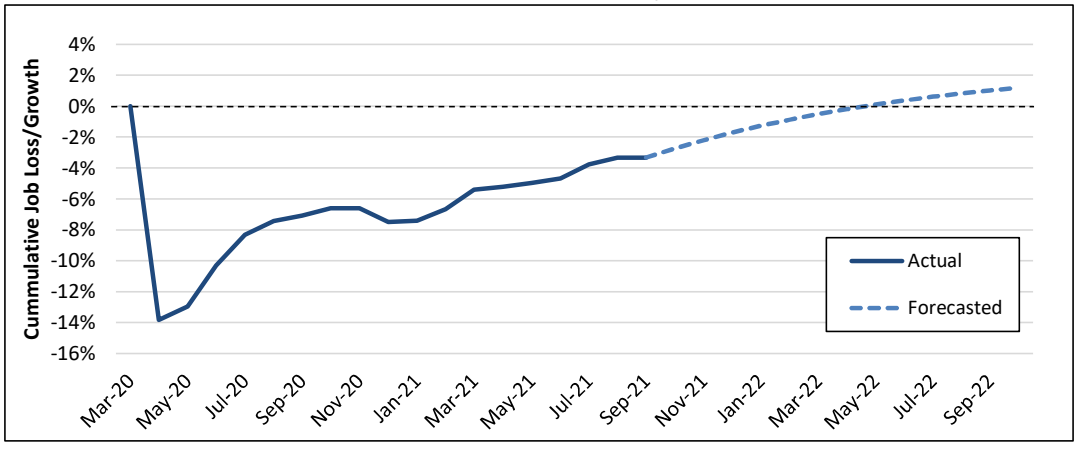
long term is unknown, but it seems a near certainty that many more professional workers will be working remotely or on a hybrid remote/on-site schedule.

- The difference between fully remote work and a hybrid schedule is important because hybrid workers must remain within a manageable commute distance from their external workplace.
- These trends are expected to put downward pressure on office rents. More available space and depressed rents would likely translate into less production of new office space in coming years as the existing supply is reabsorbed.
- The pandemic has accelerated workplace automation as companies have adopted new technology and software to adapt to the new reality. Many of these adaptations have created permanent efficiencies and will change the job responsibilities for some workers and potentially eliminate some jobs.
- Service industries that were not amenable to remote work, such as dining, entertainment, and retail have faced a very challenging period during the "occupancy and use" restrictions stemming from the pandemic. These industries all lost businesses and the accompanying jobs over this period.
- As the economy has rebounded, many businesses in these service industries have struggled to find sufficient new staff with the proper skills to return to full capacity. It appears that many prior workers in these industries transitioned to new types of employment, are hesitant to return to work, or have left the workforce altogether.

As the economy reopens and recovers, there is expected to be more vacant commercial real estate available, including spaces that retain full tenant improvements such as those for restaurant use. The misfortune of some businesses over the prior year may provide affordable opportunities for new businesses to grow in their place. Some large-format spaces, such as big box stores, movie theaters and shopping centers may face long term vacancies as they are more difficult to re-tenant.

Statewide Employment Projections: pandemic triggered an unprecedented contraction of economic activity. While over 70% of employment losses in the state have been reversed, the short- and mid-term prospects for the economy will be heavily dependent upon the speed of the continuing recovery. As of Fall 2021, trends in employment growth, consumer, and travel spending, shrinking unemployment rolls, and vaccination rates continue to point to a potentially robust reversal of the prior year's losses.

FIGURE 3.06: EMPLOYMENT PROJECTIONS, STATE OF OREGON



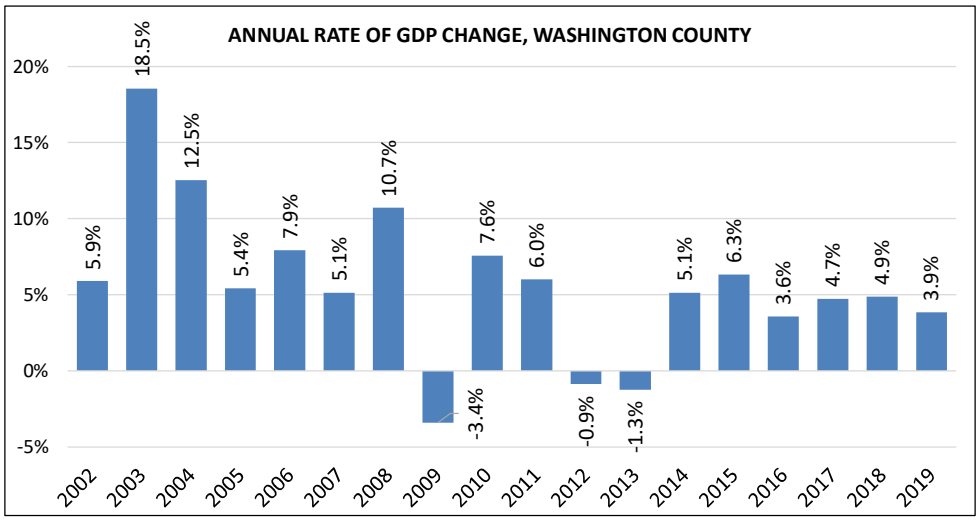
SOURCE: JOHNSON ECONOMICS

The State of Oregon projects a return to pre-pandemic employment levels will be achieved by Spring or Summer of 2022, but there is increased uncertainty regarding this forecast. One potential scenario is that most of the prior employment is recovered relatively quickly, while restoring the final 5% to 10% takes longer.

WASHINGTON COUNTY ECONOMIC TRENDS

GDP: Washington County recorded strong growth during the recent expansion cycle, with the annual rate of GDP change in the County averaging nearly 5% since 2014. After rebounding strongly from the recession of 2009, the County experienced flat growth in 2012 and 2013. In general, the 2010's experienced more moderated GDP growth than the 2000's which experienced some years of double-digit expansion.

FIGURE 3.07: ANNUAL RATE OF GDP CHANGE, WASHINGTON COUNTY



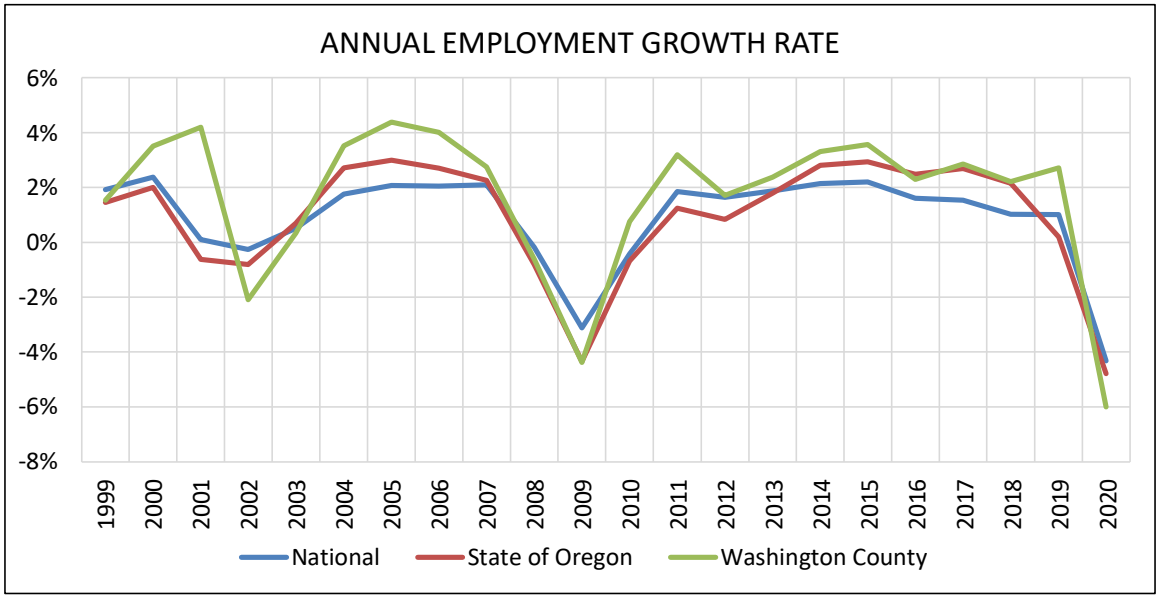
SOURCE: US Bureau of Economic Analysis

These data do not yet reflect the recession of 2020, in which the County is presumed to have experienced highly negative GDP in keeping with the national trend. While the impacts of the prior year are important, there currently is no reason to assume that broad economic trends will not revert to prior trendlines as the recovery takes hold and returns the country to low unemployment and economic growth. Given the long-term planning horizon of this analysis, a longer-term focus is ultimately more appropriate.

County Employment: Over the last two decades, Washington County has generally experienced a higher employment growth rate than the state or nation. The County also experienced a greater rate of job loss in the major recessions of 2001 and 2009, but the downtrends were short-lived. (Figure 3.08)

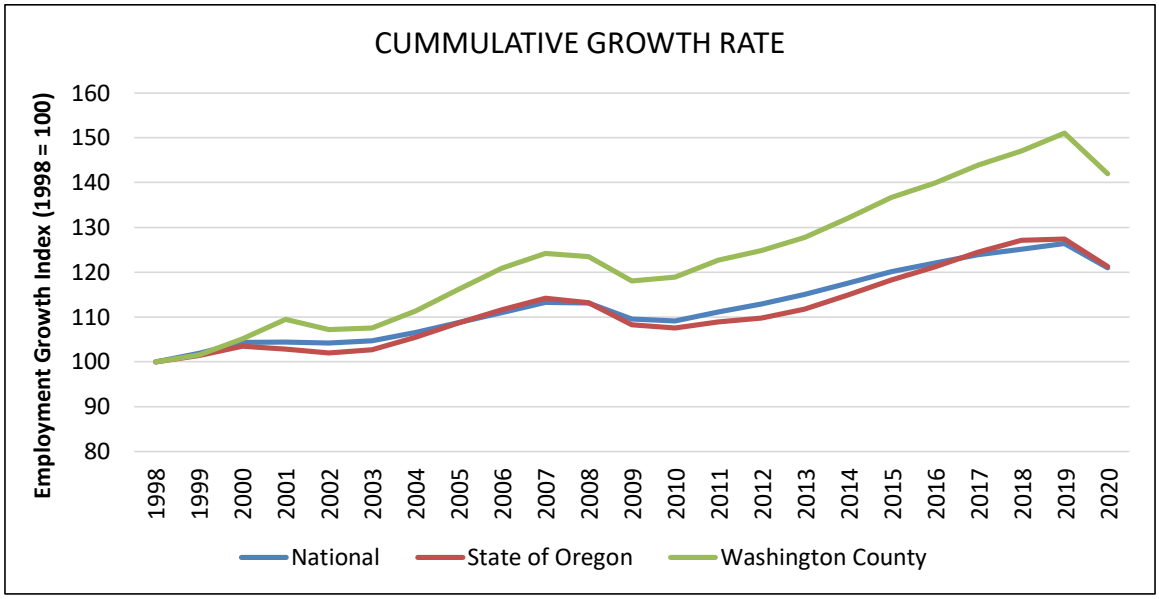
The cumulative impact of this growth was an over 50% expansion in the local employment base since 1998 in Washington County by 2019 (from 246k jobs to nearly 400k jobs). The County's cumulative growth was twice the relative growth in state or national employment (Figure 3.09). However, employment was estimated to fall by 6% in the County in 2020 due to the disruption of the pandemic, losing roughly 40,000 jobs. Since the low, it is estimated the county has regained nearly 30,000 jobs as of Fall of 2021.

FIGURE 3.08: COMPARISON OF ANNUAL EMPLOYMENT GROWTH RATES (COUNTY, STATE, NATION)



SOURCE: U.S. Bureau of Economic Analysis, JOHNSON ECONOMICS

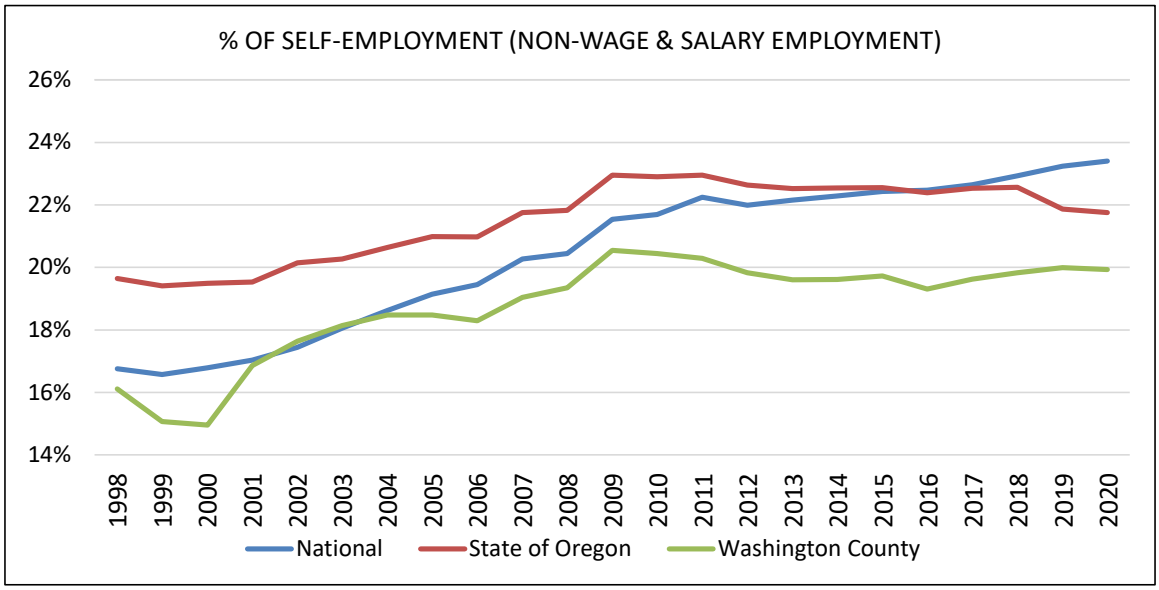
FIGURE 3.9: CUMULATIVE EMPLOYMENT GROWTH (1998 = 100) (COUNTY, STATE, NATION)



SOURCE: U.S. Bureau of Economic Analysis, JOHNSON ECONOMICS

The employment base in Washington County has a lower share of self-employed workers than the state and national averages, at roughly 20%, compared to 22% and 23% respectively. The somewhat lower level of self-employment in Washington County is likely due to the number of large established employers in the county. Wage and salary employment accounts for roughly 80% of overall estimated employment in the county, compared to roughly 77% statewide and nationally.

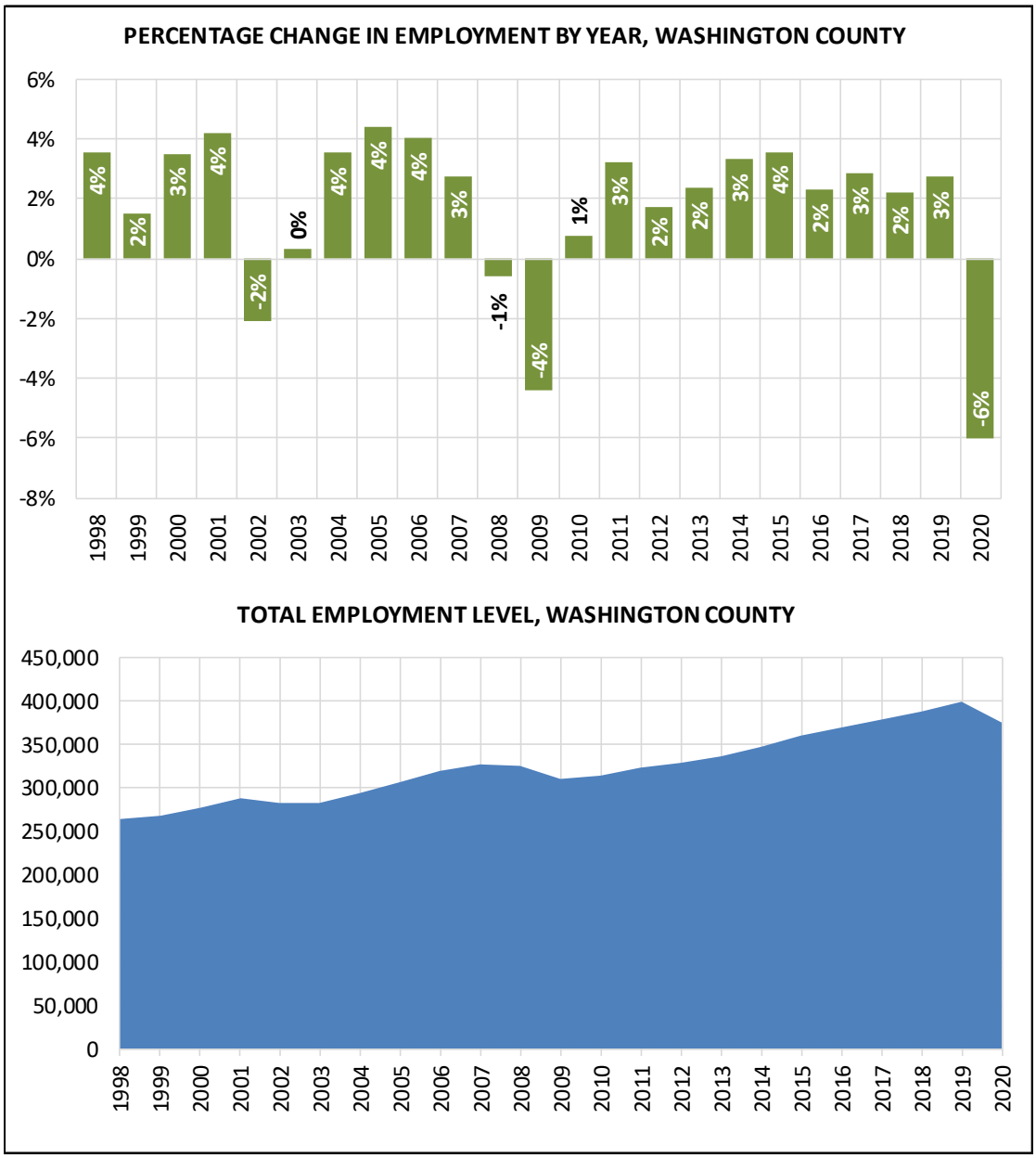
FIGURE 3.10: % OF TOTAL EMPLOYMENT REPRESENTED BY SELF-EMPLOYMENT (COUNTY, STATE, NATION)



SOURCE: U.S. Bureau of Economic Analysis, JOHNSON ECONOMICS

Countywide employment growth was robust over the last decade through 2019, with the county recovering the total job losses from the 2008 national financial crisis within three years (Figure 3.11). From 2011 through 2019, the County averaged 3% job growth per year, outpacing the average annual population growth in that period (1.2%).

FIGURE 3.11: WASHINGTON COUNTY EMPLOYMENT TRENDS

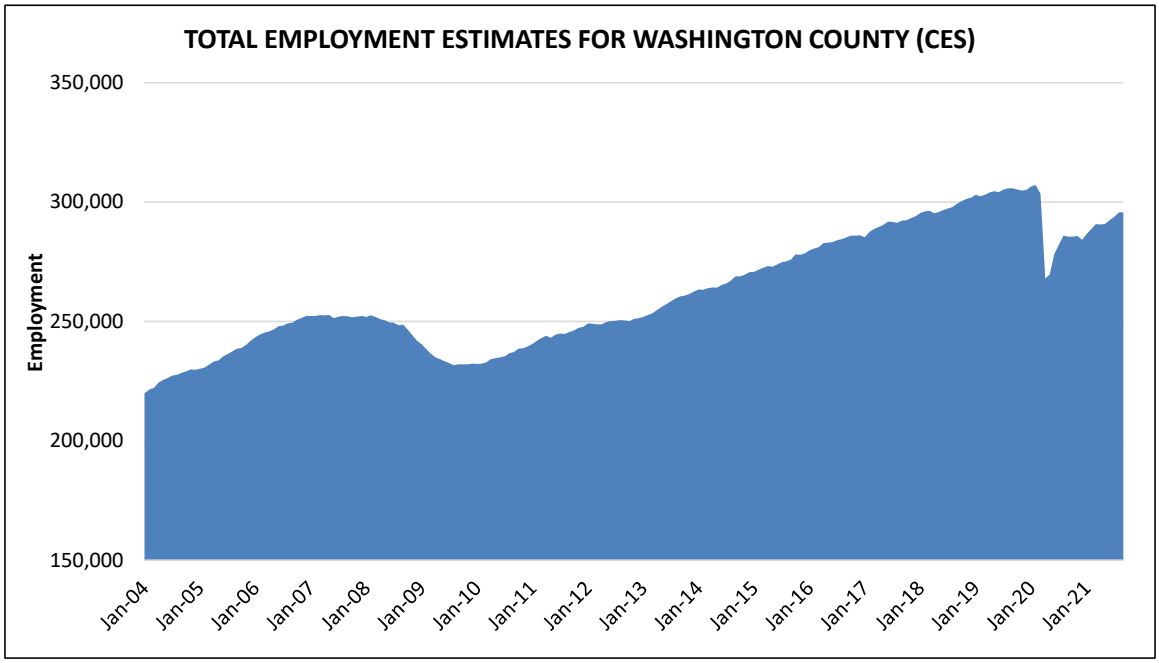


SOURCE: U.S. Bureau of Economic Analysis

Monthly Current Employment Statistics (CES) data and unemployment data provide a more current picture of the economic impacts of the pandemic in Washington County. Following the national trend, the impacts on employment were pronounced.

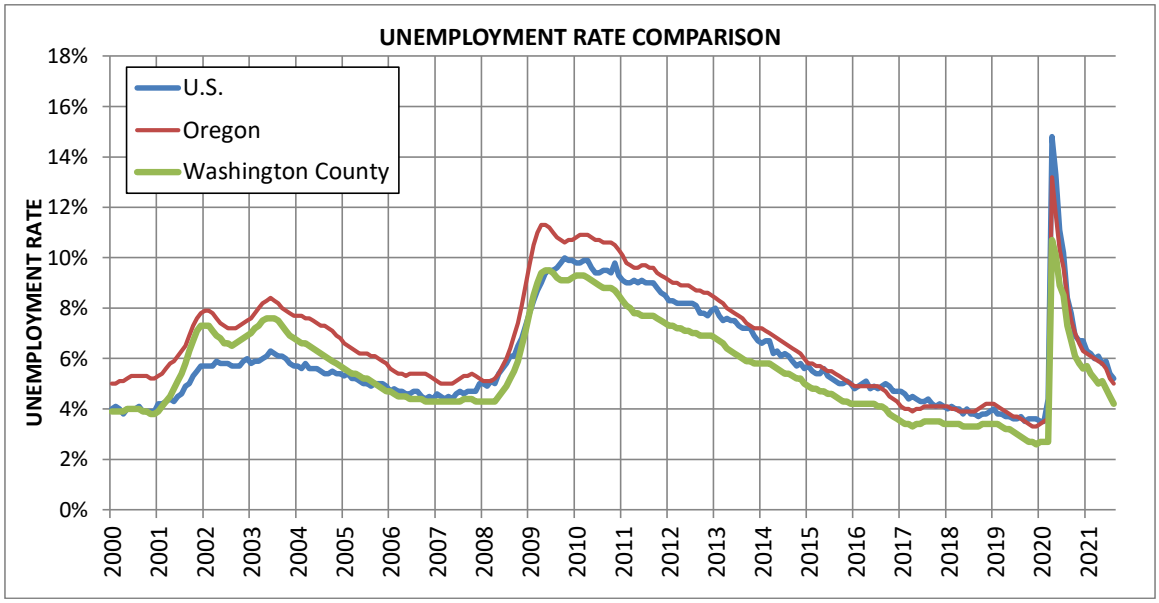
Initial estimates are that the county lost nearly 40,000 jobs (13%) from the high point in February 2020 to April 2020. Tepid job growth resumed the next month and has continued since, other than a small dip in December. (CES data excludes government, farm, and self-proprietor employment and therefore the total employment shown here differs from the total employment shown in the prior tables. Therefore, CES trends may best be seen as an indicator of the magnitude of employment trends, rather than quantity.)

FIGURE 3.12: WASHINGTON COUNTY EMPLOYMENT LEVEL BY MONTH



SOURCE: Oregon Employment Department, JOHNSON ECONOMICS

FIGURE 3.13: COMPARISON OF UNEMPLOYMENT RATE TRENDS



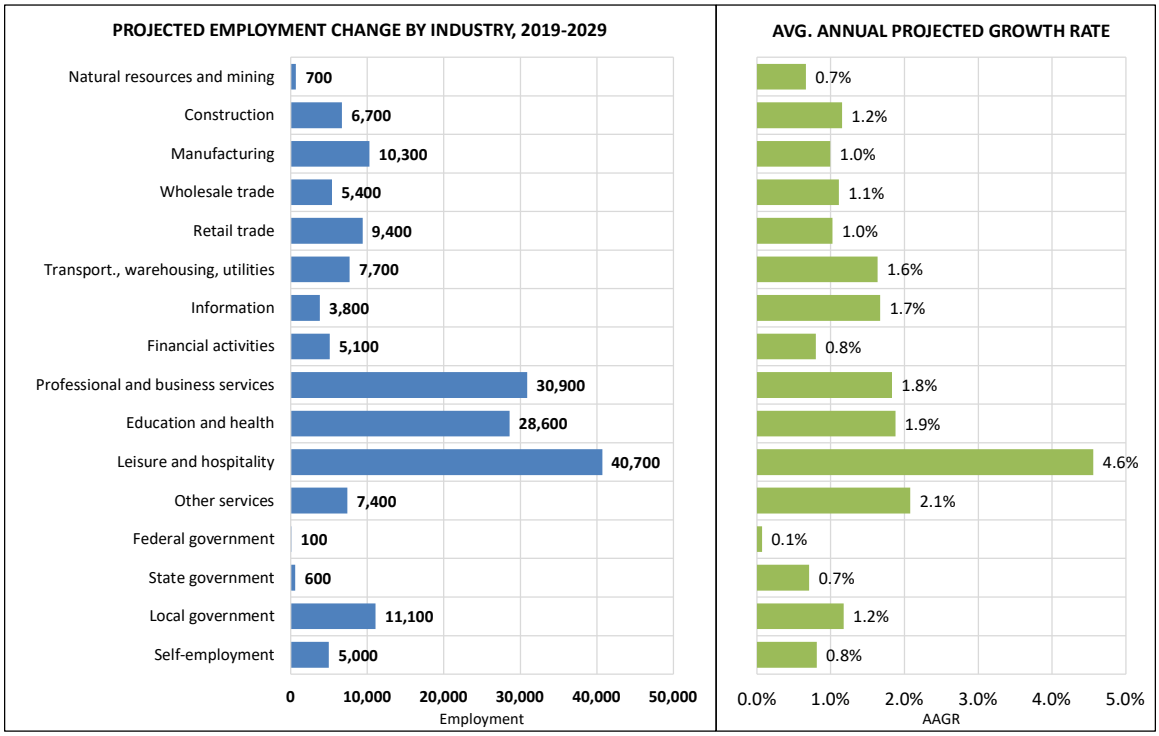
SOURCE: St. Louis Federal Reserve, JOHNSON ECONOMICS

Unemployment: After climbing to nearly 10% in 2009, the unemployment rate in Washington County fell steadily to 2.7% by early 2020, lower than the statewide or national rates. The sudden economic impact of the pandemic caused the unemployment rate to suddenly spike in April 2020 to nearly 11%, still lower than the rate at the state (13%) and national level (15%). At the peak of unemployment, over 25,000 Washington County workers claimed unemployment benefits.

Since then, unemployment has steadily fallen to an estimated at 4% (seasonally adjusted) by September 2021. This is a swift recovery, and an unemployment rate of 4%, while higher than the historically low pre-pandemic rate, is approaching what would be considered a healthy rate even in a strong economy. As the economic recovery continues, this rate should be expected to continue falling, while the recently reported hiring woes of employers indicate that many of these workers will return to employment at higher wage levels.

Industry Growth Forecast (Metro): The State of Oregon employment forecasts groups Washington County with Multnomah and Clackamas Counties into the broader Metro area. The most recent forecast anticipates a gain of over 173k jobs from 2020 through 2030, reflecting an average annual growth rate of 1.6% during the period. The forecasted rate would seem low considering recent growth in Washington County, a year of growth has been lost due to the pandemic.

FIGURE 3.14: PROJECTED EMPLOYMENT GROWTH BY SECTOR (2020-2030)
WASHINGTON, MULTNOMAH & CLACKAMAS COUNTIES



SOURCE: State of Oregon Employment Department, Workforce and Economic Research Division

All industry sectors are forecast to expand over the next decade. Those forecast to grow at a higher-than-average rate are leisure and hospitality (tourism), professional services, education and health services, information, and transportation, warehousing and utilities. Sectors projected to grow slower than the average rate of 1.6% include construction, manufacturing, retail, and government.

On an absolute basis, the greatest number of new jobs are forecast in tourism-related industries, professional services, education and health services. The strong growth in tourism is mostly due to the

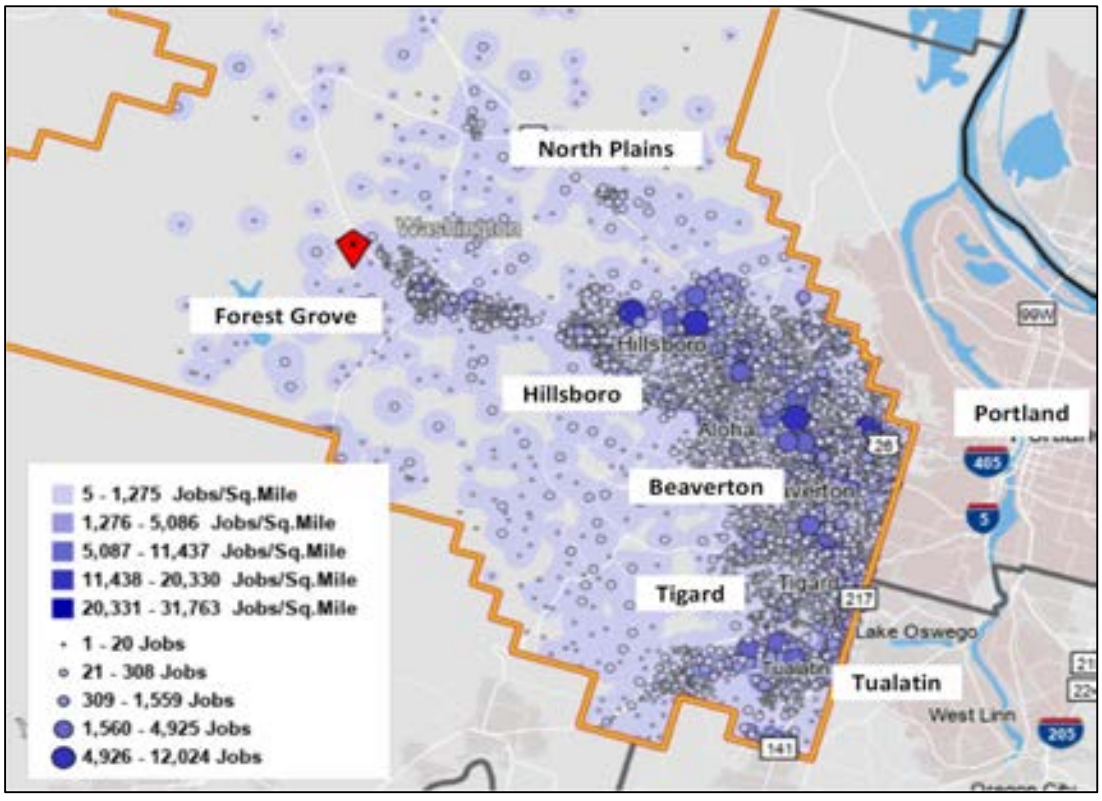
depressed starting point during the 2020 pandemic, when this industry was particularly devastated by business and travel shutdowns.

CITY OF NORTH PLAINS ECONOMIC TRENDS

Employment Distribution & Commuting (City): The distribution of employment in Washington County is concentrated within the UGB of the Portland Metro area. The greatest shares of county employment are found in Hillsboro (29%) and Beaverton (25%) which are home to the county's largest employers. North Plains is home to less than 1% of county employment.

Within North Plains, employment tends to be concentrated along the NW Commercial St. and NW Glencoe Rd. corridors, though recent employment growth in North Plains has been focused on industrial land along West Union Road towards Jackson School Road.

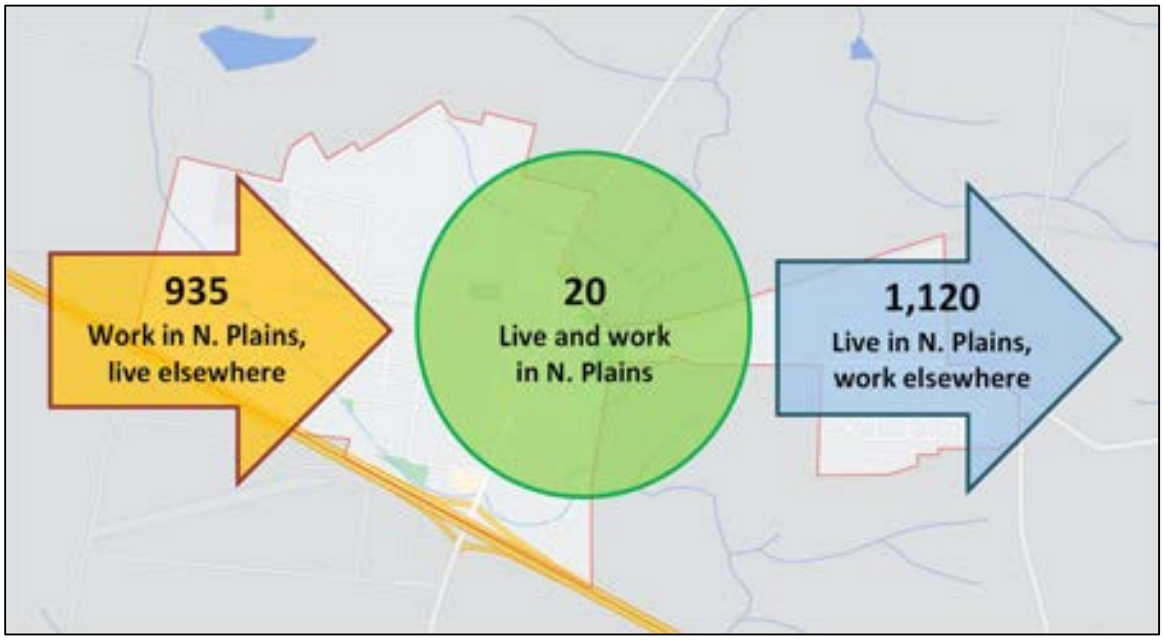
FIGURE 3.15: DISTRIBUTION OF EMPLOYMENT, WASHINGTON COUNTY, 2019



SOURCE: Census Bureau, LEHD Data

Figure 3.16 shows the inflow and outflow of commuters to North Plains according to the Census Employment Dynamics Database. These figures reflect "covered employment" as of 2019, the most recent year available. Covered employment refers to those jobs where the employee is covered by federal unemployment insurance. This category does not include many contract employees and self-employed and therefore is not a complete picture of local employment. The figure discussed here is best understood as indicators of the general pattern of commuting and not exact figures.

FIGURE 3.16: COMMUTING PATTERNS (COVERED EMPLOYMENT), CITY OF NORTH PLAINS, 2019



SOURCE: Census Bureau, LEHD Data

As of 2019, the most recent year available, the Census estimated there were roughly 955 *covered* employment jobs located in North Plains. Of these, *only an estimated 20 or 2%, are held by City residents, while over 900 employees commute into the city from elsewhere. The near total turnover of the local workforce is particularly stark here.* The most common homes of workers commuting into the city are Hillsboro, Portland, and Beaverton.

Similarly, of the estimated 1,140 employed North Plains residents (covered employment), 98% of them commute elsewhere to their employment. The most common destinations for North Plains commuters are also Hillsboro, Portland, and Beaverton, followed by Tualatin and Forest Grove. Over a quarter of these workers commute to Hillsboro (27%), and nearly a fifth commute to Portland (18%).

Implications: Commuting patterns are an important element in the local economy. Based on these Census estimates, North Plains experiences nearly total turnover of its working population, with local residents commuting to find appropriate employment, and the local workforce commuting from elsewhere. This pattern indicates why encouraging a range of local employment and transitioning from being a purely bedroom community is the first listed economic development priority adopted by local officials.

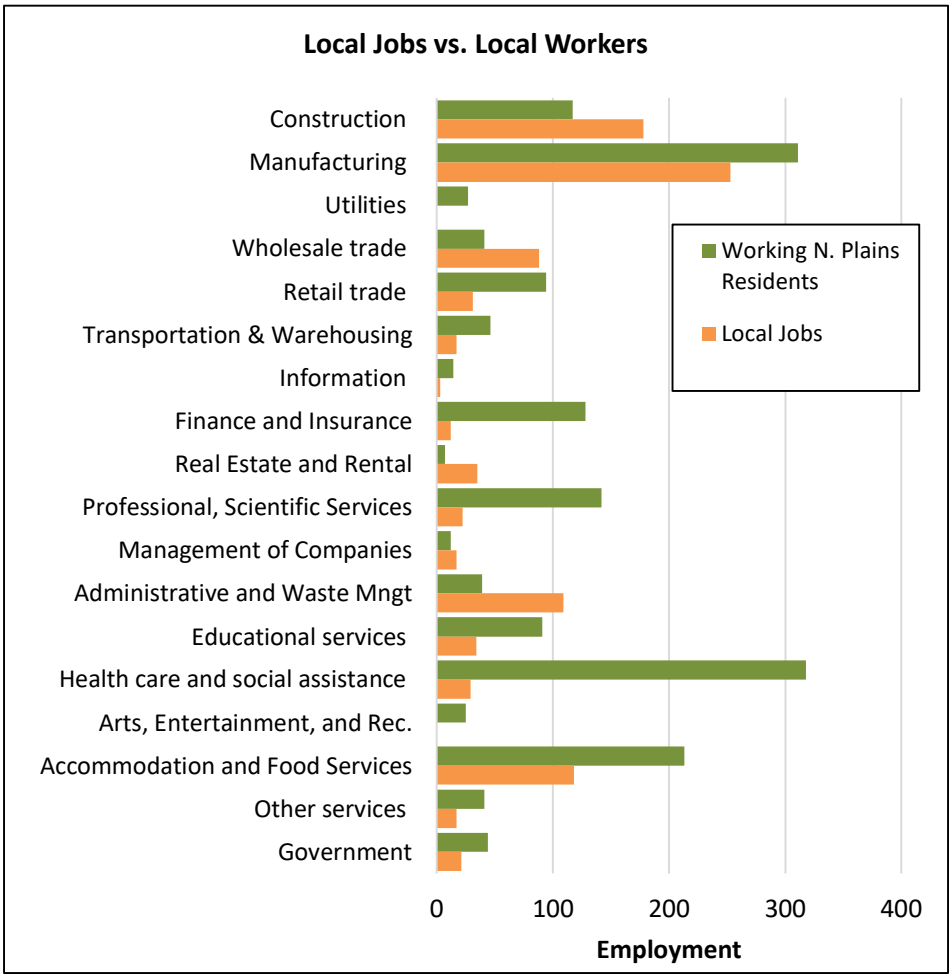
Local Employment Compared to Local Workers (City): Figure 3.17 shows a comparison of the estimated distribution of locally available employment by industry sector, and the estimated distribution of jobs that local North Plains residents hold (inside and outside the community) by industry sector.

This employment data includes non-covered employment, and therefore these figures present a more complete picture of total employment in North Plains. The profile of local jobs by industry is based on Quarterly Census of Employment and Wages (QCEW) data provided by the Oregon Employment

Department for the year 2020. Estimates of the industries in which local residents work (inside and outside the city) are based on Census data from 2019.

The data show that the employment available locally trails the number of local residents who work in those industry sectors. The exceptions are in construction, wholesale trade, real estate, and waste management where the local employment exceeds the number of local residents who work in those sectors. Industries in which residents work that are relatively unavailable in North Plains are manufacturing, professional occupations, health care, retail, and tourism. As we've seen, it is most common for workers to commute to employment outside of the city, in part because in many industry sectors local employment is unavailable closer to home.

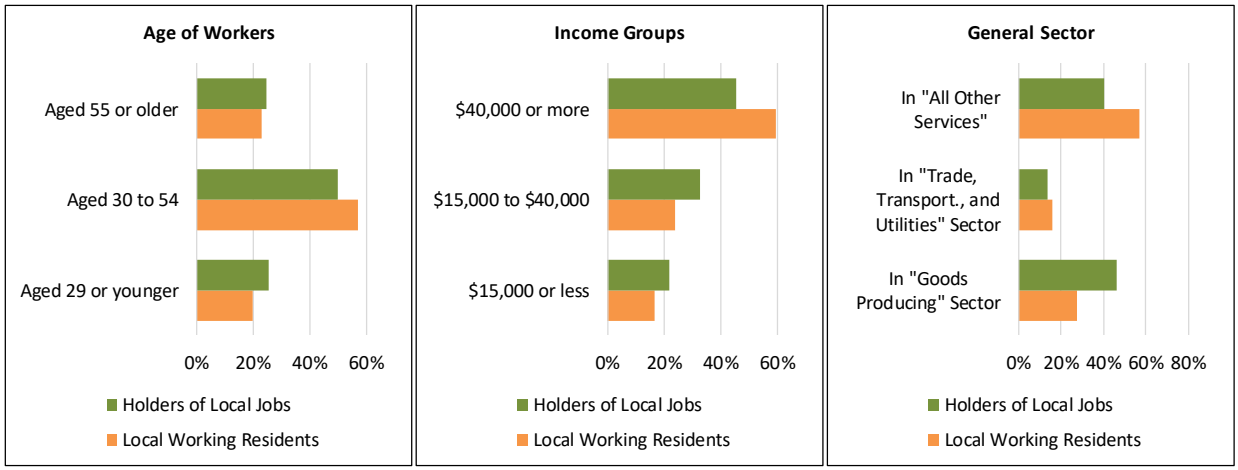
FIGURE 3.17: COMPARISON OF NUMBER OF LOCAL JOBS TO LOCAL WORKFORCE, BY INDUSTRY



SOURCE: Census Bureau, LEHD Data, Oregon Employment Department

The characteristics of the workforce commuting into and out of North Plains were similar in terms of incomes and age (Figure 3.18). Working North Plains residents are slightly more likely to be 30 years or older, and more likely to earn more than $40,000. (These are the broad categories provided by this Census data set.)

FIGURE 3.18: NET INFLOW-OUTFLOW DETAIL, CITY OF NORTH PLAINS AND WASHINGTON COUNTY, 2019



SOURCE: Census Bureau, LEHD Data

Jobs-to-Worker Ratio: There are an estimated 1,150 total local jobs (covered and non-covered[4]), and 1,730 working North Plains residents. This indicates *a ratio of 0.65 local jobs for each local working resident.* Or stated conversely, there are 1.5 local workers for each available local job. This indicates that to achieve a jobs-to-worker balance of one-to-one in the community today, there is a ***current deficit*** of roughly 580 jobs in North Plains. However, *eliminating that deficit will require providing new local jobs for residents who commute to work outside of the city*, jobs that are at least similar or comparable in type and salary to the jobs they currently hold elsewhere.

Jobs-to-Household Ratio: North Plains has an estimated 1,075 households, indicating a jobs-to-household ratio of 1.1 jobs per household, or roughly one job per household. However, in North Plains, each household has an average of 1.6 working members.

POPULATION AND WORKFORCE

The City of North Plains has an estimated population of 3,360 as of 2020 according to the PSU Population Research Center (Figure 3.19).

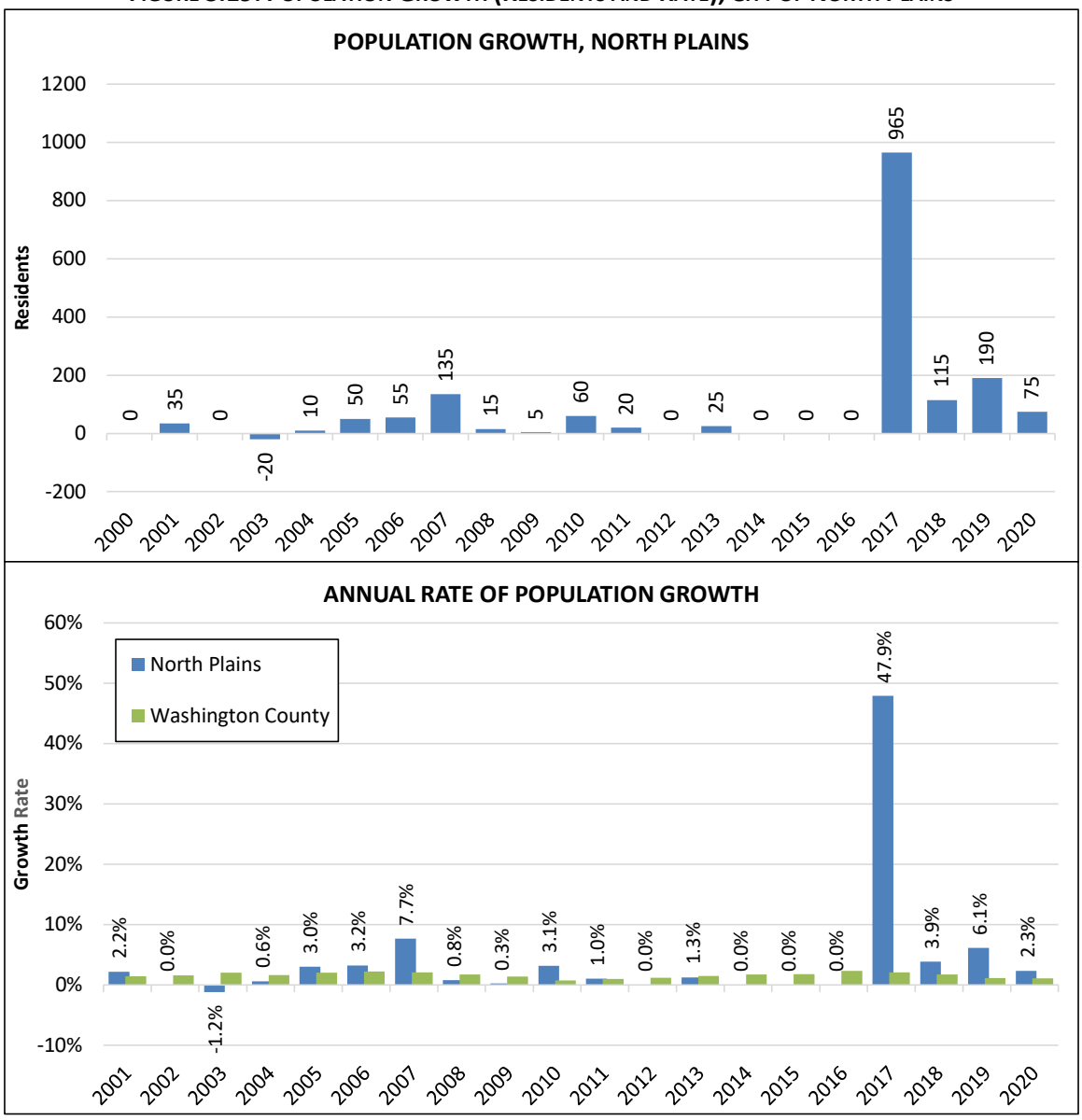
Population growth as tracked by PSU is very irregular year-to-year which is attributable to a reporting error that undercounted population growth for many years. The mistake was corrected in the 2017 estimate showing a jump in population of over 900 residents in one year, that was in fact spread over many years. Therefore, the data presented in Figure 3.19 is greatly distorted.

Comparing decennial Census estimates provides more reliable picture of population growth. Since 2000, North Plains has grown by an estimated 107% from 1,625 residents to 3,360 over two decades. This is an annual average growth of 87 residents or 4% per year. The state and county experienced annual growth of 1.1% and 1.7% respectively, over this period.

[4] The methodology to calculate total 2021 employment, including covered and non-covered employment is outlined in Section VI.

However, most of this growth has occurred over the last decade. The Census estimates North Plains grew 75% between 2010 and 2020. The city grew at nearly 6% per year, adding an average of 147 new residents each year.

FIGURE 3.19: POPULATION GROWTH (RESIDENTS AND RATE), CITY OF NORTH PLAINS



SOURCE: Population Research Center, Portland State University

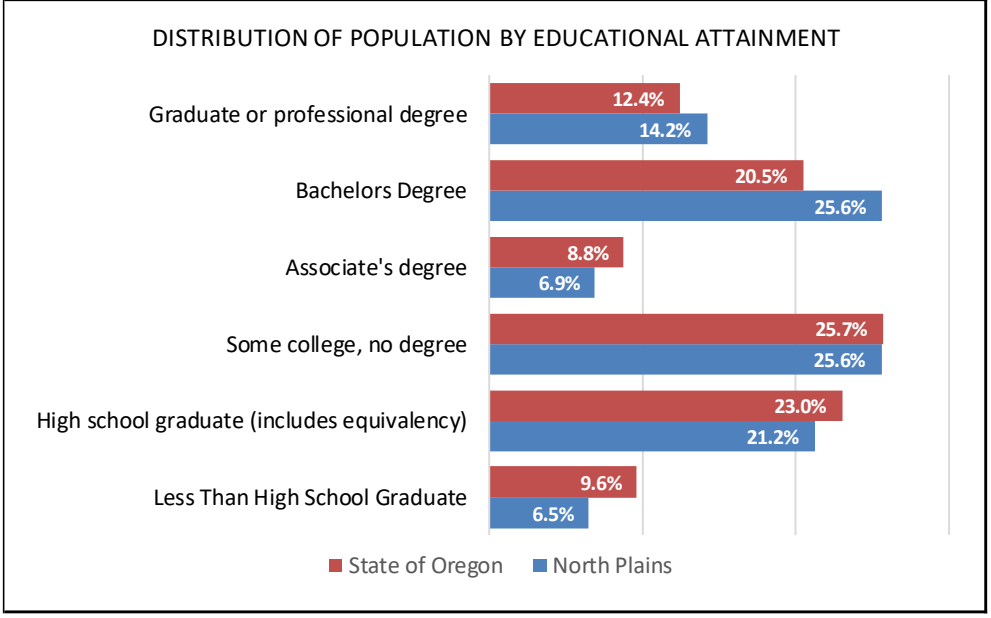
The educational attainment level of residents in the City of North Plains varies from the statewide pattern, with a higher level of city residents having bachelor's or advanced degrees. Of an estimated 1,975 persons 25 years or older in the City of North Plains, an estimated 47% have an associate degree or higher. This compares to a 42% rate for Oregon. This represents a likely competitive advantage for the city, as an educated population attracts employers, retail and services, and other economic activity.

This also suggests that more highly educated City residents will seek local work opportunities that are commensurate with their education levels, training and/or experience: jobs that currently do not exist in North Plains. The lack of such available jobs helps explain why a considerable number of City residents work elsewhere in the County.

Working with community colleges and other partners on on-going education, workforce development and distance learning opportunities may also be an important part of a local economic development strategy to train segments of the workforce with lower educational attainment in the skills that local industries need.

FIGURE 3.20: EDUCATIONAL ATTAINMENT PROFILE, 2019
(POPULATION 25 YEARS AND OLDER)

	North Plains		State of Oregon	
	Count	%	Count	%
Less Than High School Graduate	128	6.5%	274,182	9.6%
High school graduate (includes equivalency)	419	21.2%	656,365	23.0%
Some college, no degree	505	25.6%	732,477	25.7%
Associate's degree	136	6.9%	249,852	8.8%
Bachelors Degree	506	25.6%	583,144	20.5%
Graduate or professional degree	280	14.2%	354,673	12.4%
Total	1,974		2,850,693	



SOURCE: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

IV. COMMUNITY ECONOMIC DEVELOPMENT POTENTIAL

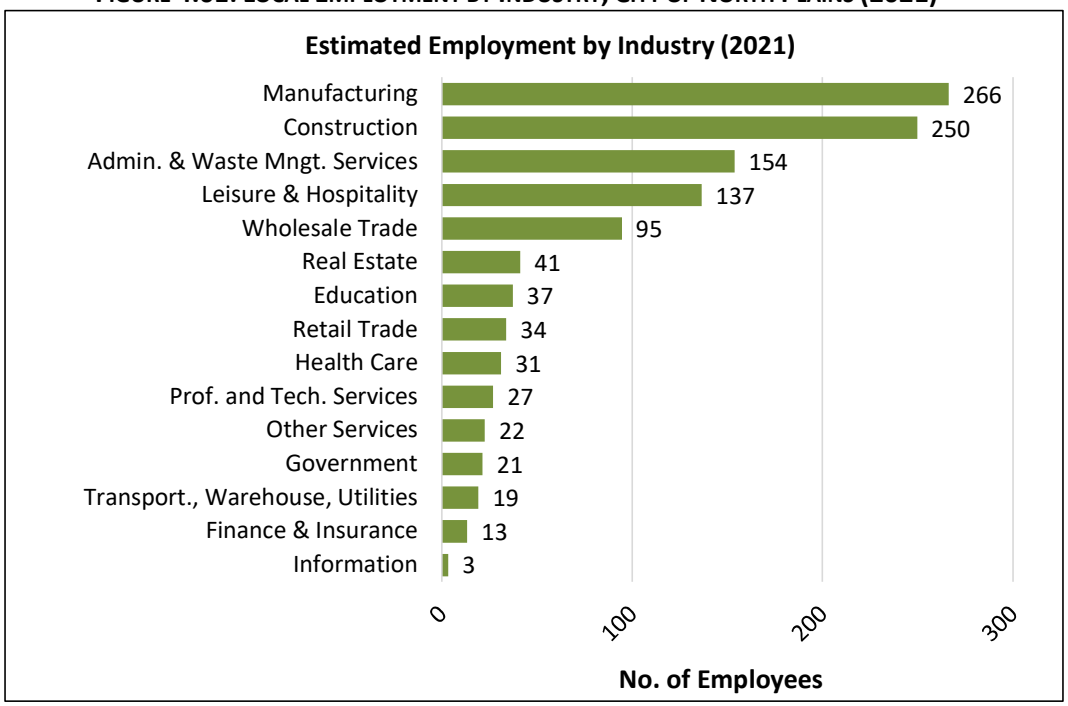
This Economic Opportunities Analysis presents a profile of current employment and employers in North Plains, and the community's economic development advantages.

LOCAL EMPLOYMENT SNAPSHOT

North Plains features an estimated 1,150 jobs within its corporate boundaries as of 2021. The distribution of current industrial employment is indicative of past and present trends, but as discussed in this report, does not necessarily form a good match with the city's current working population, or the City's economic development goals for its future.

The following table presents the North Plains major industry sectors and estimated number of employees. This reflects current employment patterns, but not necessarily future employment patterns.

FIGURE 4.01: LOCAL EMPLOYMENT BY INDUSTRY, CITY OF NORTH PLAINS (2021)



Source: Johnson Economics, Oregon Employment Department, BEA

Figure 4.02 presents the past growth in employment in North Plains by major industry sector since 2010 according to QCEW data provided by the Oregon Employment Department. Since 2010, the greatest employment growth was seen in the waste management, manufacturing, and wholesale trade industries. Many other sectors experienced falling employment over this period, led by the government and construction sectors.

