

CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

FINAL REPORT *VOLUME 2 OF 3*

JUNE 2012



ACKNOWLEDGEMENTS

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Portland, Oregon, June 2012.

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

STAKEHOLDER INTERVIEW REPORT

APPENDIX 2A





(a) City of Tigard Memorandum

To: Project Team

From: Judith Gray, Sean Farrelly, Marissa Daniels & Tim Lehrbach

Re: Stakeholder Interview Report

Date: March 2, 2011

Between November 2010 and February 2011, City of Tigard planners interviewed more than 45 local stakeholders as part of the High Capacity Transit (HCT) Land Use Plan. The stakeholder interviews were conducted for multiple purposes. First, planners wanted to hear from a broad cross section of the community about their ideas, concerns, and priorities related to transit and planning for the community. Second, the interviews identified the most effective and convenient ways to maintain engagement with stakeholders. Finally, many stakeholders offered suggestions about additional citizens or community organizations that might want to be engaged.

Stakeholders were selected to represent a broad cross section of the community. They include elected and appointed officials, citizens and neighborhood volunteers, employers and business owners, developers and representatives from institutions. Members of and service providers to environmental justice populations were included in the stakeholder list. Some citizen stakeholders also serve leadership roles in community associations, though it should be noted that the opinions they expressed in the interviews are considered their own and do not necessarily represent their organizations. The stakeholders included in the interviews are listed in Appendix A.

The interview questions are reproduced below in Exhibit 1. A summary of the themes which were heard in the interviews follows.

1. Describe a place you like and what you like about that place.
2. Describe a place you think needs improvement and describe how it might be improved.
3. Describe your vision of a vibrant neighborhood.
4. Describe the changes you would like to see for your community.
5. What role do you see public transit playing in the future of Tigard. Describe any positive and negative aspects.
6. Which of the following goals are important to you?
 - Create Vibrant Communities
 - Reduce the negative impacts of traffic congestion on the community
 - Promote affordable transportation to areas where housing and transportation costs are high.
 - Support placemaking and efficient urban form
 - Reduce travel times
 - Provide alternatives to driving an automobile.
 - Improve air quality/reduce greenhouse gases.
 - Accommodate growth away from established residential neighborhoods
7. Are you, your organization, or your organization's membership interested in participating in future planning activities or events?
8. What is the best way for the City to communicate with you or your organization's membership about the project? (Open houses, farmer's market, bus surveys, web, factsheets, etc.)

Exhibit 1. Stakeholder Interview Questions

Places people like

Stakeholders identified a wide range of places they like throughout the region and beyond. Downtown Lake Oswego was frequently mentioned, as were several Portland neighborhoods. Not all places were of urban character; open spaces and natural areas were identified, including resort settings as well as more natural areas. Stakeholders also valued open spaces located within urban areas. In two cases—the mentions of Portland's Pearl District and Downtown—stakeholders noted that they are desirable places but are not, perhaps, appropriate models to the character of Tigard. Some of the places that were mentioned include:

- Downtowns: Lake Oswego, Portland, Tigard, Vancouver, WA
- Established neighborhoods: First Addition (Lake Oswego); Hawthorne, Hillsdale, Ladd's Addition, Laurelhurst, Multnomah Village, Northwest District (Portland); Summerfield (Tigard)
- Transit-oriented and other planned developments: Bridgeport Village (Tualatin), Orenco Station (Hillsboro), Pearl District (Portland), NewPort Village (Port Moody, B.C.)
- Parks and open spaces: Cook Park, Pioneer Courthouse Square, Oregon Coast, Black Butte, Tualatin River Wildlife Refuge

Characteristics of places people like

The most common theme that cut across the spectrum of responses was the desire for comfortable, easy walking conditions. This was the case whether people were talking about urban or natural areas. Most responses about vibrant neighborhoods in particular made reference to activity of and interaction between people at street level. Availability of good restaurants was mentioned often as a trait of a good neighborhood. Access to natural areas and open spaces was also a common theme. The majority of stakeholders expressed desires to know their neighbors, share a sense of community, and work, shop, and recreate together. Some specific desired characteristics include:

- Walkable; continuous and well-maintained sidewalks, bike paths, and streets
- Active and safe streets
- Neighborhood village scale and feel: compact form, single-family homes well-connected to small business and retail
- Variety of businesses for shopping, eating and drinking, entertainment
- Access to open spaces—parks, dog parks, trails, etc.—on foot and by bike or transit
- Flexible public spaces for community gathering and events
- Activity and diversity of people
- Equity and economic diversity, especially in housing
- High quality architecture that promotes community and fits in with existing buildings
- Strong feeling of community identity
- Close proximity to work, schools, churches, parks
- Well-connected to transportation of all modes

Community Improvements

When asked to describe areas in need of improvement, most stakeholders focused on issues within Tigard. Answers reflected a deficiency in well-defined, walkable areas (particularly active commercial zones) and a lack of community identity. An underdeveloped downtown core and strip mall development along Pacific Highway were often cited as limitations. Another central concern was getting around: too few places to walk, too much traffic congestion (especially in the Pacific Highway corridor), and too many transfers for transit service that also takes too much time. Additionally, some areas outside of Tigard (Fairview Village, Quatama Station) were noted as examples of planned communities that did not fully succeed in achieving the intended qualities of urban and/or transit-oriented development.

Solutions sought by stakeholders focused on concentrating development Downtown, creating destinations for community and shopping, and redeveloping outdated or underutilized properties and areas, including the Washington Square Regional Center. Stakeholders especially want to see Downtown become a vibrant center for Tigard. A large number of comments pointed to a need for more community amenities—parks, events,

multiuse and recreation facilities. Aesthetics in new and existing development were given consideration.

Better access to reliable transit service was another high priority, especially improving connections to underserved areas. Several stakeholders, who identified traffic congestion on Pacific Highway, Highway 217, and I-5 as a major problem in Tigard, targeted infrastructure improvements in these corridors. Complete streets to accommodate bikes and pedestrians were desired.

Some essential themes that emerged for improving Tigard are summarized below.

Create community destinations

- Well-defined, active commercial and retail zones Downtown and around Washington Square with residential in between
- Neighborhood retail featuring restaurants, coffee shops, pubs—focus on storefronts
- Continuity in development aesthetics, but don't want everything to look the same
- Mix of housing types; ensure quality, affordability
- More community events and planned activities
- More parks, multiuse facility, plaza, amphitheater, community center, sports complex, ball fields, places and programs for everyone to recreate—connected to multimodal transportation

Upgrade infrastructure

- Enhance walkability with sidewalks, paths, trails, parks
- Improve connections between places for all transportation modes
- Increase business visibility by calming traffic, reducing visual clutter (signs)
- Maintain automobile infrastructure and expand where needed to relieve traffic congestion
- Provide parking (for businesses and transit riders): structured or tuck under, no “seas of asphalt”

Enhance transit access and efficiency

- Reduce distances between and remove pedestrian barriers to transit stops
- Faster, more reliable transit with fewer transfers
- Better bus connections to underserved areas, especially to Durham Road and Bull Mountain
- Improve access to transit for seniors, low income populations, and people with disabilities

Role of Public Transit in Tigard

Stakeholders reported anticipating a wide range of benefits from high capacity transit to Tigard, the variety of which reflects different perspectives on its purpose. Many stakeholders said high capacity transit is a necessary response to inevitable growth in population, traffic, and transportation costs. Stakeholders varied on how they prioritize the potential benefits of high capacity transit. A large number sees its role primarily consisting in containing traffic congestion, while many others view it as a special opportunity for expanding living options and transforming development patterns. Some specific benefits of high capacity transit mentioned in the interviews included:

- Reduce congestion throughout Tigard and King City, especially on Pacific Highway, and to the greater metro area
- Make it easier for customers to reach businesses in Tigard
- Provides an alternative to driving, making transportation more convenient, efficient, and cost-effective for all users
- Contains sprawl, allows the region to grow without corresponding automobile traffic growth
- HCT offers high quality transit user experience
- More choices, more lifestyle options
- Huge role in branding Tigard and spurring new development, especially at station sites
- Gives people a reason to stop and stay in Tigard instead of just passing through
- Rejuvenate and best utilize Pacific Highway, Downtown, Tigard Triangle.

Stakeholders were also asked to share their concerns about the potential for adverse impacts of high capacity transit. Most stakeholders do believe that high capacity transit will ease traffic congestion or act as a catalyst for desirable development, or do both. At the same time, stakeholders stated frequently that achieving any benefits depends on doing high capacity transit right and that planning or design failures could undermine its benefits. Some stakeholders worry that high capacity transit could fail to address—and may even contribute to—traffic congestion. Others pointed to existing high capacity transit corridors, especially in east Multnomah County, as evidence that it may not achieve the development benefits expected of it. In addition, many stakeholders raised public safety concerns. Another major concern is the high cost of building high capacity transit. Specific concerns about high capacity transit mentioned in the interviews included:

- Corridor may not match commuting patterns—many in Tigard do not work in Portland, and corridor misses Washington Square
- More activity in the corridor may increase congestion
- Infrastructure could be ugly and create more barriers to moving around Tigard (and further divide Tigard at Pacific Highway)
- Reduces, eliminates, or duplicates other transit service on which people rely

- HCT is for through traffic, not local; cut-through traffic will increase (especially off Bull Mountain)
- Transit carries unfamiliar/undesirable people who make other users or potential users and residents uncomfortable
- Could bring personal and property crime to transit and station areas
- Creates dangers for pedestrians and bicyclists
- Capital cost up front is expensive, especially after Milwaukie LRT, CRC, Lake Oswego streetcar; will it be worth it when WES was not?
- Light rail would consume residential land, open spaces, and existing homes and businesses
- Transit-oriented development creates “seas of apartments” with MAX access, but people still have to drive to most services
- Don’t devastate local business traffic—LRT on Interstate hurt businesses in between station nodes

Survey of goals

Stakeholders were presented a list of eight Goal Statements and asked to identify which are important to them. They could choose none, some, or all of the statements. The responses are summarized below.

Goal Statement	Number of Responses
A. Create vibrant communities	22
B. Reduce the negative impacts of traffic congestion on the community	27
C. Promote affordable transportation to areas where housing and transportation costs are high	13
D. Support placemaking and efficient urban form	17
E. Reduce travel times	20
F. Provide alternatives to driving an automobile	21
G. Improve air quality/reduce greenhouse gases	15
H. Accommodate growth away from established residential neighborhoods	10

Exhibit 2. Goal Statements

Responses reveal the prominent place of traffic concerns in the minds of stakeholders. Among the eight statements provided “Reduce the negative impacts of traffic congestion on the community” was selected most frequently, by more than half of the stakeholders, and reducing travel times and providing alternatives to driving also ranked high. At the same time, a few stakeholders expressed reservations about combatting congestion to such extent that it might hurt corridor businesses, and a few others said that having reliable transit is more important than achieving reduced travel times. The other Goal Statement selected most often was “Create vibrant communities,” and several stakeholders suggested that all of the other goals are functions of a vibrant community.

Accommodating growth away from established neighborhoods was chosen least often, by less than one quarter of the stakeholders. It was suggested by some that this goal does not apply to all neighborhoods, or that it might only be considered a goal to the residents of established neighborhoods. While stakeholders frequently selected statements A and D, it was pointed out multiple times that the language is not commonly used among non-planners.

Stakeholders were also invited to share additional goals that were not represented in the list provided. A few suggested other goals, including ensuring Tigard's business and residential communities complement and benefit each other, emphasizing a high quality transit experience (and so mitigating the importance of Goal Statement E), taking care of roads and highways (in support of the other Goal Statements), and fostering pride in the Tigard community.

Community involvement

Finally, stakeholders were asked for their preferred method of contact for updates about high capacity transit, as well as for their ideas on the best ways to reach the community. E-mail updates were preferred by many stakeholders for their ease of circulation and suitability for frequent updates. The Cityscape newsletter, direct mailings, and press releases in area newspapers were considered important print tools for wide dissemination of timely information. The City of Tigard website should be utilized for project updates, conducting surveys, and receiving online comments. People also suggested town hall or brownbag meetings and presentations to local boards and committees for greater interaction with the public.

A number of stakeholders emphasized the need for personal interaction between the project agencies and residents and business owners in Tigard. The project needs to be informed by a nuanced understanding of the places and people it will reach. The public needs to be provided information and given a visual sense of the final products.

Appendix A. High Capacity Transit Land Use Plan Stakeholders Interviewed

Stakeholder	Affiliation/Perspective
Jonae Armstrong	Senior Property Manager, Macerich/Washington Square Mall
Roger Averbeck	SW Portland Resident; Board Member, Willamette Pedestrian Coalition
Pam Brown	Vice President/Branch Manager, West Coast Bank
Gretchen Buehner	Tigard City Council, Council President
Vince Chiotti	Oregon Housing and Community, Metro Region Advisor
Amber Crudelle	Tigard Resident; Property Manager, Arbor Heights Apartments
Craig Dirksen	Tigard Mayor
Margaret Doherty	Tigard Planning Commission
Marianne Fitzgerald	Portland Resident; Transportation Chair, Southwest Neighborhoods, Inc.
Jay Gilbertson	Director, Tigard Senior Center
Chris Girard	CEO, Plaid Pantry
Sheila Greenlaw-Fink	Exec. Director, Community Partners for Affordable Housing
Stuart Hasman	Tigard Planning Commission
Marland Henderson	Tigard City Council
George Hetu	Store Manager, Tigard Fred Meyer
Stefan Lidington	Tigard Resident; Neighborhood Network Area 6
Jim Long	Tigard Resident; CPO4M Chair
Debi Mollahan	Exec. Director, Tigard Area Chamber of Commerce
Matthew Muldoon	Tigard Planning Commission
Tom Murphy	Tigard Resident; Vice Chair, City Center Advisory Commission
Susan Peithman	Bicycle Transportation Alliance
Steph Routh	Executive Director, Willamette Pedestrian Coalition
Karen Ryan	Tigard Planning Commission
Rob Saxton	Superintendent, Tigard Tualatin School District; Employer
Buster Scholibo	Owner, Buster's Barbeque
Don Schmidt	Tigard Planning Commission; Tigard Transportation Advisory Committee
Richard Shavey	Tigard Planning Commission
Elise Shearer	Tigard City Center Advisory Committee
Father Leslie Sieg	Pastor, St. Anthony Parish and School
Eric Sporre	Vice President, PacTrust
Dave Walsh	Tigard Planning Commission
Sydney Webb	Tigard City Council (2002-2010); Director, Good Neighbor Center
Brian Wegener	Watershed Watch Coordinator, Tualatin Riverkeepers
Greg & Maureen White	Owner, Davidsons Restaurant
Nick Wilson	Tigard City Council
Marc Woodard	Tigard City Council
Dar Young	Tigard Resident; Summerfield Civic Association Board Liaison
Margaret Barnes	City of Tigard Library Director
Mike Bell	City of Tigard Assistant Chief of Police
Dennis Koellermeier	City of Tigard Public Works Director
Toby LaFrance	City of Tigard Finance and Information Services Director
Loreen Mills	City of Tigard Assistant to the City Manager, Risk Management
Liz Newton	City of Tigard Assistant City Manager
Alan Orr	City of Tigard Chief of Police
Craig Prosser	City of Tigard City Manager; Employer
Sandy Zodrow	City of Tigard, Human Resources Director; Employer

CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

EXISTING CONDITIONS SUMMARY REPORT

APPENDIX 2B





Tigard HCT Land Use Plan

**Existing Conditions
Summary Report**



City of Tigard | A Place to Call Home



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- I. Evaluation Objectives & Criteria
- II. Policy
- III. Land Use and Buildable Lands Analysis
- IV. Market Assessment Report
- V. Natural Resource Inventory
- VI. Infrastructure: Parks, Water and Sanitary Sewer, and Stormwater Infrastructure Needs
- VII. Existing Condition and Future No-build Transportation Analysis



INTRODUCTION

In 2010, the region designated the Southwest Corridor from Portland to Sherwood as the next priority for the development of high capacity transit (HCT). In order to guide planning for high capacity transit the City of Tigard will determine future land use, HCT and other transportation mode relationships to promote development of high amenity and prosperous urban neighborhoods and job centers.

The Tigard HCT Corridor Land Use Plan will recommend 1) Locations and types of station area communities; and 2) Updates to Community Development Code regulations and standards needed to guide future transit supportive land uses and other transportation modes. Zoning map changes and the implementation of new Community Development Code regulations at those locations would occur at a later date, after the type of HCT and its alignment are decided. This project will set the stage for Tigard to support development of Transit supportive land uses and other public infrastructure. Later studies will determine the type of HCT and its alignment, but this planning effort will inform these processes.

Funding for this project comes from an Oregon Department of Transportation (ODOT) and Department of Land Conservation and Development Transportation Growth Management (TGM) Grant. This project is a partnership of the City of Tigard, Metro, and ODOT.

The following is a synopsis of existing conditions and plan opportunities in the Tigard HCT Corridor Land Use Plan area. The intent of this document is to provide a picture of the existing built environment and circumstances. The transition to the envisioned HCT supportive station communities will build upon the existing state of these areas. Six subject areas are summarized by the overarching themes: fiscal stewardship & policy coordination and implementation; community (land use); economic (market assessment); environment (parks and open space; natural resources); public facilities (water and sanitary sewer; storm water and water quality); and transportation. Complete reports for each of these subject matters are contained in the appendices of this document.

FISCAL STEWARDSHIP & POLICY COORDINATION

The Tigard HCT Land Use Plan Objective states the intent to: Leverage the policies and investments of Southwest Corridor Plan and other applicable studies or grant opportunities.

Policy

Metro documented the policy analysis for the Tigard HCT Corridor Land Use Plan area. This plan is governed by the framework of overarching state, regional, and local policies.

State regulations guide the overall land use and transportation systems in the region and in the City of Tigard. These policies include:

- Oregon Statewide Planning Program (OAR 660-015-0000)
- Oregon Statewide Planning Goal 12 (Transportation) and the Transportation Planning Rule (Oregon Administrative Rule Section 660-015-0000 (12) and OAR 660-012)
- Oregon Transportation Plan (ODOT, 2006)
- Oregon Public Transportation Plan (ODOT, 1997)
- Oregon Highway Plan (ODOT, 1999)
- Oregon Bicycle and Pedestrian Plan (ODOT, June 1995)

Regional polices set the vision and direction for the region, including the City of Tigard. They include: Metro Urban Growth Management Functional Plan (Section 3.07 of the Metro Code)

- The Regional Transportation Functional Plan (Section 3.08 of the Metro Code)
- 2035 Regional Transportation Plan (Metro, 2010)
- 2035 Regional Transportation Plan: High Capacity Transit (HCT) System Plan (Metro, 2009)

Local policies outline the growth patterns and associate improvements for the community, and include:

- Comprehensive Plan (City of Tigard, 2007)
- 2035 Transportation System Plan (City of Tigard, 2010)

Additional relevant City of Tigard planning documents indicate the City of Tigard's vision for its several important areas. These communities will likely include potential station communities and so these plans will form the foundation for future planning efforts there. They include:

- Tigard 99W Corridor Urban Design Vision
- Tigard Downtown Improvement Plan (City of Tigard, 2005)
- Washington Square Regional Center Plan (City of Tigard, 1999)
- Tigard Triangle Specific Area Plan (City of Tigard, 1994)
- City Center Urban Renewal Plan (City of Tigard, 2005)
- Tigard Downtown Circulation Plan (City of Tigard, 2011)

Please see the Appendix for additional detail.

TRANSPORTATION

The *Tigard HCT Land Use Plan Objective states the intent to:* Provide safe, efficient, and affordable transportation options for accessing housing, jobs, services, shopping, educational, cultural and recreational opportunities, and facilitate competitive choices for goods movement.

Transportation System

Parametrix reviewed and summarized transportation system analysis from the Tigard 2035 TSP and other recent transportation studies. The transportation system is of particular importance in identifying and conceptualizing potential future HCT station communities in the City of Tigard.

Connectivity and Local Mobility

Connectivity in the City of Tigard is constrained by both human made and natural barriers including: Highway 217, I-5 and the WES commuter/freight rail line, as well as Fanno Creek, steep topography, and other natural features. These challenges are exacerbated by a built environment that present connectivity challenges because of existing cul-de-sacs and other dead end streets. Opportunities for enhancing local connectivity of all travel modes should be fully considered in both locating and developing potential future HCT station communities.

Land Use Patterns and the Development of Efficient Transportation

The types, intensities, and locations of different land uses are closely correlated with travel demand and mode choice. Land use patterns in the City of Tigard and surrounding areas are suburban in character, with residential areas separated from commercial areas and a relatively low density of overall development. The majority of land in Tigard is zoned for residential uses, with commercial zoning primarily along Pacific Highway, Washington Square, Downtown, and in the Tigard Triangle, and industrial primarily along the WES commuter rail track south of Pacific Highway. This development pattern results in travel demand that is highly directional according to typical weekday peak periods. Land use strategies could be implemented to mitigate the strain on the roadways by shortening home-to-work trips, supporting transit service, and making walk/bike trips more viable for work, shopping, and other activities.

Major Roadways – I-5, Highway 217, and Pacific Highway (99W)

Tigard is at the juncture of three major state highways: Pacific Highway (99W), Highway 217, and I-5. While they serve as important access routes to and from Tigard, they also pose significant barriers and constraints. Highway 217 and I-5 are both limited access freeways under ODOT jurisdiction, and the City has no direct operational authority over them. Congestion on these facilities results in regional traffic cutting through Tigard as a detour route.

Pacific Highway is a statewide highway and freight route carrying more than 50,000 vehicles per day on some sections through Tigard. Given these designations, the highway plays a critical role in regional and statewide mobility. Traffic on the segment within Tigard is divided nearly evenly between local trips and through traffic. Heavy traffic results in traffic congestion that compromises the pedestrian and bicycle environment, creates challenges for transit service, and threatens to limit development opportunities in

Tigard. Strategies include direct improvements to the highway to improve traffic operations, connectivity improvements within Tigard to reduce reliance on the highway for local travel, and improvements to transit, bicycle and pedestrian travel options.

Continuous east/west travel on Tigard streets is primarily served by Durham Road and Bonita/McDonald/Gaarde, which are frequently constrained during weekday peak periods.

Multi-Modal Connections

In order to meet the future travel needs of the community, increased travel by transit, walking, and biking is essential to the future transportation system in Tigard, as much as adding roadway capacity for increased demand. Several streets (Pacific Highway/99W, Gaarde, McDonald, Bull Mountain, Bonita, sections of Hall) were identified as locations with challenging roadway crossing conditions for pedestrians and bicyclists, due to a combination of high traffic volumes and long distances between crossing facilities. Many roads do not have continuous sidewalks and the quality of the sidewalk facilities vary greatly depending on the roadway. In addition, about the City of Tigard does not currently have a record of existing and planned curb ramps and pedestrian crossing facilities. Similarly, there are gaps in the bicycle lane system on arterials and collectors, or where bike lanes exist conditions are sometimes undesirable due to frequent vehicle conflicts at driveways or other intersections. Transit connections exist at the WES stations, downtown Tigard transit center, Washington Square, and at any intersections of bus lines, bicycle and pedestrian facilities. There were approximately 12,650 daily transit riders in Tigard in 2008.

Special Areas

Three areas within Tigard – Tigard Triangle, Washington Square Regional Center (WSRC), and Downtown – represent considerable community growth opportunities, but also provide significant transportation challenges. For this reason, an emphasis on mixed-use development that supports transit, walking, and biking trips is a critical focus of transportation planning for these areas.

Within additional areas of Tigard, some potential land use planning and development strategies could help relieve congestion. These include supporting the development of commercial nodes in residential areas, and support non-auto dependent development. These neighborhood commercial (NC) nodes could include small restaurants, coffee shops, or neighborhood retail. Mixed-use developments combine housing, retail, employment, and other land uses together in a single development project and have been found to reduce automobile trips by supporting higher frequency transit service and promoting pedestrian and bicycle travel. Mixed-use development can be either horizontal or vertical in nature.

Plan Amendments and Mobility Standards

Amending Tigard's existing zoning to allow higher density developments has presented challenges with respect to meeting ODOT performance standards for adjacent state highways. The Transportation Planning Rule (OAR 660-12-0600) requires that amendments to adopted plans must not cause an affected roadway to fail to meet performance standards, or if the forecasted roadway operations are already failing to meet performance standards, the plan amendment must not further degrade performance.

This is a known issue in downtown, Washington Square Regional Center, along Pacific Highway, and in the Tigard Triangle, and may also arise in other areas near state highways or freeway interchanges.

Common effective strategies to reduce trip generation from increased development include:

- Reduced parking requirements or parking maximums for new development;
- Improved facilities for pedestrian and bicycle access and circulation;
- Complementary mix of land uses to reduce trip length and promote walking and biking trips;
- Improved connectivity for motor vehicles as well as for bicycles and pedestrians; and,
- Transportation system management (TSM) measures to improve traffic operations without significant roadway expansions.
- Access management to improve general traffic operations on arterials and collectors; and,
- Mitigation of known safety and access deficiencies for motor vehicles, transit, pedestrians, and/or bicyclists.
- The use of local street for local trips; and intersection improvements.
- Improved transit service

Please see the Appendix for additional detail.

COMMUNITY

The Tigard HCT Land Use Plan Objective states the intent to: Link land use and transportation solutions to promote an efficient and compact urban form that fosters vibrant, healthy communities; optimizes public investments; serves as a catalyst for private investment; preserves and protects existing stable neighborhoods; and supports active transportation options, jobs, schools, shopping, services, recreational opportunities and housing proximity.

LAND USE

The City of Tigard prepared the buildable land analysis and Parametrix provided the analysis of existing and planned land uses.

The city has grown from a population of 6,499 (1970) to 47,460 (2009) residents, with a citywide population density of 3,795 persons per square mile. The city was incorporated in 1961 and has undergone several annexations since that time, and now has a total land area of 10.9 square miles.

Land Uses and Zoning

Tigard's predominant form of land use within city limits is residential, particularly single-family detached housing, accounting for over half (50.5 percent) of the city's total land area. Commercial development constitutes 17 percent of the total area; these uses are most prevalent along Pacific Highway-OR 99W, in the vicinity of Washington Square, Downtown, and within the Tigard Triangle. Industrial land use designations make up almost 5 percent of Tigard's total land use. A significant amount of area is made up of public and institutional and open space (13.2%), especially adjacent to Tualatin River and Fanno Creek.

Similar to the breakdown of existing land use types, the city is zoned primarily for residential, encompassing 69 percent of total area. Several mixed-use districts constitute 12 percent. Commercial zones make up 8 percent, while industrial zones occupy 11 percent.

In the comprehensive plan, mixed-use development areas include Downtown Tigard, Washington Square and much of Tigard Triangle. Much of the land directly adjacent to Pacific Highway-OR 99W is zoned for low-density commercial in the comprehensive plan, which are relatively prohibitive in terms of allowing other uses. These commercial zones are surrounded by low-density residential, especially south of downtown.

Buildable Land Inventory

The Tigard HCT Land Use Plan expanded on the *Tigard Economic Opportunities Analysis* Goal 9 evaluation of potential buildable lands and redevelopable lands. The Tigard HCT Land Use Plan included in its analysis multi-family residential zoned tax lots (R-25 and R-40) as well as existing apartment and condominium parcels. According to that revised analysis, Tigard has a total of 173.9 acres of buildable land that can accommodate business activity (existing vacant and partially vacant tax lots excluding single-family residential). The vast majority of land available is of parcels 5 acres or less in size, and over half is currently zoned mixed use.

In the analysis of redevelopment opportunities in Tigard, 165.1 acres were found to have high re-development potential with an Improvement (structure, etc.) to Land Value ratio less than 0.33, of which the majority of lands are located in mixed-use zones with some lands in commercial and industrial only zones.

Foundation of Existing Policies and Plans

Prior initiatives completed by the City such as the *Tigard Downtown Improvement Plan*, *99W Corridor Design Vision*, and *Downtown Future Vision* show that Tigard has serious interest in creating a vibrant downtown and revamping Pacific Highway-OR 99W to better accommodate transit, bicycle and pedestrian facility users. It has been long-standing Metro policy to focus transit investment (and accompanying growth) in 2040 centers, corridors and main streets and preserve existing single family neighborhoods.

System Expansion Policy

As part of Metro's *HCT System Plan*, the System Expansion Policy was established to prioritize corridors for implementation based on a series of performance metrics. Metro is still developing the metrics or targets for each of these policy areas. Following is an analysis of how Tigard meets the System Expansion Policy framework.

- **Density of People:** Higher instances of households and jobs per acre are located along major corridors within Tigard: Pacific Highway-OR 99W and Scholls Ferry Road-OR 210 as well as along SW 72nd Ave in SE Tigard. There is also a concentration of density in Washington Square, Downtown Tigard and portions of the Tigard Triangle.
- **Density of Urban Living Infrastructure (ULI) Businesses:** The ULI businesses considered to be community amenities derive from the study, *An Assessment of the Marginal Impact of Urban Amenities on Residential Pricing* (Johnson-Garder, 2007). The results of the study indicate that the proximate availability of a range of urban amenities have a substantive impact on achievable residential pricing. Successful urban environments represent a marketable amenity, the value of which is reflected in higher effective pricing for residential units. Amenities include specialty grocery stores, theaters, restaurants, cafés, and bookstores among others. Amenities are most common in commercial areas along Pacific Highway- OR 99W as well as in Washington Square. Additional

concentrations can also be found along Scholls Ferry Road-OR 210, Cascade Avenue, and in Bridgeport Village. The majority of Tigard is zoned exclusively for single-family residential use where ULI Business density is consequently low.

- **Transit Oriented Zoning:** The Tigard HCT Land Use planning process will develop transit-oriented zoning.
- **Average Block Size:** With some exceptions, observation of Tigard's suburban-style street grid would suggest that it would not likely meet reasonable standards of block density.
- **Sidewalk Coverage:** The highest density of sidewalks in Tigard is in the vicinity of Downtown as well as in the Summerfield community in South Tigard and in areas of NW Tigard. The majority of the city has moderate concentrations of sidewalk coverage, with the lowest levels observed in industrial areas near Hunziker Road.
- **Bicycle Facility Coverage:** Tigard has a fairly high coverage of bikeways throughout its jurisdiction, but there are underserved areas such as Washington Square, industrial portions of SE Tigard and in SW Tigard adjacent to King City where the density of bikeways is not as high. Major bike routes are confined to Pacific Hwy-OR 99W, Hall Boulevard, Gaarde-McDonald Streets, Durham Road and the Fanno Creek Greenway Trail.
- **Transit Connectivity:** TriMet bus line 12 is a Frequent Service line that travels along Pacific Hwy-OR99W and may be supplanted in part by new HCT. Bus line 56 is a Frequent Service line that travels to Washington Square via Scholls Ferry Road-OR 210. Lines 76 and 78 travel through Tigard TC along Hall Boulevard and Greenburg Road at much lower frequencies (half-hour headways during peak, one-hour otherwise). Bus lines 43, 45, and 62 are additional lower-frequency lines that service Washington Square (Bus line 62 also serves Tigard TC). WES provides morning and afternoon/evening service (5:40 to 9:10 AM and 3:45 to 7:15 PM) to Downtown Tigard Monday through Friday with half-hour headways. WES travels between Beaverton and Wilsonville.
- **Housing & Transportation Affordability:** The Tigard HCT Land Use planning process will consider affordability of housing and transportation as it develops the alternatives for each station community.
- **Parking Requirements:** Currently, Tigard institutes minimum off-street parking standards of at least 1 parking space per residential dwelling unit in all zones. Almost all civic and commercial uses have minimum parking standards based on floor area. Tigard's parking maximum ratios conform to Metro defined maximum ratios.
- **Local Funding Mechanisms:** The Tigard HCT Land Use planning process will consider funding opportunities as it develops the alternatives for each station community.
- **Equity:** The Tigard HCT Land Use planning process will consider this policy as it develops the alternatives for each station community.

Please see the Appendix for additional detail.

ENVIRONMENT & PUBLIC FACILITIES

The Tigard HCT Land Use Plan Objective states the intent to: Create access to natural resources, open spaces, trails and parks; support active living that contributes to human health; minimize impacts to natural systems.

NATURAL RESOURCES

Parametrix prepared the memo on natural resources. Riparian corridors are important in Tigard. In Tigard, 591 acres, or 8% of the City, is designated as open space, primarily adjacent to Fanno Creek, Red Rock Creek, Summer Creek, Ash Creek and Tualatin River as well as Summerfield Golf Course. The riparian corridors of the Tualatin River and Fanno Creek support the majority of 291 acres of wetlands within the City of Tigard. In addition to water quality benefits and aesthetics, preservation of these areas are important because of habitat needs for many species of fish and wildlife, including some that are federally listed as threatened.

The development of transit-supportive land uses, such as higher density residential development, mixed use and new infrastructure has the potential to affect existing natural resources. Wildlife species that occur within the project study area include 20 species of amphibians and reptiles, numerous birds, and some mammals. State-listed sensitive species associated with riparian areas existing in Tigard, include some fish species and others such as the western pond turtle and northern red-legged frog. Winter-run steelhead of the Lower Columbia River Evolutionarily Significant Unit (ESU) are documented in both the Tualatin River and Fanno Creek (Streamnet 2011) and are listed as threatened by the federal Endangered Species Act. Also it is important to consider that urban areas, which are usually characterized by fragmented noncontiguous habitats, generally limit movement of ambulatory wildlife (species that walk or run) to wildlife corridors in riparian corridors and power line corridors.

PARKS AND OPEN SPACE

The City of Tigard compiled the study of the park and open spaces from the Tigard Park System Master Plan Update (2009) and the Greenway Trail System Master Plan (2011). The 2009 Park System Master Plan identifies a total of 462 acres of dedicated parks, open space, and undeveloped parkland. The City of Tigard has many areas with developed multi-use trails, which follow local creeks. Two existing regional trails have segments in Tigard: The Fanno Creek Greenway Trail and the Tualatin River Greenway Trail. In addition to formal, paved or soft-surfaced trails, the City of Tigard has identified informal "neighborhood connectors." These could be added to the trail network through an easement or acquisition of land or be recognized and developed where they already exist on public lands.

Park & Trail Needs

The 2009 Park Master Plan identified a need for 82 additional acres to serve the current population; a total of 245 additional acres will be needed to serve the community in 2028. The master plan also identifies a need for baseball fields, soccer fields, softball fields, and community centers for current population levels.

Planned Parks Expansions

On November 2, 2010, Tigard voters approved a \$17 million parks bond. Most of the bond proceeds will be used to buy park land and open space, including Summer Creek, Sunrise and Potso Dog Park. The City will improve Fanno Creek Trail and might convert the abandoned railroad along Tigard Street to a trail which would connect downtown to Tiedeman Avenue.

Opportunities

The perception of a park, open space, or trail as a special and unique feature builds pride and ownership of its surrounding community. Integrating parks, open spaces and trails with natural systems could

create a more sustainable and supportive community. This could include preserving the tree canopy, green streets or storm water swales, direct links to parks and trails, or connecting habitat areas.

Please see the Appendix for additional detail.

WATER SYSTEM

The City of Tigard compiled information about the water system from the Tigard Water System Master Plan (2010).

The City of Tigard supplies potable water to approximately 57,500 people on the eastern boundary of Washington County, including areas outside of the City boundaries. The City's water infrastructure encompasses approximately 250 miles of pipelines, fourteen reservoirs with a combined capacity of 27.4 million gallons (MG), seven pump stations, and twenty-one Pressure Reducing Valve (PRV) stations. The City of Tigard supplies water and the remainder is supplied by the Tualatin Valley Water District.

Water System Planned Improvements

Currently, the City has water purchasing arrangements with the Cities of Portland and Lake Oswego, and has emergency supplies other agencies and wells for periods of high water demand. By 2016, the City of Tigard will no longer purchase water from Portland and should be able to meet demands under the year 2030 forecast due to the planned Joint Water System (JWS) with the City of Lake Oswego.

Please see the Appendix for additional detail.

SANITARY SEWER

The City of Tigard compiled information about the sanitary sewer from the Sanitary Sewer Master Plan (2010). The City of Tigard provides sanitary sewer service to over 47,000 residents. Wastewater is received, transmitted and treated by Clean Water Services (CWS). The City owns, maintains and operates collection system gravity sewers smaller than 24 inches in diameter. CWS is responsible for capacity improvements including treatment. The Durham Regional Treatment Facility is in Tigard and discharges to the Tualatin River.

Sanitary System Capacity

The system has adequate capacity for the existing population, but will need improvements to handle peak wet weather flow in a few areas. Oregon Water Quality Standards requires that the system be large enough to carry all the peak flow so that no raw sewage is released from the system during severe storm events. Tigard has capacity limitations in nine locations in the system. Tigard has excessive ground and storm water leaking into the sewer system to two large areas of the city and further flow monitoring and study will be needed to find the specific locations of pipe replacement needs.

Sanitary Planned Improvements

The City will be implementing five capacity related project in the next two to three years. CWS has already built one of the projects identified in the plan and is scheduling the other areas for improvement based on available funding and growth patterns. In addition to these capacity related projects, the City has identified some system reliability and preservation projects and will be identifying more projects as the system TV inspections are completed over the next four years.

Please see the Appendix for additional detail.