FIGURE 4.02: EMPLOYMENT BY INDUSTRY, PRIVATE SECTOR, NORTH PLAINS (2010 - 2021)

Major Industry Sector (Private)	QCEW Employment		Employment Growth '10-'21	
	2010 Employment	2021 Employment	New Jobs	% Growth
Construction	277	250	(27)	-10%
Manufacturing	213	266	53	25%
Wholesale Trade	60	95	35	58%
Retail Trade	26	34	8	30%
Transport., Warehouse, Utilities	8	19	11	139%
Information	0	3	3	100%
Finance & Insurance	8	13	5	66%
Real Estate	14	41	27	194%
Professional & Technical Services	3	27	24	795%
Admin. & Waste Mngt. Services	57	154	97	170%
Education	22	37	15	69%
Health Care	33	31	(2)	-6%
Leisure & Hospitality	120	137	17	14%
Other Services	14	22	8	60%
TOTAL	**929**	**1,150**	**221**	**24%**

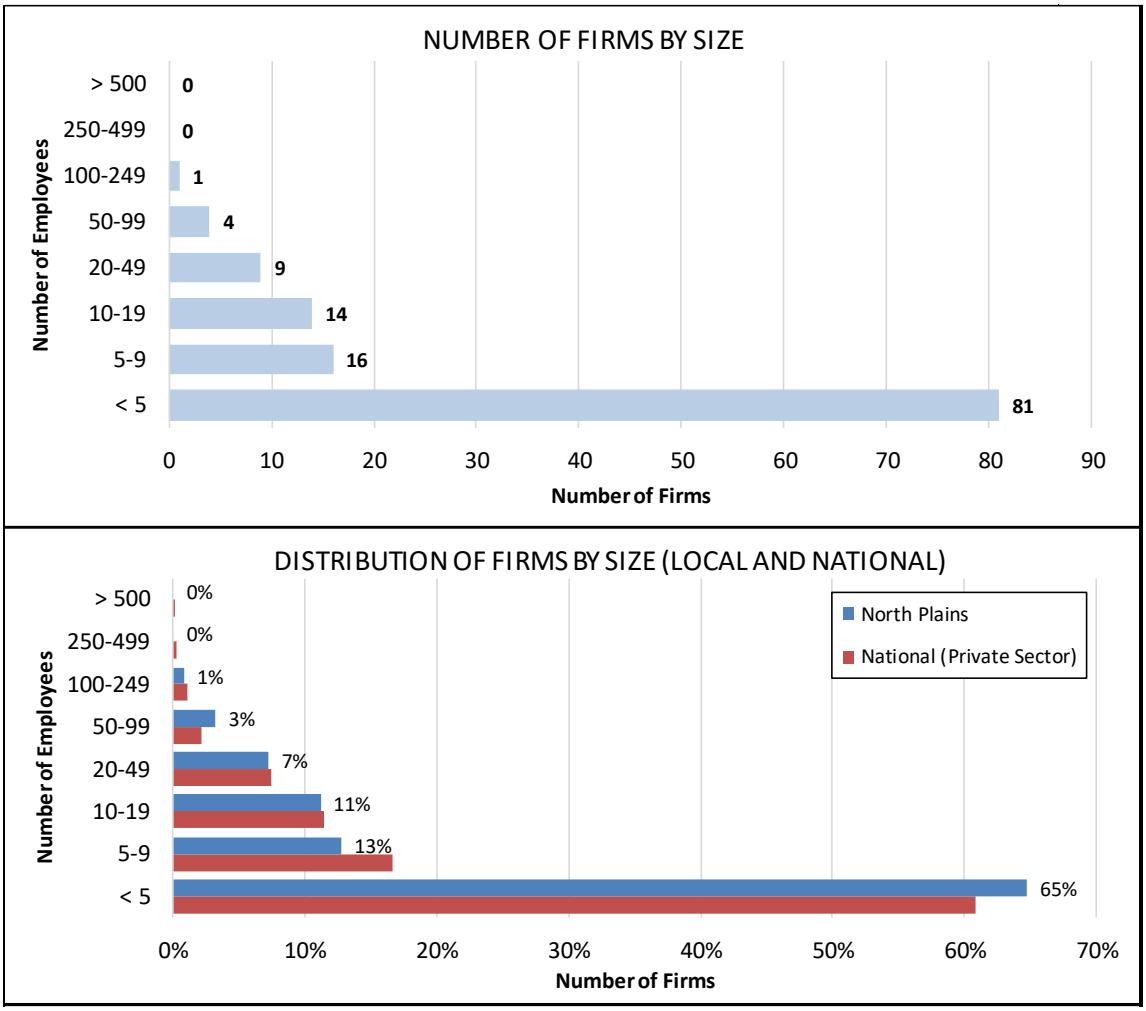
Source: Oregon Employment Department

CHARACTERISTICS OF LOCAL FIRMS

The local employment base is largely dominated by small employers of fewer than five employees (65% of firms), which is a common pattern across many markets (see Figure 4.03, following page). There is one employer of over 100 or more employees, and 4 with between 50 and 100 employees. Compared to national averages, North Plains has a slightly larger share of firms with fewer than five employees, and slightly smaller share of firms with 5 to 9 employees.

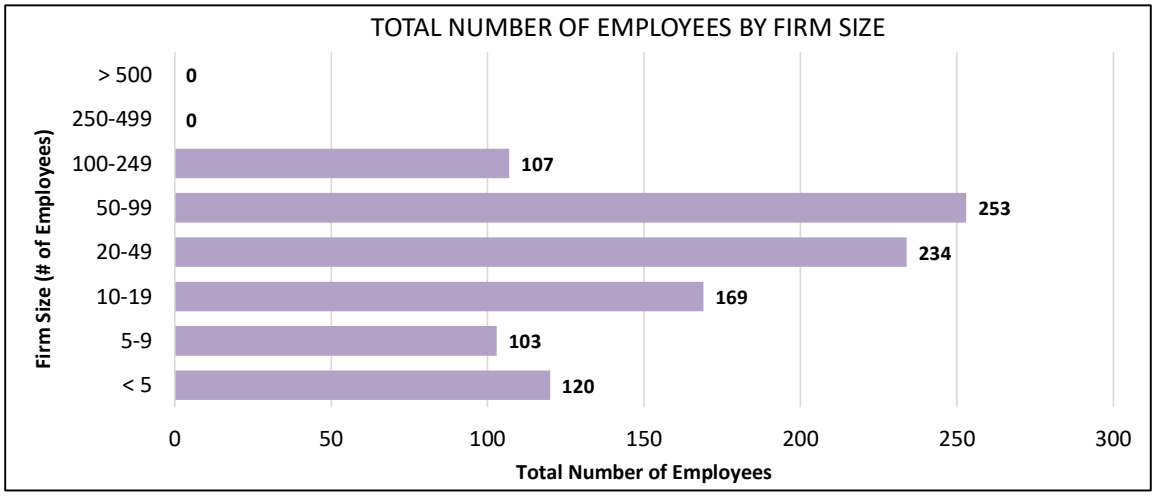
Figure 4.04 (following page) presents *the estimated number of employees* in the firms within the different size categories. While there are relatively few larger employers, they still represent a significant share of overall employment due to their high number of employees.

FIGURE 4.03: DISTRIBUTION OF CURRENT FIRMS BY SIZE, NORTH PLAINS OREGON



Source: Oregon Employment Department

FIGURE 4.04: DISTRIBUTION OF EMPLOYEES BY FIRM SIZE, NORTH PLAINS OREGON



Source: Johnson Economics, Oregon Employment Department

NORTH PLAINS: STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

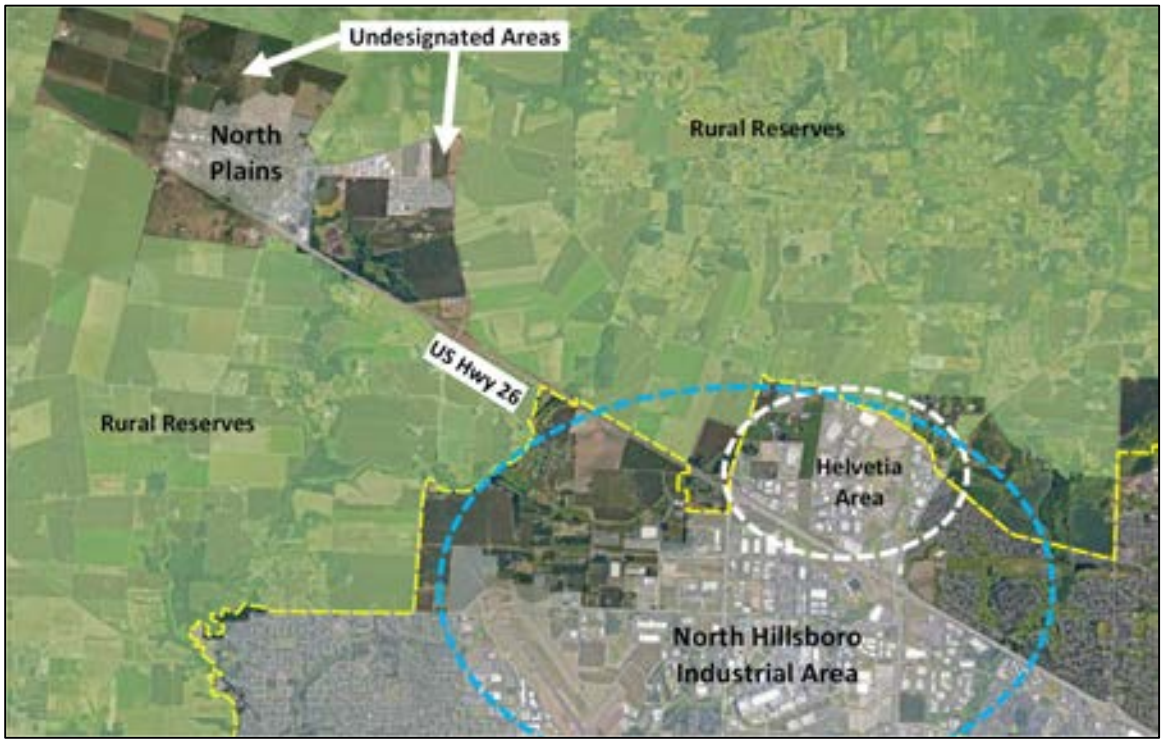
Based on this analysis and input from North Plains stakeholders, and real estate, industry, and site selection specialists the following are the City's economic development strengths, weaknesses, and opportunities.

STRENGTHS

Land need and opportunity findings of the Oregon Semiconductor Competitiveness Task Force underscore the unique strengths of the City of North Plains as part of the future of Oregon's semiconductor and supply chain industry by virtue of proximity to the existing industry cluster, direct transportation access to Highway 26 from North Plains, and being within the Silicon Forest job shed and a growing bedroom community of tech industry workers, among others. A summary of those findings can be found in Appendix D of this EOA.

- **Proximity to Oregon's largest and growing employment centers:** North Plains is located very close to existing high-tech "Silicon Forest" companies in western Washington County. The area is home to a large cluster_of_semi-conductor and advanced manufacturing companies, as well as supporting suppliers, parts manufacturers, packing companies, and other industrial employers. The area is also home to an emerging large data centers cluster. These industry clusters have continued to grow quickly over the past two decades with some of the largest, highest-paying, most advanced employers in Oregon. Demand for more suitable and readily available large, mid-size and smaller sites for such companies continues throughout the region and, especially in the western Washington County industrial areas 'next door" to North Plains. This area continues to be one of the state's largest economic engines and the prime location for large, emerging and, modern industrial companies.
- **The western Washington County "Path of Growth"**: North Plains is located roughly four miles, or a few-minutes' drive from the North Hillsboro industrial area where available parcels of land rapidly develop once they're served by infrastructure. That location puts it in the westerly growth path of these industrial clusters. As existing industrial land supply is built out or is constrained by a variety of regulatory or rural residential property ownership challenges, new employers seeking sites in this cluster will reasonably look to available industrial sites in North Plains as demonstrated by recent industrial inquiries made to the City.

FIGURE 4.05: "PATH OF GROWTH" WEST WASHINGTON COUNTY INDUSTRIAL ENVIRONS



Source: Johnson Economics, Metro RLIS

- **Transportation access via U.S. Route 26.** North Plains' direct access to US Highway 26 via the Glencoe Road and Evergreen Road Interchanges, and a potential third Interchange at Dersham Road, will connect its industrial companies directly to the state's highway network, provide quick access to the Silicon Forest companies, and reasonably quick access to Beaverton and central Portland. The broader I-5 corridor and Willamette Valley are accessible via multiple routes from US 26. The location also makes North Plains a gateway to the Oregon Coast. The Hillsboro Airport is located roughly 7 miles to the southeast, while the PDX is an estimated 30-to-45-minute drive from North Plains in low traffic.
- **Relatively affordable housing**. In comparison with nearby cities, North Plains' real estate market is relatively affordable. North Plains has a supply of new housing from recent development that helps to meet the demand from more constrained cities nearby. Available, quality housing for employees is a competitive advantage for recruiting businesses.
- **Agriculture**. North Plains is located in an agricultural region, with a diverse offering of agricultural products including fruits, wheat, wine, and nursery plants. The nearby agricultural activity as well as such activities throughout the extensive, protected farmland within Washington County's Rural Reserves designated areas provide inputs for locally produced food and beverage products.
- **High quality of life.** North Plains' accessible size and proximity to rural areas and outdoor recreation activities make it a desirable place to live. The city's size and setting distinguish it from communities in the combined Metro UGB nearby and will appeal to a subset of employers and workers.

WEAKNESSES

- **Lack of local commercial services.** North Plains has lacked a full-service grocery store and some other types of retail services that are needed to accommodate the convenience retail and business services needs of it rapidly growing population and expanding residential neighborhoods. North Plains residents must go elsewhere for regular shopping for many daily needs. However, there is a current initiative that will likely bring a grocer and additional retail to the city, which makes this also a key opportunity for near-term improvement (see below).
- **Fiscal constraints and lower level of public services.** North Plains has only recently undergone dramatic population growth for its size and the City is trending towards bedroom community status until it can pay for higher levels of services common to other competitive communities.
- **Car-centric transportation options.** Lack of sidewalks in some parts of downtown make North Plains less friendly to pedestrians. Transit options are limited but being explored contingent upon the addition of higher-density housing and population.
- **Limited commercial space or professional office space.** North Plains' business district has relatively little commercial or professional office space. The lack of suitable space makes it difficult to attract these types of businesses. Additional sites and developed commercial real estate will likely be necessary to expand sectors that use modern commercial service or office space.
- **Distance and access to I-5.** Although North Plains has excellent automotive access through U.S. Route 26, it is relatively far from I-5. This makes North Plains less competitive in attracting businesses that rely on trucking or access to major markets along I-5. North Plains is also somewhat remote from Portland International Airport. However, it shares these disadvantages with the North Hillsboro area which has been very successful in attracting large new high-wage businesses that rely on air shipment of goods and travel.
- **No Enterprise Zones.** North Plains does not utilize enterprise zone tax exemptions in its industrial areas. Until a zone is established, the City is at a competitive disadvantage for attracting businesses that purchase expensive equipment with rapid depreciation and quick replacement.
- **Electronic Commerce City.** The City of North Plains is the State of Oregon's only "E-Commerce City." The E-Commerce Zone designation this grants to the entire City and land within its UGB functions very similarly to a traditional Enterprise Zone incentive managed by the Oregon Business Development Department. As such, employers within the City of North Plains that conduct sufficient business activity strictly on-line have the ability to qualify for property tax incentives for qualifying investments such as equipment and internet infrastructure analogous to the benefits of a traditional Enterprise Zone.

OPPORTUNITIES

- **Improve services for residents**. Currently, the City's urban renewal district will incentivize development of a full-service grocery store in its commercial core, along with additional retail and service space for urgent care services. With annual population growth of nearly 6%, or 150 new residents per year, between 2010 and 2020, the number and types of businesses the community can support with local spending power continues to grow quickly (Census).
- **Attract high-tech and manufacturing employment.** As described above, North Plains' proximity to the nearby high-tech industry cluster in western Washington County places the city in a strong, suitable position to attract diverse, large, and high-wage technology firms and related supporting businesses

should suitable sites for such firms be available. Attracting such export-based industries and businesses that support them is a primary focus of the City's economic development goals because of their significant family-wage jobs and capacity to help improve the City's fiscal ability to provide residents and businesses a full array of municipal services.

- **Expand agricultural businesses.** North Plains' agriculture-related businesses could be a target industry for the city. In particular, North Plains could focus on expanding production and processing of local food and beverage products with specialty brands and promote agri-tourism. North Plains also has opportunities to develop manufacturing of cannabis products, such as oils or edible products.
- **(Re)develop vacant buildings and land.** North Plains' supply of vacant land and affordable real estate prices offer marginal opportunities for redevelopment, particularly in commercial areas. Like many other cities in the County, parcelization, ownership patterns and other constraining redevelopment issues limit the scale and/or suitability of such opportunities.

THREATS

- **National economic cycles.** North Plains, like all other cities, is subject to national and regional economic cycles. As of the time of this analysis, post-2020 pandemic shocks to the global supply chain and shortage of certain inputs continues although their_negative effects are expected to be transitory relative to the long-term perspective of this EOA analysis.
- **Loss of agricultural lands.** The Oregon Legislature's enactment of HB 4027 (2012) designated farmland to the north, east and west of North Plains as "undesignated" land, and land beyond that area as "Rural Reserves" that are protected from urban development for 50 years after designation. The Undesignated Lands are not subject to such long-term urban development prohibition thereby allowing North Plains to grow into such areas provided all pertinent State, County and North Plains land use requirements and processes are met.
- **Highway 26 Capacity Constraints:** While the Interchanges at Glencoe and Jackson School Roads may soon experience capacity issues due to usage by urban and farming traffic generated throughout West Washington County, their locations and design were intended to provide US 26 access to existing and future urban uses in North Plains. Interchanges "capacity-sharing" matters will need to be addressed during the City's UGB employment land expansion review process. In addition, providing potential trip capacities at the Mountaindale/Dersham Road Interchange to serve North Plains and other westerly communities and farming activities as well as creating a new interchange at the Gordon Road are future, long-term options that may merit consideration by ODOT and Washington County.

NORTH PLAINS: COMPETITIVE ADVANTAGES

In part, the following discussion addresses an EOA "community assessment" location and infrastructure consideration requirements set forth in OAR 660-009-0015(4) re: North Plain's advantages and disadvantages to attract and accommodate the targeted industrial uses within a proposed UGB industrial expansion planning area.

Economic development opportunities in North Plains will be impacted by local conditions as well as the national and state economic conditions addressed above, and more immediately by semiconductor and supply chain industry reshoring and growth encouraged by the CHIPS Act and focused by the Oregon Semiconductor Competitiveness Task Force findings and actions. Economic conditions in North Plains relative to these conditions in other portions of western Washington County and the region form North Plains' competitive advantage for economic development. North Plains' competitive advantages have implications for the types of firms most likely to locate and expand in the area.

There is little that metropolitan area jurisdictions can do to influence national and state conditions that affect economic development, though they can influence local factors. North Plains' primary competitive advantages are: well-educated, skilled and trained labor-force residents, government simplicity[5], path of growth, potential availability and cost of land, location, transportation access, and quality of life. These factors make North Plains attractive to residents and businesses that want to be part of the regional economic ecosystem around the Portland metro, but value the accessible size, available housing, and more rural setting. The following items describe certain City advantages relating to specific items in 600-009-0015(4) (a-h):

LOCATION

North Plains is a city with a population of approximately 3,450 people as of 2021 (PSU), located in western Washington County to the north of Forest Grove and Hillsboro. U.S. Route 26 runs along the southern boundary of North Plains. North Plains' location will impact the area's future economic development:

- North Plains is located within Washington County, the second-most populated county in the State, with roughly 605,000 residents in 2021. North Plains is located about 5 miles from Hillsboro, 14 miles from Beaverton, and 18 miles from Portland. Hillsboro, Beaverton, and Portland were the 5th, 7th, and 1st most populous cities in the state respectively. (ref: 660-009-0015(4)(a), (d) and (e))
- The Hillsboro-Beaverton area is the heart of the "Silicon Forest," the nickname for the cluster of high-tech companies in the Portland region. Most notably, Intel has major production and research facilities in Hillsboro. Intel reports more than 21,000 employees in Washington County, paying high average wages.
- Located near the foothills of the Coast Range, North Plains has access to outdoor recreational activities, including biking, fishing, and hiking. The award-winning Pumpkin Ridge Golf Club is located just outside North Plains city limits.
- Residents of North Plains have access to cultural activities and amenities such as the Elephant Garlic Festival and summer farmers' market. Nearby events include the Northwest String Summit, Helvetia Culture Fest, and the Dixie Mountain Strawberry Festival.

5 As a relatively small city outside the Portland Metro Region, the applicable UGB expansion process for North Plains does not include review and approval of its UGB expansion under Regional Government UGB planning policies, requirements, and procedures, consistent with the Legislative intent to streamline UGB expansion procedures applicable to small Oregon cities in ORS 197A.

North Plains' rural setting and proximity to larger cities in the region such as Hillsboro and Portland are primary competitive advantages for economic development in North Plains. (ref: 660-009-0015(4) (a), (d) (e) and (f)) The community is located on the far western edge of the urbanized metropolitan region, which will be a disadvantage to firms seeking a more central location but will not dissuade many other firms.

TRANSPORTATION ACCESS (REF: 660-009-0015(4)(B))

All firms are heavily dependent upon surface transportation for efficient movement of goods, customers, and workers. Access to an adequate highway and arterial roadway network is needed for all industries. Close proximity to a highway or arterial roadway is critical for firms that generate a large volume of truck or auto trips, rely on visibility from passing traffic to help generate business, and recruit employees from a broad labor market.

North Plains has good access to the State's highway system and other transportation opportunities. The Sunset Highway (U.S. Route 26) is the primary route past the city, connecting local businesses to employees, and residents to other cities in the region for employment, shopping and services. In light traffic, I-5 is about a 20-minute drive from North Plains via either central Portland or Route 217. However, traffic typically causes delays during peak times. North Plains is roughly 5 minutes via the highway from North Hillsboro, which is one of the state's largest and most dense concentration of high-wage employment.

Highway access is a major competitive differentiator between North Plains and other communities to the west of Hillsboro in western Washington Counties, such as Cornelius, Forest Grove, or Banks. While those communities each feature their own strengths, highway access is a key advantage for North Plains.

North Plains features two nearby highway interchanges, one at NW Glencoe Road in North Plains, and one two miles to the west at NW Dersham Road. The Dersham Rd. interchange is roughly a mile to the west of the current city boundary but is likely to provide an important access point in the future as the city grows and the Glencoe Rd. exit reaches traffic capacity. Another access point is the interchange at NW Jackson School Road located roughly two miles to the east of the city.

In a May 2022 meeting ODOT staff, who administer the State Transportation Planning Rule (TPR), NP UGB staff and consultants were preliminarily advised that on- and off-ramp mitigation improvements to the Jackson School Road Interchange and/or improvements to the Dersham Road Interchange would likely be required if NP UGB industrial expansion developments "significantly affects" the Interchanges' peak-travel and volume/capacity performance. It's anticipated that such mitigation improvements costs would be addressed and allocated in various land use planning/development funding mechanism tools such as conditions of approval, development agreements, memos of understanding. In addition, the City would capitalize on allowed "partial mitigation" cost offset opportunities provided by the TPR should targeted UGB industrial expansion developments "create direct benefits re: industrial or traded-sectors jobs" and are limited to such jobs.

US 26 is also the fastest route from Portland to the Oregon Coast. Residents and businesses in North Plains have access to other modes of transportation from the nearby Metro cities, including regional bus and light rail service and Amtrak rail service. The closest commercial airport is Portland International Airport (45 minutes away).

Ride Connection runs a free weekday bus that connects North Plains to the Hillsboro Transit Center, Banks, and Forest Grove. From the Hillsboro Transit Center, transit riders can connect to other TriMet routes including MAX light rail.

PUBLIC FACILITIES AND SERVICES

Provision of public facilities and services can impact a firm's decision regarding location within a region. Stakeholders have confirmed that businesses make locational decisions primarily based on factors that are similar across a subarea or region. These factors include the availability and cost of labor, transportation, raw materials, capital, and amenities. The availability and cost of these production factors are usually similar within a region. The discussions re: transportation access, power, water, wastewater in this EOA section address public infrastructure and services considerations under 660-009-0015(4) (c).

Once a business has chosen to locate within a region, they may consider the factors that vary more across localities: tax rates, the cost and quality of public services, and regulatory policies. Economists generally agree that these factors do affect economic development, but the effects on economic development are modest. Thus, most of the strategies available to local governments have only a modest effect on the level and type of economic development in the community.

TAX RATES

North Plains has among the lowest property tax rates in Washington County.[6] Property tax rates in North Plains for the tax year ending 2021 were $$15.37 per $1,000 of assessed value, compared with $17.65 for Banks, $16.62-$17.19 for Forest Grove, and $16.47-$19.56 for Hillsboro. The City permanent rate is $2.17 per $1,000, which is among the lowest in the area, and the City does not have any optional levies.

POWER

PGE is the provider of power in North Plains and is an attractive supplier for major industries. The relatively affordable cost and use of renewable sources such as wind and hydroelectric generation are attractive to large industrial users for whom reliable, high-capacity power is essential. These firms also often strive to meet corporate environmental goals through renewable energy. Power is one of the major inputs for data centers as well as advanced manufacturers.

WATER

North Plains purchases water from the Joint Water Commission, which is the primary drinking water supplier in Washington County. The Joint Water Commission is jointly owned by the City of Hillsboro, the City of Forest Grove, the City of Beaverton, and the Tualatin Valley Water District.[7] North Plains' water distribution system consists of roughly 13.5 miles of water lines. The City Department of Public Works operates and maintains the water distribution system.

An existing Water Supply/Delivery Agreement with a Joint Water Commission assures the City water delivery by the Commission as follows:
2020: Maximum Daily Demand – 1.2 mgd.

[6] League of Oregon Cities, City Property Tax Report, March 2016. Retrieved from: http://www.orcities.org/Portals/17/Library/City%20Property%20Tax%20Report%202016.pdf

[7] Joint Water Commission. Retrieved from: http://jwcwater.org/

2025: Maximum Daily Demand – 1.5 mgd.
2030: Maximum Daily Demand – 2.0 mgd.
2035: Maximum Daily Demand – 2.5 mgd.

Under a "Obligation to Supply Water" provision, the Agreement requires the City to maintain a Water Master Plan that describes "projections on population growth, number and types of customer connections, and water demand". It's anticipated that approved NP UGB expansions will require a Master Plan update followed by negotiated Agreement volume adjustments to the above-cited water delivery schedule.
Water rates in North Plains are currently higher than in other cities because in 2005 the City took out debt to in order to connect its water mains to the Joint Water Commission transmission main.[8] It is anticipated that approval of NP's UGB industrial expansion and subsequent development of the types of preferred new and expanding tech-based and supporting industries and businesses NP wishes to attract and accommodate (see. EOA p. 6, above) will direct their water supply and delivery costs directly to those businesses.

WASTEWATER

Wastewater treatment services for North Plains are provided by Clean Water Services, which is the regional wastewater management provider for urban Washington County.[9] By 2025, Clean Water Services anticipates that more than 675,000 people will live in its service area, and the agency is planning for that population growth.[10] Wastewater service is not likely to be a constraint on economic growth in North Plains.

INDUSTRIAL AND COMMERCIAL REAL ESTATE PRICES

Commercial and industrial space and land in North Plains is less expensive than land in Hillsboro, or Beaverton. Data from CoStar indicate that the market rate lease rate for commercial space in North Plains is roughly 30% lower than in those larger neighboring cities. The estimated average industrial space lease rate is lower than in Hillsboro and Beaverton. These differences in achievable lease rates are capitalized in achievable land prices. Industrial land in particular offer a competitive price advantage to land in Hillsboro while being very nearby. Commercial land value will be more closely tied to the support for specific goods and services in the local market, as retail and commercial services are locale-dependent, and sites are not substitutable across a broader area.

QUALITY OF LIFE

North Plains' quality of life is a key comparative advantage for economic development. Key quality of life factors in North Plains are:

- **Scenic setting within proximity to metro area**. North Plains has an accessible, livable scale within a scenic rural setting. North Plains is surrounded by farmland and is close to the foothills of the Coast Range, with nearby access to nature and recreation.

[8] City of North Plains. "Water". Retrieved from: http://cityofnp.org/index.php/departments/public-works/water/

[9] Clean Water Services. "Utility Billing." Retrieved from: http://www.cleanwaterservices.org/for-residents/utility-billing/

[10] Clean Water Services. "2016-2020 Capital Improvement Program." Retrieved from: https://www.cleanwaterservices.org/media/1293/capital-improvements-program-2016-2020.pdf

- **Growing housing options**. North Plains has experienced steady homebuilding that offers new neighborhoods of hundreds of homes in a county where home building has struggled to keep pace with demand. An attractive residential community for employees is an attractor for firms.
- **Cultural amenities and events.** Residents of North Plains have access to cultural amenities and activities in the city and elsewhere in western Washington County and the Portland region. Each August, North Plains hosts the Annual Elephant Garlic Festival. North Plains also has a weekly farmers market during the summer. Nearby cultural events include: Northwest String Summit at Hornings Hideout, Dixie Mountain Strawberry Festival, and Helvetia Culture Fest. In addition, North Plains residents can access the cultural amenities and events in the greater Portland region.
- **Outdoor recreational activities.** There are a number of outdoor recreational activities available near North Plains, including: biking, hiking, and fishing. North Plains is close to the Banks-Vernonia Trail, a 21-mile multiuse path. The Willamette Valley Soaring Club operates a glider port just outside of North Plains. The nearby Pumpkin Ridge Golf Club has been ranked as one of the country's best public golf courses.
- **Direct auto access to larger cities in the Portland region.** North Plains' proximity to Hillsboro, Beaverton, and Portland gives its residents access to the activities, amenities, markets, and jobs in these larger cities.

North Plains' quality of life makes the city attractive to in-migrants and businesses that are attracted to a livable atmosphere but value proximity to the larger cities of western Washington County and the Portland region.

ECONOMIC DEVELOPMENT AND REAL ESTATE - EXPERT OBSERVATIONS

City staff and consulting staff held discussions with a sample of experts in the regional economy, including economic development agency professionals, industrial real estate brokers, corporate site selection professionals, and neighboring city officials. The following is a summary of Stakeholders' comments that have informed the ensuing analysis, and the various report sections:

- Businesses are seeking industrial land locations all along the I-5 corridor from Portland to Eugene. They are willing to consider the whole Portland region, and most of the Willamette Valley, up to 30 miles to either side of the freeway.
- Western Washington County is its own submarket within the state and metro area. The Silicon Forest attracts companies that want the workforce, power, land and livability but less dependent on the immediate freeway access.
- Washington Co. is running out of industrial land. The price of industrial land in the area has doubled in the last four years and is still climbing. If infrastructure can be supplied within 24 months, land is basically considered development ready.
- Businesses identified by the stakeholders as potential "spillover" from the north Hillsboro area or broader western Washington County include:
  - Semi-conductor supply chain and support businesses (small-to-midsize firms).
  - Modern distribution and fulfillment businesses serving Washington County.
  - High tech advanced manufacturing (on mid- to large sites).

- Data centers, likely co-location, not enterprise, facilities (on mid- to large sites).
- Specialty food and beverage processing.
- Green energy businesses, including energy storage, batteries.

- As recently as five years ago, most business recruitment inquiries were for professional office development sites. Now roughly 80% of inquiries are from industrial and distribution users.
- Data centers are a continuing major source of interest in west Washington County. PGE can offer ample, low-cost power from renewable sources. Data centers will continue to seek large sites if available and can be served by sufficient power, data lines, and water. Lack of sales tax and other tax incentives are also attractive due to large scale of equipment investments.
- Some locations in North Plains will be better suited for employment uses than residential uses. Land near the highway will make the best industrial sites due to access and ability to coexist with the externalities of the highway. Residential uses might be better suited to locations farther from the highway.
- The sweet spot for industrial land demand is for sites between roughly 5 - 20 acres in size. Based on recent data center site selector inquiries made to the City, North Plains should seek and preserve at least two (2) 100-acres sites. Those big users come along less often, but they are out there. In North Hillsboro, areas that come available with 10-to 20-acre industrial parcels get snapped up as they become ready therefore, North Plains UGB expansion to attract and accommodate such smaller industrial uses would address the 660-024-0040(5) and 660-009-0025(3) requirements to "*include a determination of the need for a short-term supply of land for employment uses".*
- The region needs to maintain an available supply of large sites: sites that can be available and development ready for large uses such as large tech-based uses and larger data centers as well as sites that can be divided or sectioned off as the market dictates. In response to a key City priorities, North Plains needs and wants to be able to offer such large intact as well as divisible sites in its potential UGB expansion areas to readily capture both frequent demands for smaller (5-20 acres) sites and the occasional demand for large sites in west Washington County. Firms and business park developers can create the spaces the market demands.
- For marketing to prospective businesses, important factors are the availability of land that is readily served by infrastructure, lower land cost and power cost, and proximity to the "Silicon Forest." Quality of life and lower cost of housing are also differentiators. Western Washington County communities are in play for manufacturers and suppliers as long as sites are available.
- The region doesn't compete for the cheapest manufacturing; it competes for higher-value, higher-wage industries with such competitive advantages as a young and relatively educated workforce, lower costs relative to other West Coast metros, location at power and data nodes, and decent transportation connections.

V. TARGET INDUSTRIES

The "target industries" approach to identifying and pursuing UGB employment expansion land needs is recognized by DLCD as a methodology to ensure that local economic development priorities are reflected in land need estimates beyond a purely numbers-driven growth rate approach.[11] This EOA applies that approach to determine the number and types of land and sites needed to attract and accommodate:

- Targeted large-sites (50-100 acres) industrial users (which have typically been tech-based and export-based businesses in West Washington County) over the 20-year UGB planning horizon; and,

- Targeted mid-size (20-50 acres) and smaller-sites (5-20 acres) industrial users to provide a short-term land supply required by Goals 9 and 14.

This approach eschews the use of population growth forecasts to determine **industrial land need** for both planning time frames. However, North Plains population growth forecasts described in this EOA underpin the land need estimate for **commercial land** cited in this EOA.

The preceding analysis discusses the city's competitive advantages to attract a range of new large, mid-size and smaller employers in targeted industries of the types already existing in West Washington County to employment lands in North Plains. The following discussion addresses two main issues: (1) Which industries are most likely to grow in Washington County, and be attracted to North Plains? and (2) Which industries best meet North Plains economic development priorities?

For the City's future commercial land need estimates (Section VI), this EOA relies on a combination of the latest Oregon Employment Department industry-specific growth forecasts and PSU population growth forecast, adjusted to reflect the specific site needs of the target industries discussed here.

It should also be noted that the targeted industries approach to North Plains economic opportunity is consistent with and supported by the Oregon Semiconductor Competitiveness Task Force land and site need findings, a summary of which can be found in Appendix D. Semiconductor manufacturing and supply chain, and their resulting land need, were identified in the original February 2022 City of North Plains Economic Opportunities Analysis. The Oregon Task Force findings both reinforce City targeted industries planning with significant additional, independent verification of industry needs as well as put a rapid acceleration on those semiconductor-related land needs compared to a full twenty-year build-out period originally anticipated.

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11 See. *1000 Friends of Oregon v. LCDC and City of Woodburn*, 260 Or App 444, 447-448 (2014):

> "[T]he target-industries approach considers a local government's employment-growth projections and goals for employment and establishes a framework for attracting the kind of employers that could reasonably be expected to support the kind and amount of employment growth to which the local government aspires. Given the site needs of those particular employers, the local government identifies potentially available land both within and outside its UGB and selects a group of sites and an amount of land that it believes will accommodate the employers that it seeks to attract. The target-industries approach differs from an 'employees-per-acre approach under which a local government simply projects employment growth and divides that growth by a statistically accepted number of employees per acre of land in order to arrive at the number of acres needed to support employment growth."

PROJECTED EMPLOYMENT GROWTH (REGIONAL)

As noted in Section III, the State of Oregon produces employment forecasts by sector within sub-regions, which groups Washington County with Multnomah and Clackamas Counties into the broader Metro area. This forecast is represented here for reference (Figure 5.01).

*Within the entire Metro area, a*ll industry sectors are forecast to *grow* over the next decade. Those sectors forecasted to grow at an above average rate are professional services, and education and health services. The health care sector is projected to continue growing with the aging of the population. Other strong sectors are transportation, warehousing, and information, reflecting the continuing growth of internet business, data centers, software, and remote shopping. Tourism is projected to experience the fastest growth reflecting low baseline of the 2020 pandemic year. On an absolute basis, the greatest number of new jobs are forecasted in tourism-related industries, professional services, and education and health services.

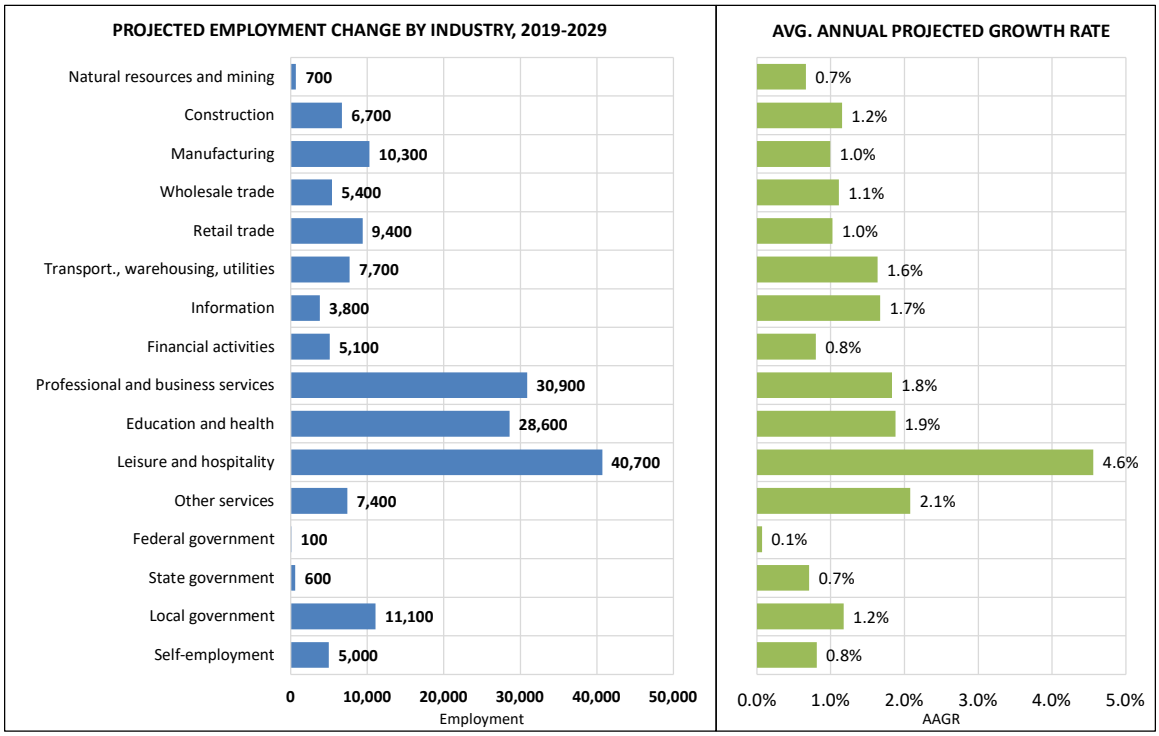
Notwithstanding the stronger projected performance of these sectors in the broader Metro area, some client-centric and customer-centric sectors that need close or convenient access to or by a critical population mass for their customers are not expected to be the greatest sources of potential job growth in North Plains which sits outside but near the Western edge of the Metro area. Clusters of these sectors tend to in more centralized and densely populated parts of the Metro areas, whereas North Plains is a better candidate for growth in other industry clusters. Nevertheless, North Plains will need some sites to accommodate the marginal growth in professional and health services, and tourism-related industry.

In addition, a considerable demand for convenience retail shopping and personal services businesses in the city is generated by existing and future residents predicted by population growth forecasts.

North Plains has good, though proportionately small employment representation in some of these industries such as tourism, education, and health care, but less representation in professional services and information sectors. Of employment located in North Plains, the greatest share is in manufacturing, construction, and waste management.

The applicability of these regional growth rates to local forecasts is uncertain – if not inapplicable - as they pertain to industrial and commercial business sectors that may not have competitive advantages or anticipated strong local demand if located in North Plains. Adjustments are applied to North Plains' land need estimates for these sectors to reflect the realities of the current and target employment distribution in North Plains.

FIGURE 5.01: PROJECTED EMPLOYMENT GROWTH BY SECTOR
WASHINGTON, MULTNOMAH & CLACKAMAS COUNTIES



SOURCE: State of Oregon Employment Department, Workforce and Economic Research Division

TARGET INDUSTRIES

The selection of target industries that follows are based on North Plains' economic development goals for employment and livability cited in Section II above, the relatively stagnant economic profile under current conditions in North Plains, and the city's locational competitive advantages. These targeted industries also respond to a persistent shortage of readily available development-ready industrial land in Washington County and Portland Region and the continuing need for sustained and ongoing industrial economic growth, health and diversification. A major emphasis of the City's economic development program is to change from being a bedroom community, by creating a better jobs-to-housing balance, and greater employment diversity. Also, the community would like to have a greater range of commercial good and services available locally, to serve the daily needs of residents. The following target industries reflect and will achieve these goals:

- **Small-scale and medium-scale manufacturing.** North Plains' attributes, especially its location along Highway 26, relatively low land prices, and proximity to Hillsboro and Beaverton, can attract manufacturing firms. Manufacturing firms are often export-based businesses, ranging from relatively small startups with 10 or fewer employees requiring smaller sites (5-10 acres) to larger manufacturers with 200 or more employees needing larger sites. Examples of manufacturing industries that may grow or locate on suitable North Plains sites include:

- Electronics and computer manufacturing, such as businesses that provide components to larger manufacturers in the Portland region – underscored by Oregon Task Force findings .
- Machinery manufacturing, such as agricultural or industrial machinery.
- Fabricated metal manufacturing.
- Specialty food and beverage manufacturing, such as wineries, beer brewing, fruit or vegetable products, or other products.
- Renewable and alternative energy products.
- Manufacturers providing components and supplies to larger firms – underscored by Oregon Task Force findings, particularly for supply chain businesses.

- **Data center(s).** Like much of the nearby industrial area in western Washington County, emerging demand for data center sites in North Plains is confirmed by recent inquiries about availability of such sites in the City from data center developers. That demand stems from a burgeoning, worldwide demand for data center services, which support everything that people do online. All types of businesses increasingly rely on these facilities for data storage and flow in the modern world. Existing nearby sources of the ample power and water resources needed by data centers, as well as proximity to existing large international data lines, gives North Plains a competitive advantage as a data center location, and timely development and operational advantages. Sites for data center and their ancillary uses can range from 50-100 acres in size. Discussions with economic development experts and site selectors are part of this analysis confirm that there would be latent near-term demand for many more large data center developments if suitable large industrial sites were available.
- **Small-scale and medium-scale warehouse, distribution, and wholesale.** North Plains' location along Highway 26, relatively low land prices may make the city attractive to small to medium-sized wholesale and distribution firms, especially of goods produced in Washington County. These uses and their ancillary uses often require 10-12-acre sites.
- **Professional services.** North Plains' high quality of life, lower commercial land costs, relatively affordable housing, and proximity to Hillsboro and Beaverton may attract professional and business services that prefer to locate in a smaller city like North Plains, such as software development, research or environmental services, or other services. Professional services may also include independent contractors, such as sole proprietors and others not covered by unemployment insurance. These types of businesses often locate within commerce centers that need at least 10-20-acre sites to accommodate a mix of professional services that need varying floor space as well as anchor retail stores and/or larger office complexes and their ancillary uses.
- **Services for residents.** Population growth will drive development of retail, such as a grocery store, general merchandise and specialty and retail shops, restaurants, government services, education and childcare facilities in North Plains. These types of convenient goods and service uses or complexes often require at least 5-acre sites and sometimes 10-acre sites.
- **Services for seniors.** The growing population of those near or in retirement in Washington County and the Portland region may attract or create demand for services for seniors, such as like assisted living facilities, retirement centers, and related medical services.

- **Services for visitors:** Growth in tourism will drive demand for services for visitors such as restaurants or lodging. Many tourist-related businesses also locate in retail and/or office locations.

VI. EMPLOYMENT AND LAND NEED FORECASTS

NORTH PLAINS EMPLOYMENT AND LAND FORECASTS

The EOA land need forecast contains two main components: a targeted-industries land need forecast aimed at accommodating new types of target industries businesses and a forecast of regarding additional land needed to accommodate job growth of existing North Plain to support City population growth. Both land need forecasts are merged into a single 20-year land need estimate. Except for businesses in the new large-site tech-based and industrial park categories (which do not now exist in North Plains), the City anticipates future industrial growth to contain a mixture of the targeted industry businesses as well as the other sectors.

A. BASELINE EMPLOYMENT FORECAST

Prior to factoring in the specific needs of targeted business sectors, a baseline City employment and land need projection was developed as a part of initial City EOA based on official population growth forecasts issued by Portland State University (PSU) that underestimated the City's future population and housing growth. This EOA updates that projection in response to corrected and updated (PSU) City population and housing growth data and forecasts for the City.

As noted earlier, however, the new forecast informs only the City's need for more commercial land over the 20-year UGB planning period as it correlates that land need to the amount of City population growth over that period that will generate the demand for greater retail and other business services than now exists within the City's current commercial uses and areas.

An updated "traditional jobs/acre" baseline employment forecast is not used exclusively to project the City's industrial land need over that planning period because it does not fully respond to and address the full aspirational City "targeted industries" economic development potential or priorities of the City from which the City's industrial employment land needs over the UGB planning period derive – as encouraged and enabled by the Goal 9 Rules. The City's industrial development potential and its economic growth priorities are addressed and set forth in the subsequent discussions to this analysis.

The first analytical step of the analysis is to update covered employment to the 2021 base year (Figure 6.01). To update these estimates, we use observed industry specific growth rates for Washington County between 2019 and 2021.

The second step in the analysis is to convert "covered"[12] employment to "total" employment, the results of which are described in Fig. 6.01 below. The adjusted 2021 total employment base for the City of North Plains is 1,050 jobs.

12 The Department of Labor's Quarterly Census of Employment and Wages (QCEW) tracks employment data through state employment departments. Employment in the QCEW survey is limited to firms with employees that are "covered" by unemployment insurance.

FIGURE 6.01: UPDATE TO 2021 BASELINE AND CONVERSION OF COVERED TO TOTAL EMPLOYMENT

Major Industry Sector	QCEW Employment: 2020 Employment	'20-'21 County Δ[1]	2021 Estimate	Total Emp. Conversion[2]	2021 Estimate
Construction	178	3.1%	183	73%	250
Manufacturing	253	2.7%	260	98%	266
Wholesale Trade	88	4.5%	92	97%	95
Retail Trade	31	3.1%	32	94%	34
Transport., Warehouse, Utilities	17	2.9%	17	91%	19
Information	3	5.1%	3	95%	3
Finance & Insurance	12	1.2%	12	92%	13
Real Estate	35	7.7%	38	92%	41
Professional & Technical Services	22	8.0%	24	88%	27
Admin. & Waste Mngt. Services	126	8.0%	136	88%	154
Education	34	3.3%	35	95%	37
Health Care	29	1.1%	29	95%	31
Leisure & Hospitality	118	9.2%	129	94%	137
Other Services	17	9.2%	19	83%	22
Government	21	1.4%	21	100%	21
TOTAL	**984**	**2.4%**	**1,031**	**90%**	**1,150**

1 Forecasted AAGR from 2019-2029 for the Portland Tri-County submarket. Oregon Employment Department

2 Bureau of Economic Analysis. Calculated as an eight-year average between 2010 and 2018

Once the 2021 baseline of employment is established, future growth forecasts are applied by industry sector for the baseline and adjusted scenarios, to forecast employment growth over the 20-year planning period (to 2041). In addition to these growth rates, an adjustment is made (to both scenarios) that reflects the employment needed to correct the current jobs-to-housing imbalance identified in North Plains, as explained below.

JOBS-TO-WORKERS BALANCE

As explained in Section III, North Plains has an estimated 1,150 total local jobs (covered and non-covered) working in current businesses that are mostly outside the target industries sectors, and 1,730 working North Plains residents, most of whom work outside the City. This indicates a ratio of 0.65 local jobs for each local working resident or 1.5 local workers for each available local job. To achieve a one-to-one jobs-per-worker balance a ***current deficit*** of roughly 580 jobs in North Plains needs to be eliminated. The new jobs needed within the City to eliminate that deficit need to be in sectors that match the job experiences, jobs interests and/or qualifications of existing and future City residents which is not now the case. Thus, the 1.5 local jobs/working City resident ratio does not truly reflect and may greatly understate that ratio and imbalance. More accurately, the future jobs profile in the City needs to far better match the job experiences, jobs interests and/or qualifications of existing and future City residents to achieve the desired local jobs/local residents ratio balance – one of several community objectives and priorities at which the targeted industries approach is directly aimed.

The targeted Industries approach recommended by this EOA is intended, over the course of the 20-year UGB planning period, to reverse and substantially lower the numbers of existing and new City residents working in jobs in the targeted industries sectors outside the City; thereby improving that ratio. Attracting and accommodating new businesses that fall under the listed targeted industries will provide many such jobs.

Simply applying numerical employment growth rates to current employment levels will not alleviate this deficit or establish a healthier jobs-to-worker balance in North Plains. Therefore, in addition to applying the baseline and adjusted growth rates, each forecast also includes an adjustment factor of new employment needed to create this balance. Specifically, **an adjustment of at least 582 additional needed jobs is added** to the forecast (see Figure 6.02). Practically, a much higher number of jobs should be added to an adjusted forecast when considering the profile of the types of new jobs the City will need to match the job qualifications and preferences of a generally well-educated North Plains resident population now and expected in the future over the 20—year UGB planning period.

BASELINE GROWTH FORECAST

The latest completed forecast for the North Plains UGB was completed in 2020 and forecasts an annual growth rate of 3.9% between 2021 and 2041. However, these official population estimates did not reflect robust house permitting activity in North Plains over many years. This mistake was since corrected around 2017, but the latest PSU forecast (2020), while reflecting the higher revised *current* population did not adjust the 20-year forecast higher by a concomitant amount. This translates to a much lower annual growth rate.

Until this discrepancy is resolved, the official PSU forecasted growth rate is not the most reliable figure to use in this analysis. It is used here as a foundation for the *adjusted* forecast.

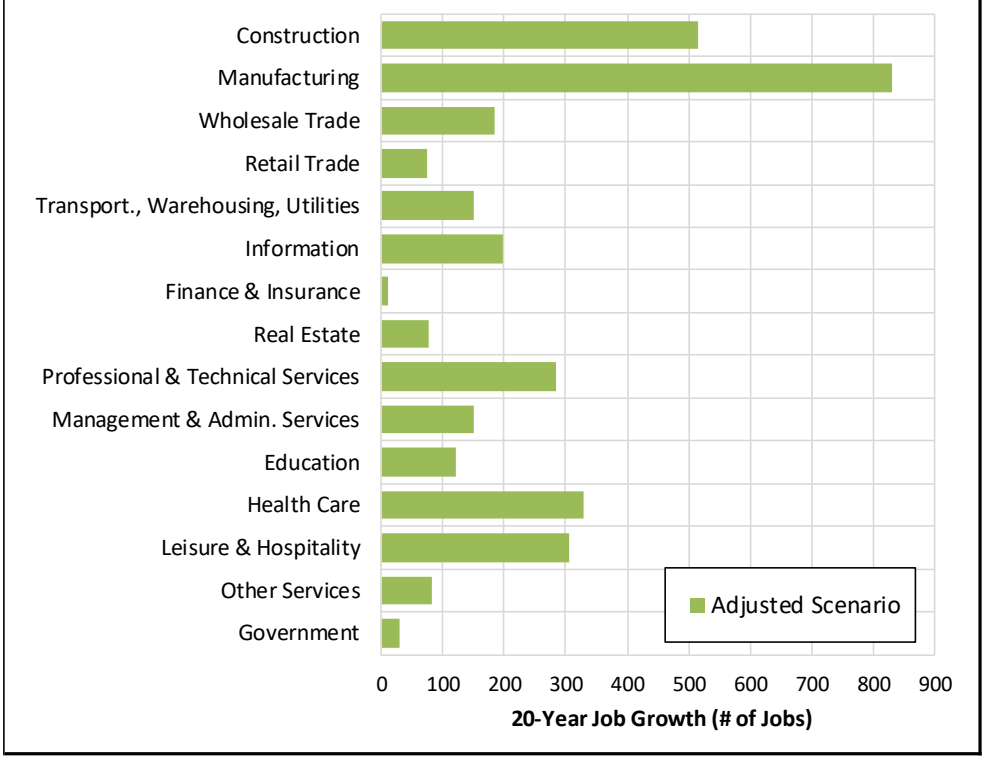
ADJUSTED GROWTH FORECAST

Although it likely is very conservative based on the preceding jobs/residents ratio discussion, the adjusted forecast begin to reflect and address the local adopted economic development potential and adopted City economic growth/development priorities. The main adjustments increase the forecasted growth rate of the target industries, including domestic-based and export-based information and technology, manufacturing, warehousing, wholesale, information, and construction in the industrial land use sectors, and retail, financial, professional, and health services in the commercial sectors.

The result is total blended adjusted annual growth rate of 6.3% (see Figure 6.03). Resulting in the addition of over 3,300 new jobs over the planning period. This growth assumes the availability of suitable land and sites to meet the city's economic development goals. The greatest number of jobs are forecasted in manufacturing, construction, information (data center), technology and supporting businesses, professional services (business park), and health care.

FIGURE 6.03: ADJUSTED EMPLOYMENT GROWTH FORECAST, CITY OF NORTH PLAINS

Industry	ADJUSTED EMPLOYMENT GROWTH FORECAST					
	2021	AAGR	2041	Job Balance Adjustment	2041 Total	Chg.
Construction	250	4.9%	651	114	765	515
Manufacturing	266	6.8%	985	111	1,096	830
Wholesale Trade	95	4.7%	238	42	280	186
Retail Trade	34	5.2%	94	14	108	74
Transport., Warehousing, Utilities	19	11.1%	158	11	169	150
Information	3	22.7%	200	2	202	198
Finance & Insurance	13	1.9%	19	4	23	10
Real Estate	41	4.4%	97	20	117	76
Professional & Technical Services	27	12.7%	292	18	310	283
Management & Admin. Services	154	1.5%	206	97	304	150
Education	37	6.6%	132	26	158	121
Health Care	31	12.7%	339	21	360	329
Leisure & Hospitality	137	5.1%	367	75	442	305
Other Services	22	7.1%	88	17	105	83
Government	21	3.4%	42	9	51	29
TOTAL:	**1,150**	**6.3%**	**3,908**	**582**	**4,490**	**3,340**



SOURCE: State of Oregon Employment Department, Metro, Johnson Economics

The 20-year forecast was broken down into five-year increments, assuming a consistent rate of growth over the period. However, in practice, a 20-year forecast will include multiple business cycles, and that growth will be variable over time.

FIGURE 6.04: SUMMARY OF EMPLOYMENT FORECAST, CITY OF NORTH PLAINS

Industry	Overall Employment					Net Change by Period				Total
	2021	2026	2031	2036	2041	21-26	26-31	31-36	36-41	21-41
Construction	250	330	437	578	765	81	107	141	187	515
Manufacturing	266	379	540	770	1,096	113	161	229	327	830
Wholesale Trade	95	124	163	213	280	29	39	51	67	186
Retail Trade	34	45	60	81	108	11	15	20	27	74
Transport., Warehousing, Utilities	19	33	57	98	169	14	24	41	71	150
Information	3	9	26	72	202	6	17	46	129	198
Finance & Insurance	13	15	18	20	23	2	2	3	3	10
Real Estate	41	53	69	90	117	12	16	21	27	76
Professional & Technical Services	27	49	91	168	310	23	42	77	142	283
Management & Admin. Services	154	182	216	256	304	28	34	40	47	150
Education	37	53	77	110	158	16	23	33	48	121
Health Care	31	57	106	195	360	26	48	89	165	329
Leisure & Hospitality	137	183	246	329	442	47	62	84	112	305
Other Services	22	33	49	71	105	11	16	23	34	83
Government	21	26	33	41	51	5	6	8	10	29
TOTAL:	**1,150**	**1,575**	**2,187**	**3,094**	**4,490**	**425**	**612**	**907**	**1,396**	**3,340**

SOURCE: State of Oregon Employment Department, Metro, Johnson Economics

ADDITIONAL CONTEXT FOR THE ADJUSTED GROWTH FORECAST

The 3,440 jobs expected to be added to the North Plains economy by growth in planned Targeted Industry expansion can be viewed in the context of recent, relevant forecasts. A detailed discussion of forecast context is provided in Appendix D of this document.

- **2019 OED Employment Forecast for Washington, Multnomah & Clackamas Counties (Figure 6.05):** The ten-year job forecast by Oregon Employment Department for the tri-county Portland metro region sees 167,800 new industry jobs between 2019 and 2029 for sectors that North Plains also expected to grow in its own economy. Over a similar ten-year period, North Plains plans to add 1,672 jobs, or merely 1.0% of the regionwide total. Various Manufacturing sectors are among North Plains' Targeted Industries – including semiconductor manufacturing and supply chain – thus North Plain's planned job growth represents up to 4% of the regionwide total over ten years, objectively still a small share of regional growth.

FIGURE 6.05: CITY OF NORTH PLAINS & THREE-COUNTY METRO REGION JOB GROWTH FORECASTS

Industry Sector	10-Year Job Forecast OED - Tri-County	North Plains EOA	NP as % of Region
Construction	6,700	258	3.9%
Manufacturing	10,300	415	4.0%
Wholesale trade	5,400	93	1.7%
Retail trade	9,400	37	0.4%
Transport, warehousing, utilities	7,700	75	1.0%
Information	3,800	99	2.6%
Financial activities	5,100	43	0.8%
Professional and business services	30,900	217	0.7%
Education and health	28,600	225	0.8%
Leisure and hospitality	40,700	153	0.4%
Other services	7,400	42	0.6%
Government	11,800	15	0.1%
Three County 10-year forecast	167,800	1,672	
North Plains 10-year forecast	1,672		
North Plains Share of Tri-County Region	**1.0%**		

SOURCE: Figures 5.01 and 6.04

- **2022 OED & Metro Employment Forecasts for Washington, Multnomah & Clackamas Counties (Figure 6.06):** More recent total employment forecasts by both Metro and Oregon Employment Department, when compared, point to substantial employment occurring outside of the Portland metro UGB but still within Washington and Clackamas Counties, including North Plains. Of the 173,400 jobs projected by OED in the region, North Plains' planned ten-year growth amounts to only 0.96% of the regionwide forecast.