STORMWATER FACILITIES

The City of Tigard evaluated the existing stormwater system using the last master plan, the Fanno Creek Watershed Management Plan (1997). Clean Water Services and the City of Tigard will examine hydrology, system hydraulics, and water quality in the Fanno Creek Basin Master Plan to be completed in 2013. Clean Water Services is responsible for regional water quality to ensure compliance with the Tualatin River Basin and Oregon DEQ Regulations.

Stormwater Overview

Natural streams and channels provide the major conveyance for stormwater in Tigard. Fanno Creek flows from north to south through the center of the City. Summer Creek, Ash Creek, Red Rock Creek, Hiteon Creek, Derry Dell Creek, Ball Creek and other unnamed tributaries each provide drainage to their respective basins. All creeks eventually flow to the Tualatin River. The bulk of the system serves street curbs that collect water from the street surface and adjoining property and convey it through catch basins and pipes.

Stormwater Capacity/Deficiencies

Erosion and stream bank stability is the most significant issue in Tigard's stormwater system. This results in unstable stream banks throughout the system that could collapse and cause property damage as well as degrade riparian and in-stream habitat. Flooding, aging storm water conveyance systems and undersized culverts and water quality are all a concern.

Development Requirements

Tigard's Community Development Code and CWS Design and Construction Standards place an emphasis on protecting sensitive lands along streams and creeks. In these areas, one of the expected outcomes of the master plan is a requirement for Low Impact Development Approach (LIDA). As to storm water treatments, proprietary systems (i.e., storm water quality vaults) are allowed for commercial and industrial developments but not for residential subdivisions. For those, CWS approves methods such as water quality swales and LIDA. Detention is likewise required unless the development is immediately adjacent to Fanno Creek.

Please see the Appendix for additional detail.

ECONOMY

The Tigard HCT Land Use Plan Objective states the intent to: Support a diverse and growing local economy through the movement of people, goods, and services and access to housing, jobs, services, shopping, educational, cultural and recreational opportunities.

MARKET ASSESSMENT

Johnson-Reid wrote the Market Assessment Report detailing market factors; estimated amounts of residential, commercial and civic uses; and developed strategy considerations for the City of Tigard.

Demographics

The Primary Market Area had an estimated population of 47,595 residents in 2010, residing in 18,519 households. From 2000 to 2010, the population grew at an annual rate of 1.4%, basically equal to the growth rate of the Portland Metro region as a whole. The median household income, at \$63,500 in 2010, is a higher in the market area compared to a median of roughly \$50,000 statewide. There were just over 41,300 (2005) jobs in the City of Tigard, according to the City's recently completed Economic Opportunities Analysis. This is roughly 17.5% of Washington County employment, despite having roughly 10% of the County population. By 2030, employment is expected to grow to 60,637.

Employment

Tigard is an attractive place for employers to locate, especially Washington Square and Tigard Triangle areas, due to excellent regional access. Professional and Business Services, and Retail represent the largest shares of employment in the city.

Residential Supply Summary

The amount of housing inventory is near healthy levels, demonstrating that Tigard does not suffer the large oversupply that some Metro-area jurisdictions are experiencing. In the past year, the city has experienced over 526 home sales, at a median sale price of roughly \$280,000. The current number of active listings amount to an estimated 7 month housing inventory.

Summary of Land Use Demand Findings

Basic trends in household and employment growth in the general market area point to healthy continuing demand for residential, commercial and industrial uses into the future. These broad growth and demand projections create flexibility in the planning for different uses in the Tigard High-Capacity Transit Land Use Plan Area. The table below summarizes the findings of demand in the market area. Residential demand is presented in terms of housing units. Non-residential uses are presented in square feet of building space.

Table 1: Projected Space Need- Major Land Use Types, City of Tigard

Land Use Category	New Space Demanded - 2010 - 2030								
	Base Scenario		Acreage	High Growth		Acreage	Low Growth		Acreage
Ownership Residential	3,715	units	na	4,010	units	na	3,420	units	na
Rental Residential	1,180	units	na	1,270	units	na	1,090	units	na
Retail/Commercial	509,800	sf	39.0	551,000	sf	42.2	469,020	sf	35.9
Office	1,592,100	sf	73.1	1,719,000	sf	78.9	1,464,730	sf	67.3
Industrial Total	1,443,000	sf	108.9	1,804,000	sf	136.2	1,082,000	sf	81.7
Warehouse/Distribution	499,000	sf	38.2	624,000	sf	47.8	374,000	sf	28.6
General Industrial	342,000	sf	26.2	428,000	sf	32.8	257,000	sf	19.7
Tech/Flex Space	602,000	sf	44.6	752,000	sf	55.7	451,000	sf	33.4

¹ High and low growth scenarios represent base case +/- 8% growth respectively.

² Acreage based on the following FAR assumptions: Retail .3 FAR; Office .5 FAR; Industrial .3 FAR

SOURCE: Johnson Reid, LLC

Likely Residential Forms

Currently, the prevalent multi-family development type in Tigard is a two-to-three story walk-up garden apartment, with surface parking. Such structures are wood frame construction, with apartment flats

and occasionally two-story units. Such properties generally feature an FAR of .75 or less, and commonly no more than 0.5 FAR. The achieved density may be anywhere from 14 to 30 dwelling units per acre.

Figure 1: Garden apartments



Garden apartment or condominiums with surface parking are typically wood frame construction with surface parking, carports or stand-alone garages. Construction is usually two to three stories high, with a density approaching 30 units per acre.

Figure 2: Attached duplex/townhomes



Attached duplex/townhomes are typically wood frame construction and these units often have parking under the unit accessed from the street or back alley. Projects can be fee simple or with condominium ownership of the ground and have 15 to 20 units per acre.

Likely Office Forms

There is a variety of office space in Tigard, offering a range of ages, conditions, and formats. In the Tigard Triangle and Washington Square areas, mid-rise construction has been viable during strong economic times. These areas can be expected to continue to support five or six story buildings in the future. This allows for significant employment density, and mixed-use opportunities on the ground floor near busy arterials.

Office development elsewhere in Tigard may be limited to three stories, low-rise construction. Such office construction typically relies on surface parking, which can limit the floor area ratio that the building itself can achieve (0.3 to 0.35 are typical market-driven FAR).

Figure 3: Low-Rise Office, Examples



Likely Retail Forms

The sub-districts include three broad types of retail uses: the Washington Square mall and surrounding area, Highway 99W corridor, and small-scale local retail in the downtown area.

In Tigard, retail tends to be single-story, single-use, with surface parking. Typical FAR for suburban retail is 0.2 to 0.3 to allow for ample parking. Retail will be most successful if developed after residential density. Parking is essential to retail success, but can be formatted in different ways – for instance, shared parking for a district.

Figure 4: Low-Rise Mixed Use, Example of Residential or Office over Retail



Central Point, Gresham: Mixed use residential over retail, using tuck-under parking. Utilized Metro TOD easement.



Lake Norman, NC: Example of low-rise residential over retail mixed use. Significant density added with low-rise development.

Policy Tools for Transit Oriented Development

Over the long term, Tigard is expected to realize development densities significantly higher than currently viable in the area. Financial viability under current market conditions is the primary obstacle

to achieving more urban development forms in the next five- to ten-year time frame. While these densities may prove viable over the longer planning period, in the short- to mid-term market intervention will likely be required to achieve the targeted development activity. A broad variety of policy tools, incentives, and programs are outlined in the Johnson Reid Tigard HCT Land Use memo. Some of the policy tools outlined in the memo have already been adopted by Tigard, while others could be considered to facilitate the development environment.

Please see the Appendix for additional detail.

SNAPSHOTS OF TIGARD AREAS

The following “snapshots” of existing conditions focus on a particular area of Tigard. Data collected for the existing conditions report and memos is summarized in a broad manner. The intent of the divisions is to discern the different character of the various areas in Tigard to help inform the potential station communities and the typologies that might apply in each area.

Following are snapshots of these general areas:

1. Washington Square Area
2. Downtown Area
3. Tigard Triangle Area
4. Southwestern Tigard Area
5. Southeastern Tigard Area
6. Northern Tigard Area.

WASHINGTON SQUARE AREA



Policy

Washington Square Regional Center Plan
Tigard Comprehensive Plan
Tigard Transportation System Plan
2040 Regional Center & 2040 Station Area

Transportation

Sidewalk Coverage

Washington Square area has moderate to low concentration of sidewalks. Many of the arterial and collector streets have significant gaps in sidewalks, including Hall Boulevard, Greenburg Road, and Lincoln Street. East-west connections are limited by the barriers posed by Highway 217, Fanno Creek, and the railroad track. East-west routes on both sides of Highway 217 have no sidewalks, including North Dakota (west of Highway 217) and Oak Street (east of Highway 217). Within residential neighborhoods, sidewalks are limited, though traffic volume and speeds are low.

Bicycle Facility Coverage

In the Washington Square area, major bike routes are confined to Hall Boulevard and a couple of shared roadways with high or moderate traffic. The neighborhoods south of Washington Square are served by several shared roadways with low traffic. Greenburg is considered a difficult connection in its northern portions, but has a bike lane on its southern portion in this area. The multi-use trail along Fanno Creek also provides bicycle connections north and south.

Transit Connectivity & Use

Washington Square Transit Center is served by 45-Garden Home, 56-Scholls Ferry Rd, 76-Beaverton/Tualatin, 78-Beaverton/Lake Oswego, 62-Murray Blvd, 43-Taylor's Ferry Rd. WES Commuter Rail stops within a half mile of the mall at the Hall/Nimbus station with a park and ride lot of 50 spaces. Each week, approximately 16,363 transit riders get on and off the bus at Washington Square.

Parking

Washington Square is characterized by large retail and office developments, surrounded by single family residential neighborhoods. An aerial view shows that the office and retail uses are suburban in character, with freeway access and large surface and structured parking areas. There are currently no paid parking areas or time restricted parking areas. On street parking is limited in the commercial areas. Within residential neighborhoods, most properties have off-street parking, though parking on the street is not uncommon.

Roadways

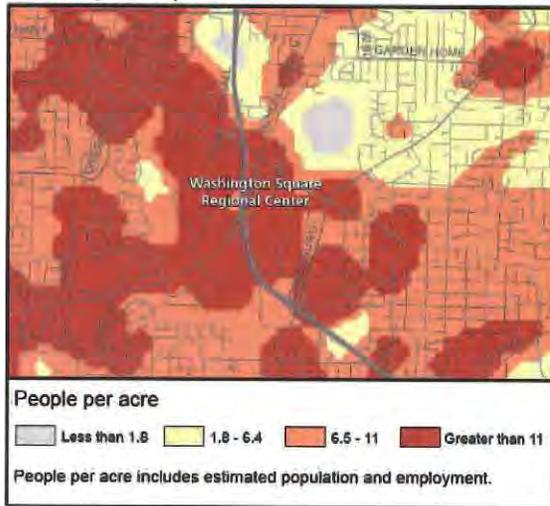
The Washington Square Regional Center area is criss-crossed by Highway 217, Scholls Ferry Road, Hall Boulevard and Greenburg Road.

These roadways provide local and regional access to the area, along with considerable through traffic. Potential for new roadways is constrained by the existing of the railroad track and Fanno Creek. The City's 2035 TSP identifies several major roadway projects, including: general connectivity improvements to the Oak-Lincoln-Locust network; reconfiguration of the Greenburg/N Dakota/Tiedeman intersection; widening of Hall Boulevard; and an over-crossing of Highway 217 from Nimbus to Locust.

Community

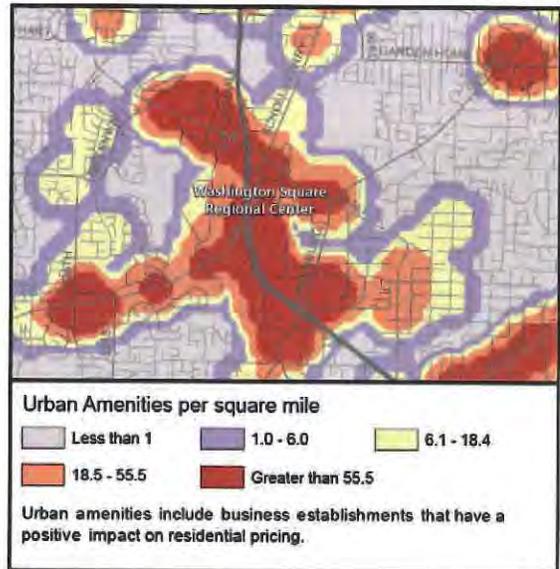
Density of People

There is a significant concentration of employment and household density at Washington Square.



Density of Urban Amenities

There is also a concentration of amenities, like cafes, retail stores, and restaurants, at Washington Square. Washington Square Regional Center has a significant concentration of amenities that attract shoppers.



Average Block Size

Washington Square area is predominated by a suburban-style street grid and a large mall with large parking lots and large block size. Land within the Washington Square Regional Center Plan area has been developed in conjunction with a regional suburban mall.

Economics

Market

The area around the Washington Square mall is characterized by heavy commercial uses, both retail and office. Washington Square mall supports 1.4 million square feet of retail space, which draws customers from the entire region extending from the mid-Willamette Valley to SW Washington State, though most of its customer base is from the Portland Metro area.

Because of this wide draw, retail space within the mall and in surrounding properties can achieve higher rent levels, making the WS sub-district the strongest retail location in Tigard.

In addition, the area features many office developments. The Lincoln Center complex features one of the tallest buildings in

Washington County (Lincoln Tower). The achievable office rents in this sub-district are somewhat less than in the Tigard Triangle, but higher than in Downtown or the Highway 99W corridor.

Within a half-mile radius of Highway 217 there are few residential uses of any kind. To the west, Fanno Creek creates a barrier between residential neighborhoods and WS. To the east, residential neighborhoods begin roughly half a mile away.

Going forward, the area remains a strong location for retail and office uses. Future residential planned uses may require buffering from the highway, as well as the traffic and activity of the mall area itself.

Washington Square's, mid-rise development character has been viable during strong economic times. These areas can be expected to continue to support five or six story buildings in the future. This allows for significant employment density, and mixed-use opportunities on the ground floor near busy arterials.

The Washington Square area is also a significant hub of employment. It has excellent regional transportation connections from highway 217 and Interstate 5, which however suffers substantial periodic congestion. Washington Square has developed as a significant retail and office employment area

Estimated Upper Pricing Levels

Land Use	Wash. Square
Retail:	\$30 /sf/yr
Office:	\$22 /sf/yr
Industrial:	\$12 /sf/yr
Res Rent:	\$1.10 /sf/mo.
Home Pricing:	\$190 /sf

Source: Loopnet, RMLS, individual properties, Johnson Reid LLC

* Retail and industrial rents are NNN. Office rents are full service.

Summary of Development Forms

The following table summarizes the development forms which are currently likely to appear in new development in the sub-districts, *absent public policy changes or incentives.*

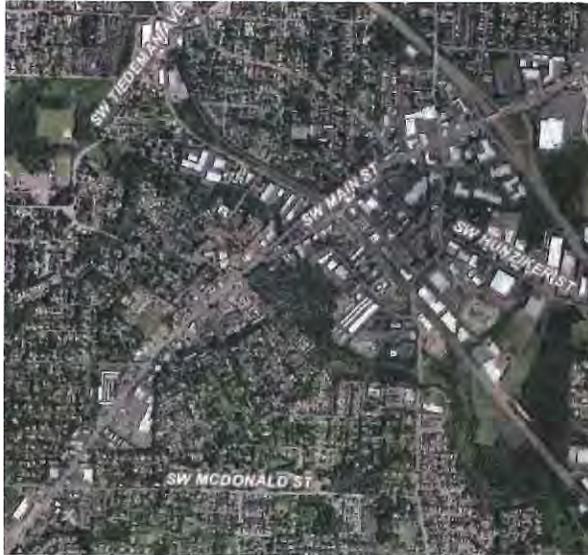
Viable Near-to-Mid Term Development Forms

Land Use	Wash. Square
Retail:	Single story
Office:	4-5 story
Industrial:	Single story
Rental Housing:	2-3 story
For-sale Housing:*	2-3 story

Source: Johnson Reid LLC

* Assumes that new residential development s in station communities would be attached single family or multifamily.

TIGARD DOWNTOWN AREA



Policy

Tigard Downtown Improvement Plan
Tigard Comprehensive Plan
Tigard Transportation System Plan
2040 Town Center & 2040 Station Area
TSP
Urban Renewal Plan

Transportation

Sidewalk Coverage

Pedestrian conditions within the downtown core (around Main Street and the Transit Center) are generally good, with continuous sidewalks on most collectors or arterials. Burnham Street was recently reconstructed with sidewalks up to 18 feet wide and green street treatments. Main Street is now entering the design phases, including improved crossing treatments and wider sidewalks in some locations. Fanno Creek Parkway provides a good multi-use path connection through downtown Tigard, though there is a gap between Main Street and Woodward Park to the north.

Although pedestrian conditions within the downtown core are generally good or adequate, Pacific Highway and Hall Boulevard pose significant pedestrian challenges. Relatively narrow sidewalks are not buffered from heavy traffic volume, and crossing conditions are limited. On the northwest side of Pacific Highway, pedestrian conditions are generally poor.

Bicycle Facility Coverage

Tigard downtown has high coverage of bikeways. Major bike routes are in the area include Pacific Hwy-OR 99W, Hall Boulevard, and the Fanno Creek Greenway Trail. Shared roadways are on Main Street, Scoffins, Commercial Street and Burnham Street in the downtown area. Walnut Street and a portion of Pacific Hwy-OR 99W in this area provides a difficult bicycle connection with high traffic volume and speed, narrow lane widths, no shoulders and/or poor visibility.

Transit Connectivity, Frequency & Use

Downtown Tigard is served by the WES commuter rail, a bus transit center with connections to the 12, 45, 64, 76 and 78 bus lines, and an associated park and ride of 103 spaces. Each week, approximately 17,815 transit riders get on and off the bus at the Tigard Transit Center.

Parking

All of the on-street parking on Main Street is time limited; however, there are no paid parking areas. Several of the older businesses on Main Street do not have their own parking areas and depend on the on-street parking. However, many businesses have significant private parking lots. A recent parking study showed that downtown parking in the vicinity of Main Street was nearly 50% vacant even during the peak period. Most other areas of

downtown have accessory parking on a typical suburban scale.