FIGURE 6.06: 2022 PORTLAND THREE-COUNTY EMPLOYMENT FORECAST, METRO & OED

	2020	2030	Employment Growth		Share of OED Forecast
OED Projection[1]					
3-County Area:	996,500	1,169,900	173,400	17%	100%
Metro Projection[2]					
3-County Area:	1,026,032	1,091,568	65,536	6%	38%
Metro UGB Cities:	869,782	916,928	47,146	5%	27%
Unincorporated Areas:	142,058	160,054	17,996	13%	10%
Non-Metro Cities:	156,250	174,640	18,390	12%	11%

[1] Portland Tri-County Industry Projections 2020-2030, Oregon Employment Department (11/21)

[2] 2045 Distributed Forecast of Population, Households, and Employment, Metro (2/21)

Metro for the same time period forecasts that 11% of all three-county job growth will locate in cities outside of the Portland metro UGB. Interestingly, the total number of jobs expected by Metro to be added over the next ten years to the tri-county region deviates dramatically from the OED forecast which is more consistent with past growth trend in the region and the state. In other words, communities like North Plains are not only projected to see substantial job growth spilling

over from the Metro UGB, but also prepare for even greater job growth spilling over per the OED forecast as Metro will plan for employment lands based on its own lower forecast.

- **2011 to 2022 Portland Metro Large Industrial Site Lack of Availability OED & Metro Employment Forecasts for Washington, Multnomah & Clackamas Counties (Figure 6.07):** A major background factor driving North Plains Targeted Industry growth and land need is the chronic, long-term and well-documented shortage of industrial land and sites for important Portland metro region industries. Figure 6.07 displays the official inventory of larger industrial sites suitable for important regional industries based on "tiers" of site readiness, whether immediately "shovel-ready" (Tier 1) to requiring substantial site investment such as brownfields remediation and off-site investment including substantial infrastructure and utilities extension (Tier 3) that may take several years. Over 11 years, the three-county region has seen only depletion of industrial sites suitable for Targeted Industries identified by the City of North Plains. The region now has half of the number of such industrial sites in 2022 than it did in 2011, the year that the first official inventory was conducted when industrial sites shortage was already a problem. Due to now "crisis" level shortage of industrial sites in the region and the overwhelming majority classified as Tier 3 sites requiring years to readiness, industry seeks site availability consistent with Metro's own forecast that sizeable employment growth is going to be forced outside of the Portland metro UGB, not to mention over 110,000 jobs that OED projects will also have to be accommodated outside of the Portland metro UGB that Metro will not be planning to accommodate (Figure 6.06).

FIGURE 6.07: PORTLAND METRO INVENTORY OF LARGE INDUSTRIAL SITES

	2011 Inventory	2014 Inventory	2017 Inventory	2022 Inventory
Tier 1	9	14	10	2
Tier 2	16	17	11	6
Tier 3	31	23	26	20
Total	56 sites	54 sites	47 sites	28 sites

Source: Oregon Semiconductor Competitiveness Task Force, Mackenzie

B. TARGET INDUSTRY SITE AND LAND NEED

The table titled **Figure 6.07 North Plains Targeted Industrial & Commercial Businesses and Land Need Profile** (presented below in this section) identifies various target industry businesses and their estimated individual site-area requirements. These are EOA-identified targeted businesses that North Plains reasonably expects will seek available, suitable, and development-ready sites in the City.[13]

The profiles of these business and their typical site needs are informed by two land use and development research sources:

[13] The applicable the Goal 14 Urbanization Rule in 660-024-0040(1) does not require a total 20-year UGB land need estimate, and thus its contributing sub-estimates components, to be precise: *"[T]he 20-year (land) need determinations which, although based on the best available information and methodologies, should not be held to an unreasonably high level of precision*."

- Washington County and Metro RLIS GIS land use information covering nearby industrial areas that are representative of the types and sizes of businesses like North Plains' target industries, and
- Recent studies in Washington County on industrial site readiness, site preferences, and feedback from industry experts.

Such businesses continue to seek such sites throughout the Silicon Forest area, especially in nearby Hillsboro and other western Washington County communities where there continues to be a shortage of such sites.

Goal 9 "strongly encourages" cities to pursue its economic growth and development aspirations by assessing its community economic development potential and to use that potential to form its economic development objectives. Those objectives inform the community's future land need prescribed in its EOA and corresponding comprehensive plan UGB amendments that designates additional lands on which that potential will materialize and be realized.

The EOA acknowledges and addresses the need to satisfy Goals 9 and 14 compliance requirements that apply to a North Plains' UGB employment land expansion. The City applies current industry data about the customary land need requirements of needed future employment uses as well as nearby examples of target industry businesses, to estimate and determine its required Goal 14 City 20-year jobs land need/supply requirement.

Goal 9 rules[14] and recent Court decisions[15] make clear that North Plains has "reasonable discretion" in determining what method it uses to determine how much land it needs to accommodate a demonstrated need for improved City livability as allowed by Goal14, Factor 2[16]. LCDC determines whether the City's determinations satisfies both Goals 9 and 14 and are sufficiently supported by the requisite "substantial evidence" while the Court's role is to decide whether LCDC's determinations properly applied its review standards.[17]

Industrial Land Need: Based on the targeted industry site characteristics data sources cited above, the aggregate 20-year land need for Target Industries businesses is 545 additional industrial acres distributed among the various types of industrial uses described in the table on the following page. The prevalent site sizes and developable characteristics of existing nearby like-kind targeted businesses in and around western Washington County provided reasonable templates for determining the City's total need for additional UGB

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14 OAR 660-009-0015 (1-5).

15 See e.g. *Zimmermann v. LCDC*, 274 Or App 512 (2015)

16 Goal 14, Factor 2 states in pertinent part that:

> "Establishment and change of urban growth boundaries shall be based on . . . demonstrated need for . . . livability", and "in determining (land) need, local government may specific characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need. Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary."

17 Zimmermann v. LCDC, Op cit.

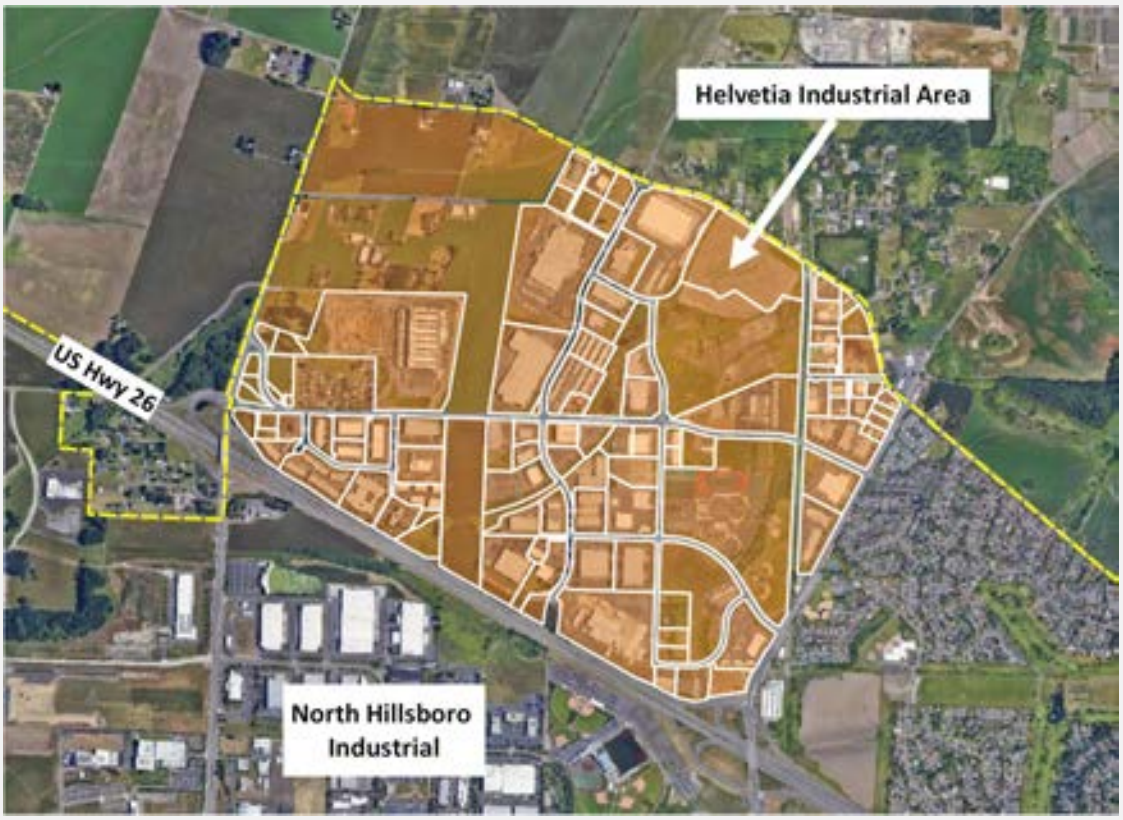
employment land and the needed individual site characteristics of the various types of targeted industry businesses.

Commercial Land Need: The City's commercial land need over that planning period is estimated at 185 acres. The types of commercial uses needed in the City described in the following table reflect and expected future demand for retail and business services, based on observed commercial centers in Washington County communities. Second, the amount of land needed to accommodate those prototypical commercial uses is estimated based on industry data about the typical site and building characteristics of the commercial uses identified. Only a small amount of that projected need for small-scale businesses can be accommodated within the current City UGB. These small lots are properly zoned for business uses and are expected to contain only small retail and other businesses.

HELVETIA INDUSTRIAL AREA IN NORTH HILLSBORO – MODEL DEVELOPMENT PATTERN

Through the planning process of this EOA and the preceding formulation of economic development goals by local officials, the area of industrial development in North Hillsboro including the Helvetia Area Special Industrial District (HSID) has been chosen as a general model of the potential development pattern for new employment areas in North Plains. For the purposes of this analysis, this area is referred to as the Helvetia Industrial Area. It is located north of US 26, east of NW Helvetia Road, and west of NE Cornelius Pass Road (Figure 6.08).

FIGURE 6.08: HELVETIA INDUSTRIAL AREA



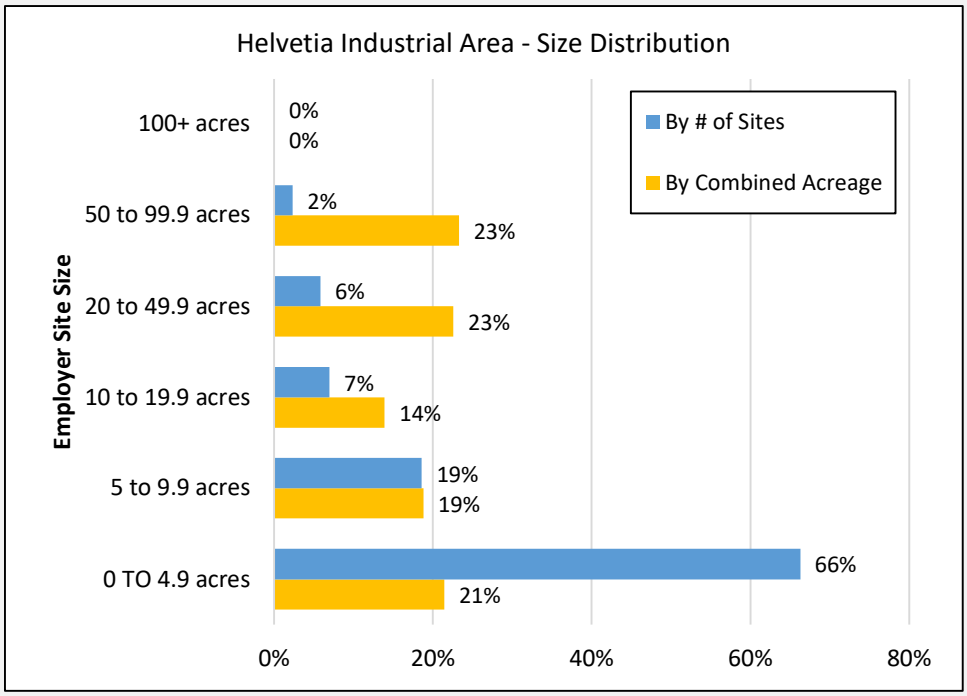
Source: Johnson Economics, Metro RLIS

For this analysis, the mostly developed portion of this area (with parcels outlined in white), was assessed as to the distribution of site sizes. The area includes a mix of industrial users, business park uses, and some commercial and institutional uses. This is seen as a demonstrated mix of the development and use pattern that might occur in new employment areas in North Plains to the west.

The distribution of the sites in this area is presented below in Figure 6.09 (adjacent taxlots with common ownership are combined.) There is a total of 86 such sites in the Helvetia Industrial Area.

A majority (66%) of these sites are small, at under 5 acres, with a diminishing share of larger sites. However, because they are smaller, the small sites represent only 21% of the total acreage (orange bars). Larger sites are fewer in number, but still represent a sizable share of the total acreage because they are larger.

FIGURE 6.09: HELVETIA INDUSTRIAL AREA



Source: Johnson Economics, Metro RLIS

This example development pattern was used as a primary source for determining the distribution of sites by size needed to accommodate the projected growth in employment. The distribution of projected need for sites under 100 acres closely matches this distribution of the Helvetia example.

Large Lot Needs: While the Helvetia example provides a good model for sites of under 100 acres, it does not include any larger industrial sites. The analysis presented in this EOA, based on the adopted economic development goals of North Plains officials, and the identified target industries, finds the need for multiple large lot industrial opportunity sites *in addition* to the site size distribution presented above. These larger sites are more analogous to major catalyst employers and data center development found south of the Helvetia area in the remainder of the North Hillsboro Industrial Area.

The EOA supports the need for a few such sites for the target industries: These large lots will be appropriate for a major semiconductor or advanced manufacturing employer similar in scale to the Ronler Acres and Hawthorne Farm Intel campuses; a mega-data center, similar in scale to the QTS and Digital Realty Data Centers in the Silicon Forest; a large business park development, with one or more large tenants such as high tech support companies and general industrial businesses, similar to the business agglomerations found in the Five Oaks and Sunset Highway Business Parks located in the Helvetia Industrial Area.

The above analysis contributed to the finding of site needs presented in the following table (Figure 6.10). In addition to the Helvetia Industrial Area model of development and use pattern, these findings are based on site characteristics detailed in the appendices. Specific sites/businesses in the western Washington County area were analyzed for example site characteristics for these types of target businesses (See Appendix B: Western Washington County Site Characteristics).

- **Appendix A: General Site Requirements by Industry**
- **Appendix B: Western Washington County Site Characteristics**

Figure 6.10: North Plains Targeted Industrial & Commercial Businesses 20-Year Land Need Profile

User Type (Based on Existing West Washington County Tech-based Large Site & West Union Rd. Industrial Uses Agglomeration)	20-Year Land Need (No. of Sites)	Alternative Potential NP Individual and/or Clustered Export-based and Local Employers per Adopted NP Vision & Implementing Priorities.	20-Year Land Need (Total Acres)	Percent of Total Land Need Estimate	Existing Buildable Sites w/in NP UGB of sufficient size	Recommended Uses & Allocation of Potential Employer
Industrial (Est. 20-Years Land Need)						
Tech-based Anchor User(s) or Large-Site Industrial User(s) and/or Campuses (100 acres site) **Consistent with Oregon Semiconductor Task Force findings (Appendix D)**	2 sites	• Data Processing & Ancillary Uses/Supporting Facilities • Large Computer & Electronics Manufacturing • Combination of above Employers	200 Acres (2 sites)	37%	none	• Data Centers • Major Tech-based Employer Campus • Major Product Manufacturer/Research Center
Large Industrial Business Park/Cluster (50-100 acres site) (i.e., the West Union Road Industrial Cluster/ Agglomeration) **Consistent with Oregon Semiconductor Task Force findings (Appendix D)**	1 site	• Computer & Electronic Manufacturing • Larger Multi-tenant Office Complex • Small- & medium-scale manufacturing • Warehouse, distribution & wholesale • Combination of above Employers	100 Acres (1 site)	18%	none	• Computer & Electronic Manufacturing • Small-scale Manufacturing • Business Startups, Incubators, Technology Ancillary & Support Businesses. • Construction Companies
Medium and Smaller Industrial Park acres (20-50 acres site)	2 sites	• Multi-tenant Office Complex. • Business Incubator • Food Processing	100 Acres (2 sites)	18%	1 site - 20.8 acres	• Multi-tenant Office Complex • Small-scale Food Processing • Small-scale manufacturing, warehouse, distribution & wholesale. • Retail Outlets

		• Small-scale manufacturing, warehouse, distribution & wholesale • Combination of above Employers				• Consumer Goods Production, Distribution
Expanding Users (5-20 acres)	8 sites	• Business Incubator • Small-scale warehouse, distribution & wholesale • Professional services	80 Acres (8 site)	15%	none	• Business Incubators • Professional Services offices
Independent Small Businesses (5 acres or less)	13 sites	• Small-scale warehouse, distribution & wholesale • Business Incubators • Professional services[18]	65 Acres (13 sites)	12%	4 sites - > 1 acre 1 site - > 5 acres 1 site – 5.5 acres	• Small-scale warehouse/distribution • Professional services
Totals:	***26 sites***		***545 Acres***	***100%***	***29.6 acres/ 12 lots***	
Commercial (Est. 20-Years Land Need)						
Larger Retail Center and/or Business Park or (20-40 acres)	1 site	• Multi-tenant Office Complex • Retail Commercial • Business Incubators • Commercial services • Combination of above Employers	40 acres (1 site)	33%	none	• Retail Commercial /Commercial Services • Multi-tenant Office Complex/ Commercial Services
Medium Business Park or Convenience Retail Complex (5-20 acres)	5 sites	• Business Incubators • Commercial Services		17%	none	• Commercial Services/Business Incubators

[18] Professional services may include business services, software development, research or environmental services, independent contractors, sole proprietors, governmental services (especially primary education), other personal services (i.e., services for seniors like assisted living facilities, retirement centers and related medical services).

		• Convenience Retail Commercial[19] • Combination of above Employers	60 acres (5 site)			• Convenience Retail Commercial (10 Acres, 1 site)
Small Offices & Independent Retailer, Lodging Sites (5 acres or less)	17 sites	• Commercial Services • Convenience Commercial Retail • Combination of above Employers • Business/Family Lodging	85 acres (17 sites)	50%	19 tax lots 15 sites – >1 Acre 4 site - > 5Acres 1 site – 3.1 acres	• Commercial services • Lodging • Free-standing and small groupings of restaurants, dry goods and personal services shops, etc.
Totals:	***23 sites***		***185 Acres***	***100%***	***12.6 Acres/19 lots***	

19 Includes grocery store(s), other retail, and restaurants

C. Relationship Between Industry Site Needs & City Job Growth Forecast

Identifying specific North Plains' site needs (i.e., need for land by sites) involves two steps: (1) identifying target industries for North Plains described in Fig. 6.10 and applying the characteristics of sites needed by businesses in those industries, and (2) a forecast of jobs growth in Fig. 6.04 and allocation of that jobs growth to sites based on industry maximum site size standards (Appendix "A") and observed existing nearby site development patterns and characteristics (Appendix "B") Fig. 6.11 on the following page applies and describes that process and the application results (in terms of jobs and sites) for North Plains.

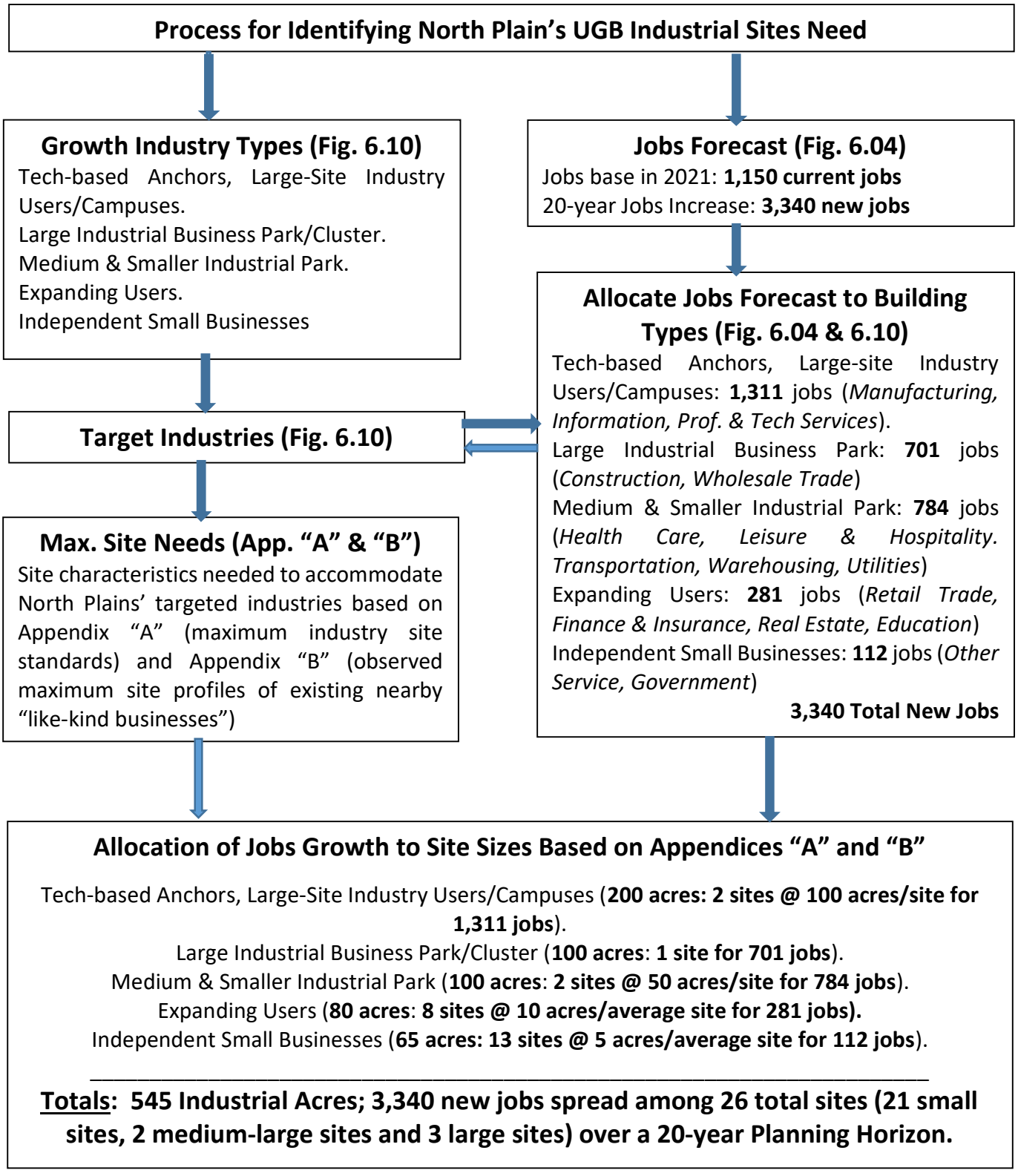
Need/Demand for the Targeted Large Industrial Sites:

- North Plains' need for and accommodation of the 100-acre and 50-acre large sites described in Fig. 6.11 derive from the City's Goal 14 livability-based continuing and growing fiscal need to better provide basic City services: Providing these large sites proposals will position North Plains to capture – within a 1-3 year timeframe - a part of the well-documented national, State and Silicon Forest clearly urgent need/demand for such sites for semiconductor campus as well as stand-alone manufacturing and supporting uses. In turn, accommodating such uses will dramatically and relatively-quickly improve the City fiscal resources/capacity to provide/support those City services.

- In Oregon, a clear and imminent industrial large-site demand is confirmed by the findings of the Oregon Semiconductor Competitiveness Task Force Industrial Lands Subcommittee: there is a clear State interest and related concern that the much of the supply of Oregon's large site, development-ready sites are highly constrained and need costly and time-consuming site assembly; need environmental remedies; and/or lack needed infrastructure. These constraints are common to the very few Oregon sites that can accommodate large industrial campuses (needing from 250-500 acres), stand-alone device manufacturers (needing 25-150 acres) and their major suppliers (needing 10-75 acres). Fig. 6.08 describes North Plains' effort to provide these types of medium-to-large industrial sites for such targeted industries businesses. These issues rob the State of the land resources it needs to compete nationally and internationally for these types of North Plains-targeted tech-based industries. North Plains' ability to pursue and do that is helped by a fairly straightforward and less-cumbersome UGB expansion policy and regulatory review process as well as the "Undesignated" Urban & Rural Reserves status of potential UGB expansion candidate sites that abut the City.

- In the heart of the nearby Oregon Silicon Forest there are about 20 businesses directly connected to semiconductor, high tech research/support and bio-tech sectors. (see Appendix "B"). Though product research, marketing and other administrative aspects of these sectors have been impacted by Pandemic-spurred live-work jobs location trends like other industries, the product-manufacturing and product-processing functions activities - and sites - for these sectors still must rely on a close and convenient access to their employees. Prospective North Plains UGB expansion areas/sites can provide such close-by workplaces to the considerable number of North Plains' working residents who do both on-site and off-site work for businesses in these sectors.

Figure 6.11: North Plains Job Growth to Sites Need by Size Allocation Schematic



VII. RECONCILIATION OF LAND NEED & SUPPLY

North Plains Buildable Land Inventory

A Buildable Lands Inventory (BLI) was prepared for the City of North Plains by 3J Consulting, identifying the remaining buildable parcels of land in the city's commercial and industrial zones. The available inventory for both commercial and industrial users is limited by the prior build-out of most of the city's employment land.

FIGURE 7.01: BUILDABLE LAND INVENTORY OF EMPLOYMENT LANDS, CITY OF NORTH PLAINS - 2021

LAND USE		Acres	Taxlots	Consolidated Sites	Largest Site (ac.)	0 to .9 acres	1 to 4.9 acres	5 to 9.9 acres	10 to 19.9 acres	20+ acres
Commercial										
C-1	General Commercial	0.7	5	5	0.2	5	0	0	0	0
C-2	Highway Commercial	12.0	14	14	3.1	10	4	0	0	0
		12.6	19	19	3.1	15	4	0	0	0
Industrial										
M-1	Light Industrial	5.5	4	1	5.5	0	0	1	0	0
M-2	General Industrial	24.1	8	6	20.8	4	1	0	0	1
		29.6	12	7	20.8	4	1	1	0	1
	TOTAL:	***42.2***	***31***	***26***	***24.0***	***19***	***5***	***1***	***0***	***1***

Source: 3J Consulting

The inventory found 42 total remaining employment acres in 26 consolidated parcels (31 individual tax lots). An estimated 30% of the remaining acreage has commercial zoning, and 70% has industrial zoning.

Of the 26 consolidated (buildable parcels adjacent to each other), 19 are of less than one acre. An additional 5 are larger than one but less than five acres. There is one industrial site over five acres, and one over 20 acres.

Comparing this inventory to the 20-year forecast of employment land need generated earlier in this analysis indicates that the projected demand exceeds the estimated remaining capacity for new employment development by a significant amount. Figure 7.02 presents a comparison of the 20-year land need projection (Section VI) and the BLI in gross acres.

Land Supply and Demand (acres): The comparison of BLI (supply) to the forecasted 20-year need for employment lands (demand) show a probable deficit of land over the planning period if North Plains is to accommodate the growth in employment projected by this analysis. There is a total projected demand for 730 gross acres of employment land, compared to 42 total acres of remaining buildable supply. There is a resulting deficit in both commercial and industrial lands compared to forecasted growth.

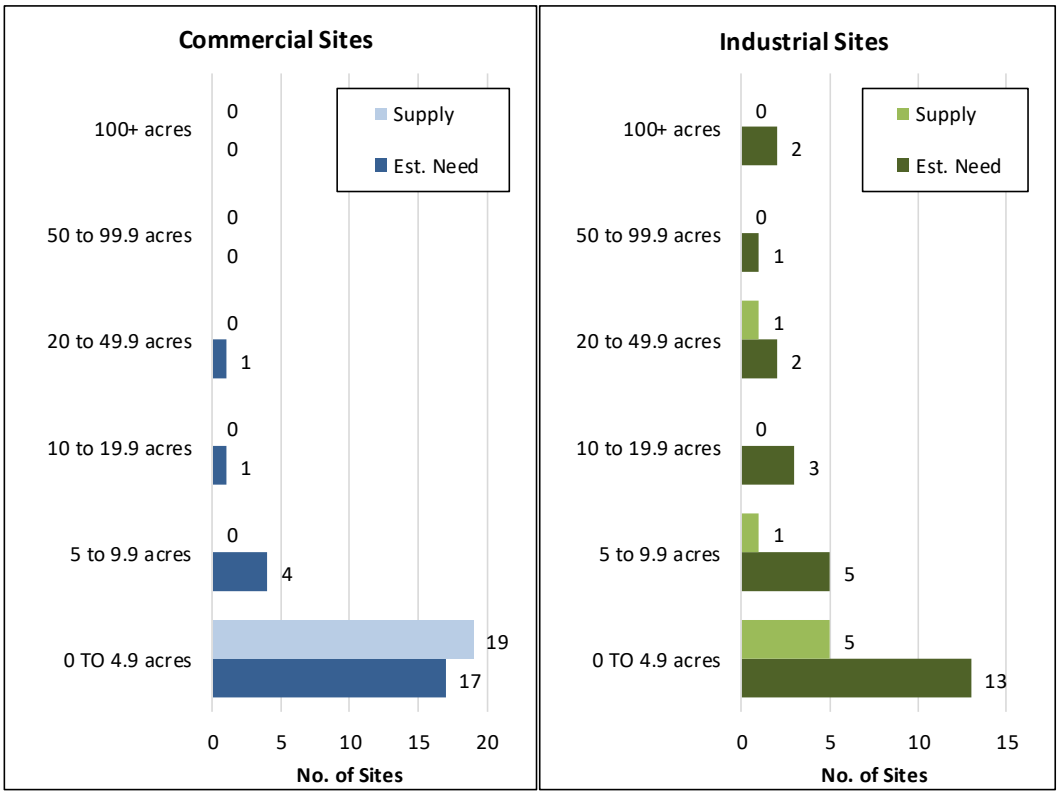
FIGURE 7.02: RECONCILIATION OF BLI CAPACITY AND PROJECTED DEMAND, CITY OF NORTH PLAINS– 20-YEAR

LAND CATEGORY	Land Demand (Gross Acres)	Land Supply (Gross Acres)	Land Sufficiency (Acres)
Commercial Total:	185.0	12.6	-172.4
Office	*91.5*		
Institutional	*21.2*		
Retail	*72.3*		
Industrial Total:	545.0	29.6	-515.4
Flex/B.P	*167.6*		
Gen. Ind.	*324.5*		
Warehouse	*52.9*		
TOTAL:	730	42	-687.8

Source: Johnson Economics, 3J Consulting

Land Supply and Demand (Site Size): The following figure presents a comparison of the estimated needed number and sizes of sites and the number of comparable sites in the BLI (Figure 7.01).

FIGURE 7.03: RECONCILIATION OF BLI CAPACITY AND PROJECTED DEMAND, BY SIZE OF SITE CITY OF NORTH PLAINS (2021-2041)



Source: Johnson Economics, 3J Consulting

As Figure 7.03 shows, much of the remaining available supply is in the smallest parcels of under five acres. Many of these are well less than one acre in size. Forecasted demand is for a range of site sizes, including of medium and very large sites to accommodate high-tech manufacturing and data center recruitment. While the needs of future prospective businesses are hard to predict, this comparison points to the need for an estimated 6 additional commercially zoned sites of five to 50 acres, and 19 additional industrial sites of all sizes.

CONCLUSION OF LAND NEED

The analysis presented in this EOA supports the needs for a full range of sites of appropriate size and location to meet the economic development priorities of the city.

The reconciliation of forecasted 20-year demand with available supply of buildable parcels indicates that the City of North Plains will face a deficit of available land to meet its economic development needs well within the 20-year planning horizon. This analysis concludes a probable deficit of over 680 acres of employment land and roughly 25 medium to large sites of differing sizes.

APPENDIX A: GENERAL SITE REQUIREMENTS BY INDUSTRY

The following series of tables summarize the key site preferences and/or requirements for a range of prospective tenant types.[20]

	CRITERIA / PROFILE		A	B	C	D	E	F	G	H	I	J
			Computer & Electronic Manufacturing (High-Tech R&D)	Software & Media	Multi-Tenant Office	Food Processing	Other Manufacturing	Life/Bioscience R&D Campus	Wholesaling	Retail	Data Center	Incubator
	GENERAL REQUIREMENTS		Use is permitted outright, located in UGB or equivalent and outside flood plain; and site (NCDA) does not contain contaminants, wetlands, protected species, or cultural resources or has mitigation plan(s) that can be implemented in 180 days or less.									
	PHYSICAL SITE											
1	TOTAL SITE SIZE*	Competitive Acreage**	5 - 100+	5 - 15	5 - 20	5 - 25+	5 - 15+	20 - 100+	10 - 25	5 - 20	10 - 25+	5 - 25+
2	COMPETITIVE SLOPE:	Maximum Slope	0 - 5%	0 - 7%	0 - 7%	0 - 5%	0 - 5%	0 - 7%	0 - 3%	0 - 7%	0 - 7%	0 - 5%
	TRANSPORTATION											
3	TRIP GENERATION:	Average Daily Trips per Acre	40 - 60	80 - 200[1]	120 - 240[2]	50 - 60	40 - 50	60 - 150	50 - 60[3]	400 - 500[4]	20 - 30	40 - 50
4	MILES TO INTERSTATE OR FREIGHT ROUTE:	Miles	w/in 10	w/in 5	w/in 5	w/in 30	w/in 20	w/in 5	w/in 5	w/in 5	w/in 30	N/A
5	MILES TO FREQUENT TRANSIT SERVICE (15 MIN OR LESS)	Miles	0.6	0.5	0.8	< 0.1	0.2	0.1	0.3	< 0.1	0.1	< 0.1
6	RAILROAD ACCESS:	Dependency	Preferred	Not Required	Not Required	Preferred	Preferred	Preferred	Preferred	Avoid	Avoid	N/A
7	PROXIMITY TO MARINE PORT:	Dependency	Preferred	Not Required	Not Required	Preferred	Preferred	Preferred	Preferred	Not Required	Not Required	N/A
8	PROXIMITY TO INTERNATIONAL/ REGIONAL AIRPORT:	Dependency	Competitive	Required	Preferred	Preferred	Preferred	Required	Not Required	Not Required	Competitive	N/A
		Distance (Miles)	The City of Hillsboro enjoys a competitive advantage that all industries within Hillsboro are located within 5 miles of an international airport (Hillsboro International Airport)									

[20] Business Oregon, Mackenzie

			PROFILE	A	B	C	D	E	F	G	H	I	J
			CRITERIA	Computer & Electronic Manufacturing (High-Tech R&D)	Software & Media	Multi-Tenant Office	Food Processing	Other Manufacturing	Life/Bioscience R&D Campus	Wholesaling	Retail	Data Center	Incubator
	UTILITIES												
9	WATER:	Min. Line Size (Inches/Dmtr)		12" - 16"	6" - 8"	8" - 10"	12" - 16"	6" - 10"	8" - 12"	6" - 10"	8" - 12"	16"	4" - 8"
		Min. Fire Line Size (Inches/Dmtr)		12" - 18"	8" - 10"	8" - 12"	10" - 12"	8" - 10"	8" - 12"	8" - 10"	8" - 12"	10"-12"	6" (or alternate source)
		High Pressure Water Dependency		Required	Not Required	Not Required	Required	Not Required	Preferred	Not Required	Not Required	Required	Not Required
		Flow (Gallons per Day per Acre)		5,200	1,200	1,500	3,150	1,850	2,450	1,200	1,800$_5$	50 - 200†	1,200
10	SEWER:	Min. Service Line Size (Inches/Dmtr)		12" - 18"	6" - 8"	8" - 10"	10" - 12"	6" - 8"	10" - 12"	6" - 8"	6" - 10"	8"- 10"	4" - 6" (or on-site source)
		Flow (Gallons per Day per Acre)		4,700	1,000	2,000	2,600	1,700	2,000	1,000	1,500$_5$	1,000‡	1,000
11	NATURAL GAS:	Preferred Min. Service Line Size (Inches/Dmtr)		6"	4"	4"	4"	4"	6"	4"	4" - 6"	4"	N/A
		On Site		Competitive	Preferred	Competitive	Preferred	Competitive	Competitive	Preferred	Competitive	Preferred	Preferred
12	ELECTRICITY:	Minimum Service Demand		4 - 6 MW	1 - 2 MW	0.5 - 1 MW	2 - 6 MW	0.5 MW	2 - 6 MW	0.5 MW	0.5 - 1 MW	5 - 25 MW	1 MW
		Close Proximity to Substation		Competitive	Competitive	Preferred	Not Required	Preferred	Competitive	Not Required	Preferred	Required, could be on site	Not Required
		Redundancy Dependency		Preferred	Preferred	Preferred	Not Required	Not Required	Competitive	Not Required	Preferred	Required	Not Required
13	TELECOMMUNICATIONS:	Major Communications Dependency		Required	Required	Required	Preferred	Required	Required	Preferred	Required	Required	Preferred
		Route Diversity Dependency		Required	Required	Required	Not Required	Not Required	Required	Preferred	Preferred	Required	Not Required
		Fiber Optic Dependency		Required	Required	Required	Preferred	Preferred	Required	Competitive	Preferred	Required	Not Required

	PROFILE	A	B	C	D	E	F	G	H	I	J
	CRITERIA	Computer & Electronic Manufacturing (High-Tech R&D)	Software & Media	Multi-Tenant Office	Food Processing	Other Manufacturing	Life/Bioscience R&D Campus	Wholesaling	Retail	Data Center	Incubator
14	**SPECIAL CONSIDERATIONS:**	Acreage allotment includes expansion space (often an exercisable option). Very high utility demands in one or more areas common. Sensitive to vibration from nearby uses.	[1]: Research & Development @ 80 ADTs per acre on the low end, estimated 200 ADTs per acre for general office on the high end. Location specific.	[2]: Range represents FAR 0.25 - 0.5 of office uses. Location to other cluster industries.	May require high volume/supply of water and sanitary sewer treatment. Often needs substantial storage/yard space for input storage. Onsite water pre-treatment needed in many instances.	Adequate distance from sensitive land uses (residential, parks) necessary. Moderate demand for water and sewer. Higher demand for electricity, gas, and telecom.	High diversity of facilities within business parks. R&D facilities benefit from close proximity to higher education facilities. Moderate demand on all infrastructure systems.	[3]: General warehousing rates	[4]: Based on discount warehouse @ 0.25 FAR [5]: Dependent on use, i.e., brewery vs. restaurant. Location to cluster industries.	Larger sites may be needed. The 25 acre site requirement represents the more typical site. Power delivery, water supply, and security are critical. Surrounding environment (vibration, air quality, etc.) is crucial. May require high volume/supply of water and sanitary sewer treatment.	Often established by municipalities and have symbiotic relationships with colleges and/or universities.

Terms:

More Critical ↑ Less Critical	**'Required'** factors are seen as mandatory in a vast majority of cases and have become industry standards.
	'Competitive' significantly increases marketability and is *highly recommended by Business Oregon*. May also be linked to financing in order to enhance the potential reuse of the asset in case of default.
	'Preferred' increases the feasibility of the subject property and its future reuse. Other factors may, however, prove more critical.
	'Not Required' does not apply for this industry and/or criteria.
	'Avoid' factors act as deterrents to businesses in these industries because of negative impacts.

*Total Site: Building footprint, including buffers, setbacks, parking, mitigation, and expansion space.

**Competitive Acreage: Acreage that would meet the site selection requirements of the majority of industries in this sector.

† Data Center Water Requirements: Water requirement is reported as gallons per MWh to more closely align with the Data Center industry standard reporting of Water Usage Effectiveness (WUE).

‡ Data Center Sewer Requirements: Sewer requirement is reported as 200% of the domestic usage at the Data Center facility. Water and sewer requirements for Data Centers are highly variable based on new technologies and should be reviewed on a case-by-case basis for specific development requirements.

Source: Mackenzie, Business Oregon

APPENDIX B: WESTERN WASHINGTON COUNTY SITE CHARACTERISTICS

BUSINESS OR COMPANY NAME	PRODUCT AND/OR SERVICES	INDUSTRIAL CATEGORY	TAX MAP/LOT NO.	TAX LOT AREA
SOFTWARE & INFORMATION TECHNOLOGY (Silicon Forest contains 216 Firms, 2,717 direct industry jobs, $128k average wage)				
NTT Global Data Center	Cloud Data Storage, Colocation, Data Management, Professional Services	Data Center Services	1N22 100 TL2100	19.77 Acres
QTS Data Centers	Data Storage, Retrieval; Cloud Connection, IP Network Services	Mega Data Center	1N22 100 TL 2500, 3100 & 3102	90.3 Acres
T5 Data Center	Data Storage, Solutions & Retrieval: Data Facilities Development, Management & Construction	Data Center	1N22 100 TL 2201	8.46 Acres
Stack Infrastructure (3 sites)	"Build-to-Suit" Data Center; Flexible digital infrastructure for client companies.	Data Center	1N22100 TL 2202	12.0 Acres
Digital Reality	Worldwide IT Services (data storage & control, networking of global enterprises)	Data Center	1N21500 TL 2650	46.7 Acres

NOTES

- Attracting/accommodating Data Centers like those identified in this Table is a North Plains industrial growth and development priority: Demand for Data Center sites within and near these existing Centers continues while suitable "development ready" sites that meet key data center site selection factors cited below are not now available in the Silicon Forest. Continuing growth of like-kind data centers in/near the Silicon Forest will spur growth in many of the high-tech support businesses identified in this Table.

- Key Data Centers Site Selection Factors: *Non-exposure to natural disasters, clean power source, fiber network connectivity, transportation, construction/permit costs, taxes/land & economic incentives, speed to market (go-live-time)*[21]. Potential North Plains UGB Expansion Sites abutting the City can offer these data center site-selection advantages due to their close Silicon Forest proximity.

- Existing Silicon Forest Data Centers in this Table range in site sizes: 90 acres (large site), 48 acres (mid-size site), 9-20 acres (smaller sites). NP 200 Acres UGB expansion proposal – 100 acres in 2 separate locations can accommodate:

21 Source: Site Selection Magazine: *Data Centers: Site Selection 101*, Nov. 2012

- One 100-acre large data center site on a 100-acre sites similar to the QTS Data Center., or
- Several mid-size and smaller-size data centers on the potentially divisible 100-acre site. These would be "Edge Data Centers"[22] such as *Digital Reality, NTT Global Data Center, T5 Data Center* and *Stack Infrastructure* Data Centers.

- Other Silicon Forest Software & IT Companies include *Salesforce, Synopsis, Laika, Oracle, Microsoft, Adobe.* Like-kind new companies seeking Silicon Forest locations can be accommodated on suitable sites w/in potential North Plains UGB Expansion sites (Recent Westside location patterns for such companies suggest this: i.e.; Synopsis & Salesforce co-locate on 34.82-acre, business park site: each user occupying multi-story structures.)

- The Silicon Forest contains a concentration of tech giants, software and medium firms indicating continuing land demand for more sites by such high tech companies, including "development ready" (per industry site location standards) sites. NP UGB expansion area can accommodate that demand within the two (2) 100-acre sites proposal.

COMPUTER & ELECTRONIC & ADVANCED MANUFACTURING **(Silicon Forest contains 71 firms, 39 semiconductor businesses, 23,404 direct industry jobs; $167k average wage)**				
JSR Micro, Inc. Materials Innovation	High Tech Products; Semiconductor Manufacturing & Supplier	High Tech	1N22 100 TL 1500	17.69 Acres
Intel Ronler Acres	Advanced Integrated Digital Technology Platforms; Product Development (5 campuses, 21,394 jobs)	High tech	1N22 700 TL 100, 104, 1650	410.73 Acres
Intel Jones Farm	New Technology Product Research & Development (5 campuses)	High Tech	1N22 900 TL 802	116.71 Acres
Intel Hawthorne Farms	Advanced Integrated Digital Technology Platforms	High Tech	1N2 34B TL 100	53.14 Acres
Applied Materials (5 campuses)	Semiconductor Manufacturing Equipment, Device Manufacturing (5 campuses; 500 jobs)	High Tech	1N22 6B Tl 100 (Hillsboro campus only)	4.3 Acres
Qorvo	Advanced RF Solutions, Device Manufacturing (1085 jobs)	High Tech	1N22 8DA TL 1300, 1400	29.71 Acres

22 "Edge Data Center" computing: Moves a business' data and cloud data storage and computing resources out of a central data center and closer to the business generating the data. Source: *"What is Edge Computing",* Bigelow, TechTarget

Lattice Semiconductor	Product Development (122 jobs)	High Tech	1N234B TL 300	11.04 Acres
Jireh Semiconductor	Power MOSFETs and Power ICS (481 jobs)	High Tech	1N226B TL 302	24.21 Acres
Hitachi High Tech America (3 sites; 2 w/in Ronler Acres & Jones Farm sites)	Semiconductor Equipment/Electron Microscope Production (275 jobs)	High Tech	1N226B TL 1500	2.51 Acres

NOTES

- Attracting/accommodating High tech Manufacturers and Advanced Manufacturing business, large and small, like those identified in this Table is a North Plains industrial growth and development priority. Demand for such sites within the Silicon Forest continues while suitable "development ready" sites that meet key data center site selection factors cited below are not now available in the Silicon Forest.
- Appendix A Table: Industry Standard: *High Tech Manufacturing & R&D Site Size Competitive Edge: 5 – 100+ Acres*. Silicon Forest High Tech Companies listed in this table reflect that site size range.
- Existing Silicon Forest High Tech Companies in this Table range in site sites: 100-400+ acres (large sites), 20-50 acres (mid-size sites), 5-20 acres (small sites). Potential North Plains UGB Expansion Sites abutting the City can accommodate:
    - One 100-acre large high-tech site like Intel Jones Farm or two (2) mid-size sites like Intel Hawthorne Farms on a 100-acre site, or
    - Several small high tech sites similar in size to the remaining existing tech companies listed in the Table within a divisible 100-acre site .
    - The lack of suitable large industrial sites within the Portland Region (Oregonian Articles by Mike Rogoway)

- Other Silicon Forest High Tech Companies: *Tokyo Electron, Leyard Planar, ASML.* Other Silicon Forest Advance Manufacturing Companies: *Dynic USA, Davis Tool, Inc., Ammcon, CST Cascade System Technology*
- NP UGB Expansion Proposal Table describes a need for three (3) 100-acre sites:

    - Two (2) 100-acre sites to accommodate stand-alone data centers and/or larger high tech companies that need large sites like those in the Intel campuses at *Ronler Acres* and *Hawthorne Farms* – 200 total acres.
    - One (1) 100-acre site to accommodate, alternatively, large, medium and/or smaller tech company site needs within one large industrial business park to accommodate a concentration of companies like *Tokyo Electron, Leyard Planar, ASML* and various Advance Manufacturing Companies *Dynic USA, Davis Tool, Inc., Ammcon, CST Cascade System Technology.*

HIGH TECH, & GENERAL INDUSTRIAL SUPPORT BUSINESSES

(These businesses are located in Helvetia/West Union Road Industrial Area[23]: Approx. 127 developed acres (excluding roads, BPA r/w, vacant parcels))				
Quantum Clean	High tech Outsourced Parts Cleaning and Coating (32 jobs)	High Tech Support	1N214AD TL 4800	4.00 Acres
Komico	Semiconductor equipment cleaning and refurbishing (under construction)	High Tech Support	1N222AA TL 400	5.58 Acres
Daifuku Cleanroom Automation America	Material Handling System (83 jobs)	High Tech Support	1N222 TL 3300	1.92 Acres
Sunset Highway Business Park	Tenants: *PSK, Style Motors, Party Pros, MFCP Motion & Flow Control Products, Stanley Steemer, Acme, JR, Evatec, CMC Materials, Ebara)*	Business Park	1N222BA TL 200	21.55 Acres
CMC Materials (part of Sunset Hwy. Bus. Park)	CMP Slurries and CMP polishing pads (282 jobs in all Silicon Forest sites)	High Tech Support	1N222AB TL 200	[4.22 Acres]
Evatec (part of Sunset Hwy. Bus. Park)	Physical Vapor Deposition (PVD) Systems (10 jobs)	High Tech Support	Por. 1N222BA TL 200	N/A
Ebara Technologies (part of Sunset Hwy. Bus. Park)	Vacuum Pumps, Water Processing Equipment (109 jobs)	High Tech Support	1N215CD TL 500	[4.10 Acres]
Five Oaks Business Park (4 bldgs.)	Tenants: *AMG, Ebara, Green Energy Solutions, North Coastal Solutions, Maxima USA, U.S. Linen & Uniform, Yamato Transport USA.*	Business Park	1N215CD TL 200, 300, 400 & 500	12.39 Acres
Pinefarm Business Park (5 bldgs.)	Tenants: *PuroClean, Muratec, SteepleJack*	Business Park	1N222AB TL 100	3.65 Acres
Fortior Solutions	Identification Management Programs & Services	Business Security Systems & Consulting	1N222AB TL 200	5.83 Acres
GXO Solutions	Logistics & Supply Chain Management	Business Consulting	1N215DC TL 100	4.66 Acres
Fiber SensSystems	Fiber-optic Intrusion Detection Systems for Perimeter Security & Physical Data Networks	High Tech Support	1N222AC TL 3400	1.96 Acres
Master Halco	Fencing Materials Production, Installation	Business & Property Fencing	1N222AC TL 3000	8.02 Acres
Micron Laser Technology	Electrical Equipment & Component Manufacturing, Electrical Equipment (30 jobs)	High Tech Support	1N222AC TL 102	9.87 Acres

[23] Area bounded by US Hwy. 26. Jacobsen Road & Croeni Road.

Edwards Vacuum	Machinery Manufacturing, Air & Gas Compressors (30 jobs)	High Tech Support	1n222AA TL 100, 200, 700	8.08 Acres
Tosoh Quartz	Quartz Glassware for Semiconductor Industry for Processing Integrated Circuits, Electronic Manufacturing (201-500 jobs: all company sites)	High Tech Support	1N222AC TL 108	5.00 Acres
Green Space	Design & Build, Solar Panels, Green Operations, Sustainable Construction, Green operations, Materials Reclamation (46 jobs)	Businesses Support & Display Consulting/Services	1N222AC TL 300 & 400	10.43 Acres
Javelin Logistics	Full spectrum of inventory/material management logistics and transportation services; material warehousing and distribution and order fulfillment services.	High tech and businesses support	1N22200 TL 1700	7.15 Acres
DHL Supply Chain	Businesses Logistical Solutions re: transportation, warehousing and management services	High tech and businesses support	1N222AAA TL 600	4.42 Acres

NOTES

- Three (3) Business Parks containing 37.59 acres containing a mix of high-tech support businesses and other smaller general business and professional services companies are located within the Helvetia/West Union Road Industrial Area. NP anticipates a moderate distribution of such Parks within the UGB expansion area, continuing a regionwide trend of industrial business park growth and development.

- NP UGB Expansion Proposal Table describes a need for two (2) 100-acre sites:
    - Each 100-acres site to accommodate 2-3 Industrial Parks similar in scale to the *Sunset Highway Business Park, Pinefarm Business Park* and the *Five Oaks Business Park* and contain those high tech and general industrial support businesses such as those scattered throughout the Helvetia/West Union Road Industrial Area.
    - Additionally, the 2 Parks would contain enough land to accommodate tech-based businesses such as *Salesforce, Synopsis, Oracle, Microsoft, Laika* separately or in smaller clustering sites.

- Replicating the mixture and array of various types of high-tech, high-tech support and general industrial uses within the Helvetia/West Union Road Industrial Agglomeration within new larger and smaller Industrial Parks on suitable UGB expansion areas is a North Plains priority per its Vision and adopted economic growth/development priorities. The existence of the list of such industrial uses w/in the Table demonstrates the reasonable feasibility of NP being able to attract/accommodate such like-businesses within new business parks situated in proposed industrial UGB expansion sites.
- Re: NP casting a "wide net" re: attracting a diverse industrial profile of fabricators, suppliers, research facilities, etc.
- All these high-tech support operations are scattered throughout this Area either on separate lots or in co-located structures.
- Site size range

BIOSCIENCE & MEDICAL DEVICES

(44 firms, 1,119 direct industry jobs; $71k average wage)

Genentech	Medical Fill Finish Packaging and Distribution Facility (450 jobs)	Biotech	1N221 TL 2800, 2801, 2802 & 2900	75 Acres
Acumed Facilities (2 sites)	Medical Implant Devices Research, Design and Manufacture (headquarters, 32 jobs) for global distribution.	Biotech	1N222C00900	8.49 Acres

NOTES

- The presence in the Silicon Forest of industry leaders in advance materials, software systems, precision manufacturing and health research create opportunities for biotechnology firms to locate in and near the Silicon Forest, including on North Plains UGB expansion sites. Existing companies like *Genentech, Acumed, Forest Equipment, Accute Innovations* reflect growth of this specialized industry cluster on the Westside

Other Major Businesses (Warehousing & Distribution; Other)				
Amazon	Consumer Goods Marketing, Sales & Distribution center (potential expansion site)	Wholesaler & Retailer Storage, Sales, Distribution	1N22100, TL 2600 & 2700	8.46 Acres
Columbia Industries	Outdoor Sports Equipment & Apparel Wholesale and Retail Complex	Consumer Goods Warehouse & Sale Outlet	1N222 TL 1400	8.85 Acres
WashCo. Consolidated Communications	Government Agency Communication Services	Government	1N215DC TL 200	6.00 Acres
Petersen CAT	Heavy Construction Equipment Sales & Rentals	Construction Industry Support	1N222 TL 3500	22.51 Acres
Cascade Wholesale Hardware	Hardware, Plumbing & Heating Equipment and Supplies (1 of 43 US companies) (50 jobs – all sites)	Wholesale Products	1N222 TL 1600	7.53 Acres
Seals Unlimited	Production of rubber extrusion, molding, gaskets, hydraulic gate seals for government and private industries.	General Industrial	1N22200 TL3200	4,64 Acres

NOTES

- The Amazon expansion site indicates NP potential to attract similar consumer goods operations on available and suitable larger UGB expansion sites. It is located on Huffman Road south of Hwy. 26.
- The Columbia Industries, WashCo. Consolidated Communications Agency and Petersen CAT businesses are located within the Helvetia/West Union Road Industrial Area.

SOURCE: PR Land Use Strategies

APPENDIX C: NORTH PLAINS FISCAL ANALYSIS MEMO

Date: March 10, 2022

To: North Plains City Council
City Manager Andy Varner

From: Finance Director Bill Reid

Subject: Service Levels & Fiscal Sustainability of Urban Growth Boundary Expansion

---

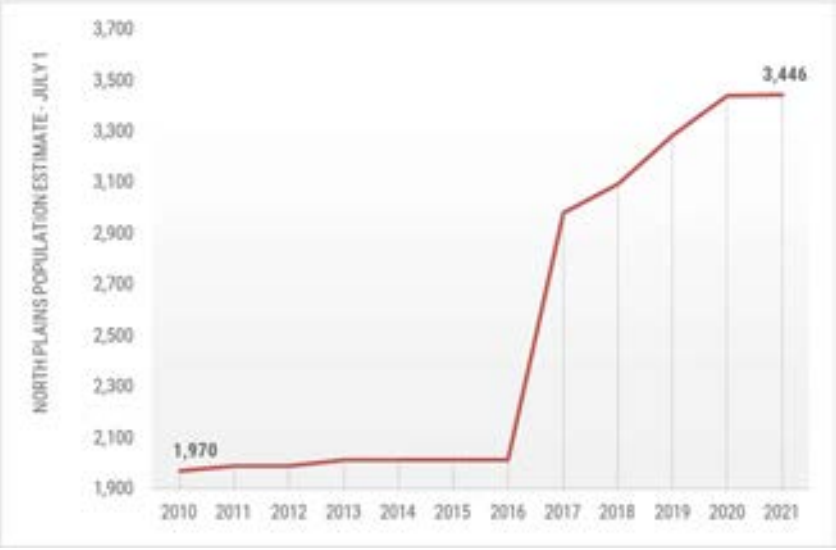
This memorandum is intended as a discussion of the fiscal trends and issues that face the City of North Plains as it currently determines an appropriate Urban Growth Boundary ("UGB") expansion.