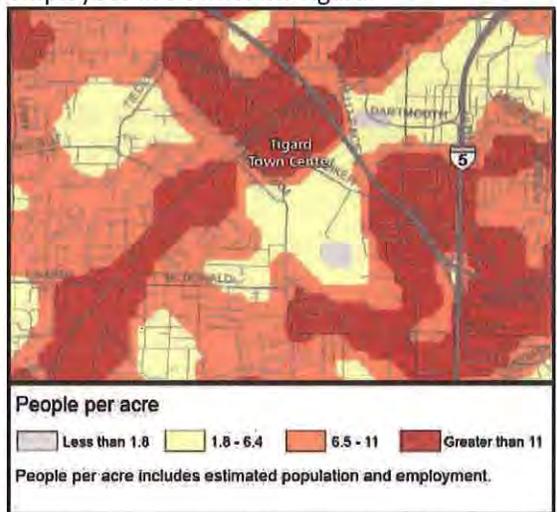
Roadways

The Tigard Downtown is generally centered on the Pacific Highway/Hall Boulevard intersection, though Main Street is considered its historic core. Major access roadways to Downtown include Pacific Highway, Greenburg Road, Hall Boulevard, and Walnut Street. Burnham, Scoffins, and Commercial provide circulation within Downtown. The City is nearly finished with a complete reconstruction of Burnham Street, including underground utilities and green street features. The City is beginning plans to install green street treatments and updated design features on the southern section of Main Street. Connectivity and circulation is considered a major deficiency of Downtown roadways. A future extension of Ash Avenue across the railroad is a high priority for the City.

Community

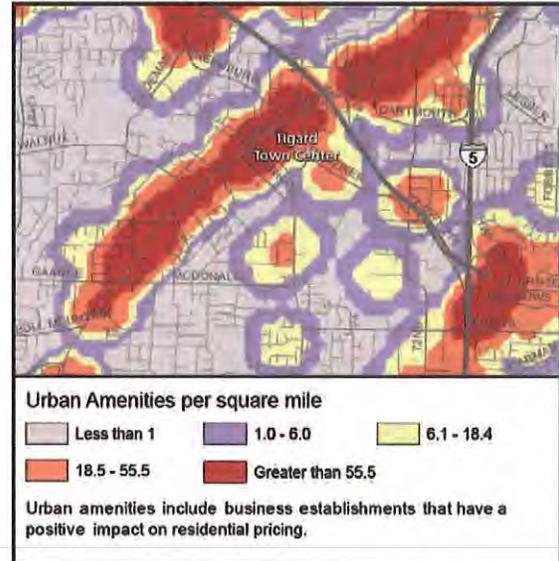
Density of People

Higher instances of households and jobs per acre are located along major corridors within Tigard including Pacific Highway-OR 99W. There is a concentration of density of residents and employees in Downtown Tigard.



Density of Urban Amenities

There is a high density of urban amenities, like cafes, retail stores, and restaurants, in the Tigard downtown area.



Average Block Size

Downtown Tigard has smaller block sizes than other areas in Tigard.

Environment

Natural Resources

- Fanno Creek, Pine Brook Creek, and the creek along McDonald Street
- Wetlands on the national and local wetland inventories near creeks
- Hydric soils
- Tigard Goal 5 inventoried tree groves
- Upland highest value habitat and riparian highest value habitat along creeks; Upland moderate value habitat between the railroad and Hunziker Street

Public Infrastructure & Parks

- Tigard Water Service Area
- Known flooding issues off Highway 217
- Planned Summer Creek Park
- More access to parks and open spaces
- Fanno Creek Trail, Pathfinder-Genesis Trail

- Trail opportunities along WES

Economics

Market

Currently, the downtown area is characterized by older, low-rise development of a wide mixture of uses. Retail and commercial services dominate Main Street, including auto-oriented shopping centers on the north end, and more traditional storefront buildings on the street itself.

Legacy industrial uses are prevalent to the southeast and near the rail line. The City owns significant land in the south end of the Downtown where the City Hall and public works departments are located.

Some multi-family residential uses exist in the form of smaller apartment complexes and a mobile home park near the center of the district, but the addition of residential density remains a key goal of the long term vision for the district.

Downtown Tigard is the focus of redevelopment efforts for the city. There is an Urban Renewal district in place which aims to generate new economic and development activity in the Downtown.

The Downtown area is a key location for retail and services which serve a more local customer base than the Washington Square or Tigard Triangle areas. As such, uses will tend to be smaller and employment density is likely to be less. However, as opposed to Washington

Square or Tigard Triangle, the Downtown seems to have greater potential to be a pleasant compact residential area, with ready access to retail, dining and services around Main Street.

Estimated Upper Pricing Levels

Land Use	Downtown
Retail:	\$16 /sf/yr
Office:	\$16 /sf/yr
Industrial:	\$10 /sf/yr
Res Rent:	\$1.10 /sf/mo.
Home Pricing:	\$190 /sf

Source: Loopnet, RMLS, individual properties, Johnson Reid LLC

* Retail and industrial rents are NNN. Office rents are full service.

Summary of Development Forms

The following table summarizes the development forms which are currently likely to appear in new development in the sub-districts, *absent public policy changes or incentives.*

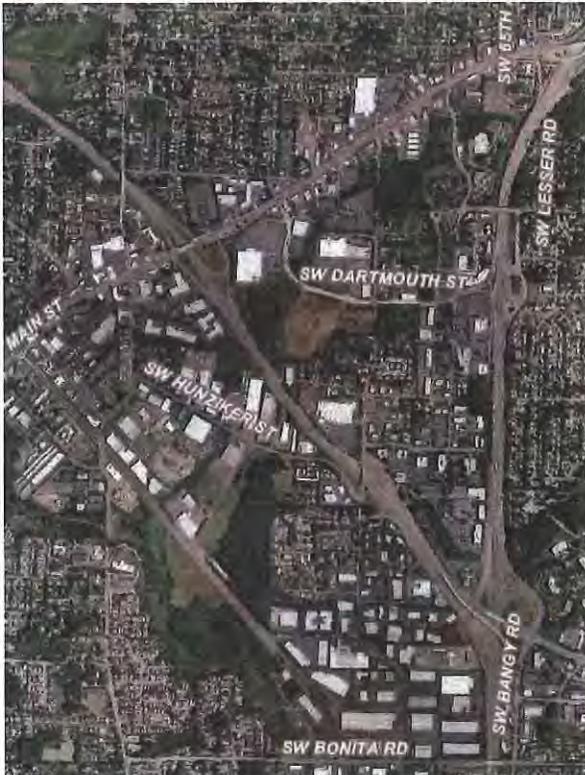
Viable Near-to-Mid Term Development Forms

Land Use	Downtown
Retail:	Single story
Office:	1-2 story
Industrial:	Single story
Rental Housing:	2-3 story
For-sale Housing:*	2-3 story

Source: Johnson Reid LLC

* Assumes that new residential development s in station communities would be attached single family or multifamily.

TIGARD TRIANGLE AREA



Policy

Tigard Comprehensive Plan
Tigard Transportation System Plan
Tigard Triangle Specific Area Plan
2040 Town Center & 2040 Employment Area

Transportation

Sidewalk Coverage

The Tigard Triangle is bounded by Pacific Highway, Highway 217, and I-5. Each of these major facilities poses a pedestrian barrier. SW 72nd Avenue is a major north-south route that has no sidewalks and minimal shoulders in some areas. The lack of connectivity on the west side of SW 72nd Avenue creates a generally

poor pedestrian condition. East of SW 72nd Avenue, the streets form a near-grid pattern. While many of the older residential properties frequently do not have sidewalks, there are numerous newer commercial developments that have sidewalks and landscaping.

Transit Connectivity & Use

Line 12 is a Frequent Service bus line that travels along Pacific Hwy-OR99W and the Tigard Park & Ride at SW 74th Ave and Pacific Hwy-OR 99W offers 220 parking spaces. Each week, approximately 1,787 transit riders get on and off the bus at the Cinema Park-and-Ride in this area.

Parking

The Triangle is characteristic of many suburban commercial areas, with several large footprint retail stores utilizing large amounts of surface parking. Office, medical, and institutional properties on the eastern side of the Triangle also have large surface parking areas.

Roadways

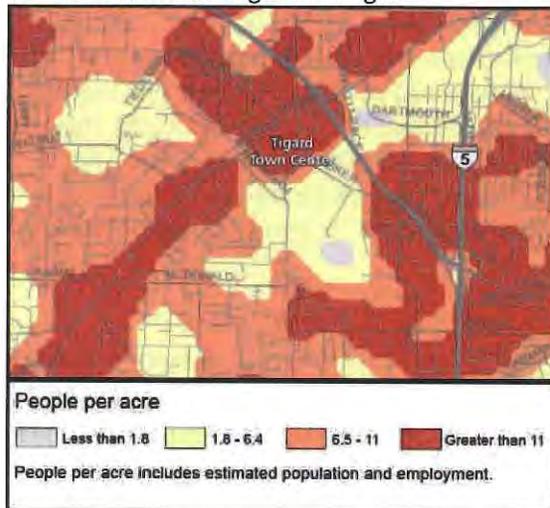
The Tigard Triangle is bounded by three major roadways: I-5, Highway 217; and Pacific Highway 99W. While these facilities provide major regional access to the Triangle, they can also present barriers for local connections. Within the Triangle, there are some areas characterized by large commercial parcels with surface parking. There are also some areas with the basic framework of a street grid pattern, albeit with gaps numerous gaps and limited sidewalks and bike lanes. Triangle roadway projects identified in the 2035 TSP include: extension of Atlanta Street from 68th Parkway to Dartmouth; widening of Dartmouth and 72nd Avenue; and, improvements to the Highway 217/72nd interchange. In addition, the Tigard Transportation System Plan identifies the need

for Transportation System Management and Operations (TSMO) improvements at signalized intersections on Pacific Highway.

Community

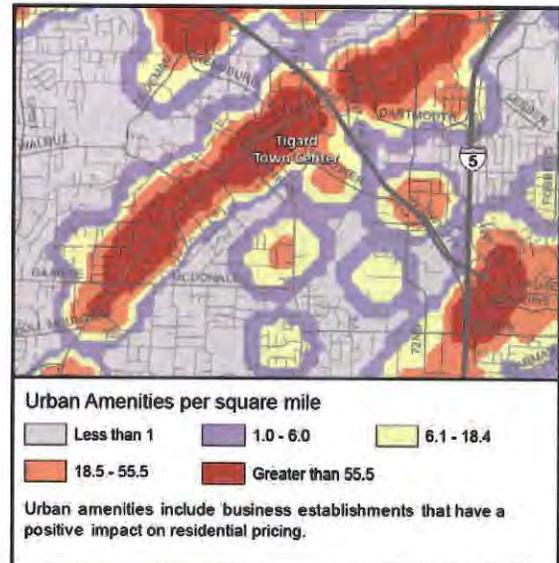
Density of People

Higher instances of households and jobs per acre are located along major corridors within Tigard including Pacific Highway-OR 99W and SW 72nd Ave in the Tigard Triangle.



Density of Urban Amenities

A high density of urban amenities, like cafes, retail stores, and restaurants, exists along Pacific Highway-OR 99W.



Average Block Size

Tigard Triangle east of Dartmouth has smaller block sizes, but much of the area has larger blocks and a suburban style street grid

Environment

Natural Resources

- Red Rock Creek, Crystal Lake, creek adjacent to Dartmouth Street
- Wetlands on the national and local wetland inventories near creeks
- Hydric soils
- Less access to parks and open spaces
- Tigard Goal 5 inventoried tree groves
- Upland highest value habitat and riparian highest value habitat along creeks

Public Infrastructure & Parks

- Tualatin Valley Water District Water Service Area
- No parks, trails or trail opportunities

Economics

Market

The Tigard Triangle area, bounded by Highway 99W to the north, Interstate 5 to the east, and

Highway 217 to the west is primarily commercial in nature. The northern portion is characterized by auto-oriented highway commercial forms such as small strip centers or shopping malls, and standalone businesses. There is also a significant presence of “big box” retail, taking advantage of the confluence of transportation routes in the area.

The southern portion of the Tigard Triangle is dominated by office uses. In terms of land use and character, this area blends into the Kruse Way office market which lies on the east side of I-5. It is a strong office location, achieving the highest office rents in the city. This is the heart of Tigard’s employment base.

In between these two areas (highway oriented retail, and freeway-oriented employment) is an older residential neighborhood, featuring many single-family homes. Situated between these commercial uses, and enjoying flexible mixed-use zoning, it is likely that this area will redevelop over time, both as additional commercial uses, and denser housing types.

The Tigard Triangle is likely to remain a strong location for retail and office uses in particular.

Tigard Triangle and Washington Square areas, mid-rise construction has been viable during strong economic times. These areas can be expected to continue to support five or six story buildings in the future. This allows for significant employment density, and mixed-use opportunities on the ground floor near busy arterials.

The greatest challenge to large-scale office development can be drawing the interest of large employers to an area. In Tigard, such employers have traditionally been attracted to the Tigard Triangle.

The Tigard Triangle/Kruse Way area has developed into one of the region’s top-end office employment centers. It is located nearby to desirable living communities, while also providing an accessible location for other employees from Portland to Salem due to convenient freeway access.

Employment is greatly concentrated in the Tigard Triangle area, extending south along the I-5 freeway.

Estimated Upper Pricing Levels

Land Use	Tigard Triangle
Retail:	\$24 /sf/yr
Office:	\$26 /sf/yr
Industrial:	\$12 /sf/yr
Res Rent:	\$0.95 /sf/mo.
Home Pricing:	\$160 /sf

Source: Loopnet, RMLS, individual properties, Johnson Reid LLC

* Retail and industrial rents are NNN. Office rents are full service.

The area’s development potential is currently restricted by the lack of roadway capacity and the regulations set forth in the Transportation Planning Rule and the Oregon Highway Plan.

Summary of Development Forms

The following table summarizes the development forms which are currently likely to appear in new development in the Tigard Triangle, *absent public policy changes or incentives.*

Viable Near-to-Mid Term Development Forms

Land Use	Tigard Triangle
Retail:	Single story
Office:	4-5 story
Industrial:	Single story
Rental Housing:	2-3 story
For-sale Housing:*	2-3 story

Source: Johnson Reid LLC

multifamily.

* Assumes that new residential developments in station communities would be attached single family or

SOUTHWESTERN TIGARD



Policy

Tigard Comprehensive Plan
Tigard Transportation System Plan
Pacific Highway/ 99W - 2040 Corridor & 2040
Town Center at King City

Transportation

Sidewalk Coverage:

Major streets serving Southwestern Tigard have significant gaps in sidewalks. These include Pacific Highway, McDonald Street, Bull Mountain Road, and Beef Bend Road. Some residential neighborhoods have comparatively high density of sidewalks, including the Summerfield community and areas along Durham Road and west of Hall Boulevard.

Bicycle Facility Coverage:

Tigard has a fairly high coverage of bikeways throughout its jurisdiction, but there are underserved areas in industrial portions of SW

Tigard adjacent to King City where the density of bikeways is not as high. Major bike routes are confined to Pacific Hwy-OR 99W and Durham with shared bikeways moderate and low traffic streets throughout the adjacent neighborhoods.

Transit Connectivity, Frequency & Use:

Line 12 is a Frequent Service bus line that travels along Pacific Hwy-99W. Approximately 6,000 daily riders board and depart buses along Pacific Highway in the City of Tigard. Of those, 700 riders board and depart buses along Pacific Highway between Durham and Gaarde.

Parking

Commercial activity in Southwest Tigard is generally limited to Pacific Highway and reflect development styles of the 1960's and 70's, with large parking areas sometimes, but not always, serving multiple businesses. The parking is unpriced for employees, customers, and visitors to specific properties.

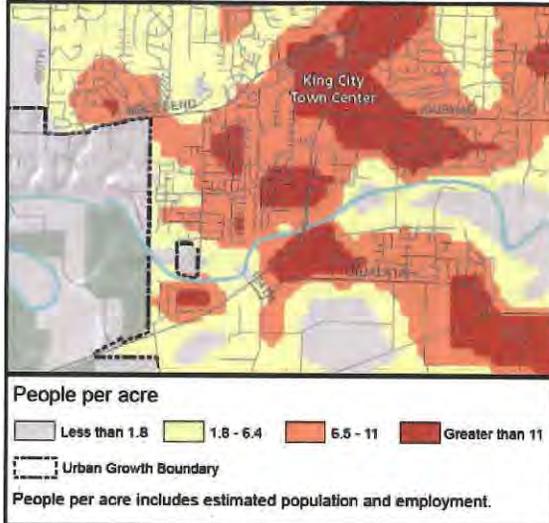
Roadways

Major roadways located in Southwestern Tigard are Pacific Highway, Gaarde Street, McDonald Street, Durham Road, and Beef Bend Road. These roads are among the most heavily used for east-west through traffic and they are characterized by peak period/peak direction traffic congestion. The Pacific Highway/Gaarde-McDonald intersection is a priority for the City in its plans for Pacific Highway improvements and conceptual design will soon be underway. However, funding for construction has not been committed. Widening projects for McDonald Street and Durham Road are identified in the 2035 TSP. The majority of other roadways within Southwestern Tigard are local or neighborhood collectors providing direct access to residential neighborhoods.

Community

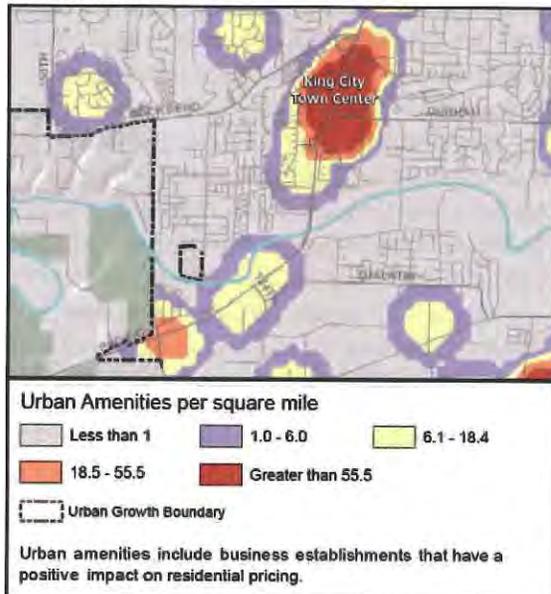
Density of People:

Higher instances of households and jobs per acre are located along major corridors within Tigard including Pacific Highway-OR 99W.



Density of Urban Amenities

Pacific Highway-OR 99W offers a high density of urban amenities, like cafes, retail stores, and restaurants.



Average Block Size

Along Pacific Highway-OR 99W, blocks are of medium size. Within the adjacent neighborhoods, blocks are of medium or small size.

Environment

Natural Resources

- Tualatin River, Kruger Creek, creek parallel to 99W
- Wetlands on the national and local wetland inventories near creeks
- Mostly hydric soils with some non-hydric soils
- Tigard Goal 5 inventoried tree groves
- Upland moderate value habitat and riparian highest value habitat along creeks; Large riparian area near Tualatin River at Hall Boulevard

Public Infrastructure & Parks

- Tigard Water Service Area
- Pioneer Cemetery
- More access to parks and open spaces
- Tualatin River Trail

Economics

Market

The Highway 99W Corridor is a high-traffic auto-oriented transportation corridor. As such, it is dominated by auto-oriented retail and service uses for nearly its entire length through the city. Uses range in age, condition, and achievable rent levels and nearly all rely on a drive-in customer base.