This memo is divided into the following topics:

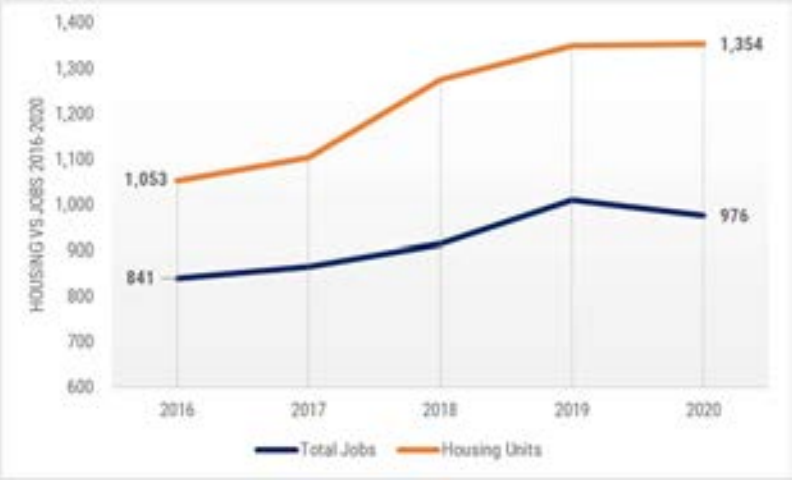
A. Recent & Future Growth Following End of Voter-Approved Annexations
B. North Plains Service Levels & Services Funding
C. City Council Four Priorities for UGB Expansion
D. Implications for UGB Expansion: Employment Investment vs. Residential Investment

A. Recent & Future Growth Following End of Voter-Approved Annexations

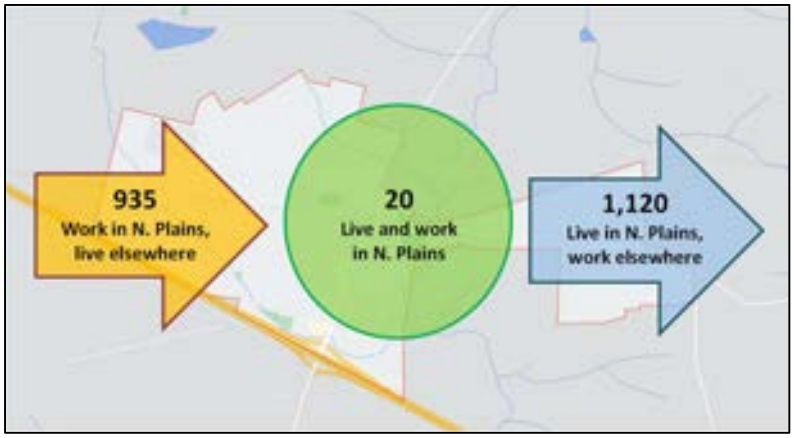
Since the passage of Senate Bill 1573 in 2016 and its affirmation by the Oregon Supreme Court in 2017, the City of North Plains has realized significant new population growth due to development of new housing via legislative annexations. The figure to the right graphically illustrates how North Plains added almost 1,500 residents between 2010 and 2021.



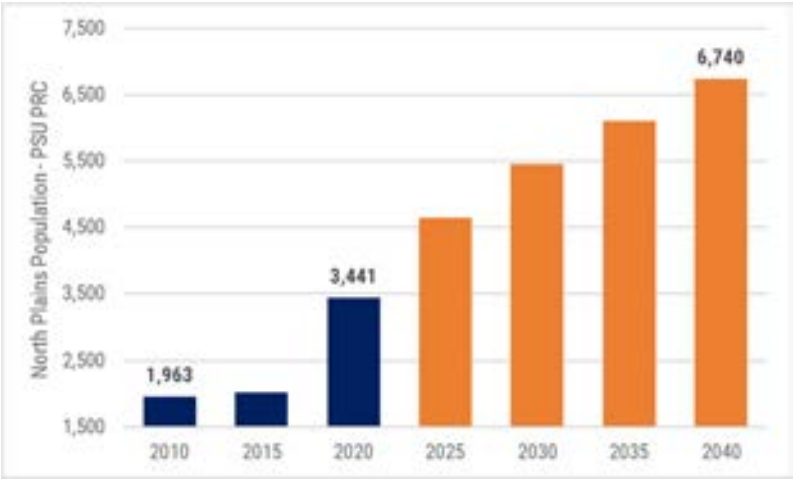
While North Plains has added new housing units and population, Oregon Employment Department data show that job growth has not kept pace as indicated in the figure to the right. The result has been a steady worsening of the City's jobs-housing balance. As will be discussed in the next section, this has also resulted in an increasingly severe fiscal imbalance for the City's tax base.



According to US Census Bureau Census on the Map data, North Plains residents overwhelmingly work for employers in other cities, most notably Intel in Hillsboro and Nike in Washington County near Beaverton. The figure to the right displays the bedroom community pattern data for 2019, the most recent year available.

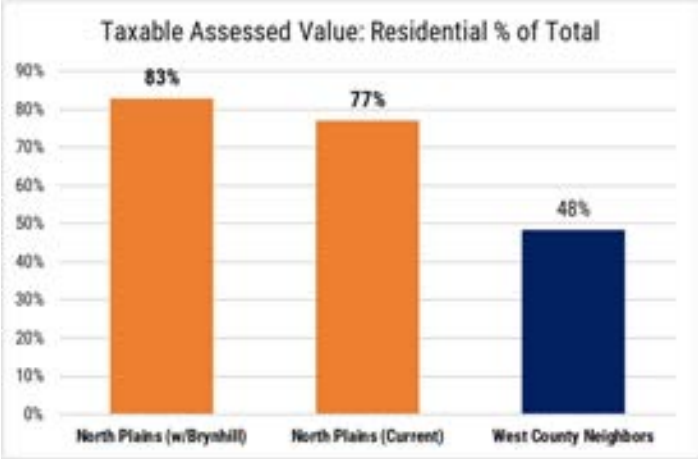


Moving forward, the City must plan for continuation of similar population growth over the next 20 years as forecasted by Portland State University's Population Research Center. As the figure to the right indicates, the City must plan for 6,740 residents in 2040 and then roughly 7,000 residents to be living in North Plains by 2042.

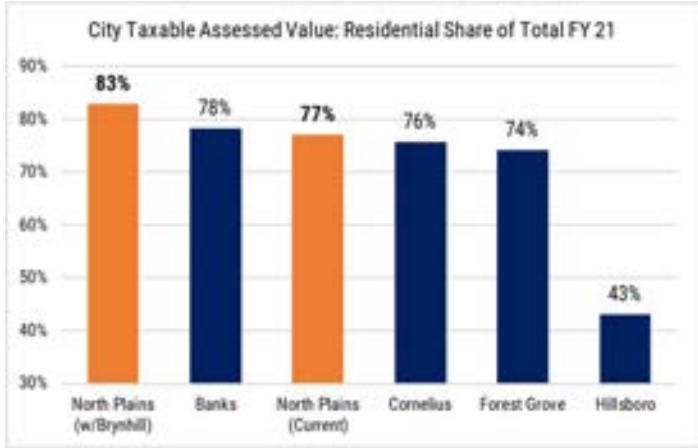


B. North Plains Service Levels & Services Funding

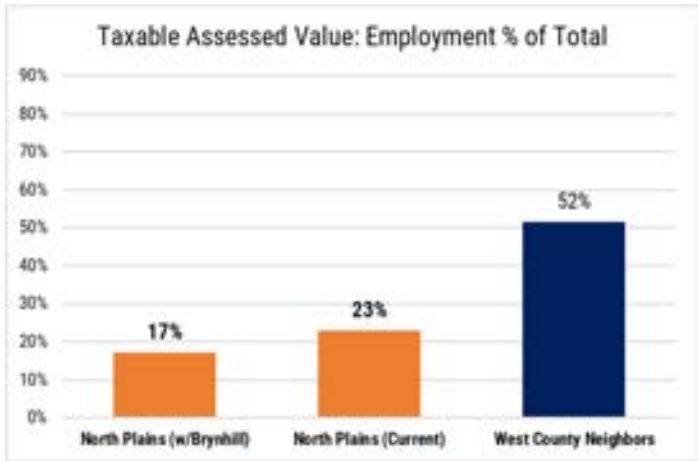
North Plains' growth as a bedroom community for employers in other cities has pushed the city tax base into severe overreliance on residential assessment. Washington County tax assessment data to the right indicates North Plains currently has the second-highest reliance on residential taxable assessed value ("TAV") (77%). With Brynhill built out in five years, the City will have the highest reliance on residential assessment among its neighbors (83%).



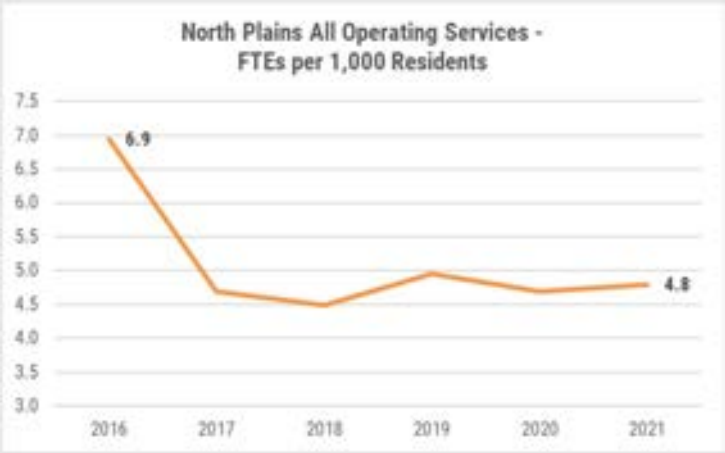
For more specific perspective, the figure on the right displays the share of City TAV that is residential land and improvements for North Plains now, after Brynhill build-out, and Banks, Cornelius, Forest Grove and Hillsboro.



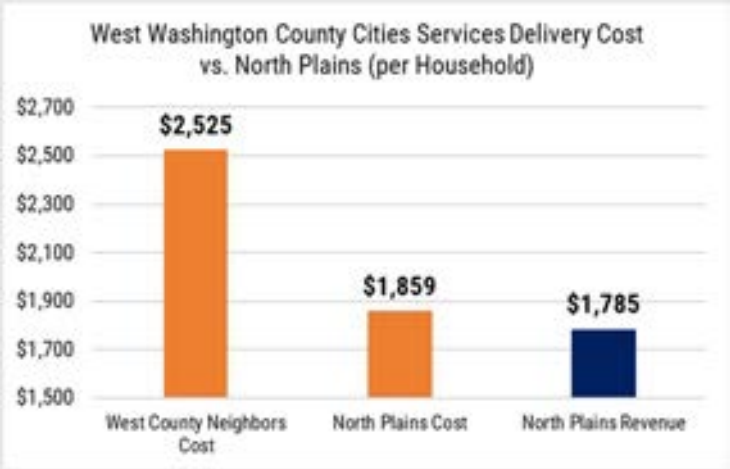
Taxable assessed value from employment uses, therefore, is among the lowest and will be the lowest among West County neighbors after Brynhill is built out (17%). Comparatively, North Plains' neighbors average 52% of total tax value attributable to employment investment value.



North Plains' rapid growth as a bedroom community since 2016 and increasing reliance on higher-cost residential tax assessment has led to declining service levels over time. The figure to the right displays annual FTEs per 1,000 population in North Plains, which is currently at an all-time low for staffing to meeting resident services needs. Staffing levels to the right include law enforcement that is now contracted with Washington County Sheriff's Office.



Every new household in North Plains costs the City $1,859 in services each year on average while revenue attributable to each household is currently $74 less at $1,785. Across all households in North Plains – and with 3% assessment growth under Measure 50 – that is a sizeable difference to be made up by limited existing employment tax base. That deficit grows each year as costs escalate by 4% to 5% in low-inflation years.



Given the current North Plains employment tax base, it would be fiscally impossible currently and worse with each passing year to provide higher quality of life services comparable to what residents of other nearby cities enjoy: North Plains' neighbors provide a calculated average of $2,525 in operating services per household with a significantly higher business tax base. In other words, if North Plains wanted to provide comparable services and quality of life to the average of its four closest neighbors, it would need enough business investment to make up an almost $800-per-household deficit.

C. North Plains City Council Four Priorities for UGB Expansion & City Quality of Life

Recognizing that the rapid descent into low-service level bedroom community status is not fiscally sustainable and provides a low quality of life, in fall 2021 the City Council of North Plains adopted a set of economic development priorities to guide the update of the Economic Opportunities Analysis, other City economic development initiatives, and partnerships with Washington County and the State of Oregon.

Priorities 2 and 3 in particular call for expansion of business investment in North Plains to allow the City to provide adequate services in a fiscally sustainable manner as population grows, specifically in a reversal of the current bedroom community trend. All Priorities speak to the need to act boldly to enhance City livability via improved jobs-housing balance, fiscal sustainability, adequate infrastructure and services, and local presence of shopping and services to reduce vehicle miles traveled and enhance safety.

PRIORITY 1: Reverse the worsening trend of bedroom community status for North Plains with a thriving jobs-housing balance by expanding and diversifying employment opportunity and industry profile and presence.

PRIORITY 2: Grow business investment in North Plains to encourage expansion and diversification of the City's property tax base to reverse the imbalance created by a growing bedroom community development trend.

PRIORITY 3: Ensure and sustainably fund community-supporting infrastructure, economy-supporting infrastructure, and expanded City services such as recreational offerings that enhance community health and diversify the City economy.

PRIORITY 4: Expand the local presence of important, everyday commercial services for the residents of North Plains which offers a shorter and safer distance rather than at extended and costly distance to other cities.
(Resolution No. 2160, September 2021)

D. Implications for UGB Expansion: Employment Investment vs. Residential Investment

In summary, the following are presently true of North Plains' fiscal path, service levels, and therefore quality of life for residents:

- North Plains population growth has accelerated dramatically following the end of voter-approved annexations in 2016.
- Portland State University Population Research Center forecasts North Plains' population growth will not abate over the next 20 years and drives a new need for city UGB expansion.
- Population growth has overwhelmingly been households employed in other cities; in other words, North Plains has grown as a provider of workforce housing and services to other cities' economies and resulting, growing employment tax base.
- Alternatively, other cities reap the benefit of property taxes and various fees from employers whose employees live in North Plains and depend upon the City of North Plains for public services.
- North Plains' rapid growth as bedroom community for employers outside North Plains has created a significantly worsening tax base balance between residential assessment and employment assessment.
- North Plains' service levels have decreased with population growth and created a fiscal situation that makes it impossible to enhance service levels to quality-of-life standards in other Western Washington County communities.
- Any enhancement to services without expansion of the employment tax base will result in a growing per-household revenue deficit that already exists.

Based on North Plains City Council directive to shore up fiscal sustainability, safety, and service levels that provide a comparable quality of life to other Western Washington County residents, the following table provides an analysis of the order of magnitude of employment land acreage and taxable assessed value (TAV) that would need to be added to within the North Plains UGB by 2042 (constant 2021 dollars from FY 21 taxable assessed value data from Washington County Department of Assessment & Taxation).

Depending upon whether North Plains employment areas have similar intensity to private investment in the Helvetia Industrial Area (HIA) of Hillsboro or achieve closer to 75% intensity of the HIA, North Plains would need between 554 acres to 739 acres of additional, developed employment land, facility and machinery/equipment investment to provide North Plains with a comparable tax base to the average tax base balance of its neighbors Banks, Cornelius, Forest Grove and Hillsboro.

Helvetia Industrial Area - Comparable Development Intensity	
Current + Brynhill + 2021 HNA Residential TAV	$646,003,460
Needed 2042 Employment TAV for 52% West County Average	$699,837,082
Current Employment TAV	$90,475,991
Net New Employment TAV Needed in a UGB Expansion	$609,361,091
TAV Per Acre: Helvetia Industrial Area	$1,100,000
Employment Land Acres Needed in UGB Expansion	**554**

Helvetia Industrial Area - 75% Development Intensity	
Current + Brynhill + 2021 HNA Residential TAV	$646,003,460
Needed 2042 Employment TAV for 52% West County Average	$699,837,082
Current Employment TAV	$90,475,991
Net New Employment TAV Needed in a UGB Expansion	$609,361,091
TAV Per Acre: Helvetia Industrial Area 75% Intensity	$825,000
Employment Land Acres Needed in UGB Expansion	**739**

Data Sources

- FY 20 and FY 21 adopted budget documents for Cities of North Plains, Banks, Cornelius, Forest Grove and Hillsboro.
- Washington County Department of Assessment & Taxation property database (City taxable assessed value data as well as taxable assessed value data by parcel in the Helvetia Industrial Area of the City of Hillsboro).
- US Census Bureau, Census on the Map data, 2019.

APPENDIX D: METRO AREA LAND INVENTORY AND EMPLOYMENT GROWTH FORECASTS

APPENDIX D: METRO AREA LAND INVENTORY AND EMPLOYMENT GROWTH FORECASTS

A. REGIONAL INDUSTRIAL LAND SHORTAGE

The shortage of large industrial sites in Oregon, shovel-ready or not, is well established and has been an on-going topic of discussion in localities, the Portland Metro region, and statewide. The recent passage of the $52 billion Federal CHIPS Act, which should be a boon to the region's important semiconductor sector has triggered a renewed assessment of the industrial land inventory available to respond quickly when economic development opportunities arise.

The preliminary results of the Oregon Semiconductor Competitiveness Task Force, chaired by the Oregon's Governor, US Senator, and the CEO of Portland General Electric has recently reached dire conclusions about the State's ability to accommodate new large industrial users and suppliers with the available industrial land and site sizes available.

Metro has studied land readiness over the last decade, periodically updating its inventory of remaining industrial sites and assessing them for readiness. The sites are ranked in Tiers, indicating readiness for near-term development, with Tier 1 sites being ready and Tier 3 being the least ready. When last updated in 2017, there were 47 sites over 25 acres in size. The Task Force recently updated the inventory to find that the supply had fallen by 40% to 28 total sites. Only two non-contiguous Tier 1 sites remain, totally 82 acres, and these sites lack the size to be adequate for large industrial users.

FIGURE 1: PORTLAND METRO INVENTORY OF LARGE INDUSTRIAL SITES

	2011 Inventory	2014 Inventory	2017 Inventory	2022 Inventory
Tier 1	9	14	10	2
Tier 2	16	17	11	6
Tier 3	31	23	26	20
Total	56 sites	54 sites	47 sites	28 sites

Source: Oregon Semiconductor Competitiveness Task Force, Mackenzie

While the Task Force is focused on the semiconductor industry (discussed more below), it should be noted that this is the total industrial inventory available for all categories of industrial users in the Metro boundary. (This inventory is for industrial land within the Metro UGB, and not the more broadly defined metropolitan region.) As the Tier categories imply, much of the remaining inventory also faces barriers to quickly access and serve with infrastructure.

These findings support the conclusion that the region currently has few to no sites to offer a large new industrial business recruitment or major expansion of an established industry. As the Task Force points out:

> A major component of economic competitiveness is the time it takes to assemble the baseline ingredient of development: industrial land. In many states and countries this isn't a challenge, but in Oregon, it has become a serious barrier in achieving our goals surrounding shared economic prosperity.
>
> As established in this report's "Opportunity" section, Oregon is on the cusp of a 1990s-like semiconductor boom when billions were invested and industry employment more than doubled. That boom was facilitated by 2,000+ acres of industrial land.
>
> As discussed [in this report], this subcommittee found that Oregon faces a serious shortage of available, development-ready large industrial sites relative to 1990s-like demand. If left unaddressed, the shortage presents a critical threat to Oregon's semiconductor industry competitiveness….
>
> …Our lack of industrial land is a chronic problem that has been vividly exposed by the surge [of] interest in semiconductor expansion[1]
>
> - Oregon Semiconductor Competitiveness Task Force

B. CHIPS Act and Semiconductor Industry

The shortage of industrial sites is made especially pressing by the passage of the $52 billion CHIPS Act which is aimed to benefit domestic semiconductor chip manufacturers and suppliers. The Act also signals a strong commitment to boost the industry that may produce additional future funding and incentives as well.

A major beneficiary if not the largest beneficiary of this federal spending will be Intel, the world's largest semiconductor company and the largest private employer in Oregon with an estimated 22,000 employees statewide. Considering that Intel's Oregon campuses are the company's "largest and most comprehensive" sites, they may see a sizable allocation of the CHIPS subsidies to Intel. The allocation of funding to different companies, and thus states or regions, is unknown at this time but financial and stock analysts predict the company could see a benefit of $10 to $19 billion.

Intel is also the center of the large cluster of industry partners, competitors, and suppliers that Intel has attracted in the "Silicon Forest." This cluster is already arguably the most important statewide economic engine outside of natural resources, supplying very high-wage employment, attracting talent and investment, and driving high tech innovation in the state.

Besides Intel, Oregon is home to roughly 150 related companies employing 10,000 additional workers. Oregon's economic output from this sector is second only to Texas.[2] And the state is home to an estimated 15% of the sector's domestic workforce.

[1] "Seizing Opportunity, Initial Report and Subcommittee Findings", Oregon Semiconductor Competitiveness Task Force, August 2022. Pages 20, 23.
[2] Terry, Lynne. "Semiconductor bill that would benefit Oregon passes first hurdle," Oregon Capital Chronicle, July 2022.

As the Task Force's initial report finds "the semiconductor industry is especially prone to clustering" due to efficiencies of pooling talent, suppliers, and collaborators in one region. For this reason, the economic impact of the CHIPS Act is anticipated to be especially strong in the Portland metropolitan area, and Washington County where this cluster is already established. The report concludes that the industry "…is highly likely to continue clustering in the Metro region, with smaller but significant nodes of supplier-related activity in the Willamette Valley."

The Task Force concludes there is a "short-term" need for the following, with a goal to make progress "heading in to the 2023 legislative session":

- **Engaging local jurisdictions within Portland Metro and Willamette Valley** to determine land availability and site readiness for semiconductor expansion in their respective communities.
- Reviewing responses against criteria to create an updated map of sites of significance for semiconductor expansion **both inside and outside the Urban Growth Boundary** ***based on planning documents and community interest.***
- Creating an updated map to identify sites most suitable for semiconductor expansion during this next growth cycle, including the following, *keeping in mind demand could exceed these needs*:
    - **Two sites of approximately 500 acres** to accommodate large-scale semiconductor R&D and/or production fabrication operations.
    - **Four sites of 50-100 acres** suitable for independent device manufacturers or major semiconductor equipment manufacturers.
    - **At least eight sites of 15-35 acres** to enable key suppliers to the semiconductor cluster to expand.[3]

[All emphasis added]

- Oregon Semiconductor Competitiveness Task Force

As noted, the region does not current offer sites of anywhere near 500 acres, or even Tier 1 sites of 50+ acres. This new inventory must be identified quickly, as nearly half the funds of the CHIPS Act are planned to be spent in the first two years, and all funds over five years.

North Plains Readiness

The short-term process outlined by the Task Force specifies collaborating with local jurisdictions to find partners interested in making land and sites available, "both inside and outside the Urban Growth Boundary".

Because of the deliberative nature of Oregon land use planning and the Urban Growth Boundary amendment process it will be a challenge for most communities to respond expeditiously to this short-

[3] "Seizing Opportunity, Initial Report and Subcommittee Findings", Oregon Semiconductor Competitiveness Task Force, August 2022. Pages 22.

term need. This will increase the importance and priority of communities with the current "planning documents and community interest," as specified. These communities will be able to move the quickest to make more industrial land available to serve regional and state needs.

North Plains is in the process of a UGB Amendment study that has already identified the need for substantial new industrial land, including multiple large sites. As a community well underway in the planning process and located directly adjacent to the North Hillsboro semiconductor (and other industrial) cluster in the Silicon Forest, North Plains is an excellent potential partner for facilitating short-term industrial land readiness in keeping with the goals and identified needs of the State Task Force.

C. METRO UGB AND BROADER REGIONAL EMPLOYMENT FORECASTS

The City of North Plains is a neighbor to the boundary of the Metro regional government (Metro) that includes the nearby communities of Hillsboro, Cornelius, and Forest Grove. North Plains is part of the Portland metropolitan area in the colloquial sense that many of the community's residents work, shop, and conduct other business in the Metro area. Likewise, employees at local businesses commute from the Metro area to North Plains. At less than four miles, and a quick trip by highway, North Plains is one of the closer communities outside of the Metro UGB as discussed in the EOA report.

When looking at the three-county region (Washington, Multnomah, Clackamas Counties), it is the assumption that the lion's share of new job growth and employment will be within the Metro UGB where the largest population and job centers are located. Given this assumption, some may further assume that there will be comparatively little employment growth in the communities outside of the Metro UGB.

However, a comparison of the three-county employment forecasts prepared by Metro itself, and the three-county employment forecasts prepared by the Oregon Employment Department show that Metro is not planning to accommodate nearly as much employment as the state is predicting (Figure 2).

FIGURE 2: PORTLAND THREE-COUNTY EMPLOYMENT FORECAST, METRO AND OED

	2020	2030	Employment Growth		Share of OED Forecast
OED Projection[1]					
3-County Area:	996,500	1,169,900	173,400	17%	100%
Metro Projection[2]					
3-County Area:	1,026,032	1,091,568	65,536	6%	38%
Metro UGB Cities:	869,782	916,928	47,146	5%	27%
Unincorporated Areas:	142,058	160,054	17,996	13%	10%
Non-Metro Cities:	156,250	174,640	18,390	12%	11%

[1] Portland Tri-County Industry Projections 2020-2030, Oregon Employment Department (11/21)

[2] 2045 Distributed Forecast of Population, Households, and Employment, Metro (2/21)

Both Metro and OED have employment growth projections dating from 2021 and covering the 2020 to 2030 period. Metro's projection includes all land and communities within the three counties, not just those within the UGB, and will be used in Metro's updated Urban Growth Report. Some of the findings are summarized below:

- Metro projects just 38% of the total job growth projected by OED in the three counties (65k vs. 173k).
- OED projects an average annual employment growth rate of 1.6% per year during this period, while Metro projects a much lower rate of 0.6% per year.
- Metro's projected employment growth rate is much lower than the average annual *population* growth rate experienced over the last 10- or 20-year periods. In fact, Metro is planning for far fewer new jobs (65k) than the Metro's accompanying projection of the number of new households (114k) over the same period.
- As Metro uses this adopted employment forecast for regional land use planning, it will plan for only enough employment lands (commercial and industrial) to accommodate a fraction of what state economists predict the three-county region will see.
- Even if the Metro UGB were to absorb 100% of Metro's own projected employment growth, this would leave nearly 110k jobs (or 62% of the total) from the OED forecast for the three counties, unaccounted for over the next 10 years.
- As the state forecast seems more accurate, in keeping with historical and projected household growth rates and economic development goals to maintain sufficient employment land to facilitate business formation and job opportunities, it suggests that it is prudent for other communities within the three-county area to plan for excess employment growth that Metro is not currently anticipating or planning for. North Plains, due to its proximity and access, would be foremost among these communities.

Sherwood Housing Needs Analysis 2018 to 2038

Prepared for:

City of Sherwood

December 2017

ECONorthwest
ECONOMICS • FINANCE • PLANNING

Contact Information

Beth Goodman and Robert Parker, AICP, prepared this report as a subcontractor to Cogan Owens Greene for the City of Sherwood. ECONorthwest is solely responsible for its content, any errors or omissions.

ECONorthwest specializes in economics, planning, and finance. Established in 1974, ECONorthwest has over three decades of experience helping clients make sound decisions based on rigorous economic, planning, and financial analysis.

For more information about this report, please contact:

Erika Palmer, Planning Manager
22560 SW Pine Street
Sherwood, Oregon 97140
503-625-4208
PalmerE@SherwoodOregon.gov

Acknowledgements

Cogan Owens Greene, ECONorthwest and the City of Sherwood thank the many people who helped to develop the Sherwood Draft Housing Needs Analysis.

Regional Partners

Brian Harper, Metro

State of Oregon

Anne Debbaut, Regional Representative, DLCD
Gordon Howard, Urban Planning Specialist, DLCD

City of Sherwood

Julia Hajduk, Community Development Director
Erika Palmer, Planning Manager
Carrie Brennecke AICP, Senior Planner

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Executive Summary

This is an executive summary of the findings of the Sherwood Housing Needs Analysis for the 2018 to 2038 period. The housing needs analysis provides Sherwood with a factual basis to support future planning efforts related to housing, including Concept Planning for Sherwood West, and prepares to update and revise the City's Comprehensive Plan policies.

The housing needs analysis is intended to comply with requirements of statewide planning policies that govern planning for housing and residential development, Goal 10, it's implementing Metropolitan Housing Rule (OAR 660-007), and Metro's 2040 Functional Growth Management Plan. Taken together, the City's primary obligations from Goal 10 are to (1) designate land in a way that provides the opportunity for 50% of new housing to be either multifamily or single-family attached housing (e.g., townhouses); (2) achieve an average density of six dwelling units per net acre; and (3) provide enough land to accommodate forecasted housing needs for the next 20 years. Sherwood is able to meet these requirements and can accommodate most of the new housing forecast, as described in this summary.

How has Sherwood's Population Changed in Recent Years?

The basis for the housing needs analysis is an understanding of the demographic characteristics of Sherwood's residents.[1]

- **Sherwood's population grew relatively fast in recent years.** Sherwood's population increased from 3,000 people in 1990 to nearly 18,600 people in 2013, averaging 8% annual growth. Sherwood's fastest period of growth was during the 1990s, consistent with statewide trends. Between 2000-2013, Sherwood grew by 6,600 people, at an average rate of nearly 3.5% per year. For comparison, Washington County grew at 2.5% annually between 1990-2013 and the Portland Region grew at 1.6% per year.

- **Sherwood's population is aging.** People aged 45 years and older were the fastest growing age group in Sherwood between 2000 and 2010, consistent with state and national trends. By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015) and 25% in the Portland Region (up from 19% in 2015).

[1] The majority of data quoted in this analysis is from the U.S. Census American Community survey, with population data from the Population Research Center at Portland State University and development data from the City's Building Permit database.

It is reasonable to assume that the share of people 60 years and older will grow relatively quickly in Sherwood as well.

- **Sherwood is attracting younger people and more households with children**. In 2010, the median age in Sherwood was 34.3 years old, compared to Washington County's median age of 35.3 years and the State median of 38.4. Sherwood has a larger share of households with children (47% of households), compared with Washington County (33%) or the Portland Region (29%). The Millennial generation—people born roughly between 1980 to 2000—are the largest age group in Oregon and will account for the majority of household growth in Sherwood over the next 20 years.

- **Sherwood's population is becoming more ethnically diverse.** About 6% of Sherwood's population is Latino, an increase from 4.7% in 2000. In comparison to Washington County and the Portland Region, Sherwood is less ethnically diverse. In the 2009-2013 period, 16% of Washington County residents, and 12% Portland Region residents, were Latino.

WHAT FACTORS MAY AFFECT FUTURE GROWTH IN SHERWOOD?

If these trends continue, population will result in changes in the types of housing demanded or "needed" in Sherwood in the future.

- **The aging of the population is likely to result in increased demand for smaller single-family housing, multifamily housing, and housing for seniors.** People over 65 years old will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, or moving into group housing (such as assisted living facilities or nursing homes) as they continue to age.

- **The growth of younger and diversified households is likely to result in increased demand for a wider variety of affordable housing appropriate for families with children, such as small single-family housing, townhouses, duplexes, and multifamily housing.** If Sherwood continues to attract young residents, then it will continue to have demand for housing for families, especially housing affordable to younger families with moderate incomes. Growth in this population will result in growth

in demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.[2]

- **Changes in commuting patterns could affect future growth in Sherwood.** Sherwood is part of a complex, interconnected regional economy. Demand for housing by workers at businesses in Sherwood may change with significant fluctuations in fuel and commuting costs, as well as substantial decreases in the capacity of highways to accommodate commuting.

- **Sherwood households have relatively high income, which affects the type of housing that is affordable.** Income is a key determinant of housing choice. Sherwood's median household income ($78,400) is more than 20% higher than Washington County's median household income ($64,200). In addition, Sherwood has a smaller share of population below the federal poverty line (7.6%) than the averages of Washington County (11.4%) and the Portland Region (13.9%).

WHAT ARE THE CHARACTERISTICS OF SHERWOOD'S HOUSING MARKET?

The existing housing stock in Sherwood, homeownership patterns, and existing housing costs will shape changes in Sherwood's housing market in the future.

- **Sherwood's housing stock is predominantly single-family detached.** About 75% of Sherwood's housing stock is single-family detached, 8% is single-family attached (such as townhomes), and 18% is multifamily (such as duplexes or apartments). Sixty-nine percent of new housing permitted in Sherwood between 2000 and 2014 was single-family detached housing.

- **Almost three quarters of Sherwood's residents own their homes.** Homeownership rates in Sherwood are above Washington County (54%), the Portland Region (60%), and Oregon (62%) averages.

- **Homeownership costs increased in Sherwood, consistent with national trends.** Median sales prices for homes in Sherwood increased by about 30% between 2004 and 2014, from about $245,000 to $316,500. The median

[2] The housing needs analysis assumes that housing is affordable if housing costs are less than 30% of a household's gross income. For a household earning $6,500 (the median household income in Sherwood), monthly housing costs of less than $1,960 are considered affordable.

home value in Sherwood is 3.8 times the median household income, up from 2.9 times the median household income in 2000.

- **Housing sales prices are higher in Sherwood than the regional averages.** As of January 2015, median sales price in Sherwood was $316,500, which is higher than the Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($237,300) median sales prices. Median sales prices were higher in Sherwood than in other Portland westside communities such as Tigard, Tualatin, and Beaverton, but lower than Wilsonville or West Linn.

- **Rental costs are higher overall in Sherwood than the regional averages.** The median rent in Sherwood was $1,064, compared to Washington County's average of $852.

- **More than one-third of Sherwood's households have housing affordability problems.** Thirty-eight percent of Sherwood's households were cost-burdened (i.e., paid more than 30% of their income on rent or homeownership costs). Renters were more likely to be cost-burdened (40% of renters were cost-burdened), compared to homeowners (35% were cost-burdened) in Sherwood. These levels of cost burden are consistent with regional averages. In Washington County in the 2009-2013 period, 38% of households were cost burdened, compared to 41% in the Portland Region.

  Future housing affordability will depend on the relationship between income and housing price. The key question is whether housing prices will continue to outpace income growth. Answering this question is difficult because of the complexity of the factors that affect both income growth and housing prices. Sherwood will need to provide the opportunity for development of a wider variety of housing, including housing affordable to low- and moderate-income households.

How Much Housing Growth is Forecast, and Can that Growth be Accommodated within Sherwood?

The housing needs analysis in this report is based on Metro's coordinated forecast of household growth in Sherwood. The forecast includes growth in both areas within the city limits, as well as areas currently outside the city limits that the City expects to annex for residential uses (most notably the Brookman area).

- **Sherwood is forecast to add 1,653 new households between 2018 and 2038.** Of these, 697 new households are inside the existing city limits; 956 new households are outside the current city limits in the Brookman Area.

- **Sherwood's land base can accommodate most of the forecast for growth.** Vacant and partially vacant land in the Sherwood Planning Area has capacity to accommodate 1,156 new dwelling units. Sherwood can accommodate about 70% of the forecast for new housing on areas within the city limits and Brookman Area.

- **Sherwood has a deficit of land for housing.** Sherwood has a deficit of land for 497 dwelling units. The largest deficits are in Medium Density Residential-Low (121 dwelling units), Medium Density Residential-High (153 dwelling units), and High Density Residential (179 dwelling units).

- **To provide adequate land supply, Sherwood will need to continue to annex the Brookman area.** Without the Brookman area developing, the City has a projected deficit of 922 dwelling units. Sherwood will need to continue to annex the Brookman area in order to accommodate the City's forecast of residential growth. The City recently annexed about 98 acres in the Brookman Area. The annexed land is in the center of the Brookman Area and has relatively few owners (about 8 property owners). Annexing and developing other areas, with a larger number of owners, may be more challenging, to the extent that the property owners have to come to agreement about development.

What if Sherwood Grows Faster?

- **The forecast for growth in Sherwood is considerably below historical growth rates.** Metro's forecast for new housing in Sherwood shows that households will grow at less than 1% per year. In comparison, Sherwood's population grew at 3.4% per year between 2000 and 2013 and 8% per year between 1990 and 2013. If Sherwood grows faster than Metro's forecast during the 2018 to 2038 period, then Sherwood will have a larger deficit of land needed to accommodate growth.

- **At faster growth rates, Sherwood's land base has enough capacity for several years of growth.** At growth rates between 2% to 4% of growth annually, land inside the Sherwood city limits can accommodate two to five years of growth. With capacity in the Brookman Area, Sherwood can accommodate four to ten years of growth at these growth rates.

- **Additional housing growth in Sherwood depends the availability of development-ready land.** The amount of growth likely to happen in Sherwood over the next few years is largely dependent on when the Brookman Area is annexed, when the Sherwood West area is brought into the urban growth boundary and annexed, and when urban services (such as roads, water, and sanitary sewer) are developed in each area. The City recently annexed about 98 acres in the Brookman Area.

WHAT ARE THE IMPLICATIONS FOR SHERWOOD'S HOUSING POLICIES?

- **Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman area.** The growth rate of Metro's forecast for household growth (0.8% average annual growth) is considerably lower than the City's historical population growth rate over the last two decades (8% average annual growth). Metro's forecast includes growth that can be generally accommodated within the Sherwood city limits and Brookman. Given the limited supply of buildable land within Sherwood, it is likely that the City's residential growth will slow until Sherwood West is made development-ready.
- **Sherwood has a relatively limited supply of land for moderate- and higher-density multifamily housing.** The limited supply of land in these zones is a barrier to development of townhouses and multifamily housing, which are needed to meet housing demand resulting from growth of people over 65, young families, and moderate-income households.
- **The results of the Housing Needs Analysis highlight questions for the update of the City's Comprehensive Plan and the Concept Planning of Sherwood West.**
    - Providing housing opportunities for first time home buyers and community elders (who prefer to age in place or downsize their housing) will require a wider range of housing types. Examples of these housing types include: single family homes on smaller lots, clustered housing, cottages or townhomes, duplexes, tri-plexes, four-plexes, garden apartments, or mid-rise apartments. Where should Sherwood consider providing a wider range of housing types? What types of housing should Sherwood plan for?

- Changes in demographics and income for Sherwood and regional residents will require accommodating a wider range of housing types. How many of Sherwood's needed units should the city plan to accommodate within the city limits? How much of Sherwood's needed units should be accommodated in the Brookman Area and in Sherwood West?
- What design features and greenspaces would be important to consider for new housing?
- What other design standards would be needed to "keep Sherwood Sherwood"?

1 Introduction

This report presents the Sherwood Housing Needs Analysis 2018 to 2038. The housing needs analysis provides Sherwood with a factual basis to support future planning efforts related to housing, including Concept Planning for Sherwood West, and prepares to update and revise the City's Comprehensive Plan policies. This report was based on the draft Sherwood Housing Needs Analysis 2015 to 2035 report, from June 2015.

It is intended to comply with statewide planning policies that govern planning for housing and residential development, Goal 10, OAR 660-007, and Metro's Functional Growth Management Plan. The methods used for this study generally follow the *Planning for Residential Growth* guidebook, published by the Oregon Transportation and Growth Management Program (1996).

This report provides Sherwood with a factual basis to support future planning efforts related to housing and options for addressing unmet housing needs. It provides specific analysis that is required for a jurisdiction in Oregon to comply with state policies.

BACKGROUND

Sherwood is located at the southwestern edge of the Portland metropolitan urban growth boundary (UGB). Over the 2000 to 2014 period, Sherwood had a substantial amount of residential growth. Residential development included all of the different housing types with single family detached housing concentrated in the 2000 to 2005 period. In part due to this growth and limited land supply for new homes, Sherwood is embarking on a Concept Plan for the Sherwood West urban reserve. Concurrently, the City is updating its factual basis for an eventual update of its Comprehensive Plan.

This housing needs analysis provides a factual basis to inform both an update of the residential Comprehensive Plan polices and the Concept Plan for Sherwood West. This analysis provides:

- Information about the characteristics of Sherwood's housing market, in the context of Washington County, the Portland metropolitan region, and Oregon,
- Information about the types and density of housing developed since 2000, changes in homeownership patterns,
- Changes in housing cost and affordability, and other housing market characteristics; and
- A forecast of residential growth in Sherwood for the 2018 to 2038 period.

As required by OAR 660-024, this forecast is based on Metro's household forecast and demographics and economic trends that will affect housing demand over the next 20 years.

ORGANIZATION OF THE REPORT

The main body of this report presents a summary of key data and analysis used in the housing needs analysis. The appendices present detailed tables and charts for the housing needs analysis. This document is organized as follows:

- **Chapter 2. Historical and Recent Development Trends** presents a high-level summary of residential development in Sherwood.
- **Chapter 3. Housing Demand and Need** presents a housing needs analysis consistent with requirements in the Planning for Residential Growth Workbook. Detailed tables and charts supporting the demographic and other information discussed in Chapter 4 is presented in Appendix B.
- **Chapter 4. Residential Land Sufficiency** estimates the residential land sufficiency in Sherwood needed to accommodate expected growth over the planning period.
- **Appendix A. Residential Buildable Land Inventory Report**
- **Appendix B. Trends Affecting Housing Need in Sherwood**

FRAMEWORK FOR A HOUSING NEEDS ANALYSIS

People view homes and communities in a wide range of ways. Economists view housing as a bundle of services for which people are willing to pay. Shelter is one service, but housing typically also includes:

- Proximity to other attractions (job, shopping, recreation),
- Amenities (type and quality of fixtures and appliances, landscaping, views), prestige, and
- Access to public services (quality of schools).

Because it is impossible to maximize all these services and simultaneously minimize costs, households must, and do, make tradeoffs. What individuals can purchase for their money is influenced by individuals' life circumstances as well as economic forces and government policy. Among households and income levels, preferences vary. Attributes homebuyers and renters seek are a function of many factors that may include income, age of household head, number of people and children in the household, number of workers and job locations, educational opportunities, number of automobiles, neighborhood amenities and so on.

Thus, the housing choices of individual households are influenced in complex ways by dozens of factors; and the housing market in the Portland Region, Washington County, and Sherwood is the result of the individual decisions of thousands of households. These points help to underscore the complexity of projecting what types of housing will be built in Sherwood between 2018 and 2038.

The complex nature of the housing market was demonstrated by the unprecedented boom and bust during the past decade. This complexity does not eliminate the need for some type of forecast of future housing demand and need and the resulting implications for land demand and consumption. Such forecasts are inherently uncertain. Their usefulness for public policy often derives more from the explanation of their underlying assumptions about the dynamics of markets and policies than from the specific estimates of future demand and need.

Thus, we begin our housing analysis with a framework for thinking about housing and residential markets, and how public policy affects those markets.

OREGON HOUSING POLICY

Statewide planning Goal 10

Sherwood's primarily obligations under Goal 10 are to:

- Designate land in a way that 50% of new housing could be either multifamily or single-family attached housing (e.g., townhouses)
- Provide opportunities to achieve an average density of six dwelling units per net acre
- Provide opportunities for development of needed housing types: single-family detached, single--family attached, and multifamily housing.

The passage of the Oregon Land Use Planning Act of 1974 (ORS Chapter 197), established the Land Conservation and Development Commission (LCDC), and the Department of Land Conservation and Development (DLCD). The Act required the Commission to develop and adopt a set of statewide planning goals. Goal 10 addresses housing in Oregon and provides guidelines for local governments to follow in developing their local comprehensive land use plans and implementing policies.

At a minimum, local housing policies must meet the requirements of Goal 10 and the statutes and administrative rules that implement it (ORS 197.295 to 197.314, ORS 197.475 to 197.490, and OAR 600-008).[3] Jurisdictions located in the Metro UGB are also required to comply with Metropolitan Housing in OAR 660-007 and Title 7 of Metro's Urban Growth Management Functional Plan in the Metro Code (3.07 Title 7).

Goal 10 requires incorporated cities to complete an inventory of buildable residential lands and to encourage the availability of adequate numbers of housing units in price and rent ranges commensurate with the financial capabilities of its households.

Goal 10 defines needed housing types as "housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels." ORS 197.303 defines needed housing types:

(a) Housing that includes, but is not limited to, attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;[4]

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490; and

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions.

[3] ORS 197.296 only applies to cities with populations over 25,000.

[4] Government assisted housing can be any housing type listed in ORS 197.303 (a), (c), or (d).

In summary, Sherwood must identify needs for all of the housing types listed above as well as adopt policies that increase the likelihood that needed housing types will be developed.

The Metropolitan Housing Rule

OAR 660-007 (the Metropolitan Housing rule) is designed to "assure opportunity for the provision of adequate numbers of needed housing units and the efficient use of land within the Metropolitan Portland (Metro) urban growth boundary." OAR 660-0070-005(12) provides a Metro-specific definition of needed housing:

> "Needed Housing" defined. Until the beginning of the first periodic review of a local government's acknowledged comprehensive plan, "needed housing" means housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels.

The Metropolitan Housing Rule also requires cities to develop residential plan designations:

> (1) Plan designations that allow or require residential uses shall be assigned to all buildable land. Such designations may allow nonresidential uses as well as residential uses. Such designations may be considered to be "residential plan designations" for the purposes of this division. The plan designations assigned to buildable land shall be specific so as to accommodate the varying housing types and densities identified in OAR 660-007-0030 through 660-007-0037.

OAR 660-007 also specifies the mix and density of new residential construction for cities within the Metro Urban Growth Boundary (UGB):

> "Provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing or justify an alternative percentage based on changing circumstances" (OAR 660-007-0030 (1).

OAR 660-007-0035 sets specific density targets for cities in the Metro UGB. Sherwood average density target is six dwelling units per net buildable acre.[5]

[5] OAR 660-024-0010(6) defines Net Buildable Acres as follows: "Net Buildable Acre" consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads.

Metro Urban Growth Management Functional Plan

The Metro Urban Growth Management Functional Plan describes the policies that guide development for cities within the Metro UGB to implement the goals in the Metro 2040 Plan.

Title 1: Housing Capacity

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 1 responsibilities.

Title 1 of Metro's Urban Growth Management Functional Plan is intended to promote efficient land use within the Metro UGB by increasing the capacity to accommodate housing capacity. Each city is required to determine its housing capacity based on the minimum number of dwelling units allowed in each zoning district that allows residential development, and maintain this capacity.

Title 1 requires that a city adopt minimum residential development density standards by March 2011. If the jurisdiction did not adopt a minimum density by March 2011, the jurisdiction must adopt a minimum density that is at least 80% of the maximum density.

Title 1 provides measures to decrease development capacity in selected areas by transferring the capacity to other areas of the community. This may be approved as long as the community's overall capacity is not reduced.

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 1 responsibilities.

Title 7: Housing Choice

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 7 responsibilities.

Title 7 of Metro's Urban Growth Management Functional Plan is designed to ensure the production of affordable housing in the Metro UGB. Each city and county within the Metro region is encouraged to voluntarily adopt an affordable housing production goal.

Each jurisdiction within the Metro region is required to ensure that their comprehensive plans and implementing ordinances include strategies to:

- Ensure the production of a diverse range of housing types,
- Maintain the existing supply of affordable housing, increase opportunities for new affordable housing dispersed throughout their boundaries, and
- Increase opportunities for households of all income levels to live in affordable housing (3.07.730)

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 7 responsibilities.

Title 11: Planning for New Urban Areas

Title 11 of Metro's Urban Growth Management Functional Plan provides guidance on the conversion of land from rural to urban uses. Land brought into the Metro UGB is subject to the provisions of section 3.07.1130 of the Metro Code, which requires lands to be maintained at rural densities until the completion of a concept plan and annexation into the municipal boundary.

The concept plan requirements directly related to residential development are to prepare a plan that includes:

(1) A mix and intensity of uses that make efficient use of public systems and facilities,

(2) A range of housing for different types, tenure, and prices that addresses the housing needs of the governing city, and

(3) Identify goals and strategies to meet the housing needs for the governing city in the expansion area.

Metro's *2016 Compliance Report* concludes that Sherwood is in compliance for the City's Title 11 responsibilities.

In addition, the City needs to comply with the Fair Housing Act, administered by the U.S. Department of Housing and Urban Service (HUD). Complying with this Act requires meeting the Affirmatively Furthering Fair Housing (AFFH) goal of the Fair Housing Act. The City must comply with these regulations to qualify for federal grant funds for housing.

2 Historical and Recent Development Trends

Analysis of historical development trends in Sherwood provides insights into how the local housing market functions. The intent of the analysis is to understand how local market dynamics may affect future housing—particularly the mix and density of housing by type. The housing mix and density by type are also key variables in forecasting future land need. The specific steps are described in Task 2 of the DLCD *Planning for Residential Lands* Workbook:

1. Determine the time period for which the data must be gathered.
2. Identify types of housing to address (at a minimum, all needed housing types identified in ORS 197.303).
3. Evaluate permit/subdivision data to calculate the actual mix, average actual gross density, and average actual net density of all housing types.

The period used in the analysis of housing density and mix is 2000 to 2014, which includes both times of high housing production and times of low housing production. The reasons for choosing this period were:

(1) The 2000 to 2014 period includes more than one economic cycle, with extreme highs and extreme lows in the housing market and

(2) Data prior to 2005 was less easily available and obtaining and compiling data for 2000 to 2004 was difficult to acquire.

The housing needs analysis presents information about residential development by housing types. For the purposes of this study, we grouped housing types based on: (1) whether the structure is stand-alone or attached to another structure and (2) the number of dwelling units in each structure. The housing types used in this analysis are:

- **Single-family detached:** single-family detached units and manufactured homes on lots and in mobile home parks.
- **Single-family attached:** all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses.
- **Multifamily**: all attached structures other than single-family detached units, manufactured units, or single-family attached units. Multifamily units include duplexes, tri-plexes, quad-plexes, and structures with more than five units (such as apartments).

The reason for choosing these categories of housing type for the analysis is that they meet the requirements definition of needed housing types in ORS 197.303.[6]

In general, this report uses data from the 2009-2013 American Community Survey (ACS) for Sherwood, as described in Appendix B. Where information is available, we report information from the 2010 Decennial Census. This section summarizes historical and recent development trends, described in detail in Appendix B.

The primary geographies used throughout this report are:

- **Sherwood.** This generally refers to the Sherwood city limits. Census data for Sherwood uses this geography.
- **Sherwood Planning Area.** This is the Sherwood city limits and land that is within the Metro urban growth boundary but outside of the Sherwood city limits, primarily the Brookman Area.
- **Sherwood West.** The urban reserve to the west of Sherwood that may be brought into the Metro urban growth boundary when needed regionally and determined beneficial locally.

While this report presents the forecast for housing growth in Sherwood for the 2018-2038 period, it is based on analysis completed for the 2015 HNA.

Residential development trends[7]

Three-quarters of Sherwood's housing is single-family detached housing.

Single-family detached housing makes up the largest share of Sherwood's housing stock (Figure B- 1**).** Currently:

- Single-family detached housing accounts for about 75% of Sherwood's housing stock.
- Single-family attached housing accounts for about 8% of Sherwood's housing stock.
- Multifamily housing accounts for about 18% of Sherwood's housing stock.

[6] The analysis of development in Sherwood attempts to separate single-family detached and single-family attached housing. However, the City's building permit system does not distinguish between these two types of housing. City staff manually identified single-family attached housing where there was a concentration of it developed (i.e., a development of townhouses). City staff were unable to identify small-scale single-family attached development that was scattered throughout the city.

[7] Except where otherwise noted, data in this section is from the U.S. Decennial Census (for 2010 data) or the U.S. Census's American Community Survey for 2009-2013.

Over the 2000-2014 period, 69% of new housing permitted by Sherwood was single-family detached housing.

The majority of housing developed in Sherwood between 2000 and 2014 was single-family detached housing (Table B- 1 **and** Figure B- 2**).**[8]

- Over the 2000 to 2014 period, Sherwood issued permits for nearly 2,225 dwellings, with about 148 units permitted each year.
- Sixty-nine percent of new housing permitted in Sherwood between 2000 and 2014 was single-family. Roughly 1,721 single-family dwelling units were permitted over the 15-year period.
- Nine percent of the building permits issued in Sherwood over 2000 to 2014 were single-family attached (i.e., townhouses) and 23% were for multifamily housing.
- The majority of new housing in Sherwood was built between 2000 and 2006, before development decreased with the national housing crisis.
- The majority of new multifamily housing in Sherwood was permitted in 2006, 2009, and 2014. The majority of new single-family attached housing was permitted in 2004 and 2005.
- Between 2015 and 2017, Sherwood permitted about 125 new single-family detached units.

Almost three quarters of Sherwood's residents own their homes (Figure B- 3**,** Figure B- 4**, and** Figure B- 5**).** Homeownership rates in Sherwood are above Washington County and Oregon's averages.

- Homeownership rates declined slightly over the last decade. Roughly 79% of housing in Sherwood was owner-occupied in 2000 compared to about 75% in 2010.
- Most owner-occupied housing is single-family detached, about 89%.
- Renter-occupied housing is a mixture of multifamily (57%), single-family detached (35%), and single-family attached (9%).

Sherwood's vacancy rate is lower than Multnomah, Washington, and Clackamas counties, and lower than the State average (Table B- 2 **and** Figure B- 6**).**

- In 2010, Sherwood's vacancy rate (3.9%) was below that of Multnomah (6.2%), Washington (5.4%), and Clackamas (7.1%) counties, and lower than Oregon's (9.3%).
- The vacancy rates for apartments in the Tigard/Tualatin/Sherwood area varied from a high of 5.8% in Spring 2010 to a low of 2.6% in Fall 2013

[8] Building permit data is from the City of Sherwood Building Permit Database.

and were within 1% of the vacancy rate for the Portland/Vancouver metro area.[9]

Sherwood's residential development between 2000 and 2014 averaged 8.2 dwelling units per net acre, above the State's requirement in OAR 660-007 for six dwelling units per net acre (Table B- 3 Table B-4**).**[10]

- Average density in Sherwood was 8.2 dwelling units per net acre over the 2000 to 2014 period.
- Density was lowest in the Very Low Density Residential Zone (2.9 dwelling units per net acre) and Medium Density Residential Low Zone (6.1 dwelling units per net acre).
- Density was highest in Office Commercial (24.4 dwelling units per net acre) and High Density Residential (19.1 dwelling units per net acre).

[9] Multifamily NW Apartment Reports, Spring 2010 – Fall 2014.

[10] City of Sherwood Building Permit Database.

3 Housing Need in Sherwood

This chapter presents the analysis of housing needs in Sherwood over the 2018 to 2038 period. Estimates of needed units by structure type and by density range follows.

Chapter 1 described the framework for conducting a housing "needs" analysis. The specific steps in conducting a housing needs analysis are:

1. Project number of new housing units needed in the next 20 years.
2. Identify relevant national, state, and local demographic and economic trends and factors that may affect the 20-year projection of structure type mix.
3. Describe the demographic characteristics of the population and, if possible, housing trends that relate to demand for different types of housing.
4. Determine the types of housing that are likely to be affordable to the projected households based on household income.
5. Estimate the number of additional needed units by structure type.
6. Determine the needed density ranges for each plan designation and the average needed net density for all structure types.

This chapter presents information for these steps for Sherwood's housing needs analysis.

PROJECTION OF NEW HOUSING UNITS NEEDED IN THE NEXT 20 YEARS

The housing needs analysis in this report is based on the Metroscope forecast of household growth in Sherwood over the next 25 years.

As required by OAR 660-024, the housing needs analysis in this report is based on a coordinated forecast from Metro (the Metro 2040 TAZ Forecast by Households, January 2016), which is a necessary prerequisite to estimate housing needs. The projection of household growth includes areas currently within the city limits, as well as areas currently outside the city limits that the City expects will be annexed for residential uses (most notably the Brookman area). In 2017, a portion of the Brookman area annexed into the city limits. We call these areas combined the "Sherwood planning area."

While the housing needs analysis presents information for Sherwood West, this area is currently outside of the regional UGB. Housing need in Sherwood West is not considered part of Sherwood's overall housing need for the purposes of this study. The information in this report, however, can inform the ongoing Concept Planning for Sherwood West.

The housing needs analysis focuses on housing growth in Sherwood over the 2018 to 2038 period.

The forecast shows that Sherwood will add 1,653 new households over the 20-year period.

The forecast shows growth of 4,157 new dwelling units in Sherwood West. While Metro's forecast assumes that growth will take place over the next 20-years, it may occur over a 50-year period.

Table B-6 in Appendix B presents Metro's forecast for housing in Sherwood for the 2010 to 2040 period. Table 1 presents ECONorthwest's extrapolation of Metro's forecast for Sherwood to the 2018 to 2038 period. Table 1 shows that **the Sherwood planning area is expected to add 1,653 new households between 2018 and 2038. Regional models and informed projections suggest nearly 700 (**697) new households will be accommodated inside the existing city limits. Approximately 956 new households are expected to be accommodated outside the current city limits in the Brookman Area.