However, these commercial uses generally form a narrow band along the highway, with residential areas located behind the businesses. Because of this, potential station communities along this highway could feature commercial uses in the immediate area, while still featuring

significant residential development within a half-mile radius of the station.

Some of these residential neighborhoods are currently zoned for medium-density residential, while others are low-density residential. Due to the ownership pattern in low-density neighborhoods featuring detached homes on separate lots, redevelopment of these face significant market barriers.

Commercial parcels with highway frontage will likely maintain their strong auto-orientation. Newer, higher value developments and shopping centers are unlikely to redevelop even with rezoning or significant incentives. Therefore, older or under-developed properties are the best candidates for achieving new TOD in this corridor. Commercial users of new TOD would likely continue to insist on sufficient parking levels to support their businesses.

Station communities located along the Highway 99W corridor will face the competition from the heavy auto-oriented retail use currently located along this corridor. As with many high-traffic arterials, Highway 99W through Tigard features many existing shopping centers of various sizes and ages, as well as many single-use retail/commercial properties.

Estimated Upper Pricing Levels

Land Use	Highway 99W
Retail:	\$22 /sf/yr
Office:	\$18 /sf/yr
Industrial:	na
Res Rent:	\$1.00 /sf/mo.
Home Pricing:	\$170 /sf

Source: Loopnet, RMLS, individual properties, Johnson Reid LLC

* Retail and industrial rents are NNN. Office rents are full service.

Summary of Development Forms

The following table summarizes the development forms which are currently likely to appear in new development along 99W *absent public policy changes or incentives.*

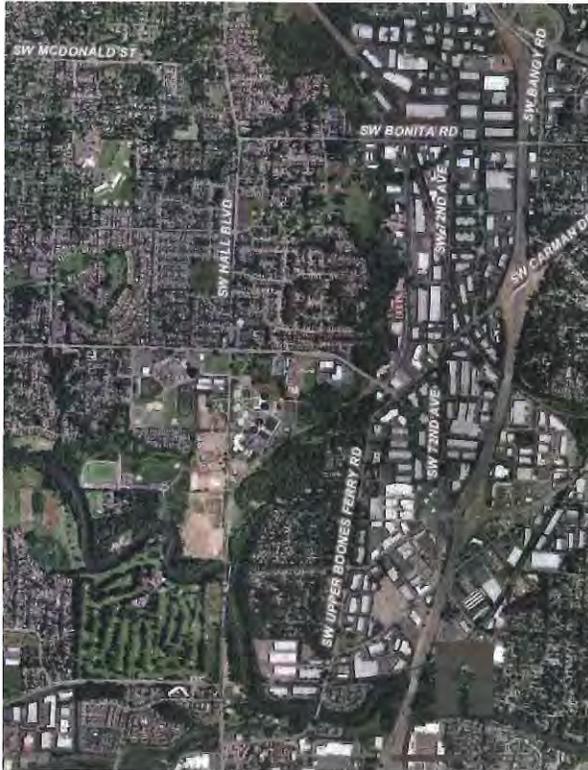
Viable Near-to-Mid Term Development Forms

Land Use	Highway 99W
Retail:	Single story
Office:	1-2 story
Industrial:	Single story
Rental Housing:	2-3 story
For-sale Housing:*	2-3 story

Source: Johnson Reid LLC

* Assumes that new residential development s in station communities would be attached single family or multifamily.

SOUTHEASTERN TIGARD



Policy

Tigard Comprehensive Plan
Tigard Transportation System Plan
Hall Blvd – 2040 Corridor & 2040 Employment Area

Transportation

Sidewalk Coverage

Some of the major streets in SW Tigard have relatively good sidewalks. Bonita Road, Durham Road, and Sequoia Street have continuous sidewalks. SW 72nd has sidewalks for most of the area south of the Triangle, but with several gaps. Some of the newer residential neighborhoods west of SW 74th

Avenue also have sidewalks. Bicycle Facility Coverage

Southeastern Tigard lacks bicycle connectivity, with one shared roadway on a high traffic street (72nd) and bike lands on Upper Boones Ferry Road and Durham Road.

Transit Connectivity, Frequency & Use

This area is served by the Tualatin park and ride with 466 parking spaces and the line 36, 37, 38, 76, and the express bus 96. Approximately 1,000 daily riders board and depart buses at Bridgeport Village and the Tualatin park and ride.

Parking

Southeastern Tigard is one of the largest employment areas in the City, with a relatively large number of light industrial businesses. This is generally true in the area east of SW 74th Avenue. The area also includes several commercial national chain restaurants and stores. Generally, much of the development is characterized by large surface lots for employee parking as well as large vehicle storage and deliveries.

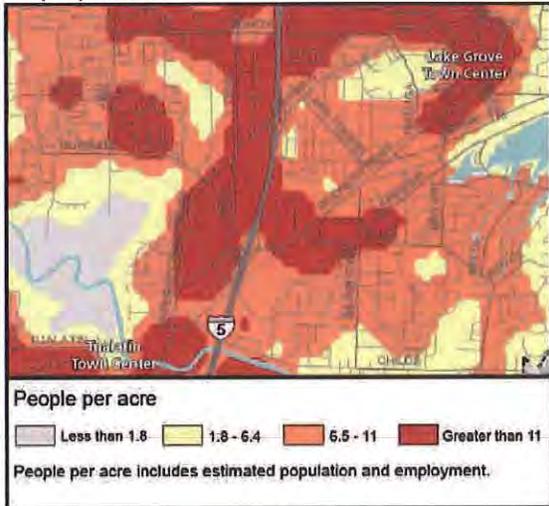
Roadways

The major roadway network in Southeastern Tigard is dominated by its proximity to I-5, the railroad track, and Fanno Creek. These features limit options for east-west connections. McDonald-Hall-Bonita is characterized by frequent peak period, peak direction traffic congestion. Residential areas west of the railroad tracks have relatively good access via neighborhood collectors, though the network does not have a complete grid system.

Community

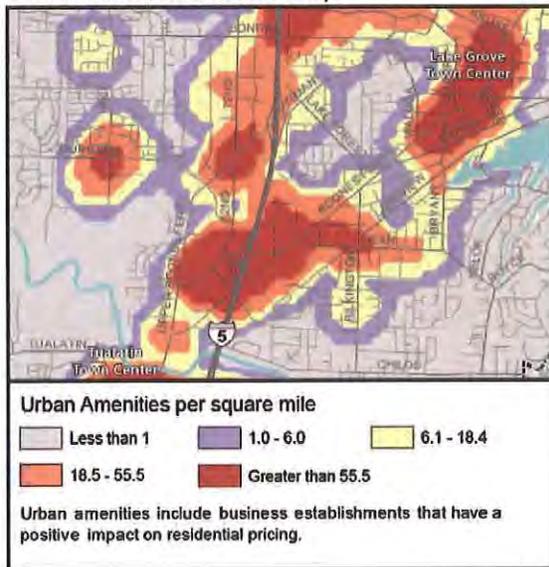
Density of People

Higher instances of households and jobs per acre are located along the major corridors of I-5, with particular concentrations of employment.



Density of Urban Amenities

High densities of amenities, like cafes, retail stores, and restaurants, exist at Hall and Durham, Bridgeport Village, Carmen and Upper Boones Ferry Road, and at the intersections of I-5 with Bonita and Kruse Way.



Average Block Size

There is a mixture of areas with small and medium size blocks.

Environment

Natural Resources

- Fanno Creek, Ball Creek, Pinebrook Creek
- Wetlands on the national and local wetland inventories near creeks
- Mostly non-hydric soils with some hydric soils
- Tigard Goal 5 inventoried tree groves
- Upland moderate value habitat and riparian highest value habitat mostly along Fanno Creek

Public Infrastructure & Parks

- Tigard Water Service Area
- Less access to parks and open spaces
- Tualatin River Trail
- Trail opportunities Fanno Creek Trail

Economics

Market

The following data is not specific to the Southeastern corner of the City of Tigard, but rather discusses the market of the whole of Tigard with an emphasis on the sub-market of I-5 and Highway 217.

Office Market Conditions

The Tigard Triangle/Kruse Way area has developed into one of the region's top-end office employment centers. It is located near desirable living communities, while also providing an accessible location for other employees from Portland to Salem due to ready freeway access. Employment is greatly concentrated in the Tigard Triangle area, extending south along the I-5 freeway.

The "Tigard Triangle/South 217" submarket is experiencing office vacancy of 23%, the

suburban average. Central City had a lower vacancy rate of 12.1%. With vacancy rates as high as they are, sustained employment growth will have to return before significant new office development will be undertaken.

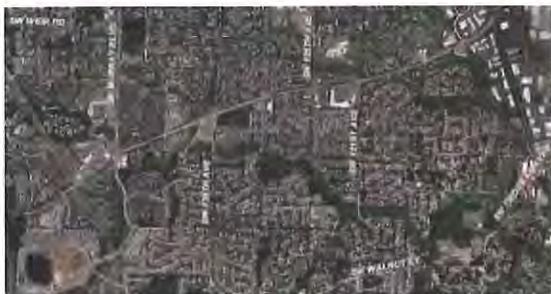
The current estimated employment is roughly 44,499 jobs. The new projected office employment translates to a need of over 1,590,000 square feet of new office space over the next 20 years in Tigard.

Industrial Market Conditions

Tigard is near to two submarkets; the 217 submarket is experiencing higher than average

industrial vacancy 25%, while the Southwest I-5 submarket is experiencing lower than average vacancy at 12%. Citywide there is an estimated need of almost 5 million square feet of new industrial space demanded over the next 20 years. Most of the space demanded is from the wholesale trade sector, which includes mostly warehousing and distribution facilities, and demands a large amount of space per employee.

NORTHERN TIGARD



Policy

Tigard Comprehensive Plan
 Tigard Transportation System Plan
 Scholl's Ferry- 2040 Corridor & 2040 town center at Murray Scholls

Transportation

Sidewalk Coverage

There is a comparatively high density of sidewalks in areas of northwest Tigard around Scholls Ferry Road, SW 121st Avenue and SW 125th Avenue. Many of the local streets serving residential neighborhoods have sidewalks. Also, large sections of Barrows Road were recently improved with sidewalks and green street treatments. However, there remain some gaps on Barrows Road, as well as Walnut Street and SW 121st Avenue.

Bicycle Facility Coverage

Tigard has a fairly high coverage of bikeways throughout its jurisdiction. Scholls Ferry has a bike lane and the surrounding neighborhoods have several shared roadways on low traffic streets. The multi-use trail along Fanno Creek also provides bicycle connections north and south.

Transit Connectivity, Frequency & Use

Line 56 is a Frequent Service line that travels to Washington Square via Scholls Ferry Road-OR

210. Lines 76 and 78 travel across Scholls Ferry. Lines 45 and 62 are additional lower-frequency lines that service Washington Square along Scholls Ferry. Approximately 2,000 daily riders board and depart buses near the intersection of 121st & Scholls Ferry Road.

Parking

Most of this area of Tigard is residential, with several schools and churches. There is a retail center on the Tigard side of Scholls Ferry Road is at the Scholls Ferry Road/SW 121st Avenue intersection, which has surface parking. Within residential neighborhoods, virtually all properties have off-street parking though some on-street parking is not uncommon.

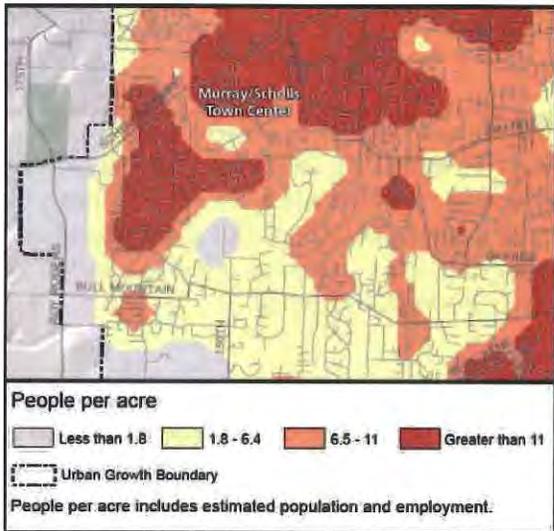
Roadways

Major roadways in Northwestern Tigard include Scholls Ferry Road, Walnut Street, 121st Avenue, and 135th Avenue. With the exception of properties along Scholls Ferry Road, most of the land uses in this area are residential. The street network provides relatively good access, though the circulation pattern is not intuitive and is largely known only by local residents. The TSP does not include any major roadway projects in this area except for the widening of Scholls Ferry Road which is a Washington County road.

Community

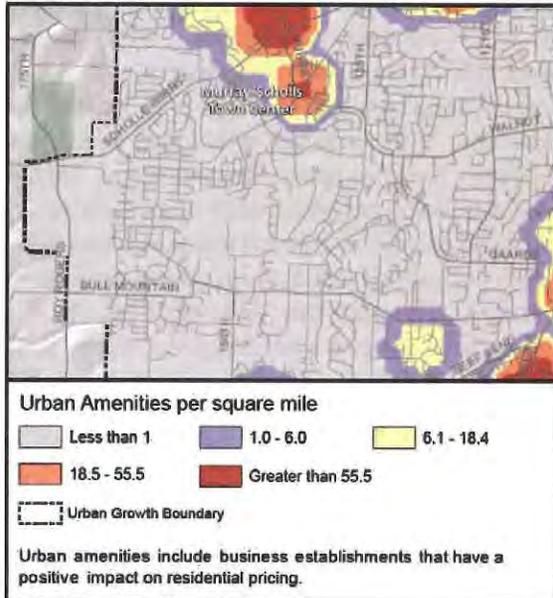
Density of People

Higher instances of households and jobs per acre are located along major corridors within Tigard, including Scholls Ferry Road (OR 210).



Density of Urban Amenities

Scholls Ferry contains pockets of high levels of urban amenities, like cafes, retail stores, and restaurants, near Washington Square, 121st and 125th.



Average Block Size

Pockets of areas with small block size are seen on Scholls Ferry around Washington Square, 121st and 125th. Other areas around Scholls Ferry are comprised of a suburban-style street grid.

Environment

Natural Resources

- Fanno Creek, Summer Creek
- Wetlands on the national and local wetland inventories near creeks
- Hydric soils
- Tigard Goal 5 inventoried tree groves
- Upland moderate value habitat (mostly) and riparian highest value habitat along creeks

Public Infrastructure & Parks

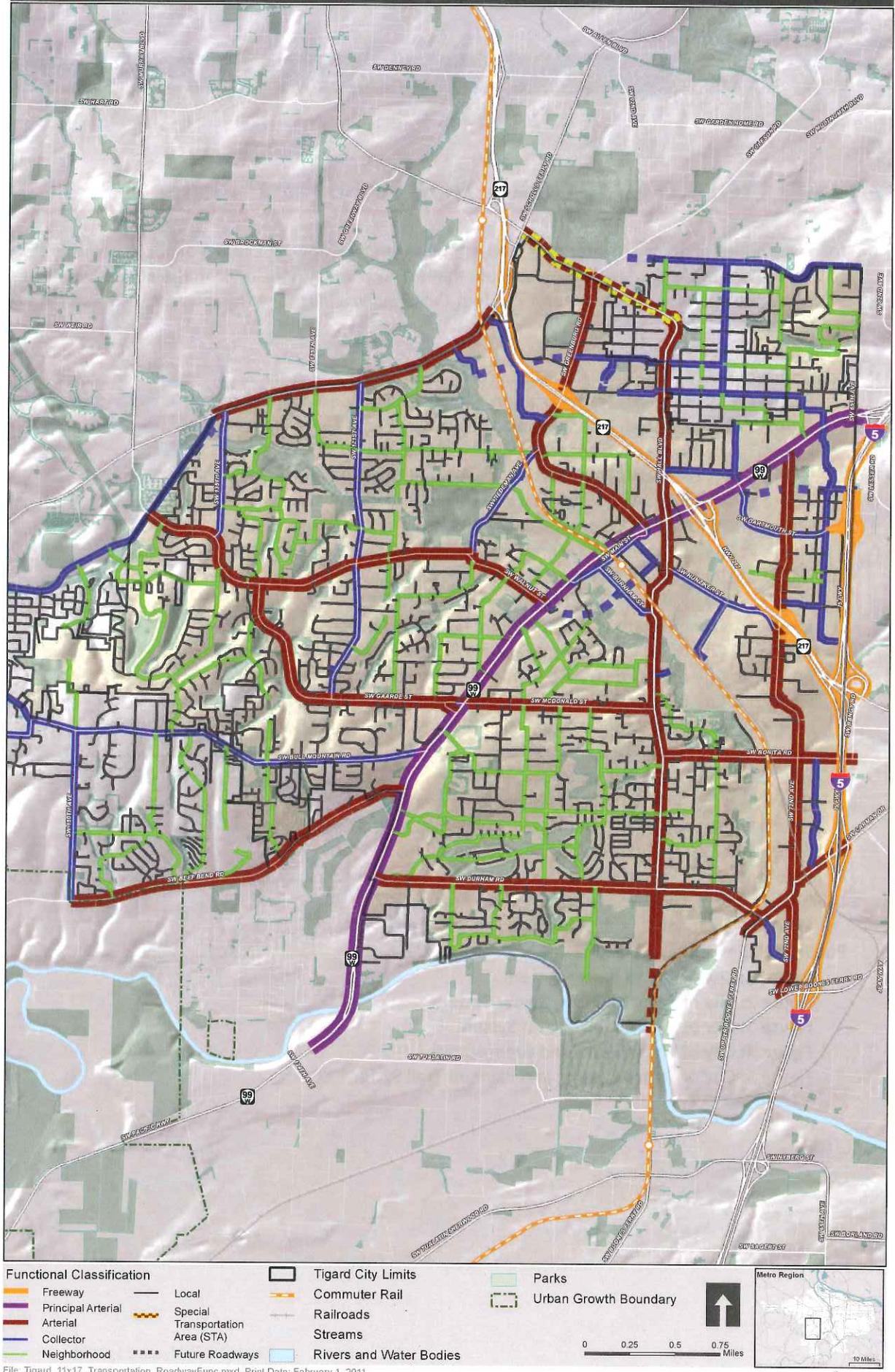
- Tigard Water Service Area
- Known flooding issues off of 135th Avenue
- There is more access to parks and open spaces
- Summer Creek Trail, Krueger Creek Trail

ATLAS: TIGARD HCT CORRIDOR LAND USE PLAN

The following series of maps are intending to give a quick overview of the existing conditions within the City of Tigard. Each of these maps is derived from the technical memos included in the appendix of this report. For additional information or context about these maps, please see the relevant technical memo in the appendix.

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 - Figure 2: City of Tigard- Transportation – Roadways with More Than 2 Lanes
 - Figure 3: City of Tigard- Transportation – Speed Zones
 - Figure 4: City of Tigard- Transportation – Arterial Level of Service – Weekday AM Peak
 - Figure 5: City of Tigard- Transportation – Arterial Level of Service – Weekday PM Peak
 - Figure 6: City of Tigard- Transportation – Forecast Travel Demand Growth 2005-2035
 - Figure 7: City of Tigard- Transportation – 2035 Demand-Capacity Ratio - Preferred
 - Figure 8: City of Tigard- Transportation – Right-of-Way Needs
 - Figure 9: City of Tigard- Transportation – Pedestrian Facilities and Deficiencies
 - Figure 10: City of Tigard- Transportation – Planned Pedestrian Facilities
 - Figure 11: City of Tigard- Transportation – Bicycle Facilities and Deficiencies
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Fig. 1: City of Tigard - Transportation - Roadway Functional Classification

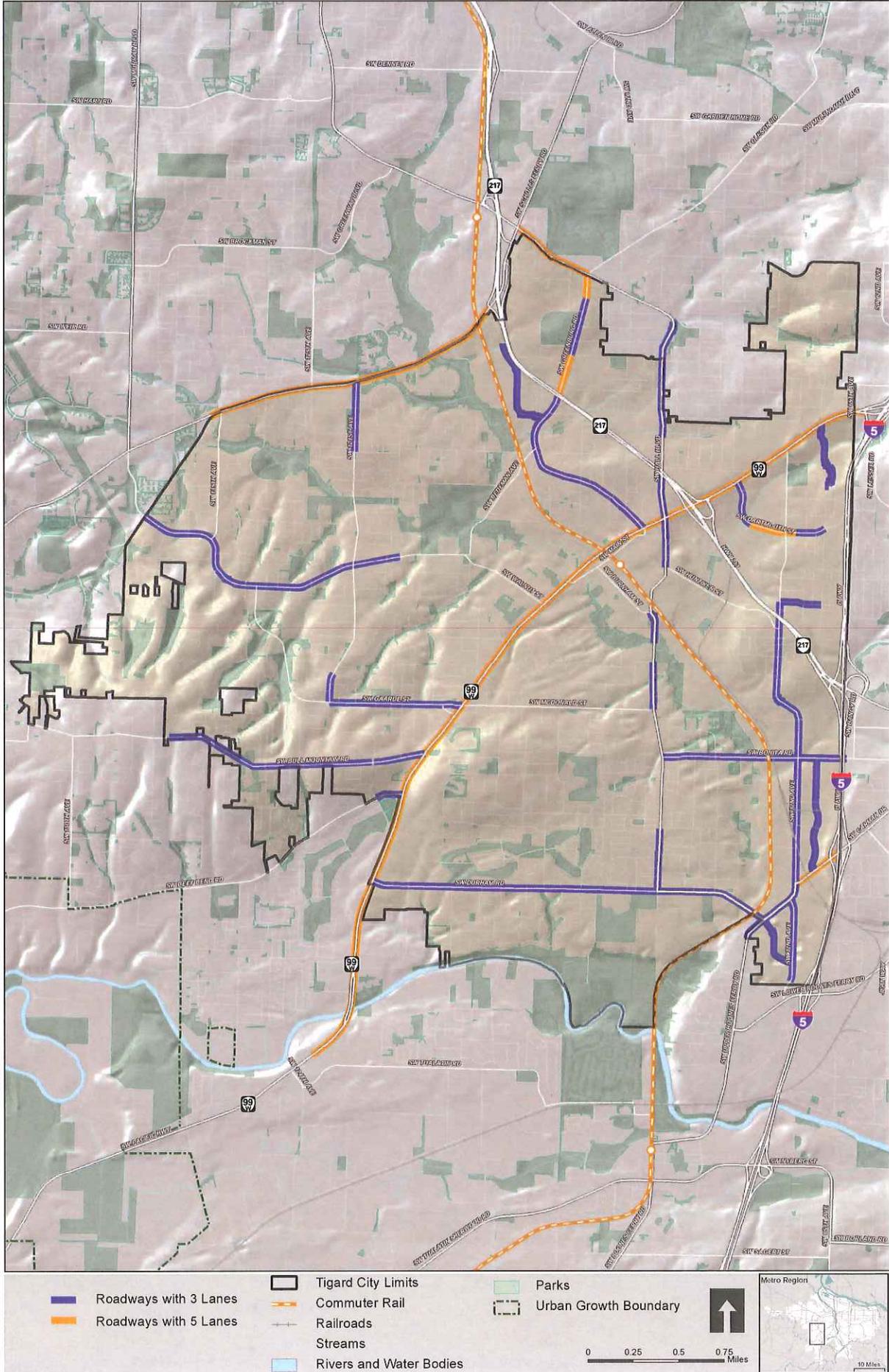


Functional Classification		Tigard City Limits	Parks
Freeway	Local	Commuter Rail	Urban Growth Boundary
Principal Arterial	Special Transportation Area (STA)	Railroads	
Arterial	Future Roadways	Streams	
Collector	Rivers and Water Bodies		
Neighborhood			

0 0.25 0.5 0.75 Miles

Metro Region

Fig. 2: City of Tigard - Transportation - Roadways With More Than 2 Lanes



File: Tigard_11x17_Transportation_RoadwaysOver2Lanes.mxd. Print Date: February 1, 2011.

Fig. 3: City of Tigard - Transportation - Speed Zones

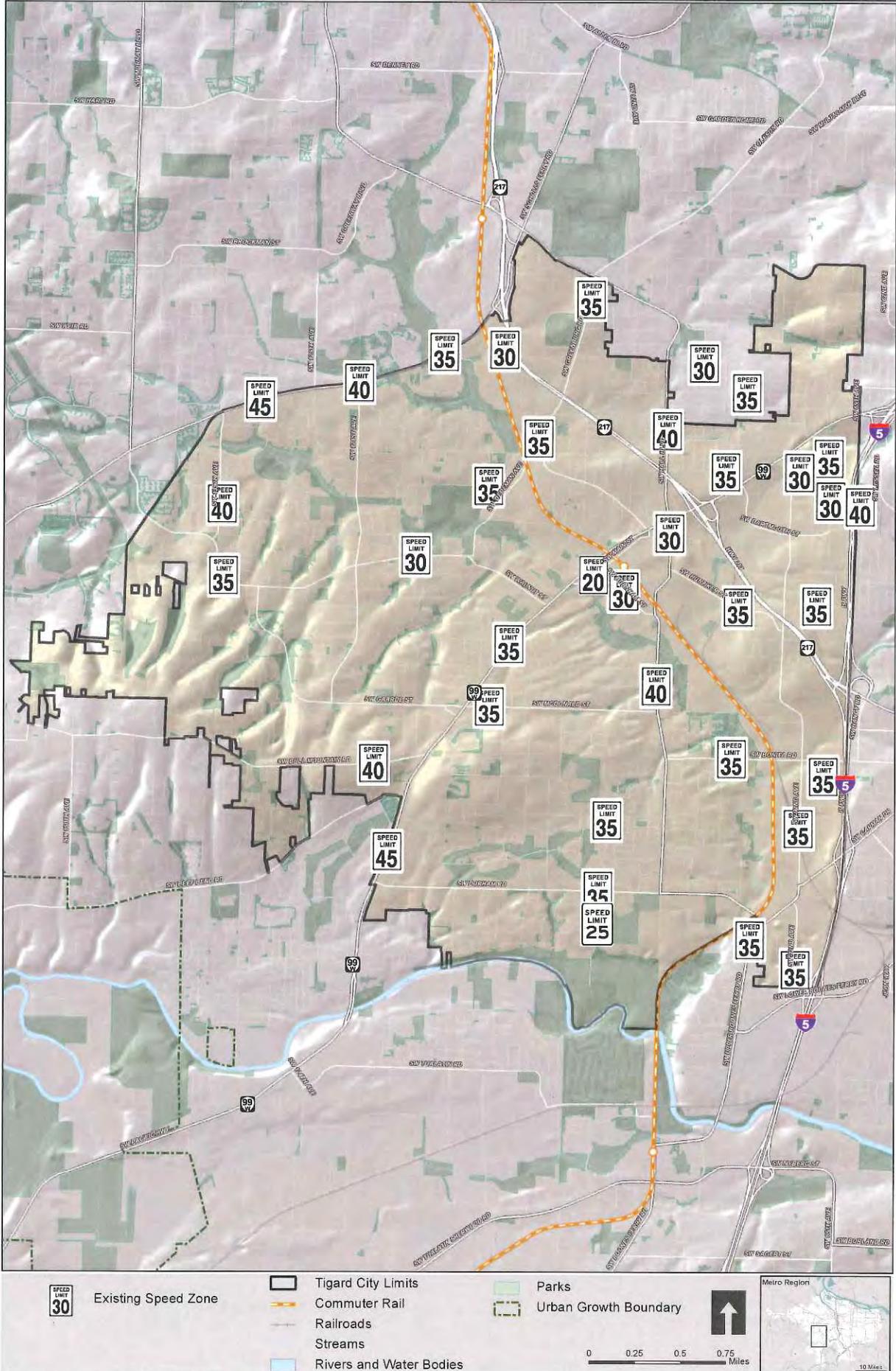


Fig. 4: City of Tigard - Transportation - Arterial Level of Service - Weekday AM Peak

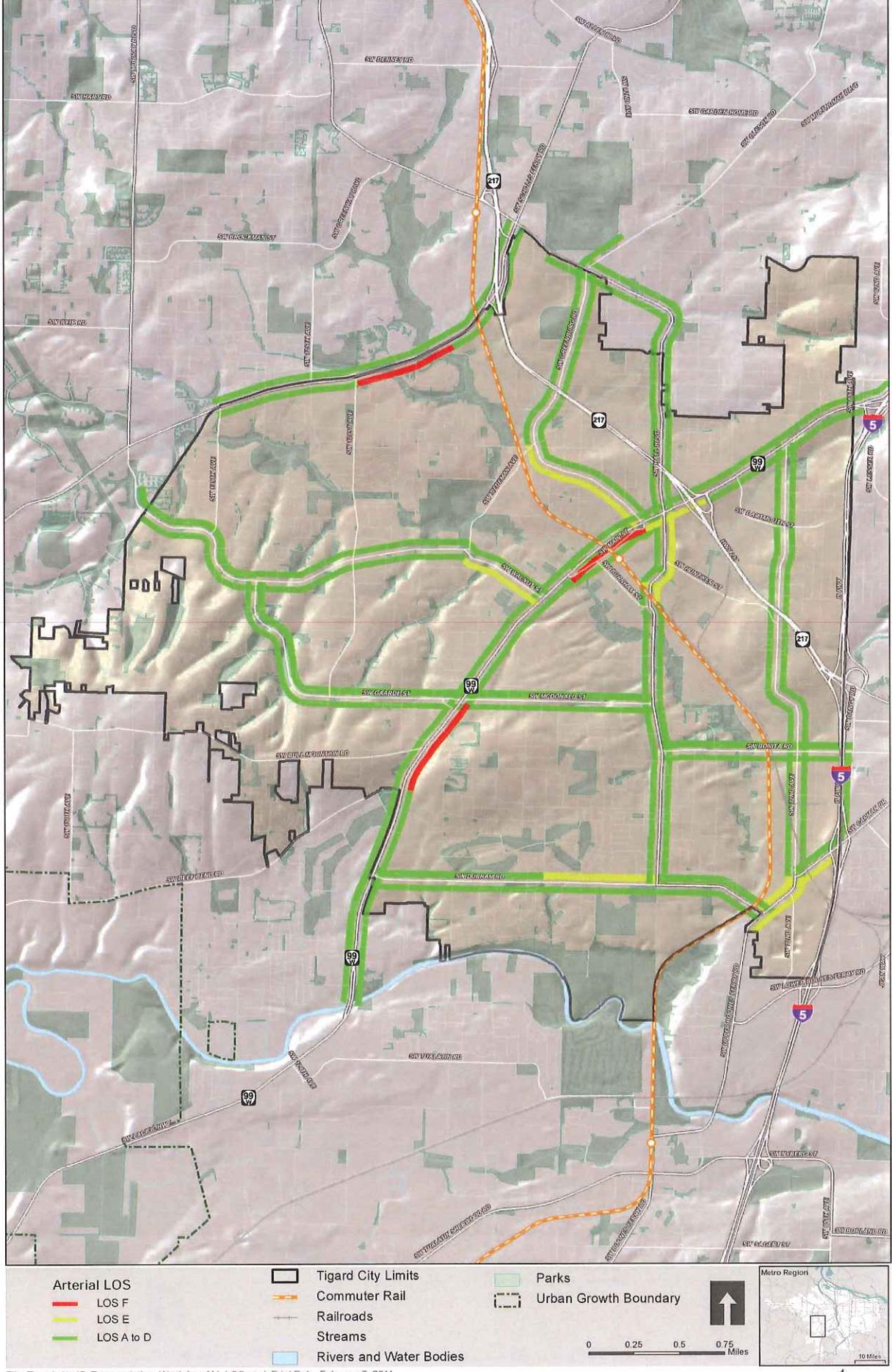


Fig. 5: City of Tigard - Transportation - Arterial Level of Service - Weekday PM Peak

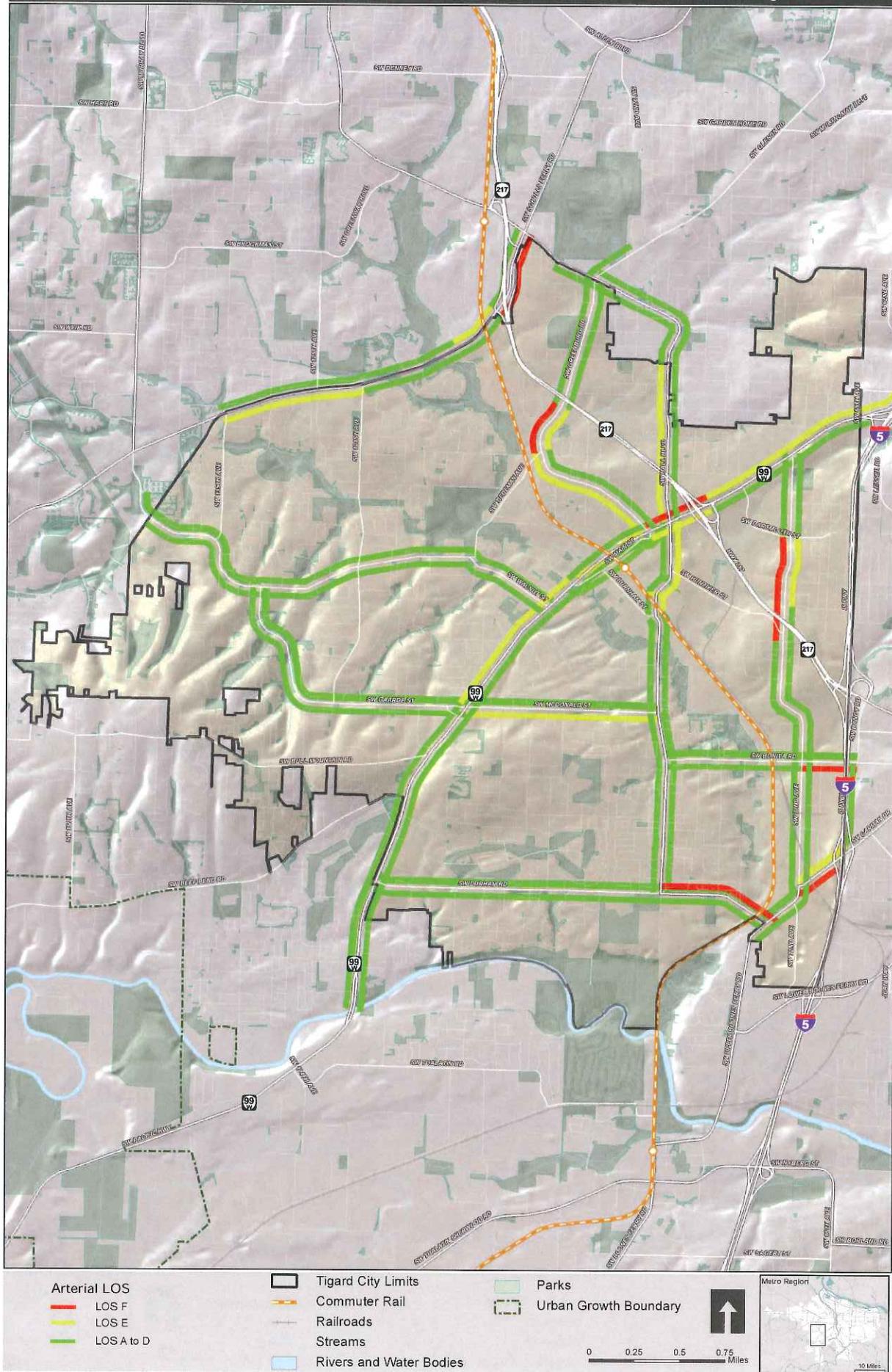
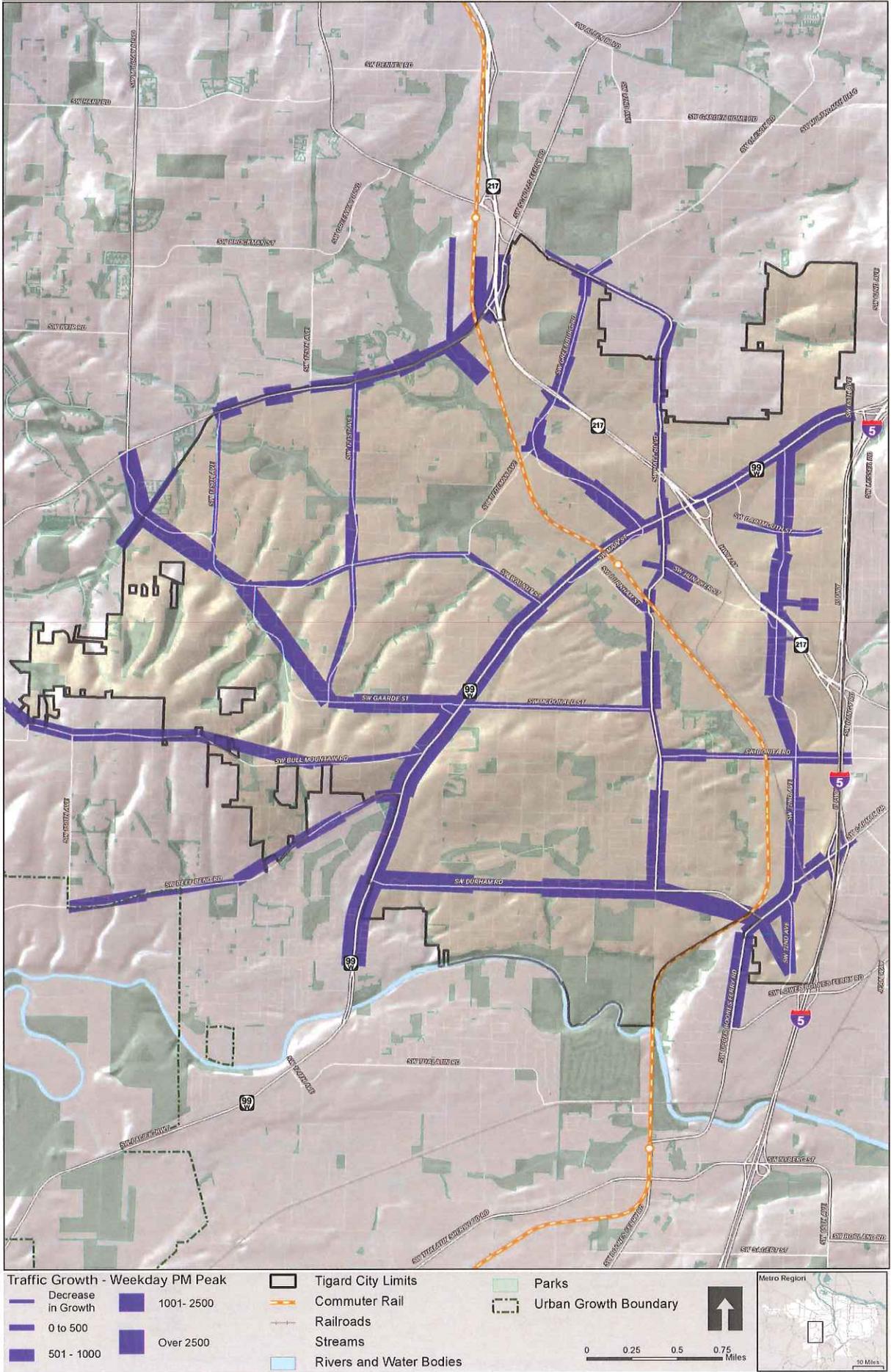


Fig. 6: City of Tigard - Transportation - Forecast Travel Demand Growth 2005-2035



File: Tigard_11x17_Transportation_TravelDemandGrowth.mxd. Print Date: February 7, 2011.