Table 1. Extrapolated Metro forecast for household growth, Sherwood planning area, 2018 to 2038

	Households			
Year	Sherwood City Limits	Brookman Area	Sherwood Planning Area	Sherwood West (50-Year Forecast)
2018	6,883	282	7,165	293
2038	7,580	1,238	8,818	4,450
Change 2015 to 2040				
Households	697	956	1,653	4,157
Percent	10%	339%	23%	1419%
AAGR	0.5%	7.7%	1.0%	14.6%

Source: Metro 2040 TAZ Forecast by Households, January 2016
Extrapolation from the 2015 forecast (the base year in the Metro forecast) to 2018 (not shown in Metro's forecast) by ECONorthwest

DEMOGRAPHIC AND SOCIOECONOMIC FACTORS AFFECTING HOUSING CHOICE

Demographic trends are important to a thorough understanding of the dynamics of the Sherwood housing market. Sherwood exists in a regional economy; trends in the region impact the local housing market. This section documents national, state, and regional demographic, socioeconomic, and other trends relevant to Sherwood.

The Factors that Affect Housing Choice

The factors that have the largest impact on a household's housing choice are: age of the householder, household size and composition, and income.

Analysts typically describe housing demand as the preferences for different types of housing (i.e., single-family detached or apartment), and the ability to pay for that housing (the ability to exercise those preferences in a housing market by purchasing or renting housing—in other words, income or wealth).

Metro, the agency responsible for regional planning within the Portland metropolitan UGB, uses a decision support tool called Metroscope to model changes in measures of economic, demographic, land use, and transportation activity. Metroscope includes a residential location model, which projects the locations of future households based on factors such as land availability and capacity, cost of development, changes in demographics, changes in employment, and changes in transportation and transit infrastructure. The housing needs analysis in this report is based on the Metroscope forecast of household growth in Sherwood over the next 25 years.

Many demographic and socioeconomic variables affect housing choice. However, the literature about housing markets finds that age of the householder, size of the household, and income are most strongly correlated with housing choice.[11]

[11] The research in this chapter is based on numerous articles and sources of information about housing, including:

The Case for Multi-family Housing. Urban Land Institute. 2003

E. Zietz. *Multi-family Housing: A Review of Theory and Evidence.* Journal of Real Estate Research, Volume 25, Number 2. 2003.

C. Rombouts. *Changing Demographics of Homebuyers and Renters.* Multi-family Trends. Winter 2004.

J. McIlwain. *Housing in America: The New Decade.* Urban Land Institute. 2010.

D. Myers and S. Ryu. *Aging Baby Boomers and the Generational Housing Bubble*. Journal of the American Planning Association. Winter 2008.

M. Riche. *The Implications of Changing U.S. Demographics for Housing Choice and Location in Cities.* The Brookings Institution Center on Urban and Metropolitan Policy. March 2001.

- **Age of householder** is the age of the person identified (in the Census) as the head of household. Households make different housing choices at different stages of life.
- **Size of household** is the number of people living in the household. Younger and older people are more likely to live in single-person households. People in their middle years are more likely to live in multiple person households (often with children).
- **Income** is the household income. Income is probably the most important determinant of housing choice. Income is strongly related to the type of housing a household chooses (e.g., single-family detached, duplex, or a building with more than five units) and to household tenure (e.g., rent or own).

This section focuses on these factors, presenting data that suggests how changes to these factors may affect housing need in Sherwood over the next 20 years.

National housing trends

Appendix B presents a full review of national housing trends. This brief summary builds on previous work by ECONorthwest, Urban Land Institute (ULI) reports, and conclusions from *The State of the Nation's Housing, 2014* report from the Joint Center for Housing Studies of Harvard University. The Harvard report summarizes the national housing outlook as follows:

> "With promising increases in home construction, sales, and prices, the housing market gained steam in early 2013. But when interest rates notched up at mid-year, momentum slowed. This moderation is likely to persist until job growth manages to lift household incomes. Even amid a broader recovery, though, many hard-hit communities still struggle and millions of households continue to pay excessive shares of income for housing."

Several challenges to a strong domestic housing market remain. Demand for housing is closely tied to jobs and incomes, which are taking longer to recover than in previous cycles. While trending downward, the number of underwater homeowners, delinquent loans, and vacancies remains high. *The State of the Nation's Housing* report projects that it will take several years for market conditions to return to normal and, until then, the housing recovery will likely unfold at a moderate pace.

L. Lachman and D. Brett. *Generation Y: America's New Housing Wave.* Urban Land Institute. 2010.

National housing market trends include: [12]

- **Post-recession recovery slows down**. Despite strong growth in the housing market in 2012 and the first half of 2013, by the first quarter of 2014, housing starts and existing home sales were both down by 3% from the same time a year before, while existing home sales were down 7% from the year before. Increases in mortgage interest rates and meager job growth contributed to the stall in the housing market.
- **Continued declines in homeownership**. After 13 successive years of increases, the national homeownership rate declined each year from 2005 to 2013, and is currently at about 65%. The Urban Land Institute projects that homeownership will continue to decline to somewhere in the low 60% range.

In 2012, more than one-third of households across the US had housing affordability problems, with the lowest income households having the most difficulty finding affordable housing.

- **Housing affordability**. In 2012, more than one-third of American households spent more than 30% of income on housing. Low-income households face an especially dire hurdle to afford housing. Among those earning less than $15,000, more than 80% paid over 30% of their income and almost 70% of households paid more than half of their income. For households earning $15,000 to $29,000, more than 60% were cost burdened, with about 30% paying more than half of their income on housing.

Since 1990, the average size of new dwelling units increased both for single-family and multifamily housing. At the same time, the average lot size for new housing decreased.

- **Changes in housing characteristics**. National trends show that the size of single-family and multifamily units, and the number of household amenities (e.g., fireplace or two or more bathrooms) has increased since the early 1990s. Between 1990 and 2013 the median size of new single-family dwellings increased 25% nationally from 1,905 square feet to 2,384 square feet and 18% in the western region from 1,985 square feet to 2,359 square feet. Moreover, the percentage of units smaller than 1,400 square feet nationally decreased from 15% in 1999 to 8% in 2013. The percentage of units greater than 3,000 square feet increased from 17% in 1999 to 29% of new one-family homes completed in 2013. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 2009 and 2013, the percentage of lots less than 7,000 square feet increased from 26% of lots to 30% of lots. Similarly, in the western region, the share of lots less than 7,000 square feet increased from 43% to 48% of lots.

[12] These trends are based on information from: (1) The Joint Center for Housing Studies of Harvard University's publication "The State of the Nation's Housing 2013," (2) Urban Land Institute, "2011 Emerging Trends in Real Estate," and (3) the U.S. Census.

- **Long-term growth and housing demand**. The Joint Center for Housing Studies forecasts that demand for new homes could total as many as 13.2 million units nationally between 2015 and 2025. Much of the demand will come from Baby Boomers, Millennials,[13] and immigrants.

Future housing preferences will be affected by demographic changes, such as the aging of the Baby Boomers, growing housing demand from Millennials, and growth of foreign-born immigrants.

- **Changes in housing preference**. Housing preference will be affected by changes in demographics, most notably the aging of the Baby Boomers, housing demand from the Millennials, and growth of foreign-born immigrants. Baby Boomers' housing choices will affect housing preference and homeownership, with some boomers likely to stay in their home as long as they are able and some preferring other housing products, such as multifamily housing or age-restricted housing developments.

  In the near-term, Millennials and new immigrants may increase demand for rental units. The long-term housing preference of Millennials and new immigrants is uncertain. They may have different housing preferences as a result of the current housing market turmoil and may prefer smaller, owner-occupied units or rental units. On the other hand, their housing preferences may be similar to the Baby Boomers, with a preference for larger units with more amenities. Recent surveys about housing preference suggest that Millennials want affordable single-family homes in areas that that offer transportation alternatives to cars, such as suburbs or small cities with walkable neighborhoods. [14]

[13] Millennials are, broadly speaking, the children of Baby Boomers, born from the early 1980's through the early 2000's.

[14] The American Planning Association, "Investing in Place; Two generations' view on the future of communities." 2014. "Survey Says: Home Trends and Buyer Preferences," National Association of Home Builders International Builders Show, accessed January, 2015, http://www.buildersshow.com/Search/isesProgram.aspx?id=17889&fromGSA=1. "Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows," Transportation for America, accessed January 2015, http://t4america.org/wp-content/uploads/2014/04/Press-Release_Millennials-Survey-Results-FINAL-with-embargo.pdf.

State Trends

Oregon's *2011-2015 Consolidated Plan* includes a detailed housing needs analysis as well as strategies for addressing housing needs statewide.[15] The plan concludes that "Oregon's changing population demographics are having a significant impact on its housing market." It identified the following population and demographic trends that influence housing need statewide. Oregon is:

- Facing housing cost increases due to higher unemployment and lower wages, as compared to the nation.
- Since 2005, is experiencing higher foreclosure rates compared with the previous two decades.
- Losing federal subsidies on about 8% of federally-subsidized Section 8 housing units.
- Losing housing value throughout the State.
- Losing manufactured housing parks, with a 25% decrease in the number of manufactured home parks between 2003 and 2010.
- Increasingly older, more diverse, and has less affluent households.[16]

Regional and Local Demographic Trends

Sherwood has a growing population (Table B- 5**).** Sherwood's growing population will drive future demand for Sherwood over the planning period.

- Sherwood grew by more than 15,000 people, a 501% increase in population, at an average annual rate of 8.1% over the 1990 to 2013 period. [17]
- Sherwood grew at a faster rate than the nation as a whole (1.0% per year), Oregon (1.4% per year), and the Portland Region (1.6%) over this period.
- Metro forecasts that the number of households in the Sherwood Planning Area will grow by about 1,653 households over the 2018-2038 period, at an average annual growth rate of 0.8%.
- Metro forecasts that Sherwood West, an area that is adjacent to Sherwood but currently outside of the Metro Urban Growth Boundary, will grow by 4,157 households. Growth in Sherwood West will not begin until the area is included in the Metro UGB and annexed into Sherwood. While Metro's forecast assumes that Sherwood West may be fully

[15] http://www.ohcs.oregon.gov/OHCS/HRS_Consolidated_Plan_5yearplan.shtml

[16] State of Oregon *Consolidated Plan 2011 to 2015*. http://www.oregon.gov/ohcs/hd/hrs/consplan/2011_2015_consolidated_plan.pdf

[17] 2013 Population Estimates in Oregon come from Portland State University's Population Research Center.

developed by 2040, it may take longer, perhaps until 2065, for Sherwood West to fully develop.

- Metro's forecast of household growth considers residential capacity within Sherwood's city limits to accommodate growth. Much of Sherwood's future growth depends on bringing new land into the city limits, including the Brookman Area and Sherwood West.

The growth of younger and diversified households will result in increased demand for a wider variety of affordable housing appropriate for families with children, such as small single-family housing, townhouses, duplexes, and multifamily housing.

Sherwood's population is younger than the state, on average (Table B- 7**,** Table B- 8**, and** Figure B- 8**).** Sherwood has a larger share of people younger than 30 years of age, and a relatively small share of people over 50 years. If Sherwood continues to attract young residents, then it will continue to have demand for housing for families, especially housing affordable to younger families with moderate incomes. Recent studies suggest that growth in younger residents (e.g., Millennials) will result in increased demand for both affordable single-family detached housing, as well as increased demand for affordable townhouses and multifamily housing. Growth in this population will result in growth in demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.

- In 2010, the median age in Sherwood was 34.3 years old, compared to the State median of 38.4.
- A higher percentage of Sherwood's population is younger than 30 years (44%) compared to the state as a whole (39%). Furthermore, a smaller share of Sherwood's population is younger than 50 years (21%), compared to the state as a whole (34%).

The aging of the population will result in increased demand for smaller single-family housing, multifamily housing, and housing for seniors.

Sherwood's population is growing older (Figure B- 9**).** Although Sherwood has a smaller share of people over 50 years old than the State average, Sherwood's population is growing older, consistent with State and national trends. Demand for housing for retirees will grow over the planning period, as the Baby Boomers continue to age and retire. However, Sherwood's demand for housing for seniors may grow at a slower rate than across the State.

Growth of seniors will have the biggest impacts on demand for new housing through demand for housing types specific to seniors, such as assisted living facilities or age-restricted developments. These households will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, or moving into group housing (such as assisted living facilities or nursing homes), as their health fails.

- The fastest-growing age group over the 2000 to 2010 period in Sherwood was people aged 45 years and older, with the most growth in the number of people aged 45 to 64.
- In Sherwood, people aged 45 to 64 grew by 102%, from 1,936 to 3,917 people between 2000 and 2010.

- By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015). The percent of total population in each age group younger than 60 years old will decrease. The age distribution in the Portland Region will change in a similar pattern.[18]
- Given the growth of people 45 years and older in Sherwood and the forecast for growth of people 60 years and older between 2018-2038 in Washington County and the Portland Region, it is reasonable to expect that Sherwood will have growth in the senior population.

Sherwood is becoming more ethnically diverse (Figure B- 10**).** Growth in Hispanic and Latino population will affect Sherwood's housing needs in a variety of ways. Growth in first and, to a lesser extent, second and third-generation Hispanic and Latino immigrants tend to increase demand for larger dwelling units to accommodate the on average larger household sizes for these households. Households for Hispanic and Latino immigrants are more likely to include multiple generations, requiring more space than smaller household sizes. As Hispanic and Latino households integrate over generations, household size typically decreases and housing needs become similar to housing needs for all households.

Growth in Hispanic and Latino households will result in increased demand for housing of all types, both for ownership and rentals, with an emphasis on housing that is comparatively affordable.

- Sherwood's Hispanic and Latino population grew by 99% from 2000 to the 2009-2013 period, from 557 to 1,107 people, increasing its share of the population from 4.7% to 6.0%.
- Nonetheless, Sherwood's percentage of Hispanic or Latino population remains below that of the state as a whole. In the 2009-2013 period, Hispanic and Latino population accounted for 12% of the state's population, compared to Sherwood's average of 6.0%.

Sherwood's household size is larger than State averages (Table B- 9**).** The larger household size is indicative of a larger share of households with children or multigenerational households.

- Sherwood's average household size was 2.89 persons per household, compared with the regional average of 2.54 persons per household, and the state average of 2.49 persons per household.
- The size of households in Sherwood grew from 2000 to the 2009-2013 period (2.77 to 2.89). Over the same period, the average household size

[18] Demographic forecast for Washington County by the Oregon Office of Economic Analysis.

in the Portland Region rose slightly from 2.53 to 2.54, while the State's average fell from 2.51 to 2.49.

Sherwood has a relatively high share of households with children (Figure B-11**).** Households with children are more likely to prefer single-family detached housing, if it is relatively affordable.

- Sherwood has a larger share of households with children (47%) than the State average (27%), the Portland Region (29%), or Washington County (33%).
- In the 2009-2013 period, Sherwood had a smaller share of single-person households (19%) than the regional average (29%).
- In the 2009-2013 period, Sherwood had a smaller share of non-family households (23%) than the regional average (38%).

Sherwood is part of a complex, interconnected regional economy (Figure B- 12**,** Table B- 11**, and** Table B- 12**).** Most people working at businesses in Sherwood do not live in Sherwood. Demand for housing by workers at businesses in Sherwood may change with fluctuations in fuel and commuting costs, as well as the capacity of highways to accommodate commuting. [19]

- Commuting is typical throughout the region: 91% of Sherwood's working residents commuted outside the city, and about 85% of those who work in the city live outside the city itself.

Summary of the Implications of Demographic and Socioeconomic Trends on Housing Choice

The purpose of the analysis thus far has been to provide background on the kinds of factors that influence housing choice, and in doing so, to convey why the number and interrelationships among those factors ensure that generalizations about housing choice are difficult and prone to inaccuracies.

There is no question that age affects housing type and tenure. Mobility is substantially higher for people aged 20 to 34. People in that age group will also have, on average, less income than people who are older. They are less likely to have children. All of these factors mean that younger households are much more likely to be renters, and renters are more likely to be in multifamily housing.

The data illustrate what more detailed research has shown and what most people understand intuitively: life cycle and housing choice interact in ways that are predictable in the aggregate; age of the household head is correlated with household size and income; household size and age of household head affect housing preferences; income affects the ability of a household to afford a

[19] US Census Bureau, LED on the Map, http://lehdmap3.did.census.gov/themap3/.

preferred housing type. The connection between socioeconomic and demographic factors and housing choice is often described informally by giving names to households with certain combinations of characteristics: the "traditional family," the "never marrieds," the "dinks" (dual-income, no kids), the "empty nesters."[20] Thus, simply looking at the long wave of demographic trends can provide good information for estimating future housing demand.

Thus, one is ultimately left with the need to make a qualitative assessment of the future housing market. The following is a discussion of how demographic and housing trends are likely to affect housing Sherwood over the next 20 years:

- **Growth in housing will be driven by growth in population.** Between 2000 and the 2009-2013 period, the number of housing units in Sherwood increased by 47% from about 4,500 to 6,600 (Figure B- 4), while its population grew by roughly 55% from 11,963 to 18,575 from 2000 to 2013 (Table B- 5).[21]
- **On average, future housing will look a lot like past housing.** That is the assumption that underlies any trend forecast, and one that allows some quantification of the composition of demand for new housing. As a first approximation, the next three to five years of residential growth will look a lot like the last three to five years.
- **If the future differs from the past, it is likely to move in the direction (on average) of smaller units and more diverse housing types.** Most of the evidence suggests that the bulk of the change will be in the direction of smaller average house and lot sizes for single-family housing.

  Key demographic trends that will affect Sherwood's future housing needs are: (1) the aging of the Baby Boomers, (2) aging of the Millennials, (3) growth of family households, and (4) continued growth in Hispanic and Latino population.

  - *The Baby Boomer's population is continuing to age.* By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015). The changes that affect Sherwood's housing demand as the population ages are that household sizes decrease and homeownership rates decrease.
  - *Millennials will continue to age.* By 2035, Millennials will be roughly between about 35 years old to 55 years old. As they age, generally speaking, their household sizes will increase and homeownership rates will peak by about age 55. Between 2018 and 2038,

[20] See *Planning for Residential Growth: A Workbook for Oregon's Urban Areas* (June 1997).

[21] 2013 Population Estimates come from come from the Portland State University Population Research Center's Annual Population Estimates.

Millennials will be a key driver in demand for housing for families with children.

- *Growth of households with children.* Sherwood has an unusually high percentage of households with children, compared to the regional averages. If Sherwood continues to attract families with children, demand for housing for families, such as affordable single-family detached or townhouses, will increase.
- *Hispanic and Latino population will continue to grow.* The U.S. Census projects that by about 2040, Hispanic and Latino population will account for more than one-quarter of the nation's population. The share of Hispanic and Latino population in the western U.S. is likely to be higher. Growth in Hispanic and Latino population will drive demand for housing for families with children. Given the lower income for Hispanic and Latino households,[22] growth in this group will also drive demand for affordable housing, both for ownership and renters.

In summary, an aging population, increasing housing costs, housing affordability concerns for Millennials and the Hispanic and Latino populations, and other variables are factors that support the conclusion of smaller and less expensive units and a broader array of housing choices.

Millennials and immigrants will drive demand for affordable housing types, including demand for small, affordable single-family units (many of which may be ownership units) and for affordable multifamily units (many of which may be rental units).

- **No amount of analysis is likely to make the distant future any more certain: the purpose of the housing forecasting in this study is to get an approximate idea about the future so policy choices can be made today.** Economic forecasters regard any economic forecast more than three (or at most five) years out as highly speculative. At one year, one is protected from being disastrously wrong by the shear inertia of the economic machine. But a variety of factors or events could cause growth forecasts to be substantially different.

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[22] The following article describes household income trends for Hispanic and Latino families, including differences in income levels for first, second, and third generation households. In short, Hispanic and Latino households have lower median income than the national averages. First and second generation Hispanic and Latino households have median incomes below the average for all Hispanic and Latino households.

Pew Research Center. *Second-Generation Americans: A Portrait of the Adult Children of Immigrants*, February 7, 2012

REGIONAL AND LOCAL TRENDS IN HOUSING COSTS AND AFFORDABILITY

Sherwood's income is higher than state averages (Figure B- 19**).** Income is a key determinant of housing affordability. Since 2000, Sherwood's income has decreased (in inflation-adjusted dollars), consistent with state trends.

- Sherwood's median household income ($78,400) was about 55% higher than the state median ($50,229) in the 2009-2013 period.
- Inflation-adjusted income for households in Sherwood decreased by about 10% from about $87,500 in 2000 to $78,400 (in 2013 dollars) from 2000 to the 2009-2013 period. This is consistent with state and regional trends.
- Poverty rates increased in Sherwood from 2.7% of the population below poverty in 2000 to 7.6% in 2010. The increase is consistent with state and regional trends.
- Sherwood had a smaller share of population below the federal poverty line in the 2009-2013 period (7.6%) than the state average (16.2 %).

Housing costs in Sherwood increased by 30% since 2000.

Sales prices in Sherwood are higher than the regional averages.

Homeownership costs have increased in Sherwood (Figure B- 13**,** Figure B- 14**,** Figure B- 15 **and** Figure B- 16**).** Sales prices for single-family housing increased over the period from 2004 to 2014, consistent with national trends. While housing prices peaked in 2007, before falling during the recession, sales prices grew by about 30% from 2004 to 2014. Sales prices have continue to increase through 2017 and may be above the 2007 peak.

The increases in housing costs have made Sherwood less affordable than most other communities on the southwest side of Portland.

- Median sales prices for homes in Sherwood increased by about 30% between 2004 and 2014, from about $245,000 to $318,000.[23]
- As of January 2015, median sales prices in Sherwood were about $316,500, higher than in Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($237,300). Median sales prices were higher in Sherwood than in other Portland westside communities such as Tigard, Tualatin, and Beaverton but lower than Wilsonville or West Linn.
- Prices per square foot rose in Sherwood from $130 per square foot in October 2004 about $170 dollars in October 2014, comparable to the price in Washington County and the Portland Region (both about $170). The cost of housing per square foot was comparable in Sherwood to other

[23] Recent median home sale price, including price per square foot, comes from Zillow Real Estate Research.

cities on the southwest side of Portland, such as Tigard, Tualatin, Beaverton, and Wilsonville.

- The sales price data suggest that, overall, owner-occupied housing being produced in Sherwood was more expensive because it is larger than housing built in other cities in the southwestern Portland area.
- The ratio of home value to income increased by 32% from 2000 to 2009-2013. In 2000, the median home value was 2.9 times the median household income. By 2009-2013, the median home value was 3.8 times the median household income. In comparison, in 2009-2013, the typical value of an owner-occupied house in Washington County was 4.4 times the median income and the state average was 4.74 times the median income.

Rental costs are about 25% higher than the regional average.

Rental costs are higher in Sherwood than the average in Washington County, with a slightly lower rental cost on a cost per square foot basis (Table B- 14**, and** Figure B- 17 **and** Figure B- 18**).**

- The median contract rent in Sherwood in the 2009-2013 period was $1,064, compared to Washington County's average of $852.
- Average rent in the Tigard/Tualatin/Sherwood area submarket was $1.13 per square foot in Fall 2014, lower than the regional average of $1.22 per square foot. Between Spring 2010 and Spring 2013, average rent in Tigard/Tualatin/Sherwood area increased by 38%, consistent with the regional increase of 36%.

More than one-third of Sherwood's households have housing affordability problems, similar to regional averages.

More than one-third of Sherwood's households have housing affordability problems (Figure B- 20 **and** Figure B- 21**).**

- Thirty-eight percent of Sherwood's households were cost burdened (i.e., paid more than 30% of their income on rent or homeownership costs) in the 2009-2013 period.[24] This is consistent with the state averages.
- Roughly 40% of Sherwood's renter households were cost burdened in the 2009-2013 period. About one-fifth of renters were severely cost burdened (i.e., pay more than 50% of their income on rent).
- About 35% of Sherwood's homeowners were cost burdened in the 2009-2013 period. Only about 1% of homeowners were severely cost burdened (i.e., paid more than 50% of their income on homeownership costs).

[24]A household is considered cost burdened if they pay more than 30% of their gross income on housing costs. For renters, housing costs include the following: monthly rent, utilities (electricity, gas, and water and sewer), and fuels (wood, oil, etc.). For homeowners, housing costs include the following: mortgage payments, real estate taxes, insurance, mobile home costs, condominium fees, utilities, and fuels.

- When considering housing and transportation costs combined, the average household in Sherwood spends 54% of its income on housing costs and transportation costs. Metro considered a household that spends 45% or more of its income on transportation and housing as paying more they can afford. For context, the average households in Tualatin, Wilsonville, and Tigard pay 50% to 52% of their income for housing and transportation costs.

Future housing affordability will depend on the relationship between income and housing price. Households in Sherwood generally have higher than average incomes and housing prices are higher than average. In addition, Sherwood is at the edge of the Metro UGB, making transportation costs higher for households in Sherwood, compared to households who live in more central parts of the region. Determining whether housing in Sherwood will be more or less affordable is difficult to answer when based on historical data. The key questions are whether housing prices will continue to outpace income growth and whether transportation costs will continue to grow in the future.

FORECAST OF HOUSING BY TYPE AND DENSITY OF HOUSING

Table 2 shows the forecast of needed housing units in Sherwood based on the total estimate of housing need shown in Table 1. The forecast in Table 2 assumes: that the forecast for new housing will be: 50% single-family detached, 10% single-family attached, and 40% multifamily. This forecast is consistent with the requirements of OAR 660-007-0035.

The forecast shows increased demand for lower-cost housing types such as single-family attached and multifamily units, which meets the needs resulting in the changing demographics in Sherwood and the Portland region. The changes in demographics are the aging of the Baby Boomers, growth in Millennial households, and increases in ethnic diversity. The previous section described these trends and the implications for housing need in Sherwood.

Table 2. Forecast of needed housing units by mix, Sherwood planning area, 2018-2038

Housing Type	New Dwelling Units (DU)	Percent
Single-family detached	827	50%
Single-family attached	165	10%
Multifamily	661	40%
Total	**1,653**	

Source: ECONorthwest

The assumed housing mix meets the requirement of OAR 660-007-0030 to "designate sufficient buildable land to provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing."

The needed density in Sherwood is consistent with the densities achieved in residential zones Sherwood over the 2000-2014 period (Table B-4). These densities are:

- Very Low Density Residential (VLDR): 2.9 dwelling units per net acre
- Low Density Residential (LDR): 6.5 dwelling units per net acre[25]
- Medium Density Residential – Low (MDRL): 6.1 dwelling units per net acre

[25] The historical density achieved in LDR, 6.5 dwelling units per acre, is higher than the maximum allowable density in LDR, 5 dwelling units per net acre. This fact can be explained in large part by the fact that 60% of new development in LDR was part of a Planned Unit Development (PUD), which averaged 7.6 dwelling units per acre.

- Medium Density Residential – High (MDRH): 7.7 dwelling units per net acre
- High Density Residential (HDR): 19.1 dwelling units per net acre

These densities, when applied to Sherwood's supply of buildable land in the capacity analysis (Table 6) results in an overall density of 7.3 dwelling units per net acre. This housing density meets the requirements of OAR 660-007-0035 to "provide for an overall density of six or more dwelling units per net buildable acre."

Table 3 allocates the needed housing units to Sherwood's zones. The allocation is based on allowed uses in Sherwood's zoning code, historical development trends, and Sherwood's inventory of vacant buildable residential land.

Table 3. Allocation of needed housing units to zones, Sherwood planning area, 2018-2038

	Zone					
	Very Low Density Residential	Low Density Residential	Medium Density Residential-Low	Medium Density Residential-High	High Density Residential	Total
Dwelling Units						
Single-family detached	90	174	430	116	17	827
Single-family attached	-	-	-	99	66	165
Multifamily	-	-	83	229	349	661
Total	90	174	513	444	432	1,653
Percent of Units						
Single-family detached	5%	11%	26%	7%	1%	50%
Single-family attached	0%	0%	0%	6%	4%	10%
Multifamily	0%	0%	5%	14%	21%	40%
Total	5%	11%	31%	27%	26%	100%

Source: ECONorthwest

Needed housing by income level

Step four of the housing needs analysis is to develop an estimate of need for housing by income and housing type. This requires an estimate of the income distribution of current and future households in the community. The estimates presented in this section are based on (1) secondary data from the Census, and (2) analysis by ECONorthwest.

The analysis in Table 4 based on American Community Survey data about income levels in Sherwood, using income information shown in Table B- 17. Income is categorized into market segments consistent with HUD income level categories, using the Portland Region's 2014 Median Family Income (MFI) of $69,400. Table 4 is based on current household income distribution, assuming approximately that the same percentage of households will be in each market segment in the future.

Based on Sherwood's current household income distribution, Table 4 shows that about 31% of households in Sherwood have incomes below 80% of the MFI. These households will need a range of housing, such as lower-cost single-family detached housing, townhouses, manufactured homes, or multifamily housing. These households will predominantly be renters. Sixty-nine percent of households have incomes above 80% of MFI. These households will be a mix of owners and renters. Their housing needs will include single-family detached, townhouses, and multifamily housing.

Growth in lower-income demographic groups, such as the Millennials, or in Baby Boomers who want to downsize their homes, may increase demand for smaller single-family detached houses, townhouses, and multifamily housing.

Table 4. Estimate of needed new dwelling units by income level, Sherwood, 2018-2038

				Attainable		
Market Segment by Income	**Income Range**	**Number of households**	**Percent of Households**	**Owner-occupied**	**Renter-occupied**	
High (120% or more of MFI)	$83,280 or more	693	42%	All housing types; higher prices	All housing types; higher	
Upper Middle (80%-120% of MFI)	$55,520 to $83,280	446	27%	All housing types; lower values	All housing types; lower values	Primarily New Housing
Lower Middle (50%-80% of MFI)	$34,700 to $55,520	222	13%	Single-family attached; condominiums; duplexes; manufactured on lots	Single-family attached; detatched; manufactured on lots;	Primarily Used Housing
Lower (30%-50% of less of MFI)	$20,820 to $34,700	112	7%	Manufactured in parks	Apartments; manufactured in parks; duplexes	
Very Low (Less than 30% of MFI)	Less than $20,820	180	11%	None	Apartments; new and used government assisted housing	

Source: ECONorthwest
MFI is Median Family Income

Need for government assisted and manufactured housing

ORS 197.303 requires cities to plan for government-assisted housing, manufactured housing on lots, and manufactured housing in parks.

- **Government-assisted housing.** Government subsidies can apply to all housing types (e.g., single family detached, apartments, etc.) Sherwood allows development of government-assisted housing in all Residential zones, with the same development standards for market-rate housing. This analysis assumes that Sherwood will continue to allow government-assisted housing in all its Residential zones. Because government-assisted housing is similar in character to other housing (with the exception of the subsidies), it is not necessary to develop separate forecasts for government-assisted housing.
- **Manufactured housing on lots.** Sherwood allows manufactured housing in all residential zones as a permitted use. As manufactured homes are allowed as a permitted use in all zones, it is not necessary to develop separate forecasts for manufactured housing on lots.
- **Manufactured housing in parks (**Table B- 13**).** OAR 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial or high-density residential development. According to the Oregon Housing and Community Services' Manufactured Dwelling Park Directory,[26] Sherwood has four manufactured dwelling parks:
    - Carriage Park Estates with 58 spaces, all occupied
    - Crown Court with 14 spaces, except for one vacancy
    - Orland Villa with 24 spaces, all occupied
    - Smith Farm Estates with 90 spaces, all occupied

    ORS 197.480(2) requires Sherwood to project need for mobile home or manufactured dwelling parks based on: (1) population projections, (2) household income levels, (3) housing market trends, and (4) an inventory of manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial, or high-density residential.

    - Table 1 shows that the Sherwood planning area will grow by 1,653 dwelling units over the 2018 to 2038 period.
    - Analysis of housing affordability (in Table 4) shows that about 18% of Sherwood's new households will be low income, earning 50% or less

[26] Oregon Housing and Community Services, Oregon Manufactured Dwelling Park Directory, http://o.hcs.state.or.us/MDPCRParks/ParkDirQuery.jsp

of the County's median family income. One type of housing affordable to these households is manufactured housing.

- Manufactured housing in parks accounts for about 2.4% (258 dwelling units) of Sherwood's current housing stock, according to 2009-2013 Census data.
- National, state, and regional trends during the 2000 to 2010 period showed that manufactured housing parks were closing, rather than being created. For example, between 2003 and 2010, Oregon had a statewide decrease of 25% in the number of manufactured home parks. The trend of closing of manufactured housing parks slowed during the housing recession but is likely to increase as housing prices and land prices increase.
- The longer-term trend for closing manufactured home parks is the result of manufactured home park landowners selling or redeveloping their land for uses with higher rates of return, rather than lack of demand for spaces in manufactured home parks. Manufactured home parks contribute to the supply of lower-cost affordable housing options, especially for affordable home ownership. The trend in closure of manufactured home parks increases the shortage of manufactured home park spaces. Without some form of public investment to encourage continued operation of existing manufactured home parks and construction of new manufactured home parks, this shortage will continue.

Table 4 shows that the households most likely to live in manufactured homes in parks are those with incomes between $20,820 and $34,700 (30 to 50% of median family income). Assuming that about 1.5% to 2.5% of Sherwood's new households (1,653 new dwellings) choose to live in manufactured housing parks, the City may need 25 to 41 new manufactured home spaces. At an average of 8 dwelling units per net acre, this results in demand for 3.1 to 5.2 acres of land.

The City allows development of manufactured housing parks in MDRL zones, where the City has 66 vacant suitable buildable acres of land. Development of a new manufactured home park in Sherwood over the planning period seems unlikely. The land needed for development of a manufactured housing park is part of the forecast in Table 2.

4 Residential Land Sufficiency

This chapter presents an evaluation of the sufficiency of vacant residential land in Sherwood to accommodate expected residential growth over the 2018 to 2038 period. This chapter includes an estimate of residential development capacity (measured in new dwelling units) and an estimate of Sherwood's ability to accommodate needed new housing units for the 2018 to 2038 period. The chapter also includes conclusions and recommendations based on the results of the housing needs analysis.

Residential Buildable Land

Table 5 presents the City's inventory of buildable land. The buildable lands inventory is based on City of Sherwood and Metro GIS data. Appendix A presents a complete description of the methodology used to develop the buildable lands inventory. The key assumptions in the inventory are:

- **Vacant land** was defined as land that is fully vacant (as determined by Metro's Regional Land Information System (RLIS) GIS data and local data), or tax lots that are at least 95% vacant, or tax lots that have less than 2,000 square feet developed, with development covering less than 10% of the entire lot.
- **Unbuildable land** was removed from the inventory, including land with: public tax exemptions (i.e., land owned by the city or state), schools, churches, and other tax-exempt social organizations, private streets, rail properties, parks, and tax lots that do not meet the City's requirements for infill development.
- **Environmental resources and constraints** were deducted from the inventory of vacant land, including floodways and slopes over 25%.
- **Future rights-of-way** were accounted for based on lot sizes, with tax lots larger than one acre assumed to have 18.5% of land set aside for future rights-of-way.

Table 5 shows that Sherwood has 175 net acres of suitable buildable residential land. Fifty-five percent of Sherwood's vacant land (96 acres) is within the city limits and 45% (79 acres) is within the Brookman Area or other unincorporated areas within the current Urban Growth Boundary.

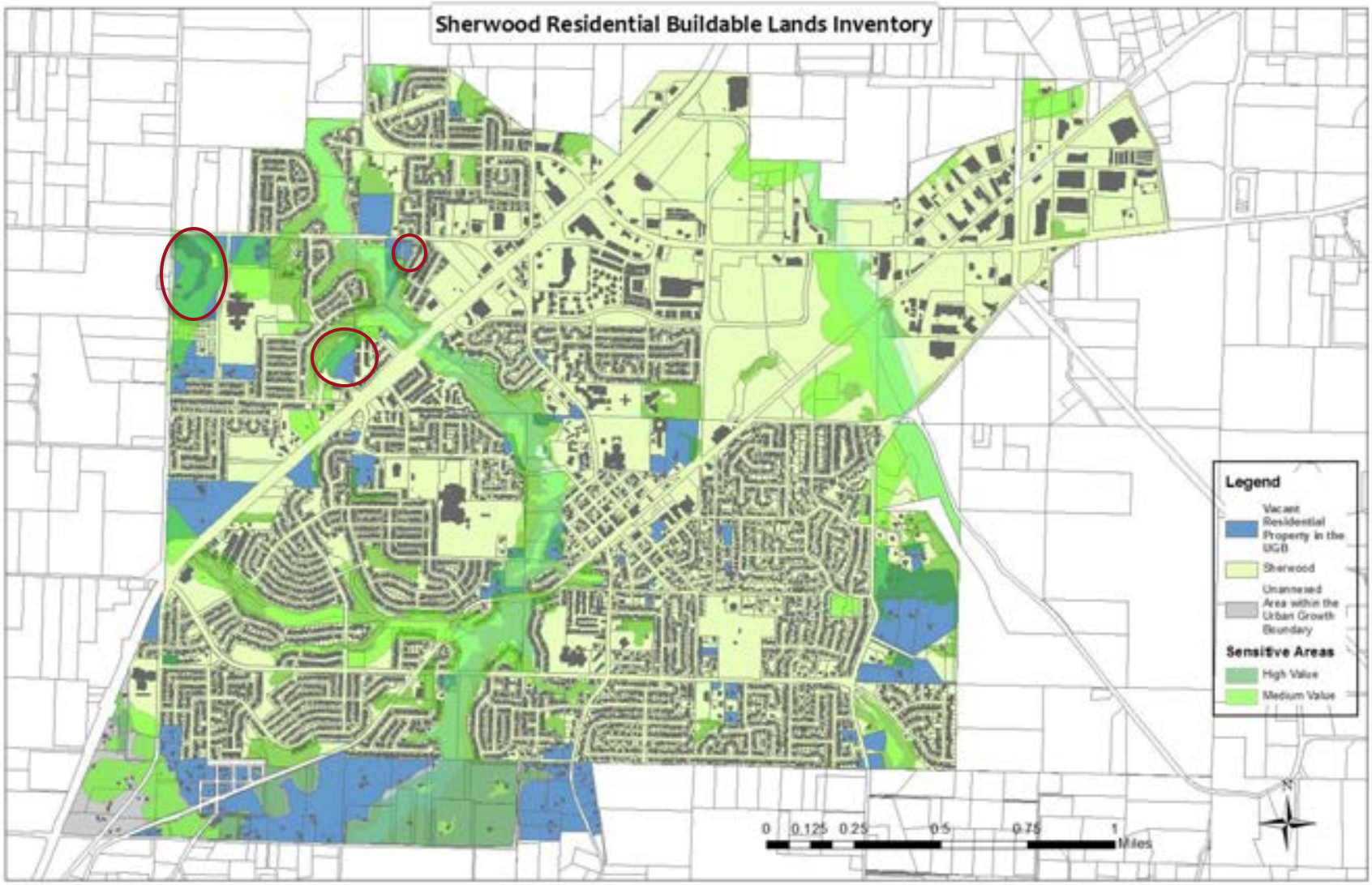
Table 5. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014

Zone	Gross Acres	Percent of Total
Land within City Limits		
Very Low Density Residential (VLDR)	24	14%
Very Low Density Residential Planned Unit Development (VLDR-PUD)	1	1%
Low Density Residential (LDR)	22	13%
Medium Density Residential-Low (MDRL)	14	8%
Medium Density Residential-High (MDRH)	21	12%
High Density Residential (HDR)	14	8%
Subtotal	**96**	**55%**
Brookman and Other Unincorporated Areas		
Very Low Density Residential (VLDR)	1	1%
Medium Density Residential-Low (MDRL)	52	30%
Medium Density Residential-High (MDRH)	8	4%
Medium Density Residential- Low/High* (MDRL/H)	15	8%
High Density Residential (HDR)	3	2%
Subtotal	**79**	**45%**
Total	**175**	**100%**

Source: City of Sherwood
*Note: There is one lot split between MDRL and MDRH.

Map 1 shows the inventory of vacant and partially vacant land in Sherwood. Notable areas where development has occurred since 2014 are circled in red on Map 1. In total, 125 new single-family detached units were permitted between January 1, 2015 and October 31, 2017.

Map 1. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014



Source: City of Sherwood

RESIDENTIAL DEVELOPMENT CAPACITY

This section presents a summary of the analysis used to estimate Sherwood's residential development capacity.

The capacity analysis estimates the number of new dwelling units that can be accommodated on Sherwood's residential land supply.[27] The capacity analysis evaluates ways that vacant suitable residential land may build out by applying different assumptions.

In short, land capacity is a function of buildable land, housing mix (as determined by plan designation or zoning), and density. The basic form of any method to estimate capacity requires (1) an estimate of *buildable* land, and (2) assumptions about density. The arithmetic is straightforward:

Buildable Land (ac) * Density (du/ac) = Capacity (in dwelling units)

For example:

100 acres * 8 du/ac = 800 dwelling units of capacity

The example is a simplification of the method, which skips some of the nuances that can be incorporated into a detailed capacity analysis such as variations in densities and housing mix among different Comprehensive Plan Designations.

Capacity analysis results

The capacity analysis estimates the development potential of vacant residential land to accommodate new housing based a range of density assumptions by zoning designation. Table 6 shows the capacity of Sherwood's residential land based on the buildable vacant and partially vacant land in Sherwood and a range of potential density assumptions.

The analysis of capacity in Table 6 is meant to illustrate the potential capacity of Sherwood's land based on current development policies and on historical development densities. Table 6 shows development capacity using: (1) the minimum allowable densities and (2) the maximum allowable densities (ensuring that lots meet the minimum lot size requirements. Table 6 also shows capacity based on historical densities.

- **Buildable Acres.** The Buildable Lands Inventory identified 175 net acres of vacant and partially vacant land, with 96 acres within Sherwood's city

[27] In this report, the term "capacity analysis" is used as shorthand for estimating how many new dwelling units the vacant residential land in the UGB is likely to accommodate.

limits and 79 acres in the Brookman and other unincorporated areas within the Metro UGB.

- **Capacity based on Zoning: Minimum Densities.** The analysis considered the capacity of Sherwood's land based on minimum densities in Sherwood's zoning code. This analysis shows that Sherwood has capacity of 940 new dwelling units at 5.4 dwelling units per net acre based on minimum zoning in all districts.
- **Capacity based on Zoning: Maximum Densities and Minimum Lot Sizes.** The analysis considered the capacity of Sherwood's land based on maximum densities in Sherwood's zoning code and the minimum lot size. This analysis was developed based on parcel-specific data. The amount of buildable land was identified in each parcel and the potential capacity was evaluated based on development standards in Sherwood's zoning code.

  The maximum capacity estimate estimates the capacity of Sherwood's land based on the maximum density allowed by zone by parcel, assuming that each parcel of buildable land meets the minimum lot size of the zone it is in.

  Table 6 shows that Sherwood's buildable land has capacity to accommodate 1,510 new dwelling units under these assumptions. This estimate results in an overall average of 8.6 dwelling units per net acre. About 44% of Sherwood's development capacity is in the Brookman area and other unincorporated areas within the Metro UGB.
- **Historical Development Densities.** The analysis considered the capacity of Sherwood's land based on historical development density by zone. In this analysis, we applied the historical density to the total vacant land in each zone to estimate the number of dwelling units that could be accommodated.

  Table 6 shows that Sherwood's buildable land has capacity to accommodate 1,286 new dwelling units based on historical development densities. This estimate results in an overall average of 7.3 dwelling units per net acre. About 44% of Sherwood's development capacity is in the Brookman area and other unincorporated areas within the Metro UGB.

Table 6. Range of capacity estimates, Sherwood vacant and partially vacant land, gross acres and gross densities, 2015

		Capacity based on Zoning: Minimum Densities		Capacity based on Zoning: Maximum Densities and Minium Lot Sizes		Capacity based on Historical Development Densities		Difference in Capacity between Maximum Densities and Historical Densitites	
Zone	Buildable Acres	Dwelling units	Derived Density	Dwelling units	Derived Density	Density Assumption	Dwelling units	Difference in Dwelling Units	Difference in Density
Land within City Limits									
VLDR	24	19	0.8	94	3.9	2.9	69	25	1.0
VLDR_PUD	1	-	-	4	3.8	2.9	3	1	0.9
LDR	22	71	3.2	113	5.1	6.5	144	(31)	(1.4)
MDRL	14	75	5.2	112	7.8	6.1	88	24	1.7
MDRH	21	111	5.3	223	10.7	7.7	161	62	3.0
HDR	14	224	16.0	303	21.7	19.1	266	37	2.6
Subtotal	**96**	**500**	**5.2**	**849**	**8.8**		**731**	**118**	**8.8**
Brookman and Other Unincorporated Areas									
VLDR	1	2	1.6	4	3.2	2.9	3	1	0.3
MDRL	52	275	5.3	401	7.7	6.1	317	84	1.6
MDRH	8	36	4.7	62	8.1	7.7	58	4	0.4
MDRL/H*	15	78	5.3	109	7.5	7.5	109	-	-
HDR	3	49	15.4	70	22.1	19.1	60	10	3.0
Subtotal	**79**	**440**	**5.6**	**661**	**8.4**		**547**	**114**	**8.4**
Total	**175**	**940**	**5.4**	**1,510**	**8.6**	**7.3**	**1,278**	**232**	**1.3**

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

*Note: There is one lot in the Brookman Area that is split zoned MDRL/MDRH. Of this 15 acre lot, 13 acres is assumed MDRH and two acres is assumed MDRL. The density assumptions for that lot are consistent with the density assumptions shown in Table 6.

Table 6 compares the difference in the capacity estimates for the "maximum density (and minimum lot size) capacity" estimate and the "historical development density" estimate. Table 6 shows that the capacity estimate based on historical development densities results in 232 fewer dwelling units than the capacity based on maximum densities. The average density using the historical development densities is 1.3 dwelling units per acre lower than the maximum density analysis.

This difference shows that development in Sherwood is generally occurring at lower than the maximum allowed densities, showing underbuild in Sherwood. Further analysis shows that residential development between 2000 and 2014 occurred at between 70% to 80% of the maximum allowable densities. The exception is Low Density Residential, where development occurred at higher than allowable densities approximately 60% of LDR development between 2000 and 2014 was in Planned Unit Developments – neighborhoods that were approved to provide a more compact development option.

Underbuild is expected as a result of development constraints that lower development capacity, such as slopes. In addition, parcel configuration contributes to underbuild, with parcels that are oddly shaped or have more land than the minimum requirement but not enough for additional housing.

Table 6 demonstrates that development in Sherwood occurred at considerably higher densities than the minimum allowable densities in each zone.

Based on the analysis in Table 6, we conclude that **both the maximum density (and minimum lot size) and the historical development density estimates exceed the State requirement** (OAR 660-007-0035(2)) to "provide for an overall

density of six or more dwelling units per net buildable acre." The estimate results in an average density of between 7.3 to 8.6 dwelling units per net acre.

The conclusion of the housing needed analysis is that Sherwood's historical densities by housing type (shown in Table B- 3) meet Sherwood's future housing needs. Table B- 3 shows Sherwood's historical densities as 6.5 dwelling units per acre for single-family detached, 17.9 dwelling units per acre for single-family attached, and 20.5 dwelling units per acre for multifamily. If future residential development continues to occur at approximately these densities and with the mix of housing shown in Table 2, then Sherwood will be meeting its Goal 10 requirements.

In addition to the capacity shown in Table 6, Sherwood could have additional residential development capacity resulting in development of housing in commercial zones and from redevelopment of residential properties with existing development (where redevelopment results in a net increase in the number of dwelling units on the property).

About 9% of Sherwood's residential development over the 2000 to 2014 period occurred in commercial zones. It is reasonable to assume that some residential development over the next 20 years would occur in commercial zones, as long as housing is considered a secondary use to the commercial use, as required by Sherwood's development code.

Sherwood has limited opportunities for redevelopment because much of Sherwood's housing stock was developed over the last two decades. In addition, residential land in Sherwood is parcelized and meeting existing density requirements in areas with existing development would be difficult.

Table 7 presents a revision of the capacity shown in Table 6 for capacity based on historical densities. Between January 1, 2015 and October 31, 2017, Sherwood issued 125 permits for housing, all in the MDRL, MDRH, and HDR zones. Table 7 reduces the capacity estimate by 125 units, resulting in a capacity of 606 units on land within the city limits.

Table 7. Revised capacity based on historical development densities accounting for building permits issued in 2015 to 2017, dwelling units, 2017

Zone	Capacity based on Historical Development Densities	Building Permits Issued 2015 to 2017	Revised Capacity
Land within City Limits			
VLDR	69		69
VLDR_PUD	3		3
LDR	144		144
MDRL	88	24	64
MDRH	161	27	134
HDR	266	74	192
Subtotal	**731**	**125**	**606**

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

Table 8 summarizes Sherwood's development capacity based on the analysis in Table 6 (using the Historical Densities analysis) and reduction in capacity for development between 2015 and 2017 in Table 7.

Table 8. Summary of development capacity based on changes from 2015 to 2017, dwelling units, Sherwood city limits and Brookman and other Unincorporated areas, 2017

	Buildable Acres	Density Assumption	Dwelling units
Very Low Density Residential	26	2.9	76
Low Density Residential	22	6.5	144
Medium Density Residential-Low	68	6.1	392
Medium Density Residential-High	41	7.7	291
High Density Residential	17	19.1	253
Total	175	6.6	1,156

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

RESIDENTIAL LAND SUFFICIENCY

The last step in the analysis of the sufficiency of residential land within Sherwood is to compare the demand for land by zone (Table 3) with the capacity of land by zone based on historical development densities (Table 6 and Table 7). Table 9 shows that Sherwood has a deficit of capacity in each zone, for a total deficit of about 497 dwelling units. The largest deficits are in Medium Density Residential-Low (121 dwelling units), Medium Density Residential-High (153 dwelling units), and High Density Residential (179 dwelling units).

The conclusion from Table 9 is that the current inventory of buildable residential land is **not** sufficient to accommodate Sherwood's expected growth. To comply with Goal 10, the City will need to either change its policies to allow for more development on the inventory of vacant land, request a UGB expansion from Metro, or both. The types of land with the largest deficit are Medium Density Residential-Low, Medium Density Residential-high, and High Density Residential.

Table 9. Comparison of capacity of existing residential land with demand for new dwelling units, dwelling units, Sherwood planning area, 2018-2038

Zone	Capacity (Needed Densities)	Housing Demand	Comparison Capacity *minus*
Very Low Density Residential	76	90	-14
Low Density Residential	144	174	-30
Medium Density Residential-Low	392	513	-121
Medium Density Residential-High	291	444	-153
High Density Residential	253	432	-179
Total	**1,156**	**1,653**	**-497**

Source: ECONorthwest
Note: DU is dwelling unit.

POTENTIAL GROWTH IN SHERWOOD WEST

Development capacity in Sherwood West will vary from 3,300 to 6,500 dwelling units. The Concept Plan will begin to identify housing types and development scenarios that fit with the community's vision for Sherwood West and that are possible, given likely development and infrastructure costs

The Concept Planning work for Sherwood West is ongoing. The results of the Concept Planning work and later concept and master planning phases will determine more precisely the type and amount of housing in Sherwood West. Table 10 presents estimates of capacity in Sherwood West based on a range of density assumptions, from an average of 6.0 to 12.0 dwelling units per acre. The purpose of the information in Table 10 is to provide some idea of potential development capacity in Sherwood West.

The timing of development in Sherwood West is being discussed through the Concept Planning process. A number of factors will affect the timing of development in Sherwood West, such as when the area is brought into the Metro UGB, provisions of services, and future concept planning for the area. Sherwood West may not be fully built out until 2065. The areas expected to develop first in Sherwood West are Areas A, B, and a portion of C in the Concept Plan, which are located in the southeast part of Sherwood West, adjacent to the Brookman Area. The Sherwood School District has plans to develop a high school in Area A in the next few years.

Table 10. Potential residential development capacity, Sherwood West

	Dwelling Units	Notes
Estimate of Buildable Land		
Gross Acres	670	
Net Acres	546	We assumed an average net-to-gross factor of 18.5% for rights-of-way, regardless of parcel size.
Potential Capacity based on Density Assumptions		
Required average from OAR 660-007 - 6 DU/net acre	3,276	Under this assumption, Sherwood West would be primarily built-out with single-family detached housing. Given Sherwood's historical development densities and the City's requirement to provide opportunity that half of new development is single-family attached and multifamily, this density seems too low for Sherwood West. Issues related to costs of services and development density will be discussed in the pre-concept planning process (and again in the concept planning process) may indicate that this density assumption is too low to support development costs for Sherwood West.
Historical Development Density* - 7.8 DU/net acre	4,259	Issues related to costs of services and development density will be discussed in the pre-concept planning process (and again in the concept planning process) may indicate that this density assumption is too low to support development costs for Sherwood West.
10 DU/net acre	5,460	Metro's forecast for capacity in Sherwood West (4,844) would be accommodated at an average of 10 dwelling units per acre, with some additional capacity for other development.
12 DU/net acre	6,552	

Source: Buildable Lands Estimate from OTAK and analysis by ECONorthwest
*Note: Historical Development Density includes only development in residential zones over the 2000-2014 period.

CONCLUSIONS AND RECOMMENDATIONS

The key findings and recommendations from the housing needs analysis are as follows:

Sherwood is able to accommodate 70% of the forecast for growth within the Sherwood Planning Area.

- **Sherwood is able to meet state requirements.** The City's primary obligations are to (1) designate land in a way that 50% of new housing could be either multifamily or single-family attached housing (e.g., townhouses) and (2) achieve an average density of six dwelling units per net acre. Put another way, the City is required to plan that 50% of their new housing will have the opportunity to be multifamily or single-family attached housing (e.g., townhouses), with all housing at an average density of 6 dwelling units per net acre. Sherwood is able to meet these requirements.
- **Sherwood is meeting its obligation to plan for needed housing types for households at all income levels.** Sherwood's residential development policies include those that allow for development of a range of housing types (e.g., duplexes, manufactured housing, and apartments) and that allow government-subsidized housing. This conclusion is supported by the fact that Metro's 2016 *Compliance Report* concluded that Sherwood was in compliance with Metro Functional Plan and Title 7 (Housing Choice). Sherwood will have an ongoing need for providing affordable housing to households with all income levels.
- **Sherwood has a deficit of land for housing.** Sherwood can accommodate about 70% of the forecast for new housing on areas within the city limits and Brookman Area. However, Sherwood has a deficit of land for 497 dwelling units. The largest deficits are in Medium Density Residential-Low (121 dwelling units), Medium Density Residential-High (153 dwelling units), and High Density Residential (179 dwelling units).
- **To provide adequate supply, Sherwood will need to continue to annex the Brookman area.** Sherwood will need to continue to annex the Brookman area in order to accommodate the City's forecast of residential growth. The City recently annexed about 98 acres in the Brookman Area. The annexed land is in the center of the Brookman Area and has relatively few owners (about 8 property owners). Annexing and developing other parts of the Brookman area, with a larger number of owners, may be more challenging, to the extent that the property owners have to come to agreement about development.
- **Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman Area.** The growth rate of Metro's forecast for household growth (0.8% average annual growth) is considerably lower than the City's historical population growth rate over the last two decades (8% average annual growth). Metro's forecast only

includes growth that can be accommodated with the Sherwood Planning area, which does not include Sherwood West.

Given the limited supply of buildable land within Sherwood, it is likely that the City's residential growth will slow, especially if portions of Sherwood West are not brought into the Metro UGB in the earlier part of the 20-year planning period. It is likely that Sherwood's future growth over the 2018-2038 period would be considerably slower than its historical growth rate, if for no other fact than it is mathematically more difficult to maintain a high growth rate with a larger population. In addition, Sherwood's fast growth during the last two decades was driven by historically fast in-migration in to the Portland region, a trend that Metro's forecast shows slowing, and the availability of vacant buildable residential land in Sherwood.

Sherwood's fast growth during the last two decades was driven by historically fast in-migration in to the Portland region, a trend that Metro's forecast shows slowing, and the availability of vacant buildable residential land in Sherwood.

Sherwood will need Sherwood West to accommodate future growth beyond the existing city limits and Brookman Area.

- **Sherwood has a relatively limited supply of land for moderate- and higher-density multifamily housing.** Sherwood has 41 vacant acres of MDRH land and 17 acres of HDR land. If the City wants more multifamily housing growth in core areas of Sherwood, the City could evaluate whether to make policy changes that either increase the capacity of MDRH and HDR land or designate more land for these uses. Some specific considerations:
  - MDRH allows up to 11 dwelling units per acre. However the lot development requirements[28] for multifamily make it difficult to achieve the maximum development density. The City should evaluate the implications of changing MDRH development standards to allow densities of at least 11 dwelling units per acre or a moderate increase in the maximum allowable densities in MDRH.
  - The City's supply of HDR land is very limited, with 17 vacant acres of HDR. As part of the Comprehensive Plan update, the City may choose to evaluate opportunities to upzone land to HDR, to allow more multifamily land in areas such as centers or along transportation corridors.
  - Sherwood's development code does not provide opportunities for development of housing at moderate multifamily densities of 11.1 to 16.7 dwelling units per acre, the gap in densities between MDRH and HDR. As part of the Comprehensive Plan update, the City may choose to evaluate the need for a zone that allows development in this density,

Sherwood's development code does not provide opportunities for development of housing at moderate multifamily densities between 11 to 16 dwelling units per acre.