Fig. 7: City of Tigard - Transportation - 2035 Demand-Capacity Ratio - Preferred

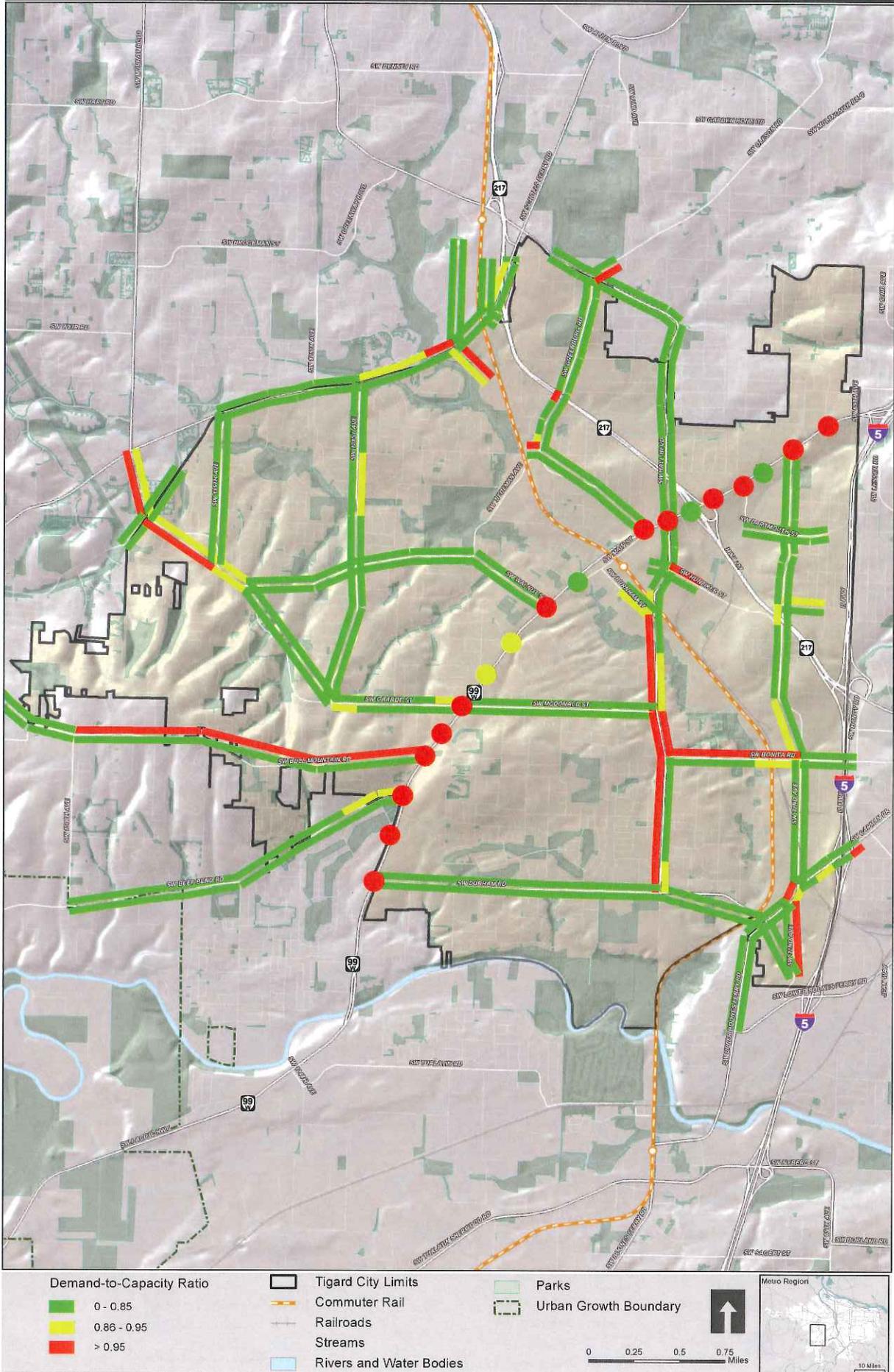


Fig. 8: City of Tigard - Transportation - Right-of-Way Needs

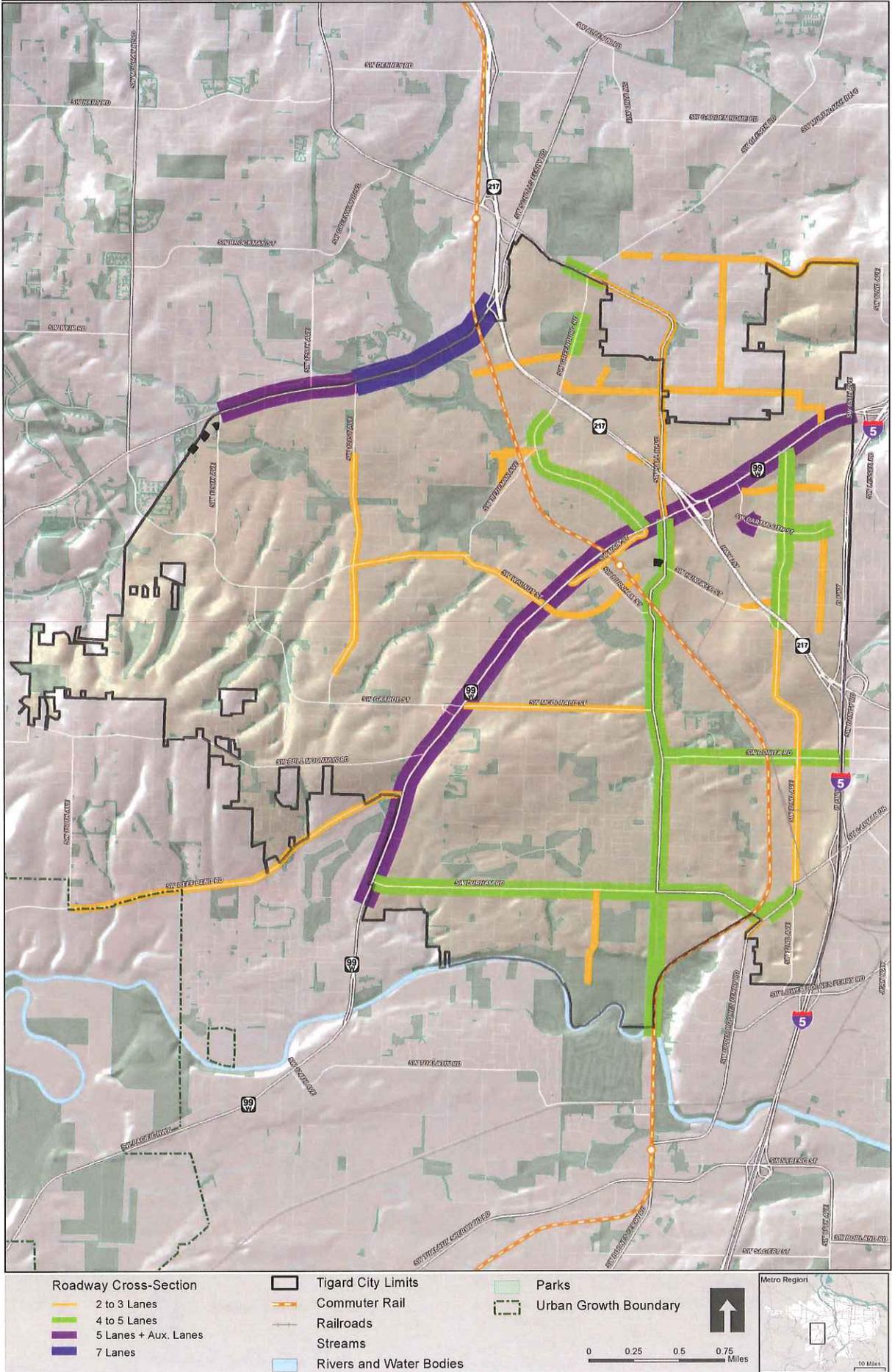


Fig. 9: City of Tigard - Transportation - Pedestrian Facilities and Deficiencies

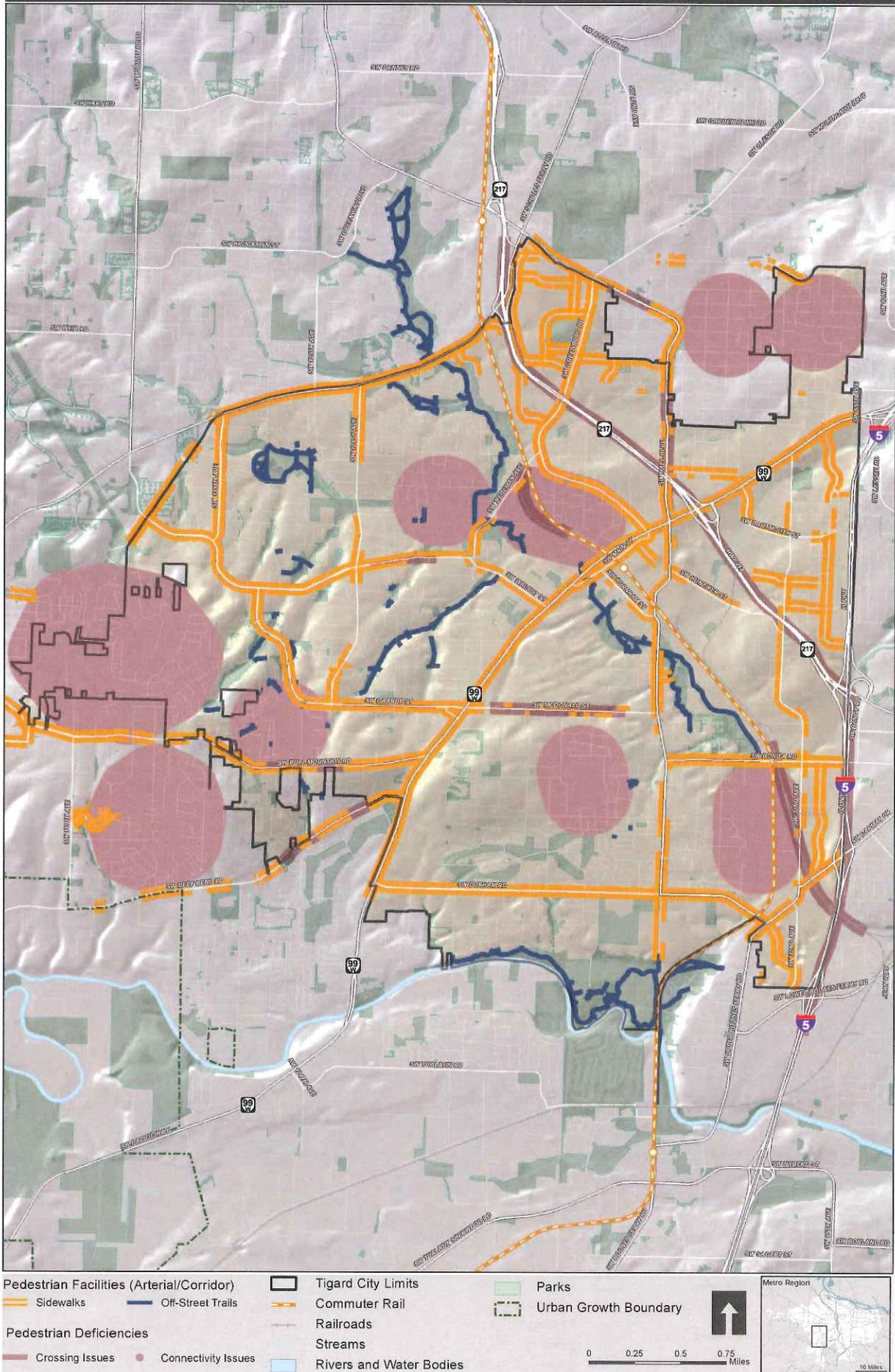


Fig. 10: City of Tigard - Transportation - Planned Pedestrian Facilities

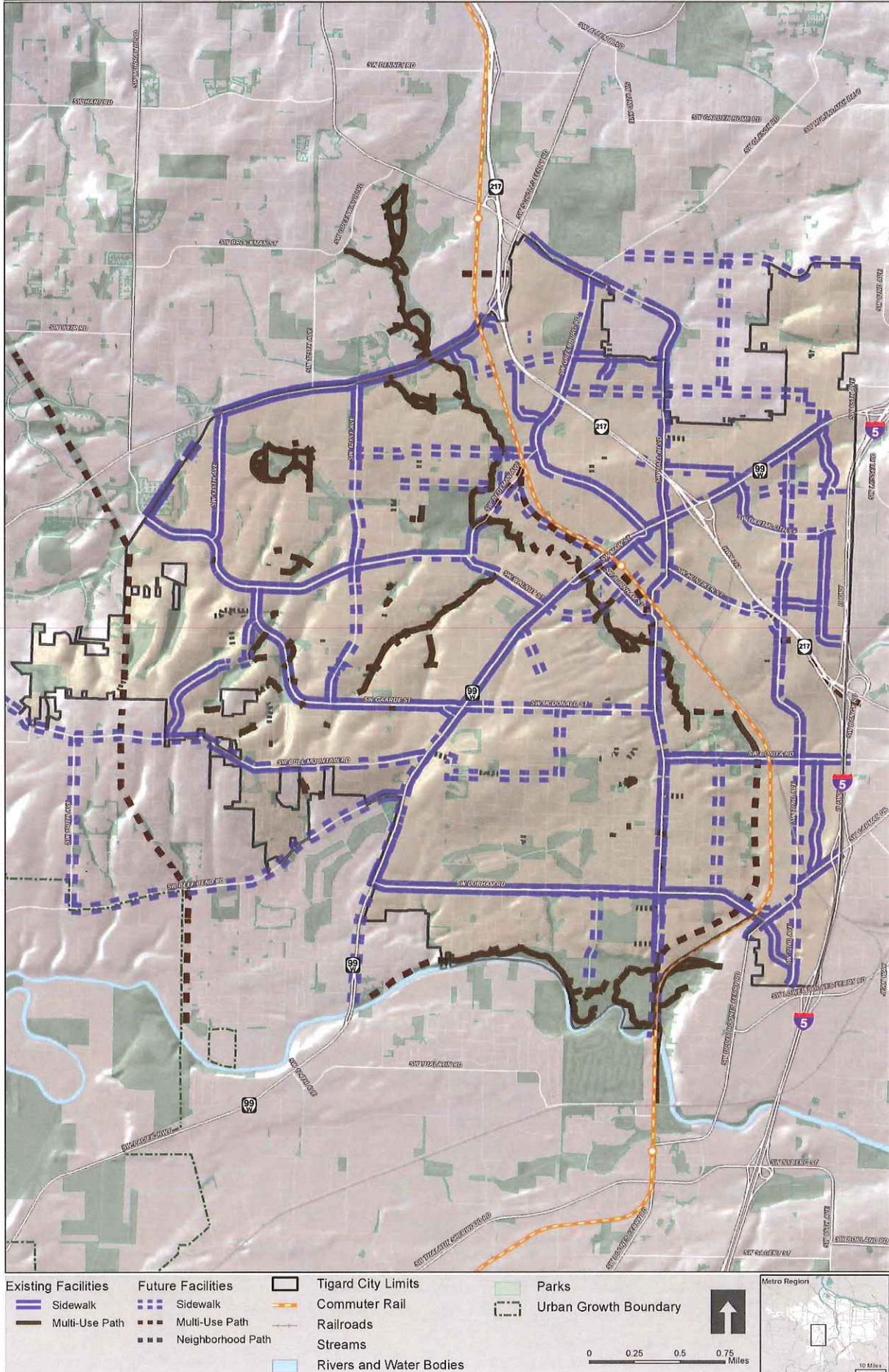


Fig. 11: City of Tigard - Transportation - Bicycle Facilities and Deficiencies

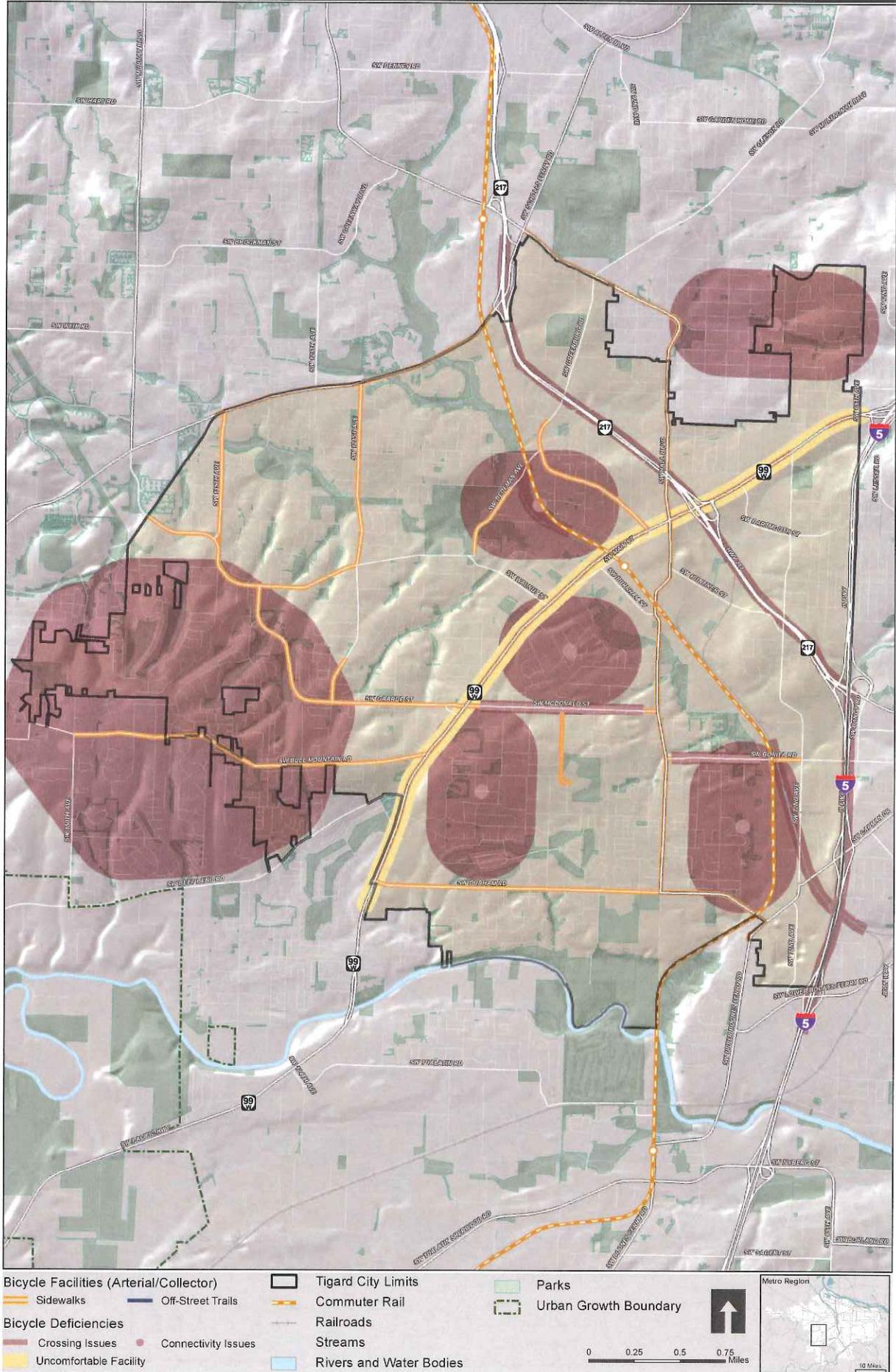


Fig. 12: City of Tigard - Transportation - Planned Bicycle Facilities