Providing opportunities for housing in these densities may address and provide opportunities for development of a wider range of affordable housing types.

[28] Sherwood has an 8,000 square foot minimum lot size for the first two multifamily units, with a requirement for 3,200 additional square feet for each multifamily unit beyond the first two units.

which might include townhouses and moderate-sized apartment or condominium buildings.

  - About 9% of Sherwood's residential development over the 2000 to 2014 period occurred in commercial zones., Sherwood may be able to accommodate additional multifamily residential development in these zones. The City may choose to evaluate and identify opportunities for additional multifamily development in commercial zones, as part of the Comprehensive Plan update.

- **Sherwood should monitor residential development.** The city may wish to develop a monitoring program that will allow Sherwood to understand how fast land is developing. The monitoring program will inform Metro's UGB planning process by providing more detailed information about housing growth and development capacity in Sherwood. This information can help City staff and decision-makers make the case to Metro staff and decision-makers about the need for residential expansion areas. We recommend using the following metrics to monitor residential growth:

  - **Population.** The City already routinely monitors population growth by using the annual population estimates prepared by the Center for Population Research at Portland State University.

  - **Building permits.** The Housing Needs Analysis included a review of building permits by dwelling type, plan designation, zone, and net density. Because the City collects most of the data used in the analysis of historical development density, we recommend that city staff update this analysis on an annual basis.

  - **Subdivision and partition activity.** This metric is intended to measure the rate and density of land divisions in Sherwood. Specific data to include with subdivision and partition activity are the area of the parent lot, the area in child lots, the number of child lots, the average size or density of lots, and the area in dedicated right-of-way.

  - **Land consumption.** This metric relates closely to the building permit data. The building permit data should include tax lot identifiers for each permit. The City should match each permit to data in the buildable lands inventory and report how much land is being used by plan designation, zone, and land classification (e.g., vacant, redevelopable, infill, etc.). Additionally, we recommend the City map the location of development on an annual basis.

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Appendix A. Appendix A. Residential Buildable Lands Inventory

This appendix presents the methodology used to develop the buildable lands inventory and the results of the buildable lands inventory. The information in this appendix was developed by City of Sherwood staff.[29]

METHODOLOGY

Definitions used in the inventory

Vacant land

- Any tax lot that is fully vacant as determined by RLIS GIS Data[30], aerial photography, field checks and local records.
- Tax lots that are at least 95% vacant are considered vacant land.
- Tax lots that are less than 2,000 sq. feet developed AND developed part is under 10% of entire lot

Developed land

- Part vacant/part developed tax lots are considered developed and will be treated in the redevelopment filter

Steps in developing the buildable land inventory

Step 1: Inventory and map fully vacant residential lands

a. Sort City tax lot data by zoning designation within the City boundary.

The residential zones including any planned unit development overlay utilized within this study include:

- Very Low Density Residential (VLDR)
- Low Density Residential (LDR)
- Medium Density Residential Low (MDRL)
- Medium Density Residential High (MDRH)
- High Density Residential (HDR)

b. Identify parcels that are fully vacant.

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[29] Michelle Miller, AICP, Senior Planner at the City of Sherwood developed the buildable lands inventory.

[30] Metro's Data Resource Center collaborates with local partners to develop and deliver the Regional Land Information System (RLIS) – more than 100 layers of spatial data that supports strategic decision-making for governments, businesses and organizations across the region.

1. Remove developed parcels using most recent Metro's RLIS GIS data.
2. Planning staff review based on current aerial photography, field checks, and local records

Step 2: Subtract unbuildable acres

a. Remove tax lots that d/n have potential to provide residential growth.

1. Tax exempt with property codes for City, State, Federal and Native American designations
2. Schools
3. Churches and social organizations-based solely on tax exempt codes
4. Private streets
5. Rail properties
6. Tax lots under the minimum lot size of the zone or 4,250 sq. ft. for residential land due to infill standards
7. Parks

b. Calculate deductions for environmental resources[31].

1. Remove Floodways-100% removed
2. Recognize environmental constraints such as slopes over 25 % and constrained areas as defined by Cities and Counties under Metro Functional Plan Title 13-Riparian Corridors (Class I and II) and Upland Wildlife Habitat (Class A and B) -100%
3. By assumption, allow one dwelling unit per residentially zoned tax lot if environmental encumbrances would limit development such that by internal calculations no dwelling units would otherwise be permitted.

c. Calculate for future streets. [32]

This methodology sets aside a portion of the vacant land supply (not redevelopment supply) in order to accommodate future streets and sidewalks. This assumption is calculated on a per tax lot basis.

1. Tax lots less than 3/8 acre assume 0% set aside future streets.33
2. Tax lots between 3/8 acre and 1 acre assume a 10% set aside for future streets
3. Tax lots greater than an acre assume an 18.5% set aside for future streets

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[31] Environmental resources are considered to include Title 3, Title 13 FEMA floodway and slopes over 25 %.

[32] The BLI accounts for future streets on a tax lot by tax lot basis. The buildable area of each tax lot is reduced based on individual tax lot size.

[33] The basis for these net street deduction ratios derive from previous research completed by the Data Resource Center and local jurisdictions for the 2002 UGR.

4. Industrial zoning assumes a 10% set aside regardless of size.

Step 3: Inventory and map re-developable lands

a. Definition:

Re-developable: applies to lots that are classified as developed that are now likely to redevelop or during the 20-year planning period**.**

b. Query performed that identifies previously developed lots that have potential to redevelop over time due to the relationship between the size of the lot and the value of improvements.

1. Sites between .26-.54 acres with improvements less than $ 50 K
2. Sites over .55 acres with improvement between $50,001-100 K
3. Sites over 1 acre with improvement values between $ 100,001-150 K
4. Results of this query include land that is wholly re-developable, meaning existing improvements would be replaced, and land that is partially vacant, meaning the lot could be divided to allow for additional development.

Step 4: Planning staff review of draft map-(Investigative step)

a. Remove under construction or pending construction as of October 1, 2014

b. Added back and redefined areas of special concern (Areas like Brookman for example)[34]

c. Review and add City owned properties that are developable and not held for public purpose

d. For parcels zoned MDRH and HDR determine densities based on location and likelihood that parcel will develop with multifamily or single-family dwelling units and base densities on minimum lot size for single-family and maximum density for multifamily.

e. Re-developable or partially vacant sites that include:

- Properties currently for sale
- Lots that are more than twice the minimum lot size required to support the number of existing dwelling units including tax lots that have land division potential
- Sites that should have been identified as partially vacant but not caught earlier
- Lands with single-family development zoned for multifamily development

f. Remove from Map and defined the following as Not Likely to Redevelop

- Sites occupied by active religious institutions
- Sites with known deed restrictions
- Sites currently under development

[34] Assume Brookman Concept Plan Zoning

- Sites occupied by utility infrastructure
- Commercially zoned land greater than ½ mile from either residential or town center lots-most likely won't be mixed use with residential

g. Redevelop Strike Price Analysis

- Perform on all tax lots planned for residential and commercial development, to identify Multifamily and Commercial sites with a market redevelopment strike price of less than $10 per square foot.[35]

$$\text{Strike Price} = \frac{\text{(Improvement value + land value)}}{\text{Total Sq. Ft of lot}}$$

h. Identify possible rezone properties that would either be added or subtracted from the inventory over time.

[35] This formula is part of the draft proposed Metro methodology for identifying sites zoned for Multifamily and Mixed Use Development that are likely to redevelop. $10/sq.ft. is the estimated threshold for the market supporting redevelopment of suburban sites that are zoned for multifamily development.

RESULTS OF THE BUILDABLE LANDS INVENTORY

Table A- 1 presents the City's inventory of buildable land. The buildable lands inventory is based on City of Sherwood and Metro GIS data. Table A- 1 shows that Sherwood has 175 net acres of suitable buildable residential land. Fifty-five percent of Sherwood's vacant land (96 acres) is within the city limits and 45% (79 acres) is within the Brookman Area or other unincorporated areas within the current Urban Growth Boundary.

Table A- 1. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014

Zone	Gross Acres	Percent of Total
Land within City Limits		
Very Low Density Residential (VLDR)	24	14%
Very Low Density Residential Planned Unit Development (VLDR-PUD)	1	1%
Low Density Residential (LDR)	22	13%
Medium Density Residential-Low (MDRL)	14	8%
Medium Density Residential-High (MDRH)	21	12%
High Density Residential (HDR)	14	8%
Subtotal	**96**	**55%**
Brookman and Other Unincorporated Areas		
Very Low Density Residential (VLDR)	1	1%
Medium Density Residential-Low (MDRL)	52	30%
Medium Density Residential-High (MDRH)	8	4%
Medium Density Residential- Low/High* (MDRL/H)	15	8%
High Density Residential (HDR)	3	2%
Subtotal	**79**	**45%**
Total	**175**	**100%**

Source: City of Sherwood
*Note: There is one lot split between MDRL and MDRH.

Table A- 2 presents a revision of the capacity shown in Table A- 1 for capacity based on historical densities. Between January 1, 2015 and October 31, 2017, Sherwood issued 125 permits for housing, all in the MDRL, MDRH, and HDR zones. Table A- 2 reduces the capacity estimate by 125 units, resulting in a capacity of 606 units on land within the city limits.

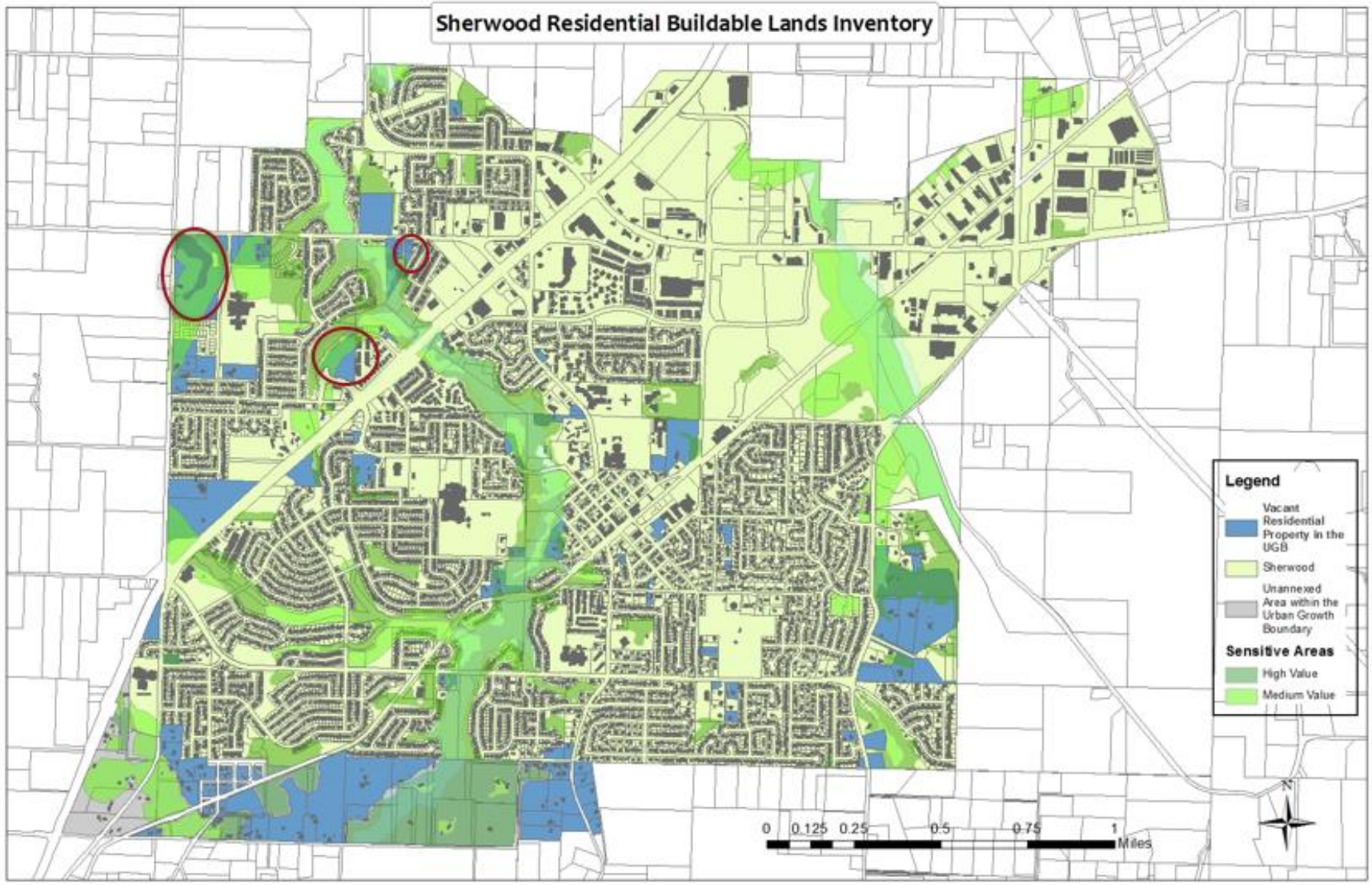
Table A- 2.. Revised capacity based on historical development densities accounting for building permits issued in 2015 to 2017, dwelling units, 2017

Zone	Capacity based on Historical Development Densities	Building Permits Issued 2015 to 2017	Revised Capacity
Land within City Limits			
VLDR	69		69
VLDR_PUD	3		3
LDR	144		144
MDRL	88	24	64
MDRH	161	27	134
HDR	266	74	192
Subtotal	**731**	**125**	**606**

Source: Sherwood buildable lands inventory; Sherwood zoning code; Analysis of historical development densities; and Analysis by ECONorthwest

Map A-1 shows vacant and partially vacant land in Sherwood. Notable areas where development has occurred since 2015 are circled in red on Map 1. In total, 125 new single-family detached units were permitted between January 1, 2015 and October 31, 2017.

Map A-1. Inventory of suitable buildable residential land, net acres, Sherwood city limits and areas within the UGB, 2014



Source: City of Sherwood

Appendix B. Trends Affecting Housing Need in Sherwood

Historical and Recent Development Trends

Analysis of historical development trends in Sherwood provides insights into how the local housing market functions. The intent of the analysis is to understand how local market dynamics may affect future housing—particularly the mix and density of housing by type. The housing mix and density by type are also key variables in forecasting future land need. The specific steps are described in Task 2 of the DLCD *Planning for Residential Lands* Workbook:

- Determine the time period for which the data must be gathered.
- Identify types of housing to address (at a minimum, all needed housing types identified in ORS 197.303).
- Evaluate permit/subdivision data to calculate the actual mix, average actual gross density, and average actual net density of all housing types.

The period used in the analysis of housing density and mix is 2000 to 2014, which includes both times of high housing production and times of low housing production. This reasons for choosing this period were: (1) the 2000 to 2014 period includes more than one economic cycle, with extreme highs and extreme lows in the housing market and (2) data prior to 2005 was less easily available and obtaining data for 2000 to 2004 required a considerable amount of work by City staff to compile the data.

The housing needs analysis presents information about residential development by housing types. For the purposes of this study, we grouped housing types based on: (1) whether the structure is stand-alone or attached to another structure and (2) the number of dwelling units in each structure. The housing types used in this analysis are:

- **Single-family detached:** single-family detached units and manufactured homes on lots and in mobile home parks.
- **Single-family attached:** all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses.

Multifamily: all attached structures other than single-family detached units, manufactured units, or single-family attached units.

These categories of housing type were chosen for the analysis because they meet the requirements of needed housing types in ORS 197.303.[36]

Data used in this analysis

Throughout this analysis, we use data from multiple well-recognized and reliable data sources. One of the key sources for data about housing and household data is the U.S. Census. This report primarily uses data from two Census sources:

- The **Decennial Census**, which is completed every ten years and is a survey of all households in the U.S. The Decennial Census is considered the best available data for information such as demographics (e.g., number of people, age distribution, or ethnic or racial composition); household characteristics (e.g., household size and composition); and housing occupancy characteristics. As of the 2010 Decennial Census, it does not collect more detailed household information, such as income, housing costs, housing characteristics, and other important household information. Decennial Census data is available for 1990, 2000, and 2010.

- The **American Community Survey (ACS)**, which is completed every year and is a sample of households in the U.S. The 2009-2013 ACS sampled about 16.2 million households, or about 2.8% of the households in the nation. The ACS collects detailed information about households, such as demographics (e.g., number of people, age distribution, ethnic or racial composition, country of origin, language spoken at home, and educational attainment); household characteristics (e.g., household size and composition); housing characteristics (e.g., type of housing unit, year unit built, or number of bedrooms); housing costs (e.g., rent, mortgage, utility, and insurance); housing value; income; and other characteristics.

In general, this report uses data from the 2009-2013 ACS for Sherwood. Where information is available, we report information from the 2010 Decennial Census.

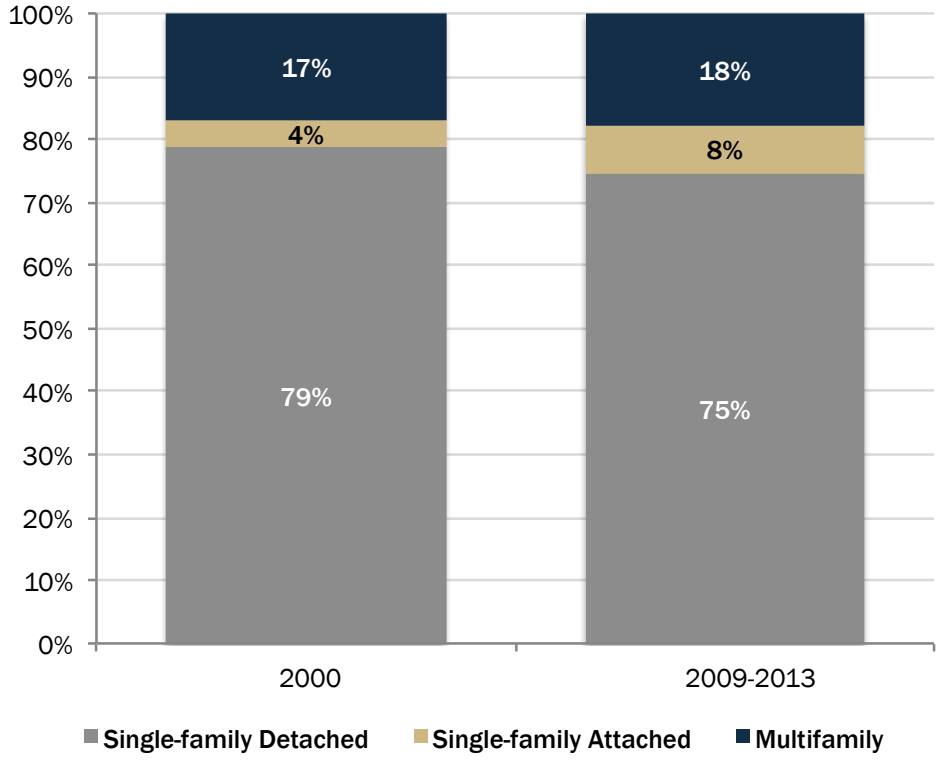
Trends in housing mix in Sherwood

According to the American Community Survey, Sherwood had more than 6,500 housing units in the 2009-2013 period. Figure B- 1 shows that Sherwood's housing stock is predominantly single-family detached housing. In 2000, 79% of

[36] The analysis of development in Sherwood attempts to separate single-family detached and single-family attached housing. However, the City's building permit system does not distinguish between these two types of housing. City staff manually identified single-family attached housing that was developed with a concentration of single-family attached housing. City staff were unable to identify small-scale, single-family attached development scattered throughout the city.

Sherwood's housing stock was single-family detached and 77% was single-family detached in 2009-2013. The share of multifamily units increased from 17% of Sherwood's housing stock in 2000 to 18% in 2009-2013.

Figure B- 1. Mix of Housing Types, Sherwood, 2000 to 2009-2013



Source: U.S. Census 2000 SF3 Table H030, American Community Survey 2009-2013, Table B25024.

Table B- 1 and Figure B- 2 show that the mix of housing developed over the 2000 to 2014 period was predominantly single-family housing (including single-family detached, single-family attached, and manufactured housing), accompanied by intermittent growth in multifamily.

Over the entire 2000 to 2014 period, Sherwood issued permits for nearly 2,225 dwelling units, with about 148 permits issued per year. About 69% of dwellings permitted were single-family detached, 9% were single-family attached, and 23% were multifamily.

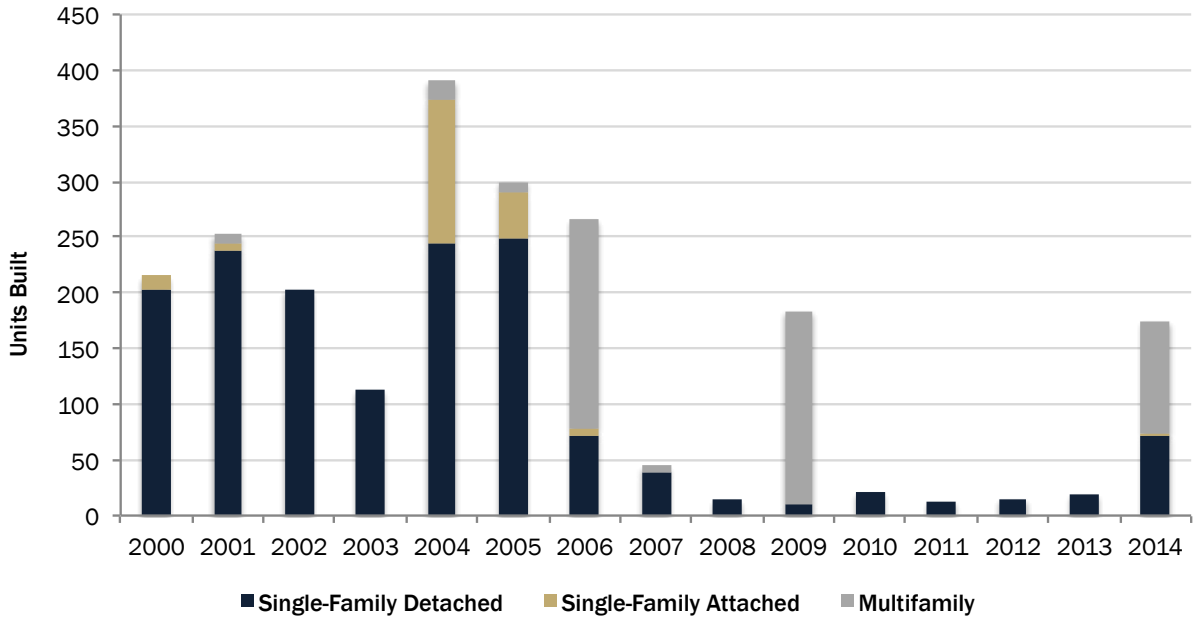
In addition, 125 units were permitted during the January 1, 2015 to October 31, 2017 period. All units permitted were single-family detached. These permits are not shown in Table B- 1 and Figure B- 2.

Table B- 1. Building permits by type of unit, Sherwood, 2000-2014

Housing Type	New Units Permitted	Average of New Units Permitted Annually	Mix of New Units
Single-Family Detached	1,525	102	69%
Single-Family Attached	196	13	9%
Multifamily	504	34	23%
Total	2,225	148	100%

Source: City of Sherwood Building Permit Database.
Notes: Single-Family Detached includes manufactured housing.

Figure B- 2. Building permits by type of unit, Sherwood, 2000 to 2014

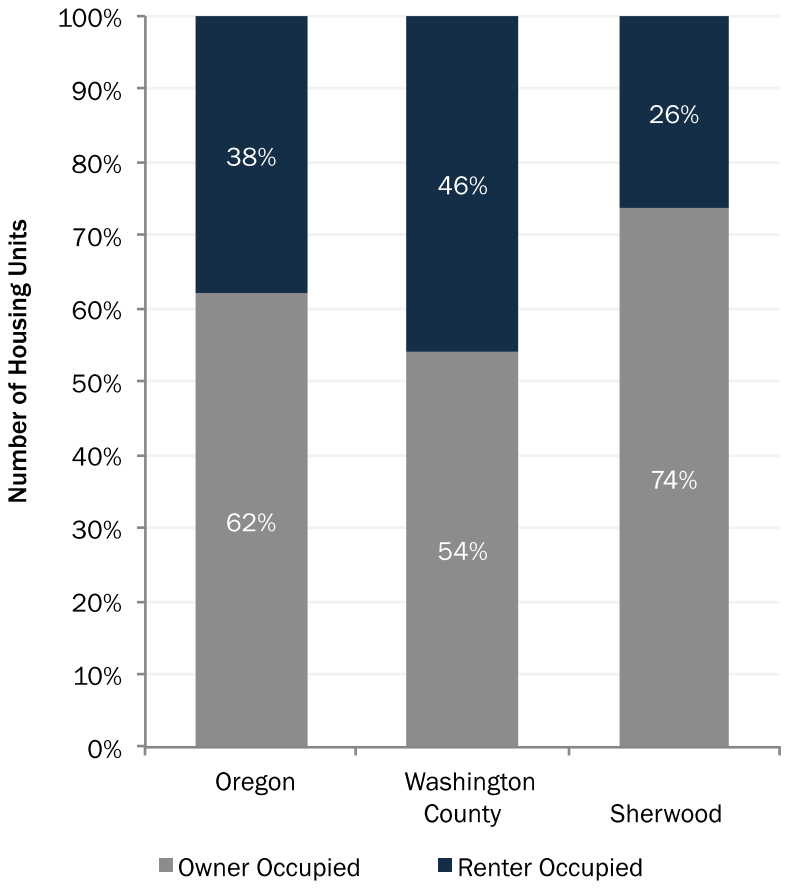


Source: City of Sherwood Building Permit Database.
Notes: Single-Family Detached includes manufactured housing.

Trends in Tenure

Figure B- 3 shows housing tenure in Oregon, Washington County, and Sherwood for the 2009-2013 period. Sherwood has a higher rate of ownership (74%) than the county (54%) and the state (62%).

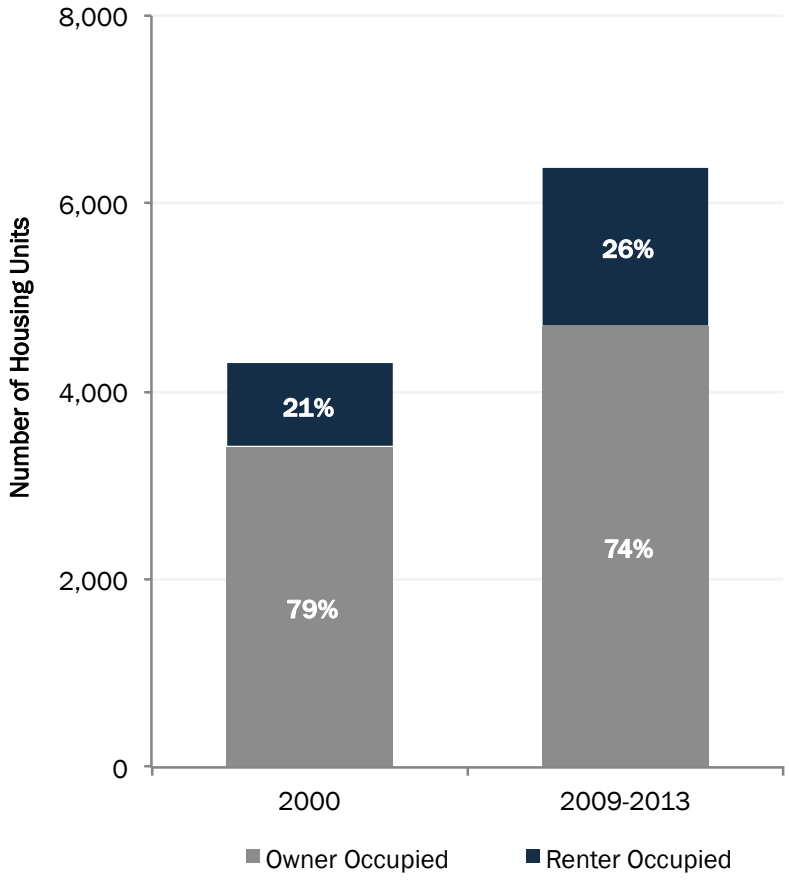
Figure B- 3. Housing Tenure, Oregon, Washington County, Sherwood, 2009-2013



Source: American Community Survey 2009-2013, Table B25003.

Figure B- 4 shows change in tenure (owner versus renter-occupied housing units) for the City of Sherwood over the 2000 to 2009-2013 period. The overall homeownership rate declined, from 79% to 74% between 2000 to 2009-2013, while renting increased by 5%. This change is consistent with national and statewide trends in homeownership.

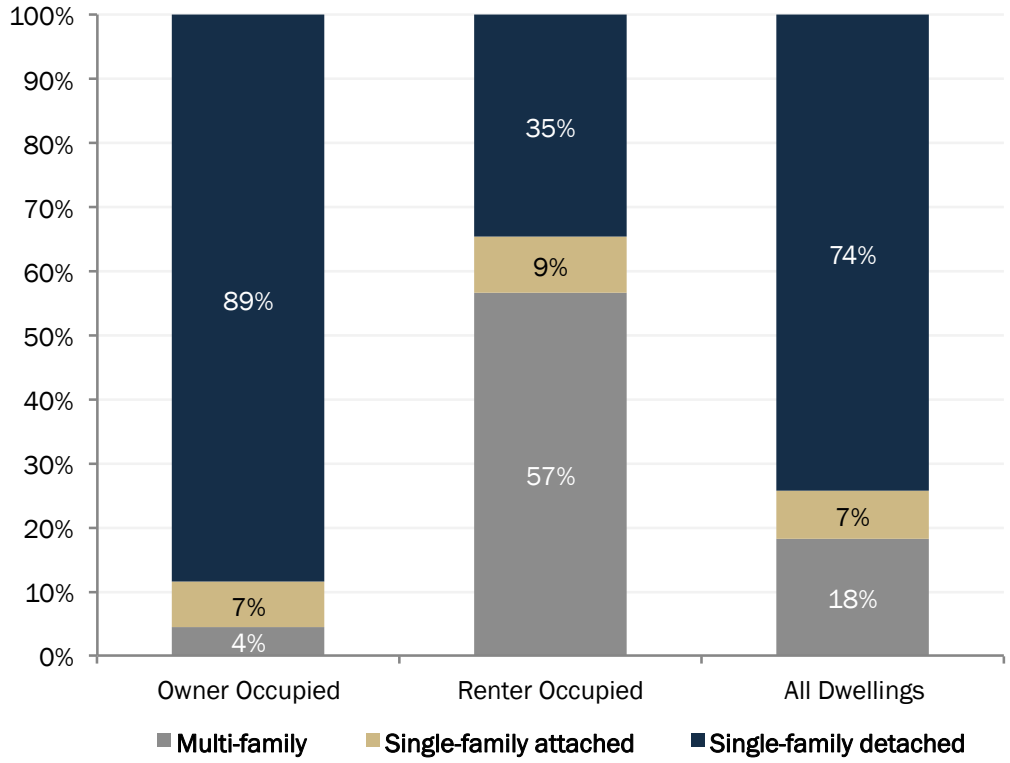
Figure B- 4. Tenure, occupied units, Sherwood, 2000 to 2009-2013



Source: U.S. Census 2000 SF3 Table H032, American Community Survey 2009-2013 Table B25003.

Figure B- 5 shows the types of dwelling in Sherwood in 2009-2013 by tenure (owner/renter-occupied). The results indicate that in Sherwood, single-family housing types are most frequently owner-occupied (70% of all housing is single-family, owner-occupied housing) and multifamily housing is most frequently renter-occupied (15% of all housing is multifamily renter-occupied housing).

Figure B- 5. Housing units by type and tenure, Sherwood, 2009-2013



Source: American Community Survey 2009-2013 Table B25032.

Housing Vacancy Rates

Table B- 2 shows vacancy rates in Oregon, Multnomah, Washington, and Clackamas counties, and Sherwood between 2000 and 2009-2013. Vacancy rates increased in in Oregon, and Clackamas counties, but fell in Multnomah and Washington counties, and in Sherwood. As the 2009-2013 period, Sherwood had a relatively low vacancy rate (2.7%) compared to the regional counties, whose rates ranged from 5.5% to 7.0%, and to Oregon (9.6%).

Table B- 2. Housing vacancy rate, Oregon, Multnomah, Washington and Clackamas Counties, and Sherwood, 2000 to 2009-2013

	Oregon	Multnomah County	Washington County	Clackamas County	Sherwood
2000	8.2%	6.4%	5.7%	5.5%	3.6%
2009 - 2013	9.6%	5.9%	5.5%	7.0%	2.7%
Change 2000 to 2009-2013	17.1%	-7.5%	-3.6%	28.3%	-24.7%

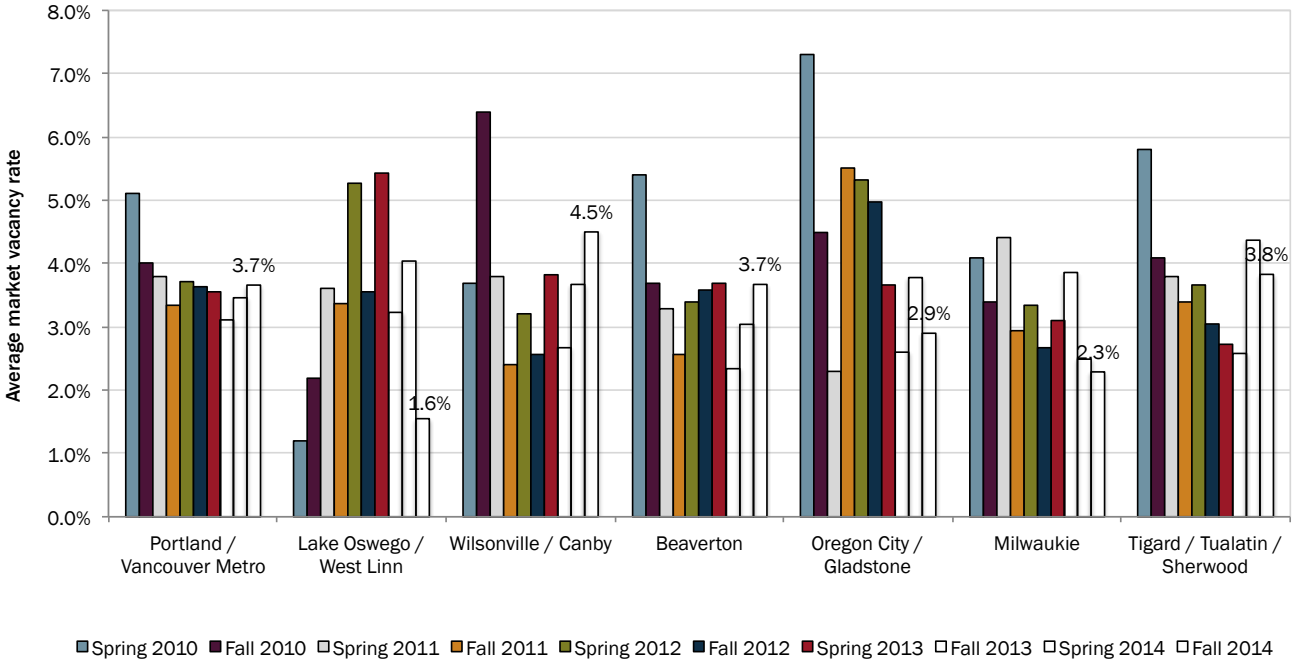
Source: U.S. Census 2000 SF1 Table H003, American Community Survey 2009-2013 Table B25002.

Multifamily NW tracks trends in the Portland area rental market and publishes a semi-annual report. Figure B- 6 shows average market vacancy rates for apartments for the Portland/Vancouver region and selected submarkets in the south-central Portland Region. The vacancy rates in the

Tigard/Tualatin/Sherwood area varied from a high of 5.8% in Spring 2010 to a low of 2.6% in Fall 2013. The vacancy rate in this area was within 1% (above or below) the vacancy rate for the Portland /Vancouver metro area. According to the Fall 2014 Apartment Report, the vacancy rate for apartments in the Tigard/Tualatin/Sherwood area was 3.8%, slightly higher than the regional average of 3.7%.

Multifamily vacancy rates vary, in part, as a result of building new multifamily developments. When a new multifamily development comes on the market, it may take months (or longer) for the new units to be absorbed into the housing market through rental of new units. During this absorption period, the vacancy rate will generally increase for multifamily housing.

Figure B- 6. Average market vacancy rates for apartments, Portland/Vancouver Metro area and selected submarkets, 2010-2014



Multifamily NW Apartment Reports, Spring 2010 – Fall 2014.

Density

Housing density is the density of housing by structure type, expressed in dwelling units per net or gross acre.[37] The U.S. Census does not track residential development density.

This study analyzes housing density based on new residential development within Sherwood between 2000 and 2014, similar to the analysis of achieved mix. The analysis of housing density uses data from the City of Sherwood's building permits database.

Table B- 3 shows that development that was permitted between 2000 and 2014 achieved overall average densities of 8.2 dwelling units per net acre. The majority of permitted housing was single-family detached housing, which averaged 6.5 dwelling units per net acre. Multifamily housing achieved an average of 20.5 and single-family attached achieved and average of 17.9 dwelling units per net acre.

Table B- 3. Estimated density by type of unit, net acres, Sherwood, 2000-2014

Housing Type	New and Existing Units	Acres	Density (dwelling unit per acre)
Single-Family Detached	1,641	251	6.5
Single-Family Attached	196	11	17.9
Multifamily	504	25	20.5
Total	2,341	286	8.2

Source: City of Sherwood Building Permit Database.
Note: Single-Family Detached includes manufactured housing
Note: The number of new single-family detached housing is higher in Table B- 3 than in Table B- 1 because Table B- 3 includes 116 existing manufactured dwellings in manufactured housing parks. These dwellings were included as part of the density calculation to correctly calculate the densities of manufactured housing in the manufactured housing parks with one or more newly permitted dwellings over the 2000 to 2014 period.

Table B-4 shows an analysis of residential development density (dwelling units per net acre) over the 15-year period for Sherwood by zoning designation. Table B-4 shows:

- Ninety-two percent of residential development was in residential zones, which had an overall density of 7.8 dwelling units per net acre.
- Density in residential zones varied from 2.9 dwelling units per net acre in the Very Low Density Residential zone to 19.1 dwelling units per net acre in the High Density Residential zone.

[37] OAR 660-024-0010(6) uses the following definition of net buildable acre. "Net Buildable Acre" "…consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads." While the administrative rule does not include a definition of a gross buildable acre, using the definition above, a gross buildable acre will include areas used for rights-of-way for streets and roads. Areas used for rights-of-way are considered unbuildable.

- Density in the Low Density Residential zone averaged 6.5 dwelling units per net acre. Development in Planned Unit Developments (PUD) in this zone achieved an average of 7.6 dwelling units per net acre, which explains the relatively high density in this zone.
- Density in Commercial and Mixed-Use zones averaged 15.6 dwelling units per net acre.

Table B-4. Housing density by Zone, net acres, Sherwood, 2000 to 2014

Zone	New and Existing Units	Acres	Density (dwelling unit per acre)
Residential Zones			
Very Low Density Residential	53	18	2.9
Low Density Residential	807	124	6.5
PUD	487	64	7.6
Non-PUD	320	59	5.4
Medium Density Residential-High	301	39	7.7
Medium Density Residential-Low	368	60	6.1
High Density Residential	605	32	19.1
Residential subtotal	2,134	273	7.8
Commercial and Mixed Use Zones			
Office Commercial	150	6	24.4
Mixed-use Commercial and Condo	55	7	7.9
Retail Commercial	2	0	17.4
Commercial subtotal	207	13	15.6
Total	**2,341**	**286**	**8.2**

Source: City of Sherwood Building Permit Database

NATIONAL HOUSING TRENDS

The overview of national, state, and local housing trends builds from previous work by ECONorthwest, Urban Land Institute (ULI) reports, and conclusions from *The State of the Nation's Housing, 2014* report from the Joint Center for Housing Studies at Harvard University.[38] The Harvard report summarizes the national housing outlook as follows:

> "With promising increases in home construction, sales, and prices, the housing market gained steam in early 2013. But when interest rates notched up at mid-year, momentum slowed. This moderation is likely to persist until job growth manages to lift household incomes. Even amid a broader recovery, though, many hard-hit communities still struggle and millions of households continue to pay excessive shares of income for housing."

Several challenges to a strong domestic housing market remain. Demand for housing follows trends in jobs and incomes, which are taking longer to recover than in previous cycles. While trending downward, the numbers of underwater homeowners, delinquent loans, and vacancies remain high. *The State of the Nation's Housing* report projects that it will take several years for market conditions to return to normal and, until then, the housing recovery will likely unfold at a moderate pace.

Trends in housing development

The single-family housing market began strong in 2013, but by the arrival of 2014, housing starts were down 3% and new home sales had fallen 7% from the year before. The *State of the Nation's Housing Report* attributes most of the decline to increases in mortgage interest rates and meager improvements in employment and wages.

Thirty-year mortgage interest rose in 2014, bucking a downward trend. After falling to a low of around 3.4% in 2013, rates rose to around 5% in 2014. The rise of mortgage interest rates increased the cost of investment in a home and contributed to the fall in the rate of housing starts. In addition to the rise of mortgage interest rates, "steady but unspectacular job growth" presented a fundamental obstacle to the housing market's progress, according to the report. Employment grew, but slowly, and incomes continued to fall. As long as job and wage growth remain slow, potential homebuyers will not create sufficient demand for robust growth in the housing market.

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[38] The State of the Nation's Housing, Harvard University, 2014, accessed January 2014. http://www.jchs.harvard.edu/research/state_nations_housing

Other recent trends in the housing market included: home inventories remained low (homes now spend less than six months on the market), investors purchased fewer distressed properties, the renter market grew, and a larger share of young people chose to live with their parents.

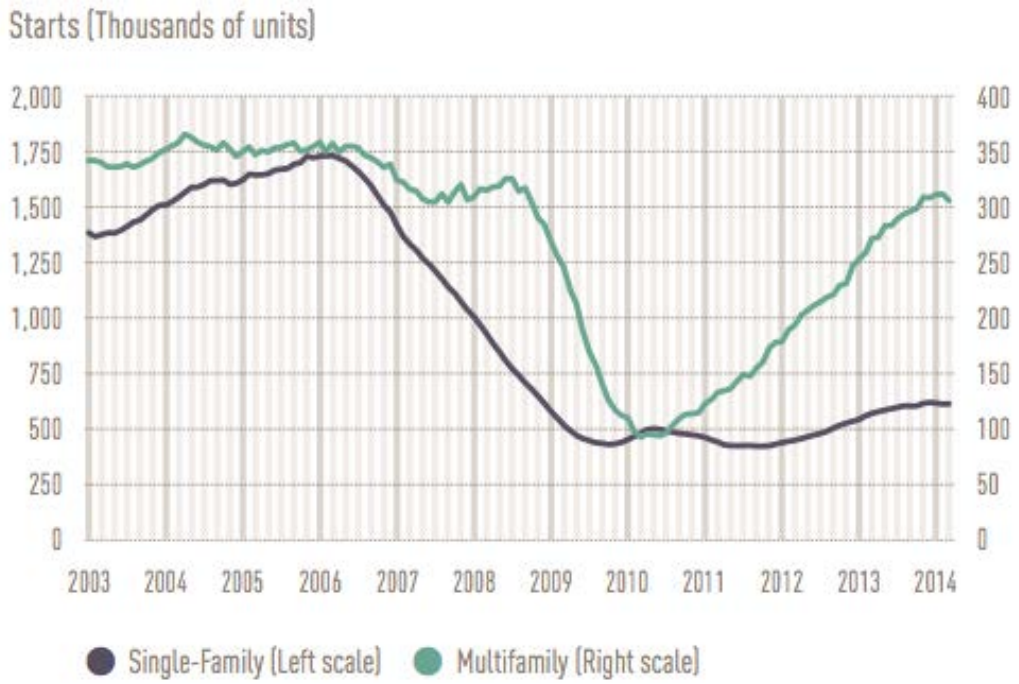
Supplies of existing homes for sale remained low in 2013, which may reflect the unwillingness or inability of owners to sell at current prices (Figure A- 1). As home prices return to levels that are more acceptable to sellers, more homes will go on the market.

Figure A- 1. Inventories of Homes for Sale Against Months Supply, 2002-2013

Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

Multifamily home construction continued robust growth for a third consecutive year. Multifamily starts increased 25% to over 300,000 in 2013, approaching pre-recession levels of around 350,000. In contrast to strong multifamily housing growth, single-family home starts grew slowly, at only about 15%, well below pre-recession levels of production: less than 620,000 starts in 2013, compared to over 1.5 million in 2006. These growth trends are shown in Figure A- 2.

Figure A- 2. Housing Starts, 2003-2014

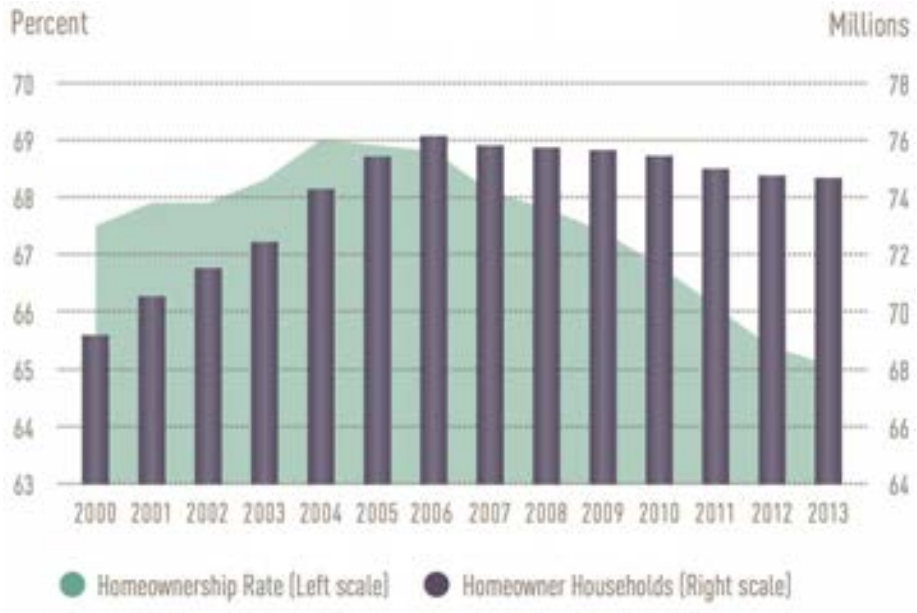


Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

Long run trends in home ownership and demand

The housing market downturn and foreclosure crisis had an immediate and potentially lasting impact on homeownership. After 13 successive years of increases, the national homeownership rate declined each year from 2005 to 2013, and is currently at approximately 65%. However, while the rate declined again in 2013, it was the smallest drop since 2008. As seen in Figure A- 3, the US homeownership rate fell only 0.3 percentage points.

Figure A- 3. Homeownership Rates and the Number of Homeowner Households, 2000-2013



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

The long-term market outlook shows that homeownership is still the preferred tenure. While further homeownership gains are likely during the next decade, they are not assured. Additional increases depend, in part, on the effect of foreclosures on potential owner's ability to purchase homes in the future, as well as whether the conditions that have led to homeownership growth can be sustained.

The Joint Center for Housing Studies indicates that demand for new homes could total as many as 13 million units nationally between 2015 and 2025. The location of these homes may differ from recent trends, which favored lower-density development on the urban fringe and suburban areas. The Urban Land Institute identifies the markets that have the most growth potential as "global gateway, 24-hour markets," which are primary coastal cities with international airport hubs (e.g., Washington D.C., New York City, San Francisco, or Seattle). Development in these areas may be nearer city centers, with denser infill types of development.[39]

The Joint Center for Housing Studies also indicates that demand for higher density housing types exists among certain demographics. They conclude that because of persistent income disparities, as well as the movement of the

[39] Urban Land Institute, "2011 Emerging Trends in Real Estate" and "2012 Emerging Trends in Real Estate"

Millennials into young adulthood, housing demand may shift away from single-family detached homes toward more affordable multifamily apartments, town homes, and manufactured homes.

Home rental trends

Nationally, the rental market continues to grow. In 2013, the number of households living in rental units increased by half a million, marking the ninth consecutive year of expansion. In addition to growth in rentals in 2013, the million-plus annual increases observed in 2011 and 2012 puts current growth rates on pace to easily surpass the record 5.1 million gain in the 2000s.

Rental markets across the country have been tightening, pushing up rents across the majority of markets. Rental vacancy rates also continued to drop in 2013, both nationwide and in most metros. The US rental vacancy rate stood at 8.3% in 2013 and, while this is the lowest level observed since 2001, this was still high relative to the 7.6% averaged in the 1990s.

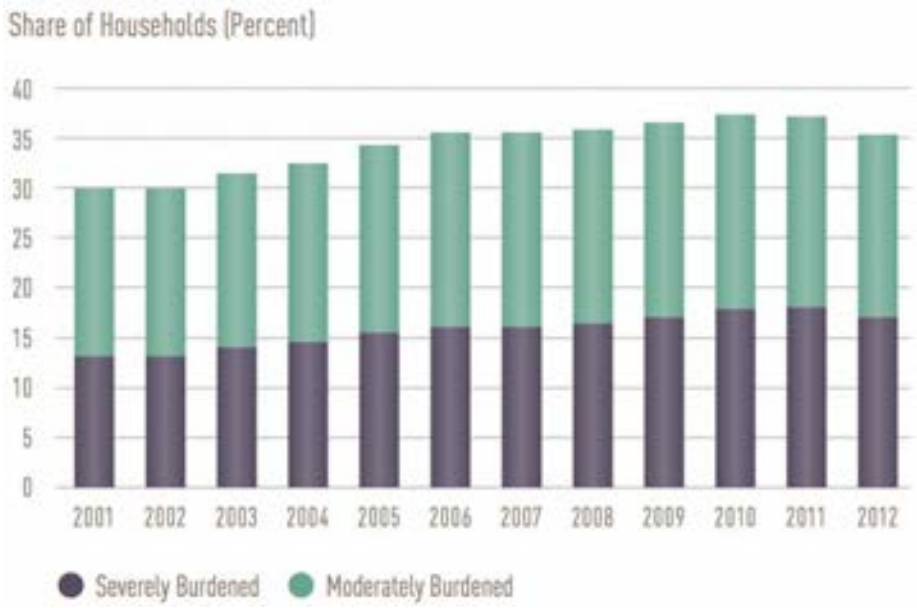
Over the longer term, the Joint Center for Housing expects demand for rental housing to continue to grow. Minorities will be the largest driver of rental demand because they are on average younger and less likely to own homes than whites. Demographics will also play a role. Growth in young adult households will increase demand for moderately priced rentals, in part because the oldest Millennials reached their late-20s around 2010. Meanwhile, growth among those between the ages of 45 and 64 will lift demand for higher-end rentals.

As the homeownership market recovers, the growth in renter households will likely slow. Since much of the increased demand for rental housing has been met through the conversion of single-family homes to rentals, future market adjustments may come from a return of these units to owner-occupancy. Additionally, the echo-boom generation should provide strong demand for rental units in the coming years.

Trends in housing affordability

Many homeowners pay a disproportionate share of their income on housing, with 35% of households in the U.S. who are cost burdened.[40] While the share of households that are cost burdened fell by about 4% in 2012, the share of households that were cost burdened increase between 2001 and 2011 (Figure A-4). More than 15% of U.S. households are severely cost burdened.

Figure A- 4. Share of Cost-burdened Households, 2001-2012



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

The Joint Center for Housing Studies points to widening income disparities, decreasing federal assistance, and depletion of inventory through conversion or demolition as three factors exacerbating the lack of affordable housing. While the Harvard report presents a relatively optimistic long-run outlook for housing markets and for homeownership, it points to the significant difficulties low- and moderate-income households face in finding affordable housing and preserving the affordable units that do exist.

According to the Joint Center for Housing Studies, these statistics understate the true magnitude of the affordability problem because they do not capture the tradeoffs people make to hold down their housing costs. For example, these figures exclude people who live in crowded or structurally inadequate housing units. They also exclude the growing number of households that move to

[40] Households are considered cost burdened if they spent 30% or more of their gross income on housing costs. Households who spent 50% or more of their gross income on housing costs are considered severely cost burdened.

locations distant from work where they can afford to pay for housing, but must spend more for transportation to work. Among households in the lowest expenditure quartile, those living in affordable housing, spent an average of $100 more on transportation per month in 2010 than those who are severely housing cost-burdened. With total average monthly outlays of only $1,000, these extra travel costs could amount to roughly 10 percent of the entire household budget.

Demographic trends in housing preference

Demographic changes likely to affect the housing market and homeownership are:

- The aging of the Baby Boomers, the oldest of whom were in their late-60's in 2012.
- Housing choices of younger Baby Boomers, who were in their early to mid-50's in 2010.
- The children of Baby Boomers, called the Millennials, who ranged from their late teens to late twenties in 2012.
- Immigrants and their descendants, who are a faster growing group than other households in the U.S. [41]

The aging of the Baby Boomers will affect housing demand over the next decades. People prefer to remain in their community as they age.[42] The challenges that aging seniors face in continuing to live in their community include: changes in healthcare needs, loss of mobility, the difficulty of home maintenance, financial concerns, and increases in property taxes.[43] Not all of these issues can be addressed through housing or land use policies. Communities can address some of these issues through adopting policies that:

- Diversify housing stock to allow development of smaller, comparatively easily-maintained houses in single-family zones, such as single-story townhouses, condominiums, and apartments.
- Allow commercial uses in residential zones, such as neighborhood markets.
- Allow a mixture of housing densities and structure types in single-family zones, such as single-family detached, single-family attached, condominiums, and apartments.

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[41] Urban Land Institute, "2011 Emerging Trends in Real Estate"

[42] A survey conducted by the AARP indicates that 90% of people 50 years and older want to stay in their current home and community as they age. See http://www.aarp.org/research.

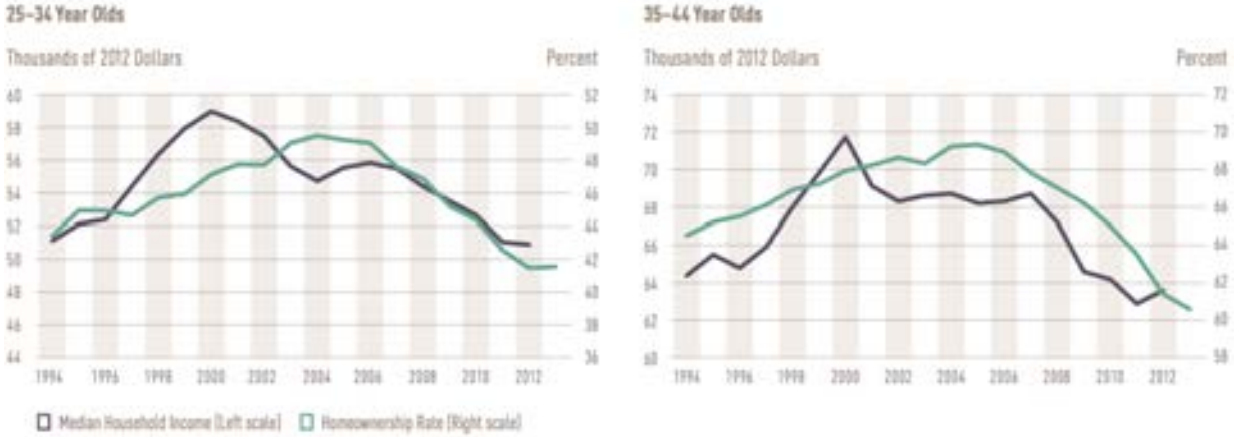
[43] "Aging in Place: A toolkit for Local Governments" by M. Scott Ball.

- Promote the development of group housing for seniors that are unable or do not choose to continue living in a private house. These facilities could include retirement communities for active seniors, assisted living facilities, or nursing homes.
- Design public facilities so that they can be used by seniors with limited mobility. For example, design and maintain sidewalks so that they can be used by people in wheelchairs or using walkers.

Household formation fell to around 600,000 to 800,000 in the 2007-2013 period, well below the average rate of growth in previous decades. Despite sluggish growth recently, several demographic factors indicate increases in housing growth to come. The Millennial generation (those born after 1985) is the age group most likely to form the majority of new households. While low incomes have kept current homeownership rates among young adults below their potential, Millennials may represent pent-up demand that will release when the economy fully recovers. As Millennials age, they may increase the number of households in their 30s by 2.4 to 3.0 million over the through 2025.

While the population of young adults between 20 and 29 years grew in the 2003-2013 decade by more than 4 million from the previous decade, the rate at which members of this age group formed their own households fell. As a result, household growth has not kept pace with overall population growth**.** Even if today's low household formation rates were to persist, however, the aging of the Millennials into their 30s will likely raise household headship rates due to lifecycle effects. About 60% of all 35–44 year-olds head an independent household, compared with less than 42% of all 25–34 year-olds. Thus, the Millennial generation, more populous than the Baby Boomers, is expected to be the primary driver of new household formation over the next twenty years.

Figure A- 5. Homeownership Rates and Incomes for Young and Middle-Aged Adults, 1994-2012



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

It is currently unclear what housing choices the Millennials will make. Some studies suggest that their parents' negative experience in the housing market, with housing values dropping so precipitously and so many foreclosures, will make Millennials less likely to become homeowners. In addition, high unemployment and underemployment may decrease Millennials' earning power and ability to save for a down payment. It is not clear, however, that Millennials' housing preferences will be significantly different from their parents over the long run.

Recent surveys suggest that as Millennials age and form families, they will increasingly prefer to live in single-family homes in suburban locations. A recent survey by the National Association of Homebuilders finds that roughly three-quarters of Millennials want to live in a single-family home and would prefer to live in a suburb, compared to just 10% that would prefer to live in a city center.

Other recent surveys suggest that Millennials prefer to live in walkable communities, where there are alternatives to driving. According to surveys from the American Planning Association and Transportation For America, at least three quarters of Millennials want their city to offer opportunities to live and work without relying on a car. While Millennials may choose housing that satisfies these preferences, the cost of living will place parameters on their housing choices. According to the APA survey, 71% percent of Millennials rated affordable housing as a high priority for metro areas.

In coming years Millennials will pursue homes that provide a combination of space, "walkability," and affordability. They will demonstrate these preferences

in the market soon: according to the APA survey, more than half of Millennials consider themselves at least somewhat likely to move within the next five years.[44]

From 2004 to 2013, homeownership rates for 25-34 year olds and 35-44 year olds fell by around 8% and 9% respectively, with ownership rates for people 25 to 54 years old at the lowest point since recordkeeping started in 1976 (Figure A- 5). Nonetheless, the 25 and 34 year-old age group still makes up the majority of first-time homebuyers. Young adults in this cohort make up 54.3 percent of first-time homebuyers. Their majority among first-time homebuyers means that their ability to buy homes will play an important role in growth of the housing market in the near future.

The fall in homeownership among young adults results largely from the decline in income. Approximately 6 million more individuals between 20 and 29 years earned less than $25,000 than in 2003, while the number of those earning between $25,000 and $50,000 fell by over a million. Furthermore, the share of households younger than 30 years with student loan debt increased by more than 7% since 2007, from 33.9% to 41.0%.

According to the Joint Center for Housing Studies, immigration and increased homeownership among minorities will also play a key role in accelerating household growth over the next 10 years. Current Population Survey estimates indicate that the number of foreign-born households rose by nearly 400,000 annually between 2001 and 2007, and accounted for nearly 30 percent of overall household growth. Beginning in 2008, the influx of immigrants was staunched by the effects of the Great Recession. After a period of declines, however, the foreign born are again contributing to household growth. Census Bureau estimates of net immigration in 2011–12 indicate an increase of 110,000 persons over the previous year, to a total of nearly 900,000. Furthermore, as shown in Figure A- 6, the Harvard report forecasts that minorities will make up about 76% of the household growth between 2015 and 2025. The greater diversity among young adults partly explains the increased share of growth that will belong to minorities. For example, about 45% of Millennials are minorities, compared to 28% of Baby Boomers.

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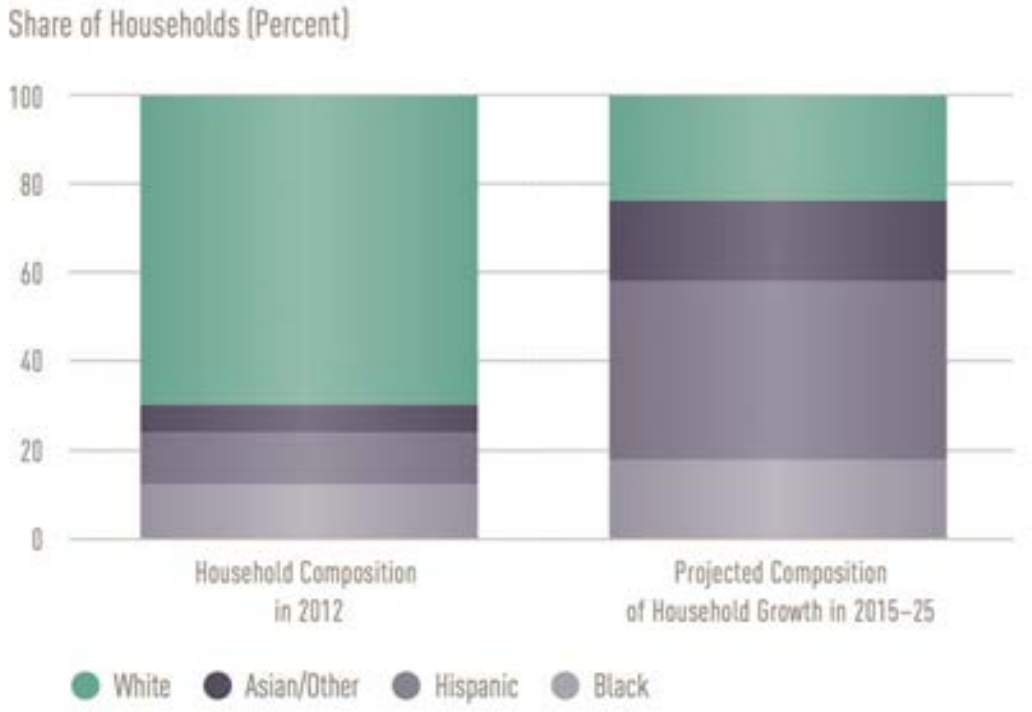
[44] The American Planning Association, "Investing in Place; Two generations' view on the future of communities." 2014. "Survey Says: Home Trends and Buyer Preferences," National Association of Home Builders International Builders Show, accessed January, 2015, http://www.buildersshow.com/Search/isesProgram.aspx?id=17889&fromGSA=1. "Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows," Transportation for America, accessed January 2015, http://t4america.org/wp-content/uploads/2014/04/Press-Release_Millennials-Survey-Results-FINAL-with-embargo.pdf.

Figure A- 6. Share of Households by Racial/Ethnic Group, 2012 and 2015-25



Source: The State of The Nation's Housing, 2014, The Joint Center for Housing Studies of Harvard University, p. 10. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf.

The growing diversity of American households will have a large impact on the domestic housing markets. Over the coming decade, minorities will make up a larger share of young households, and constitute an important source of demand for both rental housing and small homes. This makes the growing gap in homeownership rates between whites and blacks and whites and Hispanics troubling. Since 2001, the difference in homeownership rates between whites and blacks rose from 25.9 to 29.5 in 2013. Similarly the gap between white and Hispanic homeownership rates increased since 2008, from below 26%, to over 27% in 2013. This growing gap between racial and ethnic groups will hamper the country's homeownership rate as minority households constitute a larger share of the housing market.

Trends in Housing Characteristics

The U.S Census Bureau's Characteristics of New Housing Report (2013) presents data that show trends in the characteristics of new housing for the nation, state, and local areas. Several long-term trends in the characteristics of housing are evident from the New Housing Report:[45]

[45] https://www.census.gov/construction/chars/highlights.html

- **Larger single-family units on smaller lots**. Between 1990 and 2013 the median size of new single-family dwellings increased 25% nationally from 1,905 sq. ft. to 2,384 sq. ft., and 19% in the western region from 1,985 sq. ft. to 2,359 sq. ft. Moreover, the percentage of units fewer than 1,400 sq. ft. nationally decreased by almost half, from 15% in 1999 to 8% in 2012. The percentage of units greater than 3,000 sq. ft. increased from 17% in 1999 to 29% of new one-family homes completed in 2013. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 1990 and 2013, the percentage of lots less than 7,000 sq. ft. increased from 27% of lots to 36% of lots.
- **Larger multifamily units**. Between 1999 and 2013, the median size of new multiple family dwelling units increased by 2% nationally and 3% in the western region. The percentage of new multifamily units with more than 1,200 sq. ft. increased from 28% in 1999 to 32% in 2013 nationally, and increased from 25% to 32% in the western region.
- **More household amenities**. Between 1990 and 2013, the percentage of single-family units built with amenities such as central air conditioning, 2 or more car garages, or 2 or more baths all increased. The same trend in increased amenities is seen in multifamily units.

During the recession, the trend towards larger units with more amenities faltered. Between 2007 and 2009, for example, the median size of new single-family units decreased by 6% throughout the nation, including in the West. In addition, the share of new units with amenities (e.g., central air conditioning, fireplaces, 2 or more car garages, or 2 or more bath) all decreased slightly during this time. With the recovery, however, housing sizes have been increasing annually; median housing sizes increased by 12% between 2009 and 2013 nationwide, and 10% in the western region. The short term, post-recession trends regarding amenities are mixed, but generally appear to be increasing (albeit more slowly than housing sizes).

It appears that the decreases in unit size and amenities were a short-term trend, resulting from the housing crisis. However, numerous articles and national studies suggest that these changes may indicate a long-term change in the housing market, resulting from a combination of increased demand for rental units because of demographic changes (e.g., the aging of the baby boomers, new immigrants, and the echo-boomers), as well as changes in personal finance and availability of mortgages.[46]

These studies may be correct and the housing market may be in the process of a long-term change, with some fluctuations over time in unit size and amenities.

[46] These studies include "Hope for Housing?" by Greg Filsram in the October 2010 issue of Planning and "The Elusive Small-House Utopia" by Andrew Rice in the New York Times on October 15, 2010.

On the other hand, long-term demand for housing may not be substantially affected by the current housing market. The echo-boomers and new immigrants may choose single-family detached housing and mortgages may become easier to obtain.

Studies and data analysis have shown a clear linkage between demographic characteristics and housing choice. This is more typically referred to as the linkage between lifecycle and housing choice and is documented in detail in several publications. Analysis of data from the Public Use Microsample (PUMS) in the 2000 Census helps to describe the relationship between selected demographic characteristics and housing choice. Key relationships identified through this data include:

- Homeownership rates increase as income increases;
- Homeownership rates increase as age increases;
- Choice of single-family detached housing types increases as income increases;
- Renters are much more likely to choose multiple family housing types than single-family; and
- Income is a stronger determinate of tenure and housing type choice for all age categories.

STATE DEMOGRAPHIC TRENDS

Oregon's *2011-2015 Consolidated Plan* includes a detailed housing needs analysis as well as strategies for addressing housing needs statewide.[47] The plan concludes that, "Oregon's changing population demographics are having a significant impact on its housing market." It identified the following population and demographic trends that influence housing need statewide. Oregon is:

- Facing housing cost increases due to higher unemployment and lower wages, when compared to the nation.
- Experiencing higher foreclosure rates since 2005, compared with the previous two decades.
- Losing federal subsidies on about 8% of federally subsidized Section 8 housing units.
- Losing housing value throughout the State.
- Losing manufactured housing parks, with a 25% decrease in the number of manufactured home parks between 2003 and 2010.

[47] http://www.ohcs.oregon.gov/OHCS/HRS_Consolidated_Plan_5yearplan.shtml

- Increasingly older, more diverse, and has less affluent households.[48]

REGIONAL AND LOCAL DEMOGRAPHIC TRENDS

Regional demographic trends largely follow the statewide trends discussed above, but provide additional insight into how demographic trends might affect housing in Sherwood. Demographic trends that might affect the key assumptions used in the baseline analysis of housing need are: (1) the aging population, (2) changes in household size and composition, and (3) increases in diversity. This section describes those trends.

The following section presents data tables. In a few places, additional explanatory text is included. For the most part, the text describing the implications of the tables is in the main part of the document.

Growing population

Sherwood has a growing population. Table B- 5 shows population growth in the U.S., Oregon, the Portland Region, Washington County, and Sherwood, between 1990 and 2013.

Table B- 5. Population in U.S., Oregon, the Portland Region, Washington County, and Sherwood, 1990-2013

	Population			Change 1990 to 2013		
Area	1990	2000	2013	Number	Percent	AAGR
U.S.	248,709,873	281,421,906	311,536,594	62,826,721	25%	1.0%
Oregon	2,842,321	3,421,399	3,919,020	1,076,699	38%	1.4%
Portland Region	1,174,291	1,444,219	1,693,600	519,309	44%	1.6%
Washington County	311,554	445,342	550,990	239,436	77%	2.5%
Sherwood	3,093	11,963	18,575	15,482	501%	8.1%

Source: US Census Bureau Decennial Census 1990 and 2000; Portland State University, Population Research Center
Note: AAGR is average annual growth rate.

The housing needs analysis in this report is based on a coordinated household forecast from Metro (the January 2016 2040 TAZ Forecast), which is a necessary prerequisite to estimate housing needs. The projection of household growth includes areas currently within the city limits, as well as areas currently outside the city limits that the City expects to annex for residential uses (most notably the Brookman area). We call these areas combined the "Sherwood planning area."

Table B-6 presents Metro's forecast for household growth and new housing development in the Sherwood planning area for the 2010 to 2040 period. The table shows Metro's forecast for the Sherwood city limits, areas currently outside

[48] State of Oregon *Consolidated Plan 2011 to 2015*.
http://www.oregon.gov/ohcs/hd/hrs/consplan/2011_2015_consolidated_plan.pdf

the city limits that are expected to be annexed by 2040, which are together the Sherwood planning area. Table B-6 shows Metro's forecast for the number of households in each of the following years:

- **2010.** Metro's forecast uses an estimate of the number of households in 2010 as the starting point of the forecast.
- **2015.** Estimate of number of households in 2015.
- **2040.** Metro's forecast estimates household growth of 2,078 dwelling units or 30%, by 2040. Part of the forecasting process was providing jurisdictions an opportunity to review and comment on the forecast for growth through 2040.

Table B-6 also shows Metro's forecast for the Sherwood West area, which is forecast to grow by 4,157 dwelling units by 2040. While Metro forecasts that this development will occur over the 2015 to 2040 period, the discussion of timing of this development in the Concept Planning process suggests that Sherwood West may take 50 years (2015 to 2065) to develop the 4,157 dwelling units in Metro's forecast.

Table B-6. Metro forecast for housing growth, Sherwood planning area, 2010 to 2040

	Households			
Year	Sherwood City Limits	Brookman Area	Sherwood Planning Area	Sherwood West (50-Year Forecast)
2010	6,476	242	6,718	270
2015	6,784	226	7,010	293
2040	7,653	1,435	9,088	4,811
Change 2015 to 2040				
Households	869	1,209	2,078	4,518
Percent	13%	535%	30%	1542%
AAGR	0.5%	7.7%	1.0%	11.8%

Source: Metro 2040 TAZ Forecast by Households, January 2016
Note: The Sherwood City Limits are the following Metro Transportation Analysis Zones (TAZs): 989 to 997.
The Brookman area is predominantly in Transportation Analysis Zone 978, with a small area in 988. Brookman is an area that the City expects to annex for residential growth over the planning period.
Sherwood West is parts of Transportation Analysis Zones 1428, 1429, and 1432.

Sherwood's housing needs analysis must be based on a 20-year period, but Metro's forecast describes growth over a 25-year period. Table B- 7 shows an extrapolation of Metro's forecast for the 2018 to 2038 period. ECONorthwest extrapolated Metro's forecast to 2018 based on the number of households in 2015 and the growth rate in the forecast between 2015 and 2040. We assumed that little to no growth happened in Sherwood West between 2015 and 2018, an

assumption that is supported by the relative lack of building permit activity in these areas.

Table B- 7 shows that the Sherwood planning area will add 1,653 new households between 2018 and 2038, with 697 new households inside the existing city limits and 956 new households in outside the current city limits in the Brookman Area.

Table B- 7. Extrapolated Metro forecast for housing growth, Sherwood planning area, 2018 to 2038

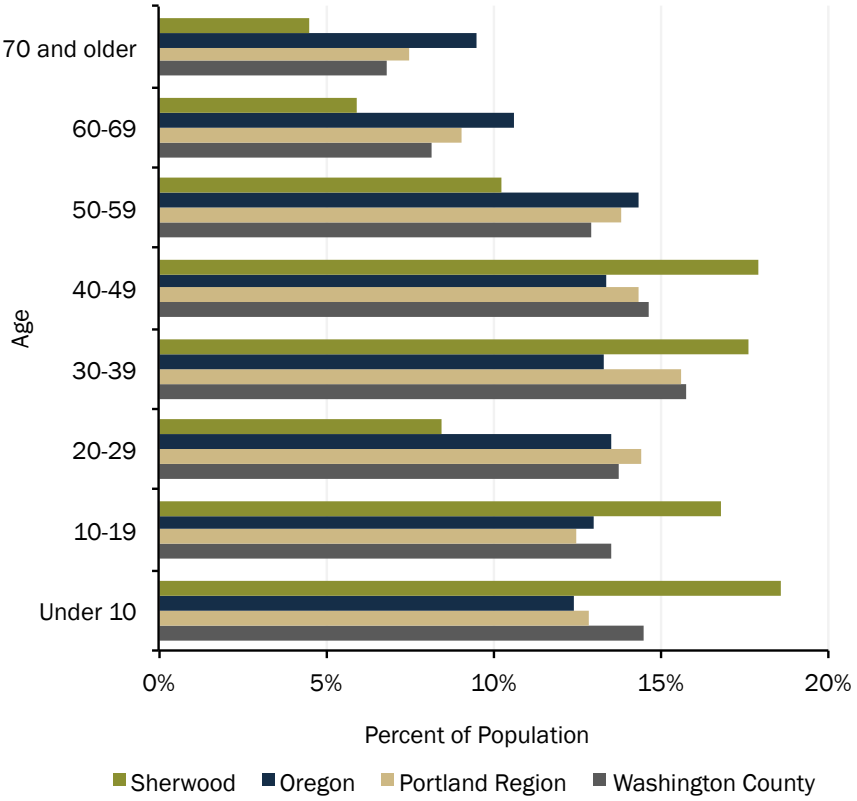
	Households			
Year	Sherwood City Limits	Brookman Area	Sherwood Planning Area	Sherwood West (50-Year Forecast)
2018	6,883	282	7,165	293
2038	7,580	1,238	8,818	4,450
Change 2015 to 2040				
Households	697	956	1,653	4,157
Percent	10%	339%	23%	1419%
AAGR	0.5%	7.7%	1.0%	14.6%

Source: Metro 2040 TAZ Forecast by Households, January 2016

Aging population

In 2010, the median age in Sherwood was 34.3 years old, compared to the median of 35.3 in Washington County, and the State median of 38.4. Figure B- 7 shows the populations of Oregon, the Portland Region, Washington County, and Sherwood by age in 2010.

Figure B- 7. Population Distribution by Age for Oregon, Sherwood, Oregon, Portland Region, Washington County



Source: U.S. Census 2010, Profile of General Population and Housing Characteristics

Table B- 8 shows population by age in Sherwood for 2000 and 2010. Over the 2000 to 2010 period, the population of people aged 45 to 64 years old grew the fastest, increasing from 1,936 to 3,917, or 102%.

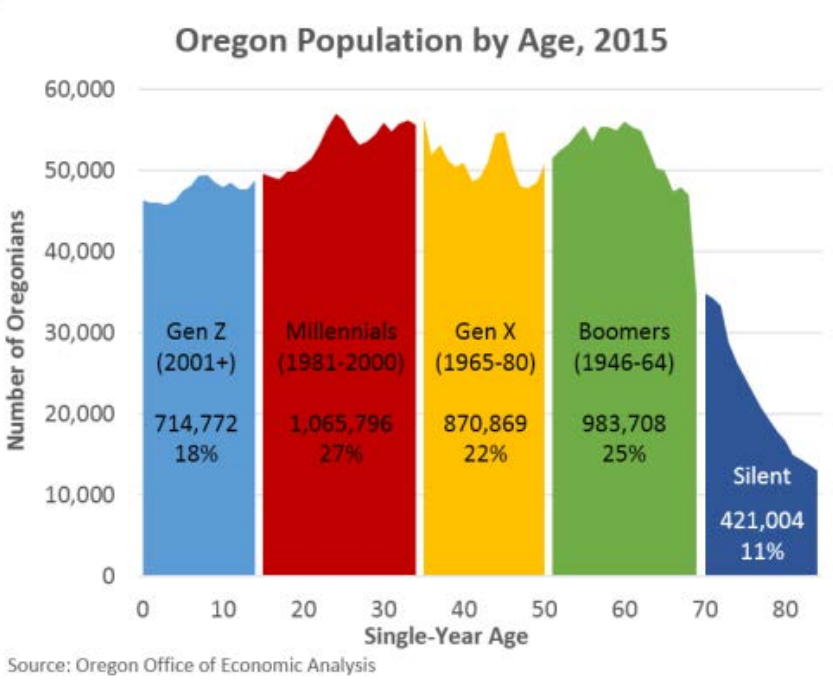
Table B- 8. Population by Age, Sherwood, 2000 and 2010

	2000		2010		Change 2000-2010		
Age Group	Number	Percent	Number	Percent	Number	Percent	Share
Under 5	1,351	11%	1,518	8%	167	12%	-3%
5-17	2,383	20%	4,589	25%	2,206	93%	5%
18-24	644	5%	939	5%	295	46%	0%
25-44	4,854	41%	5,991	33%	1,137	23%	-8%
45-64	1,936	16%	3,917	22%	1,981	102%	5%
65 and over	623	5%	1,240	7%	617	99%	2%
Total	**11,791**	**100%**	**18,194**	**100%**	**6,403**	**54%**	**0%**

Source: U.S. Census 2000 Table P12, U.S. Census 2010 Table P12

Figure B- 8 shows the population distribution by generation and age in Oregon in 2015. The largest groups are the Millennials (27% of Oregon's population) and the Baby Boomers (25% of Oregon's population). By 2035, the end of the planning period for this analysis, Millennials will be between 35 and 54 years old. Baby Boomers will be 71 to 89 years old.

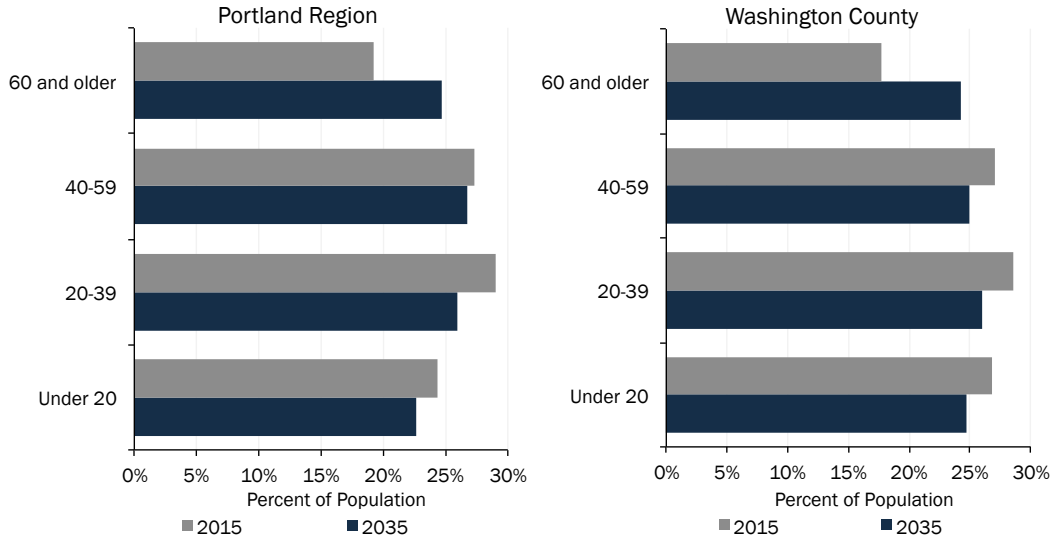
Figure B- 8. Population Distribution by Generation and Age, Oregon, 2015



Source: Oregon Office of Economic Analysis, "Population, Demographics, and Generations" by Josh Jehner, February 5, 2015.
http://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/

Figure B- 9 shows the Office of Economic Analysis's (OEA) forecast of population change by age group, from 2015 to 2035, for the Portland Region. By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015). The percent of total population in each age group younger than 60 years old will decrease. The age distribution in the Portland Region will change in a similar pattern.

Figure B- 9. Current and projected population by age, Portland Region and Washington County, 2015 and 2035

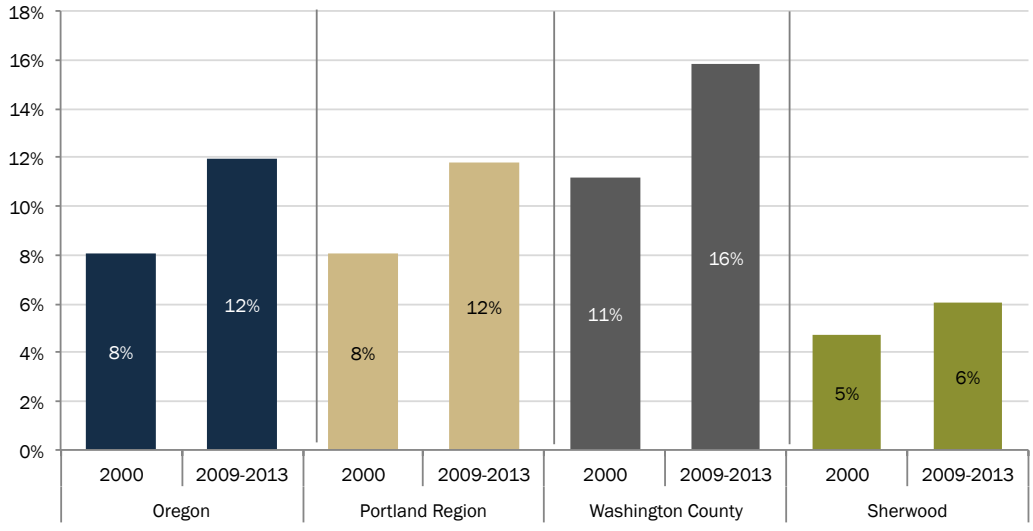


Source: Oregon Office of Economic Analysis.
http://www.oregon.gov/DAS/OEA/docs/demographic/pop_by_ageandsex.xls

Increased ethnic diversity

Figure B-10 shows the percentage of the total population that is of Hispanic or Latino origin for Oregon, the Portland Region, and Sherwood, in 2000 and 2009-2013. Between 2000 and 2009-2013, Hispanic or Latino population increased from 5% of the population to 6% of the population, adding 550 additional Hispanic or Latino residents. Sherwood has a smaller percentage of Hispanic or Latino population than the county or regional average.

Figure B- 10 Hispanic or Latino population by percentage, Oregon, the Portland Region, Washington County, Sherwood, in 2000 and 2009-2013



Source: U.S. Census 2000 SF1 Table P008, American Community Survey 2009-2013 Table B03003.

Household size and composition

Household size

Table B- 9 shows average household sizes in Oregon, the Portland Region, Washington County, and Sherwood in 2000 and the 2009-2013 period.

Table B- 9. Average household size, Oregon, Portland Region, Washington County, and Sherwood, 2000 to 2009-2013.

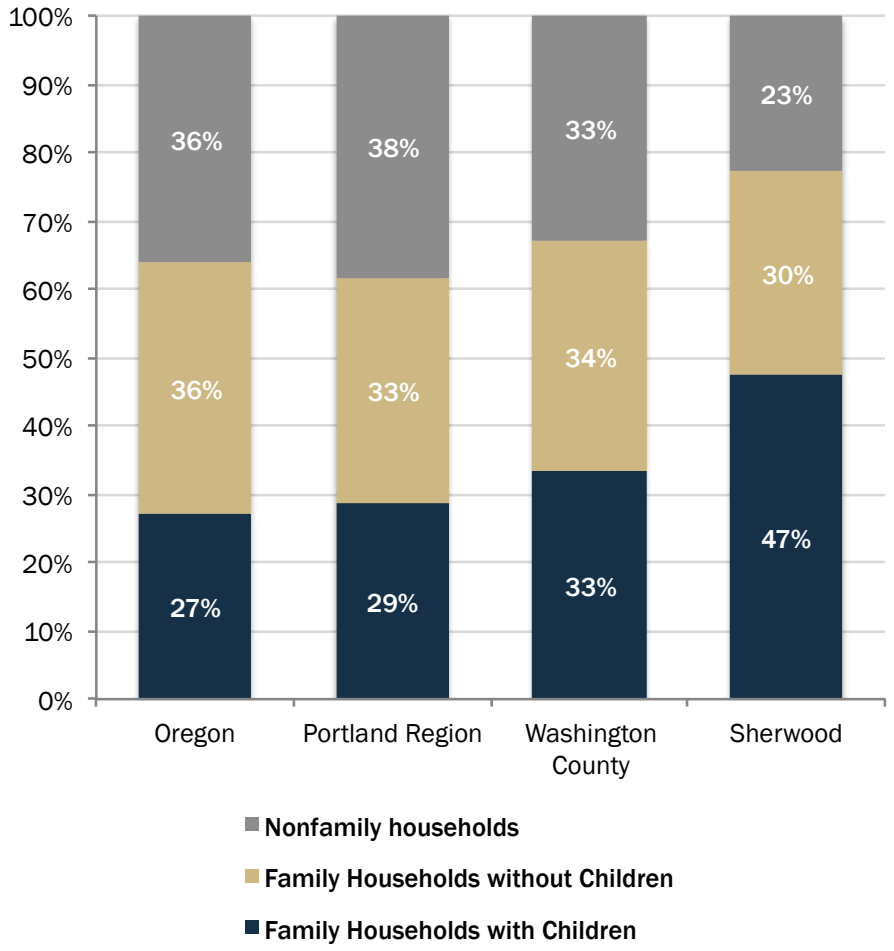
	Oregon	Portland Region	Washington County	Sherwood
2000				
Average household size	2.51	2.53	2.61	2.77
Owner-occupied units	2.59	2.67	2.75	2.85
Renter-occupied units	2.36	2.30	2.39	2.47
2009-2013				
Average household size	2.49	2.54	2.64	2.89
Owner-occupied units	2.55	2.64	2.72	3.00
Renter-occupied units	2.41	2.37	2.53	2.57
Change 2000 to 2009-2013				
Average household size	-0.02	0.00	0.03	0.12
Owner-occupied units	-0.04	-0.02	-0.03	0.15
Renter-occupied units	0.05	0.07	0.14	0.10

Source: U.S. Census 2000 SF1 H012, American Community Survey 2009-2013 Table B25010.

Household composition

Figure B- 11 shows household composition in Oregon, the Portland Region, Washington County, and Sherwood in 2009-2013. A larger share of Sherwood's housing composition is family household with children (47%) compared to that of Washington County (33%), the Portland Region (29%), and Oregon (27%).

Figure B- 11. Household composition, Oregon, Portland Region, Washington County, and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Tables DP02.

Group Quarters

Table B- 10 shows the population living in group quarters in Oregon, the Portland Region, Washington County, and Sherwood in 2000 and 2010. Only seven out of 18,194 Sherwood residents lived in group quarters in 2010, less than 0.0%. In contrast, 2.3% of Oregon's population and 1.8% of the Portland region's population lives in group quarters.

Table B- 10. Persons in group quarters, Oregon, Portland Region, Washington County, and Sherwood, 2000 to 2010.

	2000	2010
Oregon		
Total Population	3,421,399	3,831,074
Persons in Group Quarters	77,491	86,642
Percent in Group Quarters	2.3%	2.3%
Percent in correctional institutions	0.6%	0.6%
Portland Region		
Total Population	1,444,219	1,641,036
Persons in Group Quarters	23,667	29,124
Percent in Group Quarters	1.6%	1.8%
Percent in correctional institutions	0.0%	0.0%
Washington County		
Total Population	445,342	529,710
Persons in Group Quarters	4,101	6,788
Percent in Group Quarters	0.9%	1.3%
Percent in correctional institutions	0.1%	0.4%
Sherwood		
Total Population	11,791	18,194
Persons in Group Quarters	19	7
Percent in Group Quarters	0.2%	0.0%
Percent in correctional institutions	0.0%	0.0%

Source: U.S. Census 2000 SF1 Tables P1 and P37, U.S. Census 2010 SF1 Tables P1 and P42

Commuting trends

Commuting within the Portland region is common, with small cities like Sherwood seeing the vast majority of workers commute out of the city for work and the majority of people working in the city commuting in from other parts of the region. Figure B- 12 shows this pattern in Sherwood, with the majority of people living in Sherwood commuting out for work and the majority of people working in Sherwood commuting into the city for work.

Figure B- 12. Inflow and Outflow of Employment and Residence in Sherwood, 2011

Source: U.S. Census Bureau: LED on the Map, http://lehdmap3.did.census.gov/themap3/
The U.S, Census bases this data on Unemployment Insurance earnings data and the Quarterly Census of Employment and Wages (QCEW) data, combined with administrative data, additional administrative data and data from censuses and surveys. From these data, the program creates statistics on employment, earnings, and job flows at detailed levels of geography and industry and for different demographic groups.

Table B- 11 shows the places where Sherwood residents were employed in 2011. More than 90% of Sherwood residents worked outside of the city.

Table B- 11. Places that residents of Sherwood were employed in, 2011.

Location	Number	Percent
Counties		
Washington	3,616	49%
Multnomah	1,803	24%
Clackamas	1,147	16%
Yamhill	338	5%
Maion	330	4%
Clark	71	1%
Polk	13	0%
Columbia	12	0%
All other counties	54	1%
Cities		
Portland	1,686	23%
Tigard	660	9%
Sherwood	658	9%
Beaverton	575	8%
Tualatin	575	8%
All other cities	3,230	44%
Total	**7,384**	**100%**

Source: U.S. Census Bureau: LED on the Map, http://lehdmap3.did.census.gov/themap3/.

Table B- 12 shows where employees of firms located Sherwood lived in 2011. More than 80% of people who worked in Sherwood commuted from outside the city.

Table B- 12. Places where workers in Sherwood lived in 2011

Location	Number	Percent
Counties		
Washington	2,013	47%
Clackamas	602	14%
Multnomah	467	11%
Yamhill	460	11%
Marion	224	5%
Clark	76	2%
Linn	52	1%
Lane	46	1%
Polk	44	1%
All other counties	296	7%
Cities		
Sherwood	658	15%
Portland	371	9%
Tigard	233	5%
Beaverton	224	5%
Newberg	207	5%
All other cities	2,587	60%
Total	**4,280**	**100%**

Source: U.S. Census Bureau: LED on the Map, http://lehdmap3.did.census.gov/themap3/

MANUFACTURED HOMES

Manufactured homes are and will be an important source of affordable housing in Sherwood. They provide a form of homeownership that can be made available to low- and moderate-income households. Cities are required to plan for manufactured homes—both on lots and in parks (ORS 197.475-492).

Generally, manufactured homes in parks are owned by the occupants who pay rent for the space. Monthly housing costs are typically lower for a homeowner in a manufactured home park for several reasons, including the fact that property taxes levied on the value of the land are paid by the property owner rather than the manufactured homeowner. The value of the manufactured home generally does not appreciate in the way a conventional home would, however. Manufactured homeowners in parks are also subject to the mercy of the property owner in terms of rent rates and increases. It is generally not within the means of a manufactured homeowner to relocate a manufactured home to escape rent increases. Living in a park is desirable to some because it can provide a more secure community with on-site managers and amenities, such as laundry and recreation facilities.

Sherwood had 258 manufactured homes in 2000 and 155 manufactured homes in the 2009-2013 period, a decrease of 103 dwellings. According to Census data, roughly 83% of the manufactured homes in Sherwood were owner-occupied in the 2009-2013 period.

OAR 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial, or high-density residential development. Table B- 13 presents the inventory of mobile and manufactured home parks within Sherwood in 2014. The results show that Sherwood had 4 manufactured home parks with 186 spaces and 1 vacant space.

Table B- 13. Inventory of Mobile/Manufactured Home Parks, City of Sherwood, 2014

Name	Location	Park Type	Total Spaces	Vacant Spaces
Carriage Park Estates	23077 SW Main St	Family	58	0
Crown Court	27300 SW Pacific Hwy	Family	14	1
Orland Villa	22200 SW Orland Street	Family	24	0
Smith Farm Estates	17197-17180 SW Smith Ave	Family	90	0
Total			**186**	**1**

Source: Oregon Manufactured Dwelling Park Directory, http://o.hcs.state.or.us/MDPCRParks/ParkDirQuery.jsp.

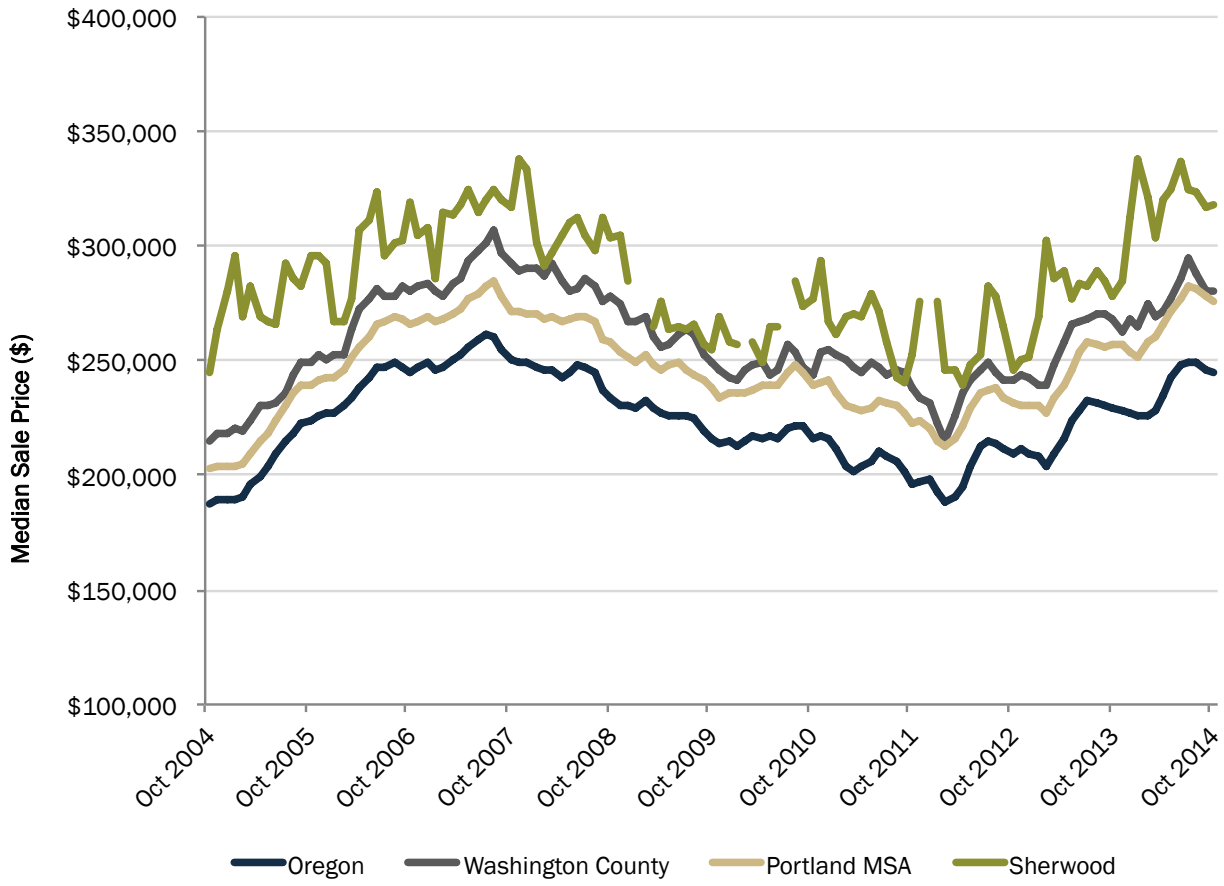
Changes in housing cost

According to Zillow, the median sales price of a home in Sherwood increased by about 30% between 2004 and 2014. Housing prices rose steeply prior to 2007, reaching a high of roughly $338,000, before the housing bubble and recession led to a period of declining housing prices. Housing prices in Sherwood, while following the same general pattern, remain higher than those observed in other parts of the region and the State as a whole.

Housing values

Figure B- 13 shows the median sales price in Oregon, the Portland MSA, Washington County, and Sherwood between 2004-2014. As of January 2015, median sales prices in Sherwood were $331,300, higher than in Washington County ($281,700), the Portland MSA ($269,900), and Oregon ($241,400).

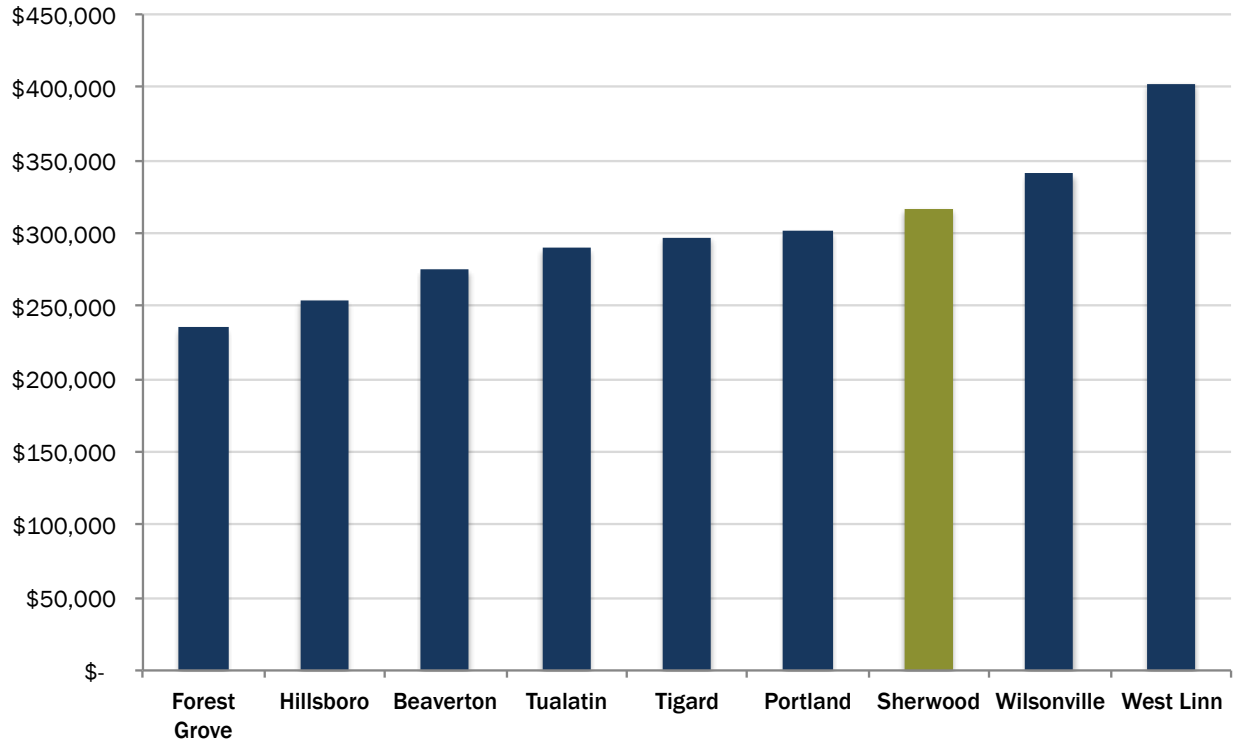
Figure B- 13. Median Sales Price, Oregon, Portland MSA, Washington County and Sherwood, 2004-2014



Source: Zillow Real Estate Research.
Note: Gaps in Sherwood's median sales price occur where data was not available.

Figure B- 14 shows median home sales prices for Sherwood and regional cities in January 2015. In that month, median home sale prices in Sherwood were about $316,500, above sales prices in other Portland westside communities such as Tigard, Tualatin, and Beaverton. Median sales prices in Wilsonville and West Linn were higher than those in Sherwood.

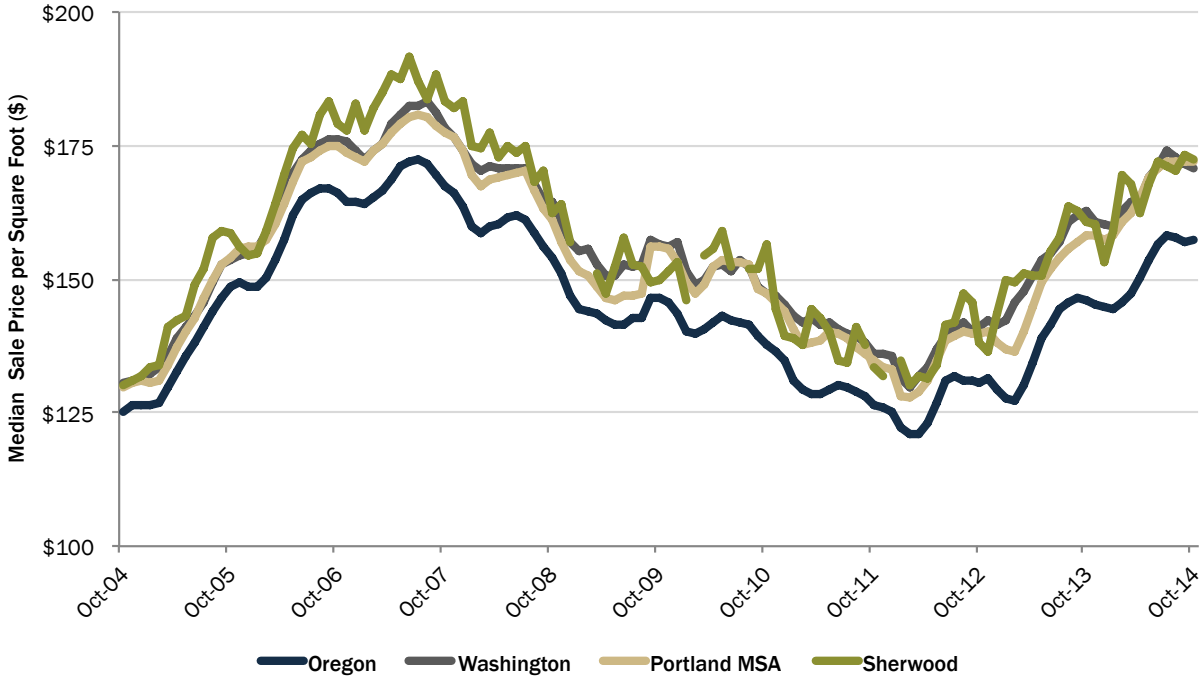
Figure B- 14. Median Home Sales Price, Sherwood, Tualatin, Tigard, Beaverton, Hillsboro, Forest Grove, Portland, January 2015



Source: Zillow Real Estate Research.

Figure B- 15 shows median home sales price per square foot for Oregon, the Portland MSA, Washington County and Sherwood from 2004-2013. Prices per square foot rose in Sherwood from $130 per square foot in October 2004 to $192 in July 2007. Prices fell after 2007 and rose again starting in 2011. In October 2014, the median price per square foot in Sherwood was about $170 dollars, comparable to the price in Washington County and the Portland Region (both about $170) and above that of the state as a whole ($157 per square foot).

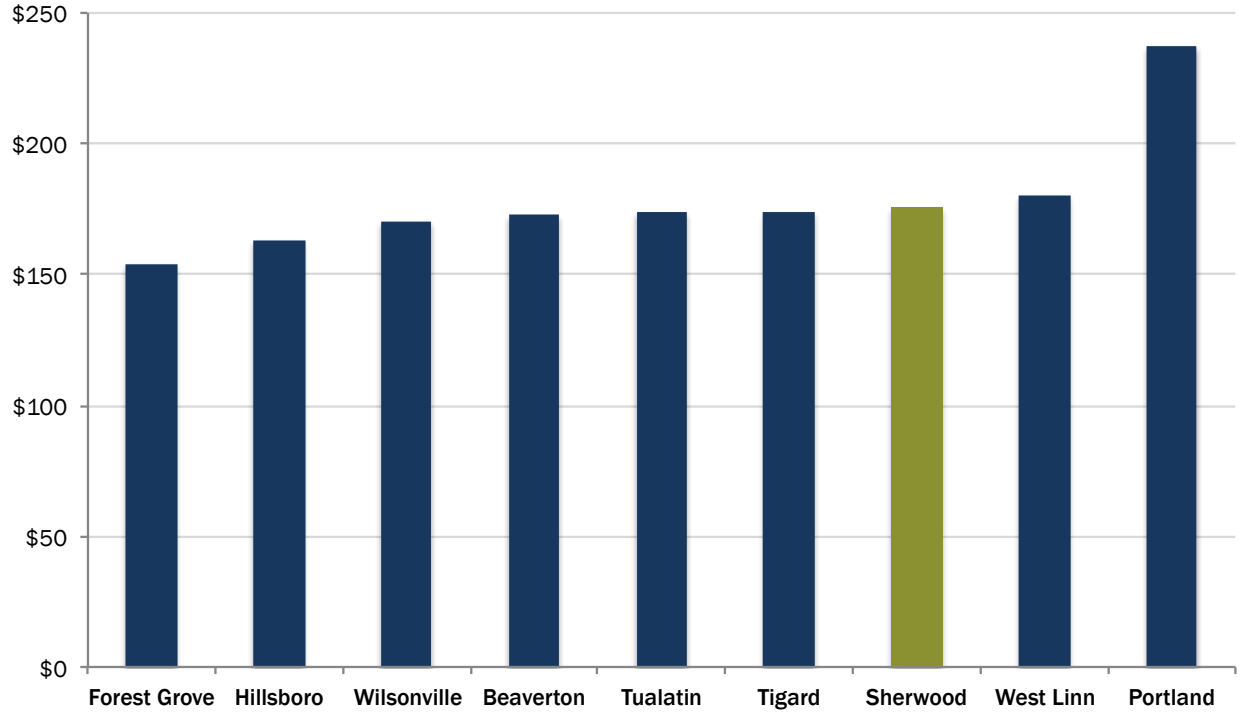
Figure B- 15. Median Sales Price per Square Foot, Oregon, Portland MSA, Washington County and Sherwood, 2004-2014



Source: Zillow Real Estate Research.
Note: Gaps in Sherwood's median sales price occur where data was not available.

Figure B- 16 shows median home sales price per square foot for Sherwood and regional cities in January 2015. Of the cities sampled, Sherwood had the third-highest price per square foot, at $176 per square foot. Prices per square foot in West Linn and Portland were higher, at $180 and $237 respectively. While Sherwood's prices were the third highest, they compared very closely to other cities such as Tigard ($174), Tualatin ($174), Beaverton ($173), and Wilsonville ($171).

Figure B- 16. Median Sales Price Per Square Foot, Forest Grove, Hillsboro, Wilsonville, Beaverton, Tualatin, Tigard, Sherwood, West Linn, and Portland, January 2015.



Source: Zillow Real Estate Research.

Housing rental costs

Table B- 14 shows the median contract rent in Oregon, Multnomah, Washington, and Clackamas counties, and Sherwood, in 2000 and 2009-2013. The median contract in Sherwood in 2009-2013 was $212 above the median in Washington County.

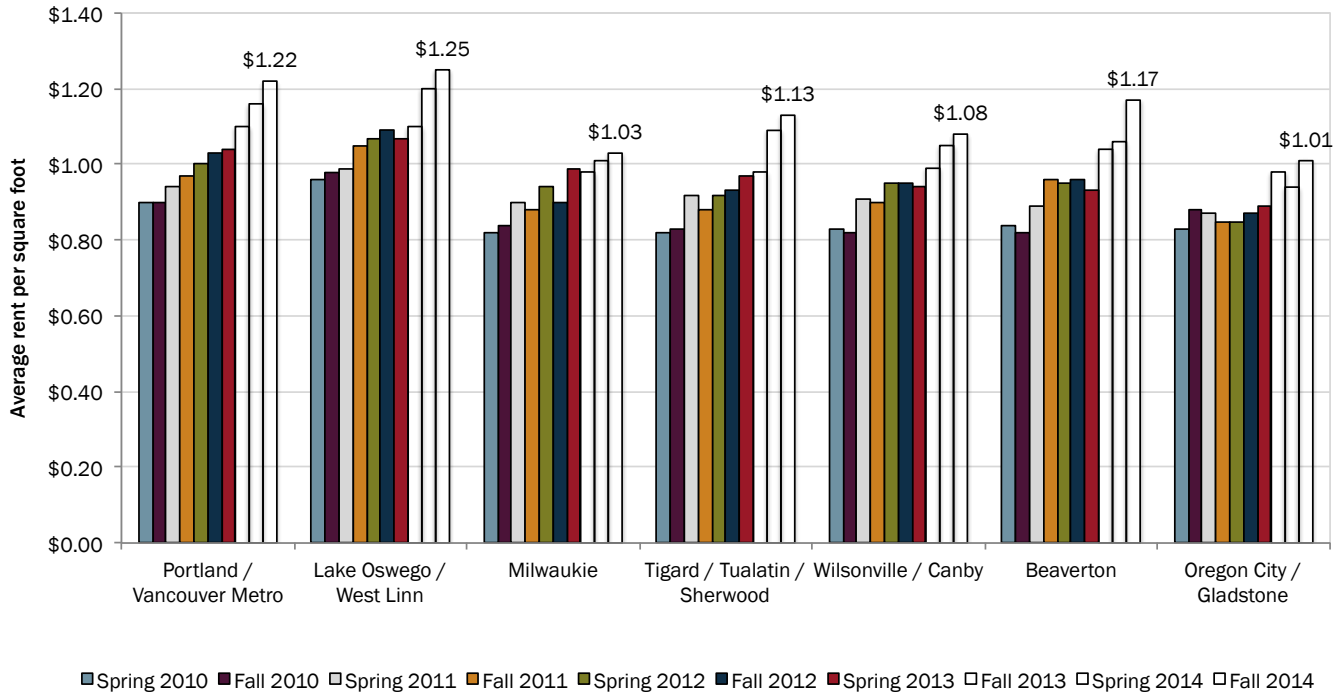
Table B- 14. Median contract rent, inflation-adjusted dollars, Oregon, Multnomah Washington, and Clackamas Counties, and Sherwood, 2000 to 2009-2013

Location	Rent		Change 2000 to 2009-2013	
	2000	2009-2013	Amount	Percent
Oregon	$741	$749	$8	1%
Multnomah County	$771	$799	$28	4%
Washington County	$878	$852	-$26	-3%
Clackamas County	$853	$858	$5	1%
Sherwood	$880	$1,064	$184	21%

Source: U.S. Census 2000 SF3 Table H56, American Community Survey 2012 Table B25058
Note: All data reported in 2013 dollars; 2000 figures were updated using Consumer Price Index.

Figure B- 17 shows average rent per square foot for apartments in the Portland/Vancouver Metro region and selected submarkets, according to Multifamily NW data between 2010 and 2014. Average rent in the Tigard/Tualatin/Sherwood area submarket was $1.13 per square foot in Fall 2014, lower than the regional average of $1.22 per square foot. Between Spring 2010 and Spring 2013, average rent in Tigard/Tualatin/Sherwood area increased by 38%, consistent with the regional increase of 36%.

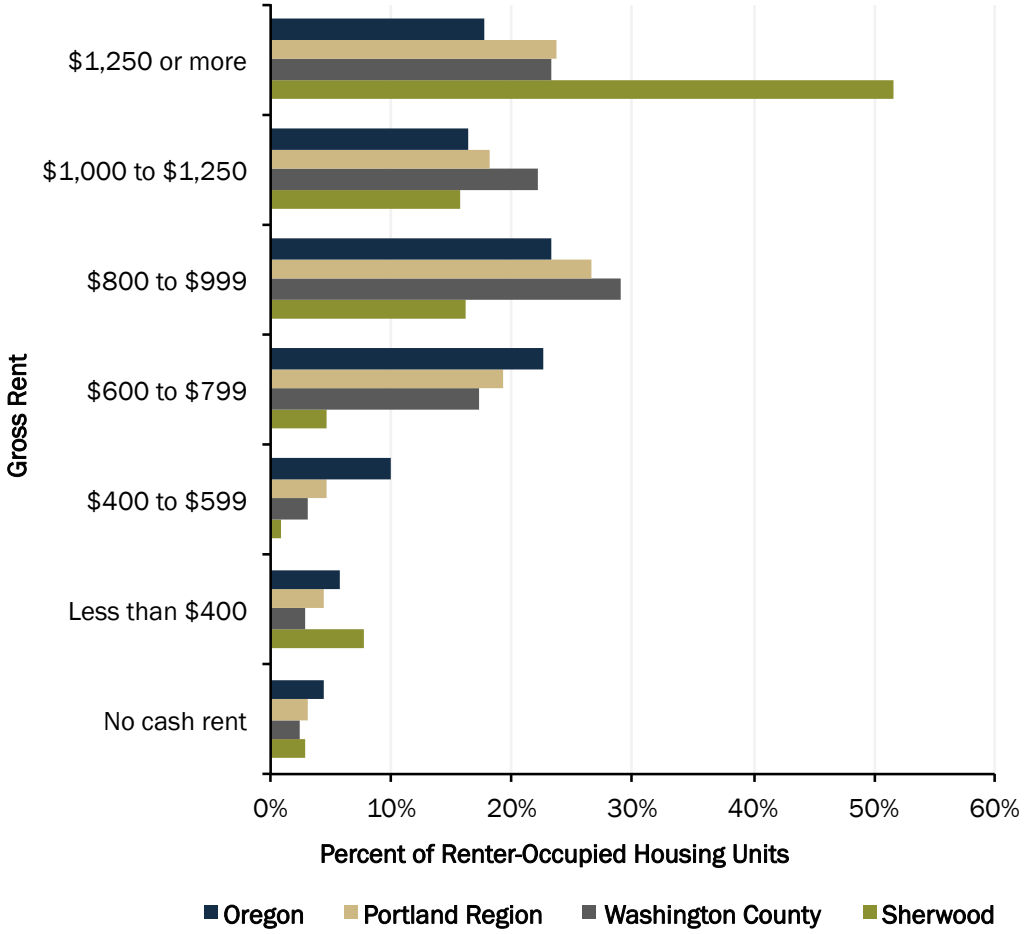
Figure B- 17. Average rent per square foot, Portland/Vancouver Metro and selected submarkets, 2010-2014



Source: Multifamily NW Apartment Reports, Spring 2010 through Fall 2014.
Note: The average rent price shown on the graph is for Fall 2014

Figure B- 18 shows a comparison of gross rent for renter-occupied housing units in Oregon, the Portland Region, Washington County, and Sherwood in 2009-2013.[49]

Figure B- 18. Gross rent, renter occupied housing units, Oregon, Portland Region, Washington County, and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Table B25063.

[49] The U.S. Census defines gross rent as: "the amount of the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else)."

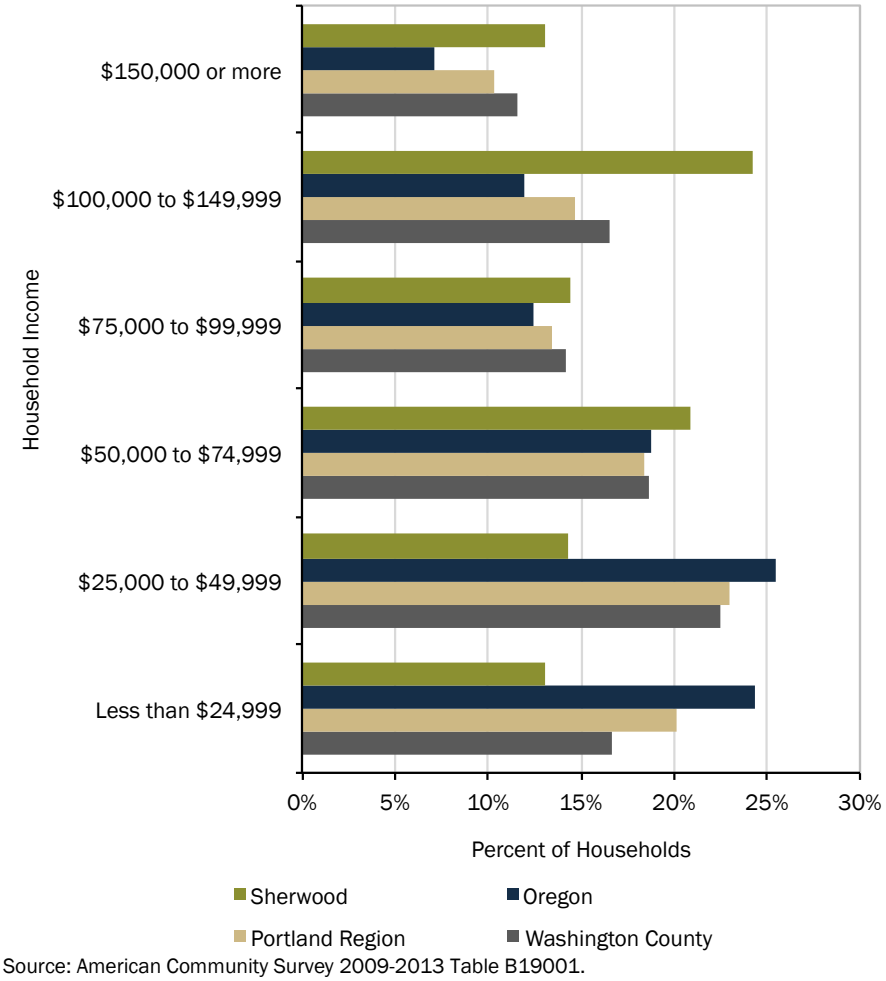
INCOME AND AFFORDABILITY OF HOUSING

This section summarizes regional and local income and housing cost trends. Income is a key determinant in housing choice and a households' ability to afford housing. A review of historical income and housing price trends provides insight into the local and regional housing markets.

The median household income in Sherwood was higher than in nearby counties and the state as a whole in the 2009-2013 period. Median household income in Sherwood was about $78,400, compared to $64,200 in Washington County, $64,400 in Clackamas County, and $52,500 in Multnomah County. Statewide, the median income was about $50,300.

Figure B- 19 shows the distribution of household income in Oregon, the Portland Region, and Sherwood in the 2009-2013 period. Sherwood had the highest share of households earning over $100,000 and the lowest share of households earning less than $25,000.

Figure B- 19. Household Income, Oregon, Portland Region, Washington County, and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Table B19001.

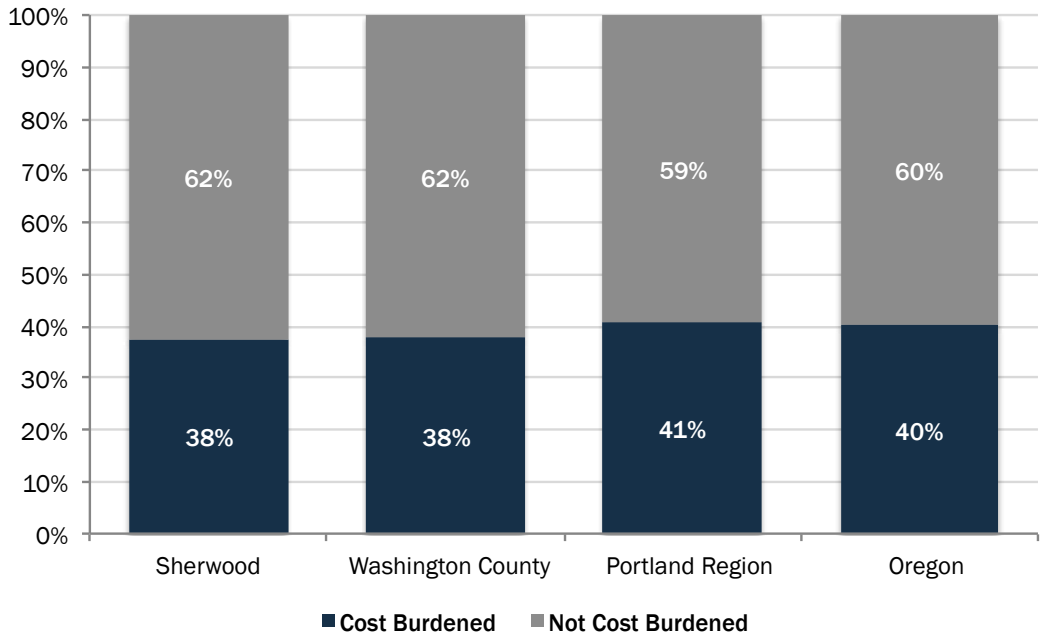
A typical standard used to determine housing affordability is that a household should pay no more than a certain percentage of household income for housing, including payments and interest or rent, utilities, and insurance.[50] HUD guidelines indicate that households paying more than 30% of their income on housing experience "cost burden," and households paying more than 50% of their income on housing experience "severe cost burden." Using cost burden as an indicator of housing affordability is consistent with the Goal 10 requirement to provide housing that is affordable to all households in a community.

According to the U.S. Census, nearly 2,345 households in Sherwood—or 38%—paid more than 30% of their income for housing expenses in the 2009-2013 period. About 44% of renter households in Sherwood were cost burdened, compared with 35% of owner households. In comparison, 40% of Oregon's households were cost burdened in the 2009-2013 period, with 54% of renter households and 32% of owner households cost burdened.

[50] Cost burden for renters accounts for the following housing costs: monthly rent, utilities (electricity, gas, and water and sewer), and fuels (wood, oil, etc.). Cost burden for homeowners accounts for the following housing costs: mortgage payments, real estate taxes, insurance, mobile home costs, condominium fees, utilities, and fuels.

Figure B- 20 shows the percentage of the population experiencing housing cost burdens in Oregon, the Portland Region, Washington County, and Sherwood in 2009-2013.

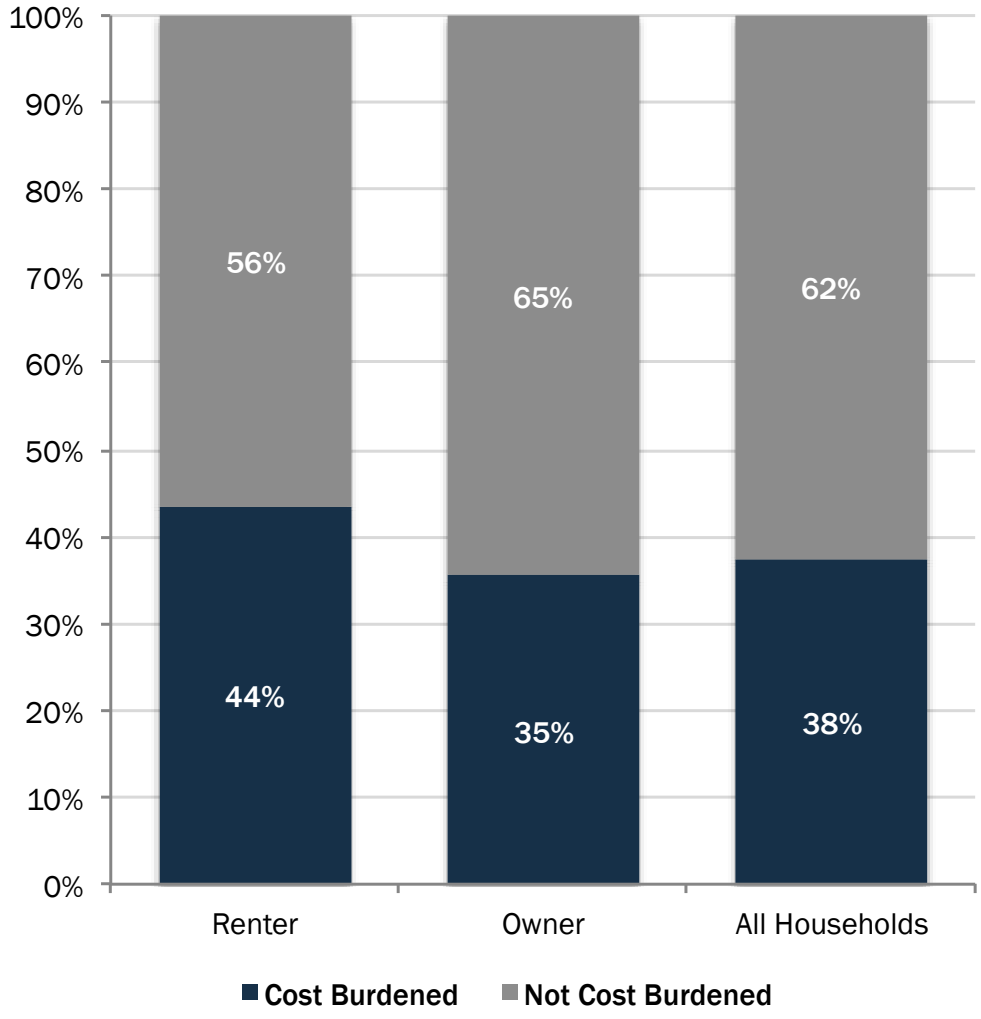
Figure B- 20. Housing cost burden, Oregon, Portland Region, Washington County and Sherwood, 2009-2013.



Source: American Community Survey 2009-2013 Tables B25070 and B25091.
Note: Households which the Census classifies as "Not computed" were excluded from the above calculations.

Figure B- 21 shows housing cost burden, by tenure, for Sherwood households in 2009-2013. Forty-four percent of Sherwood's renter households are cost burdened, compared to 49% of renter households in Washington County. Thirty-five percent of owner households are cost burdened, compared to 31% of owner households in Washington County.

Figure B- 21. Housing cost burden by tenure, Sherwood, 2009-2013.



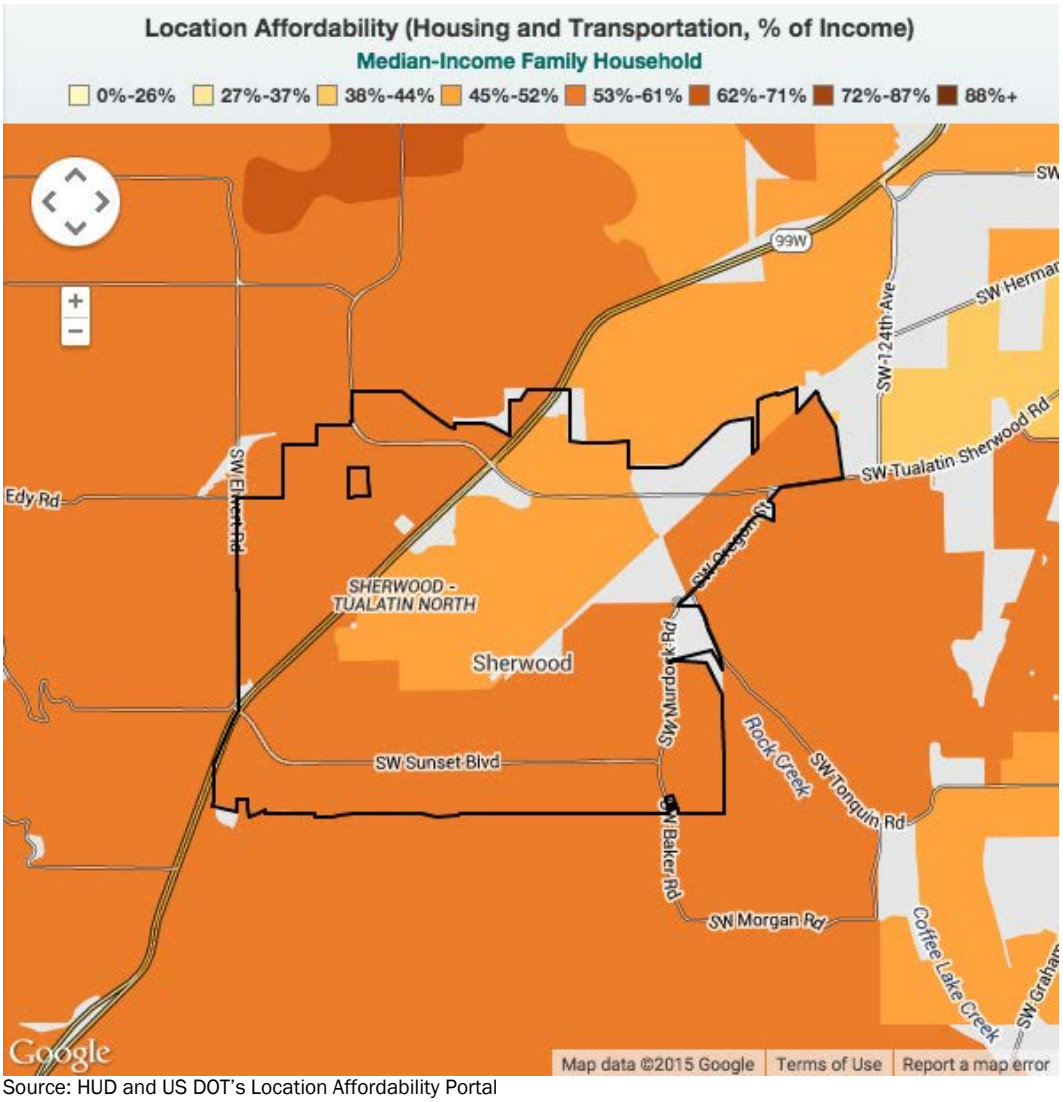
Source: American Community Survey 2009-2013 Tables B25070 and B25091.

Another way to measure cost burden is to consider the costs of housing combined with the costs of transportation. In the *Draft 2014 Urban Growth Report*, Metro considered this perspective on cost burden. Metro considered a household that spends 45% or more of its income on transportation and housing as cost burdened.

According to data from the Location Affordability Portal, from HUD and the U.S. Department of Transportation, the average household in Sherwood spends 54% of its income on housing costs and transportation costs. Figure B- 22 and Figure

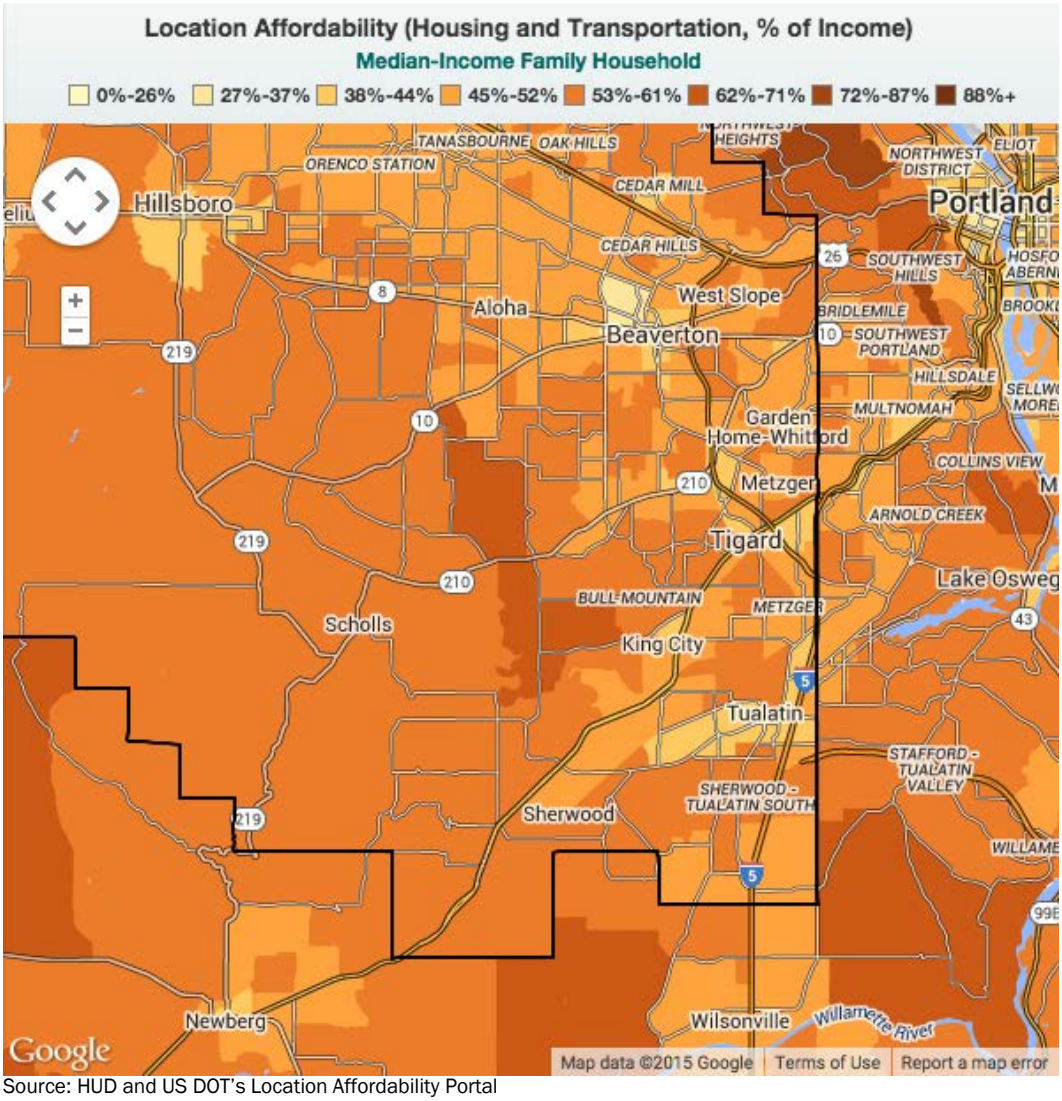
B- 23 show the percentage of income spent on housing and transportation costs in Sherwood and the southwestern part of the Portland region. In comparison to cities such as Tualatin, Wilsonville, and Tigard, households in Sherwood pay a slightly larger percentage of their income on housing and transportation costs. On average, households in these cities pay 50% to 52% of their income on housing and transportation costs.

Figure B- 22. Housing and transportation costs as a percentage of median family income, Sherwood, 2014



Source: HUD and US DOT's Location Affordability Portal
http://locationaffordability.info/

Figure B- 23. Housing and transportation costs as a percentage of median family income, southwestern Portland region, 2014



Source: HUD and US DOT's Location Affordability Portal
http://locationaffordability.info/

While cost burden is a common measure of housing affordability, it does have some limitations. Two important limitations are:

- A household is defined as cost burdened if the housing costs exceed 30% of their income, regardless of actual income. The remaining 70% of income is expected to be spent on non-discretionary expenses, such as food or medical care, and on discretionary expenses. Households with higher income may be able to pay more than 30% of their income on housing without impacting the household's ability to pay for necessary non-discretionary expenses.
- Cost burden compares income to housing costs and does not account for accumulated wealth. As a result, the estimate of how much a household can afford to pay for housing does not include the impact of accumulated

wealth on a household's ability to pay for housing. For example, a household with retired people may have relatively low income but may have accumulated assets (such as profits from selling another house) that allow them to purchase a house that would be considered unaffordable to them based on the cost burden indicator.

Cost burden is only one indicator of housing affordability. Another way of exploring the issue of financial need is to review wage rates and housing affordability. Table B- 15 shows an illustration of affordable housing wage and rent gap for households in the Portland MSA at different percentages of median family income (MFI). The data are for a typical family of four. The results indicate that a household must earn $17.73 an hour to afford a two-bedroom unit according to HUD's market rate rent estimate.

Table B- 15. Affordable Housing Wage Gap, Portland MSA, 2014

Value	Minimum Wage	30% MFI	50% MFI	80% MFI	100% MFI	120% MFI
Annual Hours	2,080	2,080	2,080	2,080	2,080	2,080
Derived Hourly Wage	$9.10	$10.01	$16.68	$26.69	$33.37	$40.04
Annual Wage	$18,928	$20,820	$34,700	$55,520	$69,400	$83,280
Annual Affordable Rent	$5,678	$6,246	$10,410	$16,656	$20,820	$24,984
Monthly Affordable Rent	$473	$521	$868	$1,388	$1,735	$2,082
HUD Fair Market Rent (2 Bedroom)	$922	$922	$922	$922	$922	$922
Is HUD Fair Market Rent Higher Than The Monthly Affordable Rent?	Yes	Yes	Yes	No	No	No
Rent Paid Monthly OVER 30% of Income	$449	$402	na	na	na	na
Rent Paid Annually OVER 30% of Income	$5,386	$4,818	na	na	na	na
Percentage of Income Paid OVER 30% of Income for Rent	28%	23%	na	na	na	na
Percentage of Income Spent on Housing	58%	53%	32%	20%	16%	13%
For this area what would the "Affordable Housing Wage" be?	$17.73	$17.73	$17.73	$17.73	$17.73	$17.73
The Affordable Housing Wage Gap IS:	**$8.63**	**$7.72**	**$1.05**	**na**	**na**	**na**

Source: FMR comes from HUD's FY 2014 Two-Bedroom FMR for Portland-Vancouver-Hillsboro MSA. Minimum wage from Oregon's Bureau of Labor and Industries. MFI from HUD's FY 2014 MFI for Portland- Vancouver -Hillsboro MSA.

Table B- 16 shows a rough estimate of affordable housing cost and units by income levels for Sherwood in 2014 based on Census data about household income, the value of owner-occupied housing in Sherwood, and rental costs in Sherwood. Several points should be kept in mind when interpreting this data:

- Affordable monthly housing costs and estimate of affordable purchase prices are based on HUD income standards and assume that a household will not spend more than 30% of household income on housing costs. Some households pay more than 30% of household income on housing costs, generally because they are unable to find more affordable housing or because wealthier households are able to pay a larger share of income for housing costs.
- HUD's affordability guidelines for Fair Market Rent are based on median family income and provide a rough estimate of financial need. These guidelines may mask other barriers to affordable housing such as move-in costs, competition for housing from higher-income households, and availability of suitable units. They also ignore other important

factors such as accumulated assets, purchasing housing as an investment, and the effect of down payments and interest rates on housing affordability.

- Households compete for housing in the marketplace. In other words, affordable housing units are not necessarily *available* to low-income households. For example, if an area has a total of 50 dwelling units that are affordable to households earning 30% of median family income, 50% of those units may already be occupied by households that earn more than 30% of median family income.

The data in Table B- 16 indicate that in 2014:

- About 20% of households in Sherwood could not afford a two-bedroom apartment at HUD's fair market rent level of $922.
- A household earning median family income ($69,400) could afford a home valued up to about $173,500.
- Sherwood has a deficit of about 660 dwellings to households earning less than $35,000 (or 50% of the Portland metropolitan area's median family income).

Table B- 16. Rough estimates of housing affordability, Sherwood, 2009-2013

Income Level	Number of HH	Percent	Affordable Monthly Housing Cost	Crude Estimate of Affordable Purchase Owner-Occupied Unit	Est. Number of Owner Units	Est. Number of Renter Units	Surplus (Deficit)	HUD Fair Market Rent (FMR) in 2014
Less than $10,000	186	3%	$0 to $250	$0 to $25,000	44	60	(82)	
$10,000 to $14,999	280	4%	$250 to $375	$25,000 to $37,000	40	69	(171)	
$15,000 to $24,999	364	6%	$375 to $625	$37,500 to $62,500	35	36	(293)	
								Studio: $666
$25,000 to $34,999	298	5%	$625 to $875	$62,500 to $87,500	71	111	(116)	1 bdrm: $774
$35,000 to $49,999	618	10%	$875 to $1,250	$87,500 to $125,000	77	510	(31)	2 bdrm: $922
								3 bdrm: $1,359
$50,000 to $74,999	1,333	21%	$1,250 to $1,875	$125,000 to $187,500	360	678	(295)	4 bdrm: $1,633
Portland MSA 2014 MFI: $69,400			$1,735	$173,500				
$75,000 to $99,999	922	14%	$1,875 to $2,450	$187,500 to $245,000	748	172	(2)	
$100,000 to $149,999	1,543	24%	$2,450 to $3,750	$245,000 to $375,000	2,172	23	652	
$150,000 or more	836	13%	More than $3,750	More than $375,000	1,151	23	338	
Total	**6,380**	**100%**			**4,698**	**1,682**	**0**	

Source: FMR comes from HUD's FY 2014 Two-Bedroom FMR for Portland-Vancouver-Hillsboro MSA. Minimum wage from Oregon's Bureau of Labor and Industries. MFI from HUD's FY 2014 MFI for Portland-Vancouver-Hillsboro MSA; Data about the share of owner and renter households and their income in Sherwood comes from the American Community Survey, 2009-2013 Tables B25075, B25063, B19001.

Table B- 17 shows that between 2000 and 2009-2013, both median household income and housing values increased substantially, with increases in home value outpacing growth in income. Median household income increased between 2000 and the 2009-2013 period.

Housing in Sherwood has become less affordable since 2000, consistent with county and statewide trends. In 2009-2013, the median home value was 3.8 times the median household income in Sherwood, up from 2.9 in 2000.

Housing in Sherwood is relatively affordable, compared to the county and state. In 2009-2013, the median home value was 4.4 times the median household income in Washington County, with a statewide average of 4.7.

Table B- 17. Household income to home value, 2013 dollars, Oregon, Washington County, and Sherwood, 2000 and 2009-2013.

	2000	2009-2013	Change 2000 to 2013	
			Number	Percent
Oregon				
Median HH Income	$57,282	$50,229	-$7,053	-12%
Median Owner Value	$204,120	$238,000	$33,880	17%
Ratio of Home Value to Income	3.56	4.74	1.17	33%
Washington County				
Median HH Income	$72,971	$64,180	-$8,791	-12%
Median Owner Value	$252,560	$282,400	$29,840	12%
Ratio of Home Value to Income	3.46	4.40	0.94	27%
Sherwood				
Median HH Income	$87,525	$78,355	-$9,170	-10%
Median Owner Value	$254,100	$300,300	$46,200	18%
Ratio of Home Value to Income	2.90	3.83	0.93	32%

Source: Census 2000 SF1 P53 P77 P82 P87, SF3 H7 H63 H76, American Community Survey 2009-2013 DP03, B25003, B25064, B25077.

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SB4 Lands Determination

Introduction

This document serves as the required determination as referenced in Senate Bill 4 (2023) Section 10 that granted the Governor executive authority to bring within an existing urban growth boundary designated lands for the purposes of providing lands available for industrial use to become part of the state's covered incentive for specific federal CHIPS and Science Act programs that related to the semiconductor industry, advanced manufacturing or the supply chain for semiconductors or advanced manufacturing.

Oregon's Semiconductor Industry

The semiconductor industry is a priority industry for the Oregon economy. Not only are semiconductors Oregon's largest export, but Oregon is home to more than 200 semiconductor and semiconductor supply chain businesses filled with both critical suppliers and global innovation facilities. The Silicon Forest has the second largest concentration of semiconductor-related employment in the country with just over 40,300 employees (15% of U.S. semiconductor employment).

Oregon has a proud history as the national center of research and development in this industry. Some of the most important, leading semiconductor research has happened here. The US semiconductor industry is well established here in Oregon, and we are uniquely positioned to help achieve stated goals of economic and national security established by the CHIPS and Science Act.

Washington County/Hillsboro is home to the largest concentration of semiconductor and semiconductor supply chain businesses in Oregon. According to 2023 data, Hillsboro is home to 57 key semiconductor supply chain businesses. Approximately 89% of Hillsboro's manufacturing jobs are in the high-tech sector, and 44% of Oregon's high tech manufacturing jobs are in Hillsboro. Key industry players located in Hillsboro include Intel, Lam Research, Qorvo, Jireh, Lattice Semiconductors and many more. Because of the significant concentration of activity specific to the semiconductor industry in Hillsboro, the logical location for the Governor to exercise authority provided by Senate Bill 4 (2023) is in Hillsboro.

Senate Bill 4

In 2022, the Oregon Semiconductor Task Force was convened to ensure Oregon was prepared with a strategy to secure and maintain the once-in-a-generation investment and opportunities coming from the private and federal investments. The Task Force focused on five topics; 1. Research and Development Strength; 2. Talent Development; 3. Land Availability; 4. Incentives; 5. Regulation. Following the Semiconductor Task Force focus and recommendations, Senate Bill 4 (2023) was developed to address multiple topics including incentives and land availability.

Senate Bill 4 (2023), also known as the Oregon CHIPS Act, was designed to be complementary to and act as the required covered incentive program for the federal CHIPS and Science Act enacted by the Biden-Harris Administration.

The covered incentive opportunity established by Senate Bill 4 (2023) includes both direct incentives to companies and the authority granted to the Governor related to lands. The Oregon CHIPS Act has been

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instrumental in the success of Oregon companies receiving federal funding and will continue to be instrumental in future opportunities, such as the potential to site a National Semiconductor Technology Center (NSTC) in Oregon.

To date, the Governor has awarded nearly all the $240 million in direct incentives made available by the Oregon CHIPS Act. Much of the funding has gone to companies located in the Washington County/Hillsboro area. The single largest award of $115 million was awarded to Intel for their proposed $36 billion investment at their Gordon Moore Park facility in Hillsboro. Other investments in the Washington County/Hillsboro area include companies such as Jireh and Analog Devices, Inc.

Round 2 applications were recently announced and ecosystem companies awarded funding include AGC Electronic America, Kokusai Semiconductor Equipment Corporation, Tokyo Ohka Kogyo America, and Project Fabrik (a recruitment opportunity that plans to locate in Hillsboro and has expressed a need for land). Because of investments like those mentioned here, Oregon will see continued supply chain activity and expansion to support the approximately $40 billion in contracted projects via the Oregon CHIPS Act. This commitment of investment from private industry reinforces that Oregon can secure and maintain our research and development position and see continued investment in the broader supply chain and semiconductor ecosystem.

Oregon-sited companies and their projects are seeing great success in the competition for federal investment from the CHIPS and Science Act. The first award announced was Microchip with a $72 million investment in their Gresham project. The largest award announced to date was the Intel award at $8.2 billion for projects occurring in four states with their project in Hillsboro being identified as one. Finally, HP has been awarded $50 million for their project in Corvallis.

Oregon and our semiconductor companies are competing at a high level for the available federal funding. This speaks to both our competitiveness in the semiconductor industry, but also our importance to the broader vision and goal of national economic security.

National Semiconductor Technology Center

It is important to note that the 2024 legislative session included the passage of HB 4154 (2024). In that bill was an amendment to Senate Bill 4 (2023), adding the National Semiconductor Technology Center to the programs available to receive funding and other covered incentive benefits of Senate Bill 4 (2023). The National Semiconductor Technology Center (NSTC) program is housed in the Research and Development (R&D) side of the CHIPS and Science Act legislation. The Biden-Harris Administration has announced $5 billion in funding for this program and created NATCAST, the non-profit entity that will run the NSTC program.

Earlier this year, NATCAST announced they would be siting three technical centers as part of the NSTC program: i. Administration and Design Facility; ii. EUV Center; iii. Prototyping and Packaging Center. Oregon is currently competing for both the EUV Center and the Prototyping and Packaging Center. The likely location, should Oregon receive a NSTC technical center, is Hillsboro.

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Industrial land availability is an important component to the siting of a NSTC. A NSTC technical center designation would bring with it an influx of investment into the Silicon Forest region. This will require the necessary infrastructure, including land, to accommodate such an investment. Additionally, the siting of a NSTC technical center in Oregon is paramount to the underlying goal of Oregon maintaining its status as the dominant research and development location for the United States, if not globally.

Action

Based on the authority granted to the Governor under Section 10 of Senate Bill 4 (2023), and the addition of the NSTC program as an eligible program for covered incentives in HB 4154 (2024), the Governor intends to issue an Executive Order to bring within the existing UGB adjacent to the City of Hillsboro approximately 373 acres of land identified for industrial purposes specific to the semiconductor and semiconductor supply chain industry. The land identified as part of this action will serve as critical infrastructure necessary for Oregon to remain the leading-edge research and development center for the United States as companies and technical centers like those identified earlier in this determination expand and locate here in the Silicon Forest.

Applicable Approval Criteria

Applicable approval criteria as outlined in Senate Bill 4 (2023) include:

Section 10(1): On or before December 31, 2024, the Governor by executive order and subject to section 11 of this 2023 Act may bring within an existing urban growth boundary designated lands for the purposes of providing lands available for industrial uses to become part of the state's covered incentive as defined in section 1 of this 2023 Act that relate to the semiconductor industry, advanced manufacturing or the supply chain for semiconductors or advanced manufacturing.

Response: On or before December 31, 2024, the Governor will issue an executive order in accordance with this section of Senate Bill 4 (2023). The executive order will be consistent with the applicable approval criteria of Senate Bill 4 (2023).

Section 10(2): Lands designated by an executive order under this section must be within a site that consists of one or more tracts of land that are:

(a) Contiguous to the city's existing urban growth boundary;

Response: The proposed site is contiguous to the existing urban growth boundary.

(b) Entirely within three miles of the city's existing urban growth boundary; and

Response: The proposed site, in its entirety, is within three miles of the city's existing urban growth boundary.

(c) Not within areas designated as acknowledged urban reserves or rural reserves under ORS 195.144(1), (2)(c) to (e) or (3).

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Response: The proposed site is not within areas designated as acknowledged urban reserves or rural reserves under the quoted ORS above.

ORS 195.144 (2) states: For purposes of land use planning in Oregon, the Legislative Assembly designates the land in Washington County that was designated as urban reserve in Metro Resolution No. 11-4245, adopted on March 15, 2011, as the acknowledged urban reserve in Washington County, except that:

(a)The real property in Area 8A on Metro's map denominated as the "Urban and Rural Reserves in Washington County, Attachment A to Staff Report for Resolution No. 11-4245 (03/17/11 DRAFT)," east of the east boundary of the right of way of Northwest Jackson School Road and east of the east bank of Storey Creek and the east bank of Waibel Creek is included within the acknowledged urban growth boundary.

(b)The real property in Area 8A on Metro's map denominated as the "Urban and Rural Reserves in Washington County, Attachment A to Staff Report for Resolution No. 11-4245 (03/17/11 DRAFT)," that is south of the south boundary of the right of way of Highway 26 and west of the real property described in paragraph (a) of this subsection is designated as acknowledged rural reserve.

(c)The real property in Area 8B on Metro's map denominated as the "Urban and Rural Reserves in Washington County, Attachment A to Staff Report for Resolution No. 11-4245 (03/17/11 DRAFT)," that is more particularly described as tax lot 100 in section 21AA of township 1 north, range 2 west, Willamette Meridian, and tax lots 900, 901, 1100, 1200, 1300 and 1400 in section 15 of township 1 north, range 2 west, Willamette Meridian, is not designated as a reserve area.

The area under consideration is entirely within the previously approved urban reserves which were converted to Rural Reserves by HB 4078 in 2014 and are in ORS 195.144 2(b). Therefore, this area is not prohibited by Senate Bill 4 (2023).

Additionally, Section 10 (3) of Senate Bill 4 (2023) states: Before issuing an executive order under this section, the Governor shall:

(a) Conduct one public meeting, in coordination with the city nearest to the site and each county in which the site is located, to be held in that city for the purpose of discussing bringing within the urban growth boundary the lands or potential lands;

Response: A public meeting in coordination with the City of Hillsboro and Washington County will be held on October 10, 2024, within the city limits of the City of Hillsboro. At that meeting the proposal under consideration will be discussed.

(b) Accept public comments for a period of no fewer than 20 days following the public meeting in paragraph (a) of this subsection; and

Response: Public comment will be accepted at both the public meeting and for a 20-day period following the public meeting. The public comment period will close on October 30, 2024 at 5pm. That will be advertised in the public meeting notice and at the public meeting.

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(c) Make a determination that existing lands within an urban growth boundary in this state would not meet the needs of the specific project.

Response: As previously stated in this determination, Washington County and the City of Hillsboro are the epicenter for the semiconductor industry in Oregon. Sizable investments resulting in approximately $40 billion worth of specific semiconductor and semiconductor supply chain projects are currently being made in Hillsboro and the surrounding Washington County area. Furthermore, Oregon is under consideration for a National Semiconductor Technology Center and the likely location for this specific project is Hillsboro. This substantial investment alone will require additional land proximate to the City of Hillsboro. Given the concentration of the semiconductor ecosystem in Hillsboro, and the requirement of the industry to be proximate to key research and development facilities located in Hillsboro, no other location in the state is suitable.

Finally, Section 10 (5) of Senate Bill 4 (2023) goes on to describe that the Governor may designate up to a maximum of eight sites, as follows:

(a) Two sites that exceed 500 acres; and
(b) Six sites that do not exceed 500 acres

Response: The site proposed is consistent with the parameters outlined in Section 10 (5) of Senate Bill 4.

Decision

Based on the findings made above on the applicable approval criteria, the Governor intends to act, consistent with the authority granted via Section 10 of Senate Bill 4 (2023), to bring in lands to the existing urban growth boundary adjacent to the City of Hillsboro and further identified as part of Exhibit A (Site Map). This decision is subject to the following conditions of approval:

1. Permitted uses for this land shall be limited to semiconductor industry, advanced manufacturing, or the supply chain for semiconductors or advanced manufacturing. Uses such as data centers and warehouses not directly associated with the semiconductor industry shall not be permitted.

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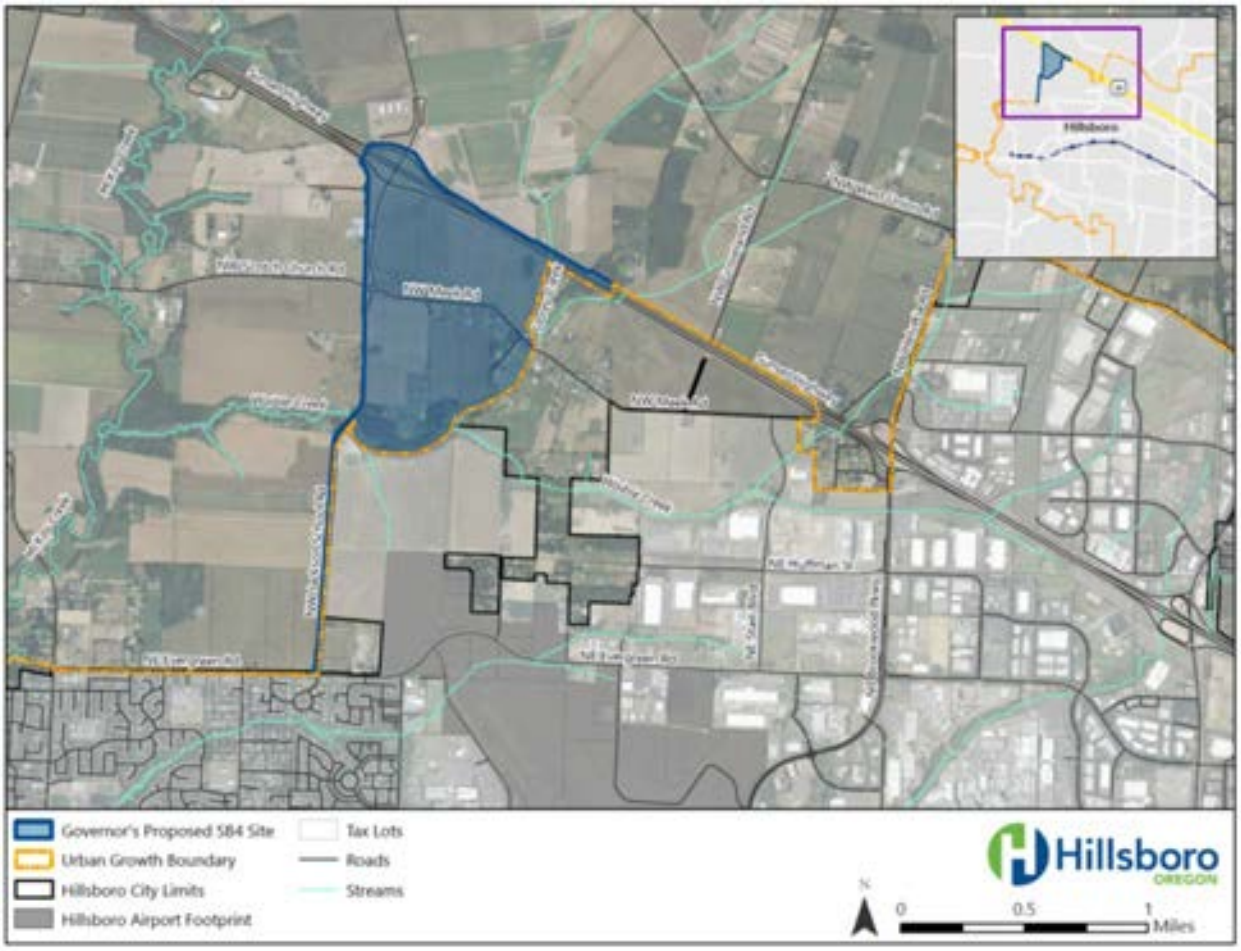
Exhibit A – Site Map



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November 7, 2024

Metro Regional Center
600 NE Grand Ave
Portland, OR 97323
Submitted via Metro Portal

RE: 2024 growth management decision: Sherwood West

Dear Metro Councilors,

Tualatin Riverkeepers (TRK) respectfully submits these comments asking that Metro refrain from bringing 1291 acres of urban reserves designated "Sherwood West" into the greater Portland region's existing urban growth boundary (UGB). TRK is a community-based organization that protects and restores the Tualatin River watershed. Our 500 members and thousands of volunteers help us build watershed stewardship through engagement, advocacy, restoration, access, and education. TRK's advocacy in water quality and the overall health of the Tualatin River watershed leads us to closely monitor UGB expansion proposals that affect important water bodies and surrounding riparian areas within the Tualatin Basin. Developing Sherwood West will disrupt important wildlife connectivity and undo massive efforts by the Tualatin National Wildlife Refuge and U.S. Fish and Wildlife Service to restore Chicken Creek's natural course and regenerate its stream, wetland, and floodplain functions. Further, Metro has not meaningfully considered alternative areas for proposed UGB expansion that would better meet the need for more housing. What's more, there exists viable land within the existing UGB for the proposed housing expansions that would not require expansion. TRK understands the pressures of growth in the greater Portland regions to support new jobs and housing, but urges Metro to consider bringing in other areas better suited to handle future growth and less environmentally harmful.

Background

Under Oregon state law, Metro is charged with managing the great Portland region's UGB, and works with citizens, elected leaders, and researchers to plan for future growth and meet the needs for housing, jobs, and transportation.[1] Every six years, Metro assesses whether

[1] Metro, *2024 growth management decision*, https://www.oregonmetro.gov/public-projects/2024-growth-management-decision/background (last visited Nov. 6, 2024).

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there is enough land inside of the UGB for 20 years of housing and job growth. In July of 2024, the Metro Council began to examine whether there is enough land inside of the existing UGB to support the next 20 years of growth. In response to Metro's call for city submissions for expansion proposals, the City of Sherwood has proposed bringing Sherwood West urban reserves, a 1291 acre parcel which cuts directly through Chicken Creek and its surrounding riparian areas, into the existing UGB to support the development of new homes and jobs. For the following reasons, Tualatin Riverkeepers opposes the City of Sherwood's proposal to bring Sherwood West into the UGB and urges Metro to reject the cities' proposal.

Argument

1. **Metro did not meaningfully consider alternatives areas for the proposed UGB expansion that would better meet the need to amend the existing UGB as required by Metro Code's Title 14.**

    A. Metro did not meet the requirements of its own Title 14 Code 3.07.1425 regarding legislative amendments to UGB procedures by failing to evaluate alternative areas that could better meet the need of amending the existing UGB.

To implement Metro-led regional goals and objectives, the Metro Council adopted the Urban Growth Management Functional Plan (hereinafter "the UGMFP").[2] The UGMFP contains 14 titles that provide performance standards and other requirements cities and counties must meet. Title 14 ("Urban Growth Boundary") addresses urbanization and calls for a clear transition from rural to urban development, including maps depicting the UGB as well as urban and rural reserves. Following a periodic analysis of the capacity of the current UGB, the Council shall make legislative amendments if it determines there is a need to add land to the UGB.[3] Legislative amendments to the UGB must meet several criteria, including an analysis of alternative areas designated as urban reserves, and a determination of which areas best meet the needs of the project.[4] In evaluating which areas best meet the need to amend the existing UGB, the following factors are considered:

1. Efficient accommodation of identified land needs;
2. Orderly and economic provision of public facilities and services
3. Comparative environmental, energy, economic and social consequences; and

[2] Metro Code 3.07.010 Purpose.
[3] Title 14 Metro Code 3.07.1420 Legislative Amendment to UGB Procedures.
[4] Title 14 Metro Code 3.07.1425(c) Legislative Amendment to the UGB: Criteria.

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4. *Compatibility of propose urban uses with nearby agricultural and forest activities occurring on land outside UGB designated for agriculture or forestry pursuant to a statewide planning goal*
5. Equitable and efficient distribution of housing and employment opportunities throughout the region;
6. Contribution to the purposes of centers and Corridors;
7. *Protection of farmland that is most important for the continuation of commercial agriculture in the region;*
8. *Avoidance of conflict with regionally significant fish and wildlife habitat; and*
9. Clear transition between urban and rural lands, using natural and built features to mark the transition (emphasis added).[5]

While the Sherwood West Concept Plan provides land use alternatives for how to best meet proposed housing needs within Sherwood West,[6] no alternative urban reserve areas were considered by the City of Sherwood nor Metro. There are several other areas of land designated as urban reserves that Metro should have been analyzed to meet the requirements of Metro Code 3.07.1425(c) (see Figure 1 below).

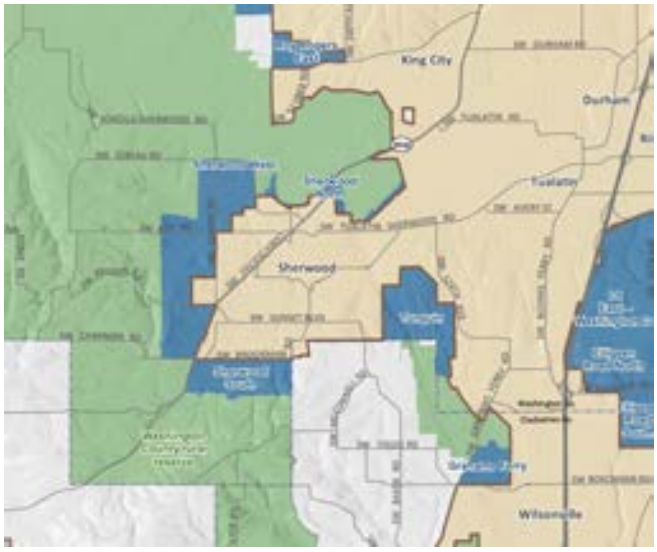

FIGURE 1: Metro Regional Urban Reserves Map

[5] Title 14 Metro Code 3.07.1425(c) Legislative Amendment to the UGB: Criteria.
[6] City of Sherwood, *Sherwood West Urban Growth Boundary Expansion Proposal 2024*, 31–9 (hereinafter "Sherwood West Concept Plan").

These areas include Sherwood South and Tonquin, which may better meet the needs criteria, but no evaluation of this area was conducted for this UGB expansion proposal. While a determination that Sherwood South and Tonkin better meet the needs for a UGB expansion is not required, Metro was still obliged to consider these alternative areas and failed to do so. Before approving bringing in Sherwood West to the existing UGB, Metro should meaningfully evaluate other available urban reserves to determine which area best meets the needs criteria.

B. Viable land exists within the current UGB that meets the housing and job needs of the proposed expansion.

Regardless of Metro's failure to consider alternative areas for UGB expansion, viable land exists within the current UGB to support the growth needs in the region, and thus expanding the UGB would be superfluous. While the City of Sherwood claims that UGB expansion is needed to support the development of housing and jobs for the next 20 years, a recent vacant lands capacity analysis suggests otherwise. In September 2024, West of Sherwood Farm Alliance conducted a capacity analysis of vacant land in the Sherwood Planning Area, which comprises the land inside of Sherwood's city limits, along with Brookman Addition area and Tonquin Employment area that had been previously added to the UGB.[7] The analysis compares Sherwood West with Sherwood Planning Area's vacant lands for meeting the needs of housing and job growth development. According to the analysis, the Sherwood West proposal would result in a 41% expansion of the city's land area, support 3,117 to 5,582 new expensive low-density homes and apartments and 4,524 new jobs, and lead to a $58-$70 million funding shortfall for infrastructure. Alternatively, the vacant lands within the Sherwood Planning Area could support 4,572 new homes that more closely fit housing needs of the area, 5,526 new jobs, and $58-$70 million taxpayer and ratepayer savings saved on unneeded infrastructure.[8] Additionally, the Sherwood Planning Area vacant lands conserves rather than develops precious farmland, forests, streams, and wildlife. Accordingly, there is viable land within the existing UGB to support long-term growth for employment and housing in the region, and therefore no need for a legislative amendment to bring in land to the current UGB.

[7] West of Sherwood Farm Alliance, *Sherwood Vacant Lands Capacity Analysis*, September 2024.
[8] *Id*.

2. The Metro Council's approval of the proposed UGB expansion goes against its own policies outlined in Metro Code Titles 3 and 13 that aim to protect streams and riparian areas as well as control water quality areas.

Along with Title 14 of Metro's UGMFP, Title 3 ("Water Quality and Flood Management") and Title 13 ("Nature In Neighborhoods") are impliedly at issue. Title 3's stated purpose is to protect the beneficial water uses and functions of resources within the Water Quality and Flood Management Areas.[9] Further, Title 13's stated purposes are: (1) to conserve, protect, and restore a continuous ecologically viable streamside corridor system [...] in a manner integrated with upland wildlife habitat and with the surrounding urban landscape; and (2) to control and prevent water pollution [...] and to maintain and improve water quality throughout the region.[10]

As addressed in the Sherwood West Concept Plan, there are substantial natural resources within Sherwood West that are regulated under Title 3 and Title 13. First, there is a defined 100-year floodplain for a portion of Chicken Creek within Sherwood West.[11] Additionally, there are 31 acres of wetlands within Sherwood West, mapped by the National Wetland and Metro's inventories.[12] These wetlands are most prominently found along the riparian corridor of Chicken Creek and the headwaters of Goose Creek, and additional wetland areas are expected to exist within the project area.[13] Further, Metro Title 13 Habitats are present and depicted in Figure 2 below; the Sherwood West Concept Plan states that the mapping of Title 13 habitat areas will be further refined and protections established once Sherwood West is brought into the UGB. However, in order to adequately evaluate the area as best meeting the need of a UGB amendment, under the criteria outlined in Title 14 above, the Title 13 habitat areas should be properly outlined prior to bringing the land into the UGB.

[9] Metro Code Title 3: Water Quality And Flood Management, 3.07.1310 Intent.
[10] Metro Code Title 13: Nature In Neighborhoods, 3.07.1310 Intent.
[11] Sherwood West Concept Plan at 26.
[12] *Id*.
[13] *Id*.

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FIGURE 2: Sherwood West Concept Plan: Natural Resources Existing Condition

Bringing in Sherwood West to the existing UGB goes against Metro's own policies that establish baseline requirements to protect, conserve, and restore Washington County's riparian corridors and wildlife habitat resources, as outlined above in Title 13. Sherwood West contains substantial areas designated as habitat conservation areas, which includes rivers, streams, wetlands, and adjacent resource areas. Metro should consider alternative routes for supporting the region's growth that do not result in irreparable damage to these important, Metro designated habitat areas.

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3. **The proposed UGB expansion will counter decades of federal and local restoration efforts to realign Chicken Creek to its historic and natural course.**

As mentioned above, Sherwood West contains Metro designated riparian and upland habitat areas. Not only is TRK concerned with how this proposal will significantly impair efforts to protect and conserve the riparian corridors and wildlife habitat resources within the project area, but also on how development of Sherwood West will negatively impact the Tualatin River. The proposed UGB expansion cuts through a significant portion of Chicken Creek and its surrounding riparian and upland habitat areas. Chicken Creek borders the west and north portions of the city of Sherwood and flows through agricultural lands before emptying into the Tualatin River.[14] Beyond Sherwood, Chicken Creek meanders for two and a half miles through the Tualatin River National Wildlife Refuge, which contains wetlands that provide sanctuary for migrating birds on the Pacific Flyway.

In the early 20th century, Chicken Creek's natural course was rerouted to accommodate local agriculture, resulting in erosion issues resulting from streamlining the creek into linear channels.[15] Starting in 1996, Friends of the Tualatin River National Wildlife Refuge, with help from the U.S. Fish and Wildlife Service and Clean Water Services, has led efforts to restore Chicken Creek to its historic path and regenerate its stream, wetland, and floodplain functions.[16] Realignment efforts improved resting and rearing habitat development for a variety of fish, and slower flows have improved water quality by keeping more sediment out of the Creek as well as the Tualatin River.[17] Bringing Sherwood West into the UGB will impact the restoration efforts by threatening the flow of Chicken Creek through the Tualatin River National Wildlife Refuge and, ultimately, into the Tualatin River. Further, impacts from development would contribute to erosion and water quality issues in the riparian areas both within Sherwood West and downstream, and disrupt important wildlife corridors

[14] Tree for All, *Chicken Creek*, https://www.jointreeforall.org/chicken-creek (last visited Nov. 6, 2024).
[15] *Id*.
[16] Clean Water Services, *Chicken Creek Historic Channel Restoration and Enhancement*, https://www.biohabitats.com/wp-content/uploads/ChickenCreekChannelRestoration18506.pdf.
[17] U.S. Fish & Wildlife, *Chicken Creek Restoration at Tualatin River National Wildlife Refuge*, https://www.ourreliablewater.org/wordpress/wp-content/uploads/2019/08/ChickenCreekFactSheet.pdf.

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Conclusion

For the aforementioned reasons, TRK urges the Metro Council to reject the City of Sherwood's proposal for bringing 1291 acres of urban reserves into the existing UGB. Thank you for your time and consideration. Please do not hesitate to contact us if you have any questions regarding these comments.

Sincerely,

Eve Goldman (she/her)
Staff Attorney
Tualatin Riverkeepers
eve@tualatinriverkeepers.org