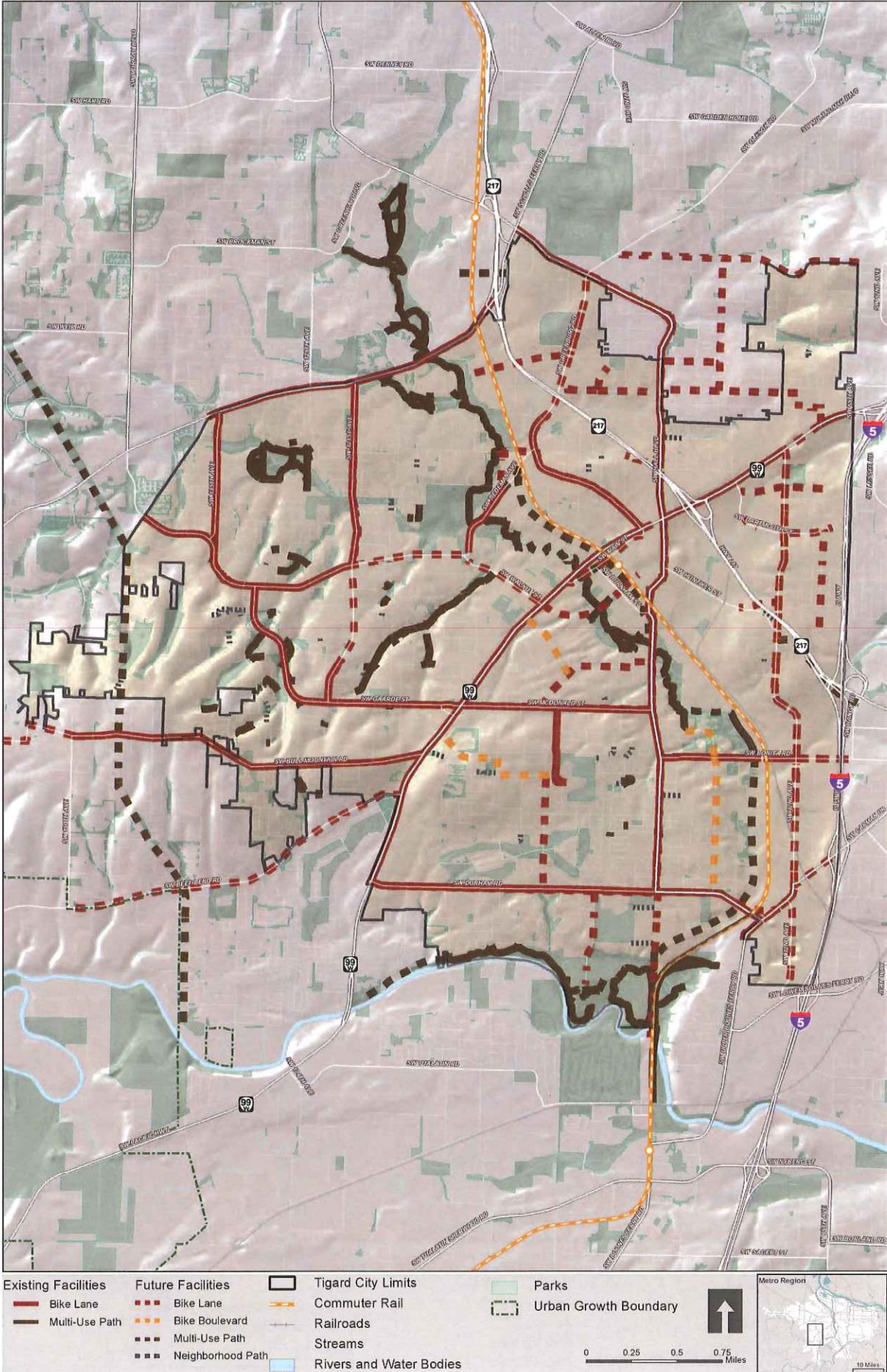


Fig. 13: City of Tigard - Transportation - 2009 Transit Routes

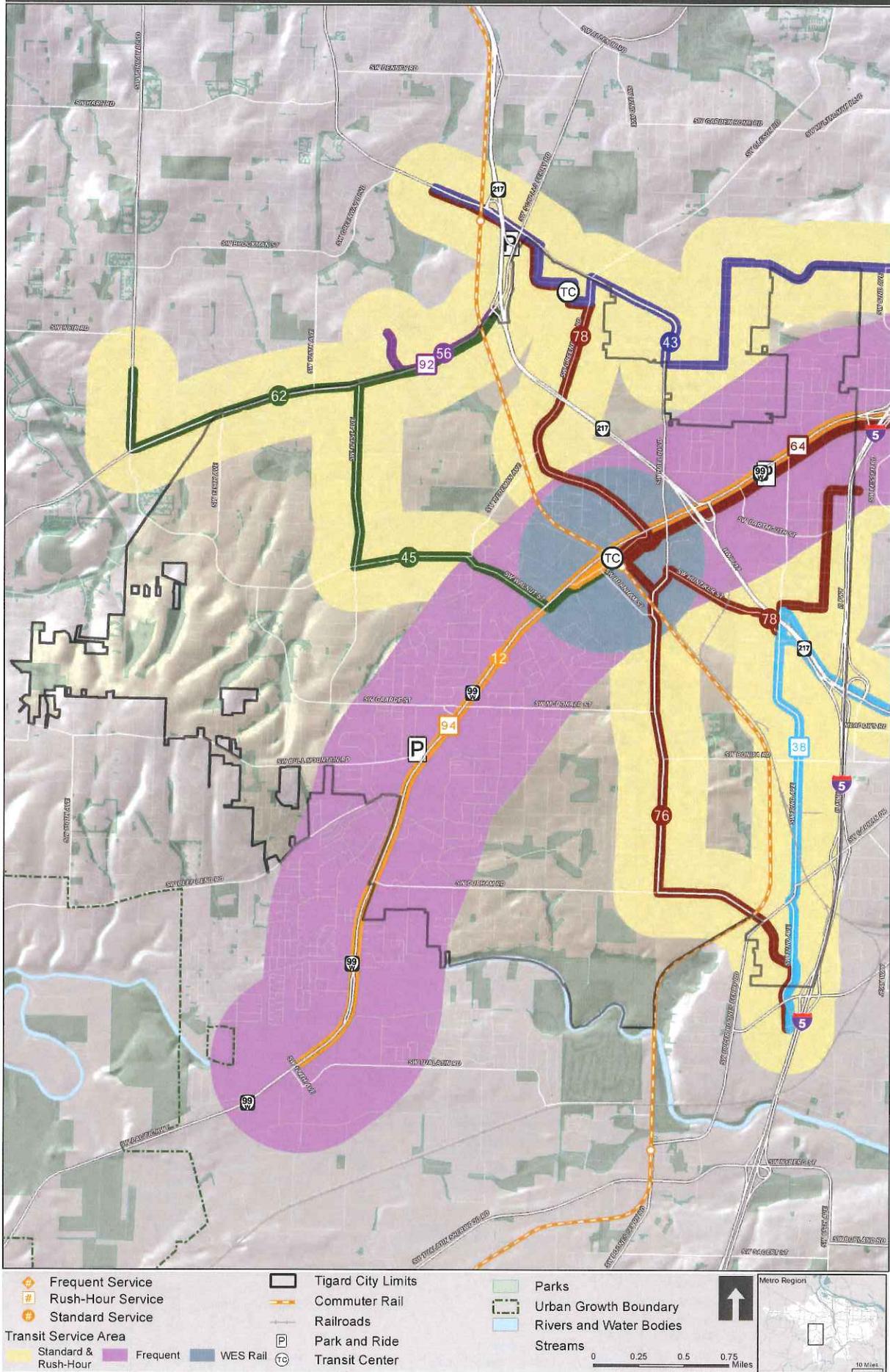


Figure 1-1: City of Tigard - Land Use - Existing

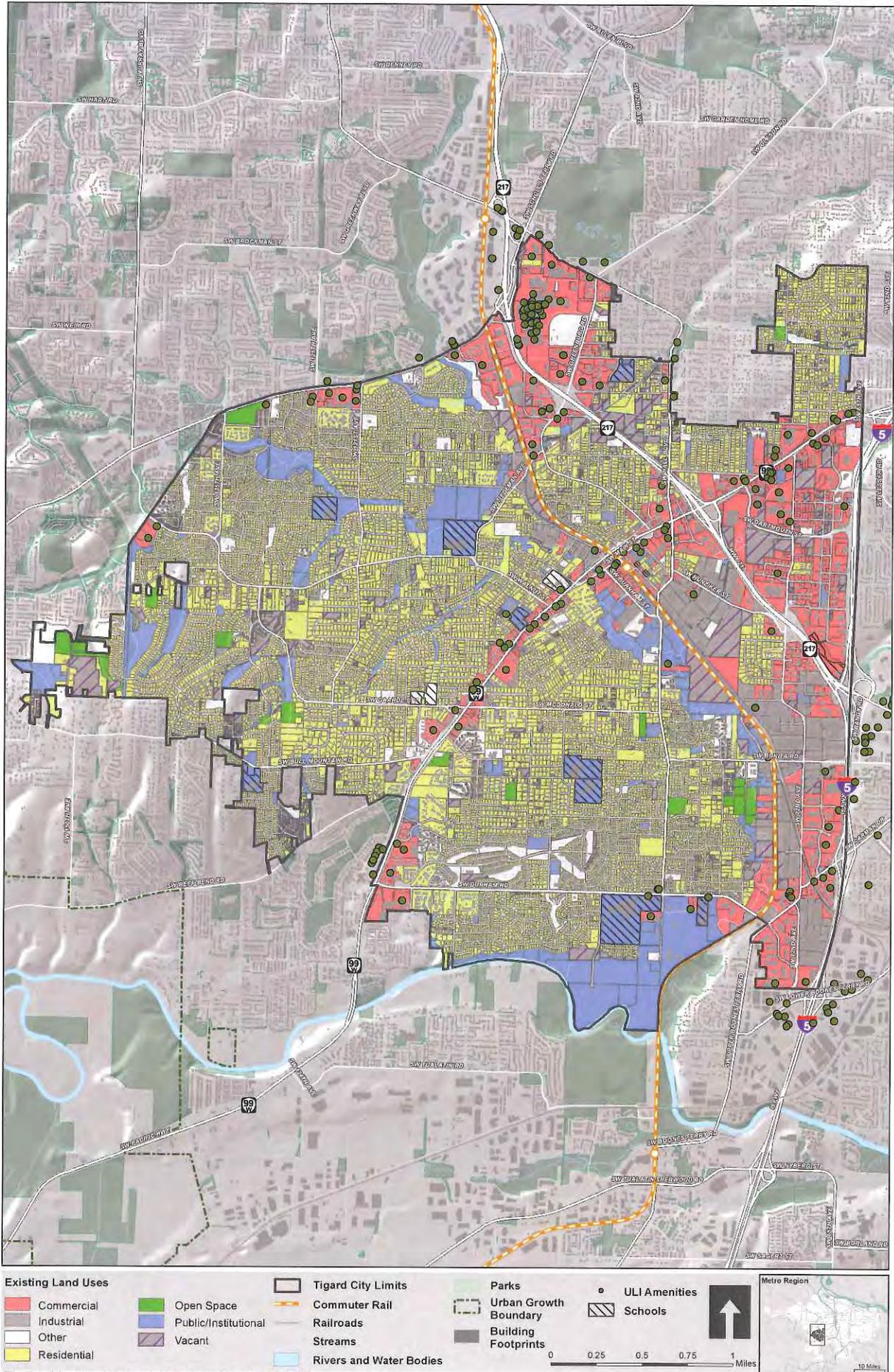
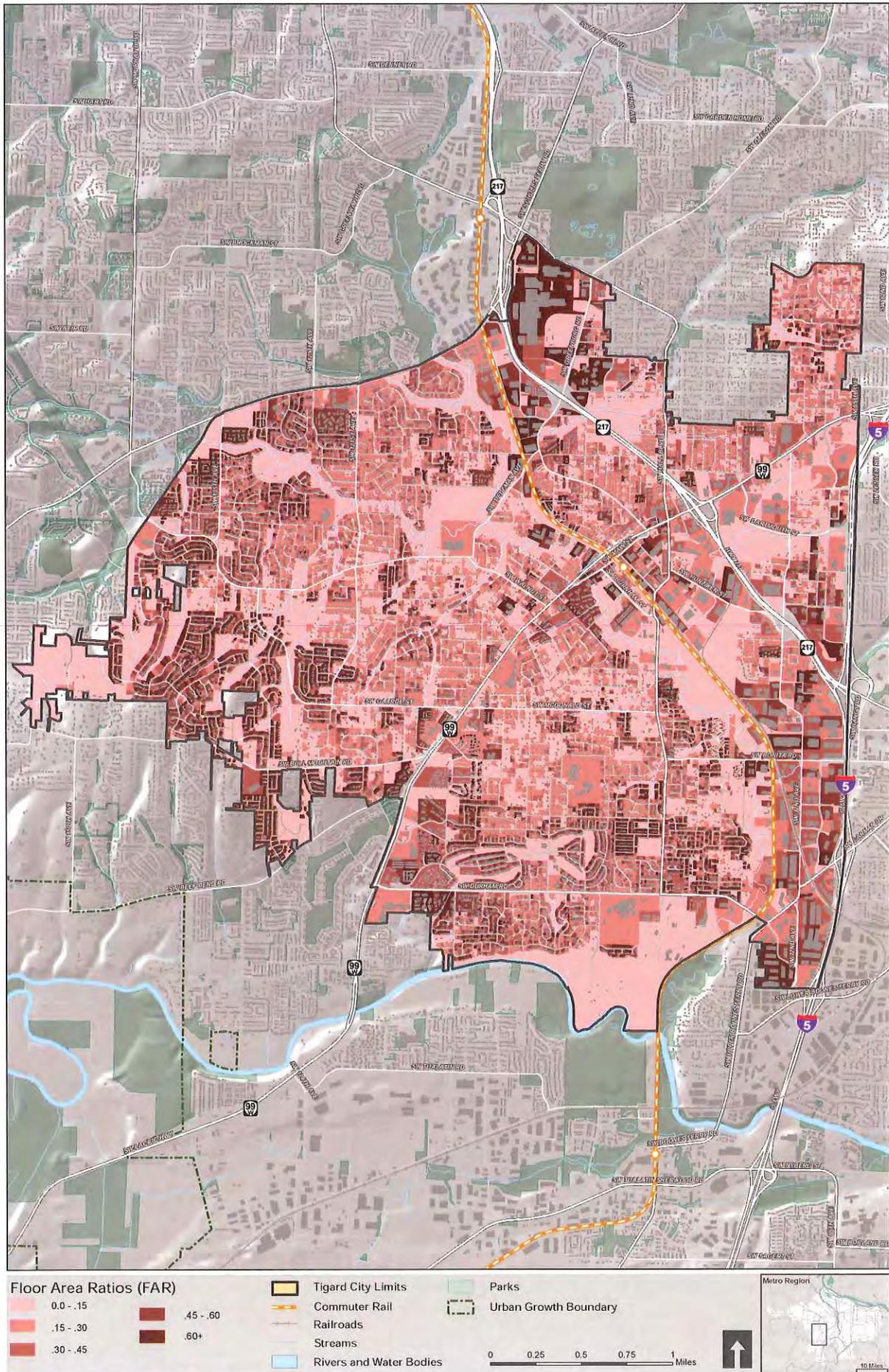


Figure 1-2: City of Tigard - Land Use - Floor Area Ratios



Floor Area Ratios (FAR)

- 0.0 - .15
- .15 - .30
- .30 - .45
- .45 - .60
- .60+

- Tigard City Limits
- Commuter Rail
- Railroads
- Streams
- Rivers and Water Bodies

- Parks
- Urban Growth Boundary

0 0.25 0.5 0.75 1 Miles



Figure 1-3: City of Tigard - Land Use - Buildable Land Analysis

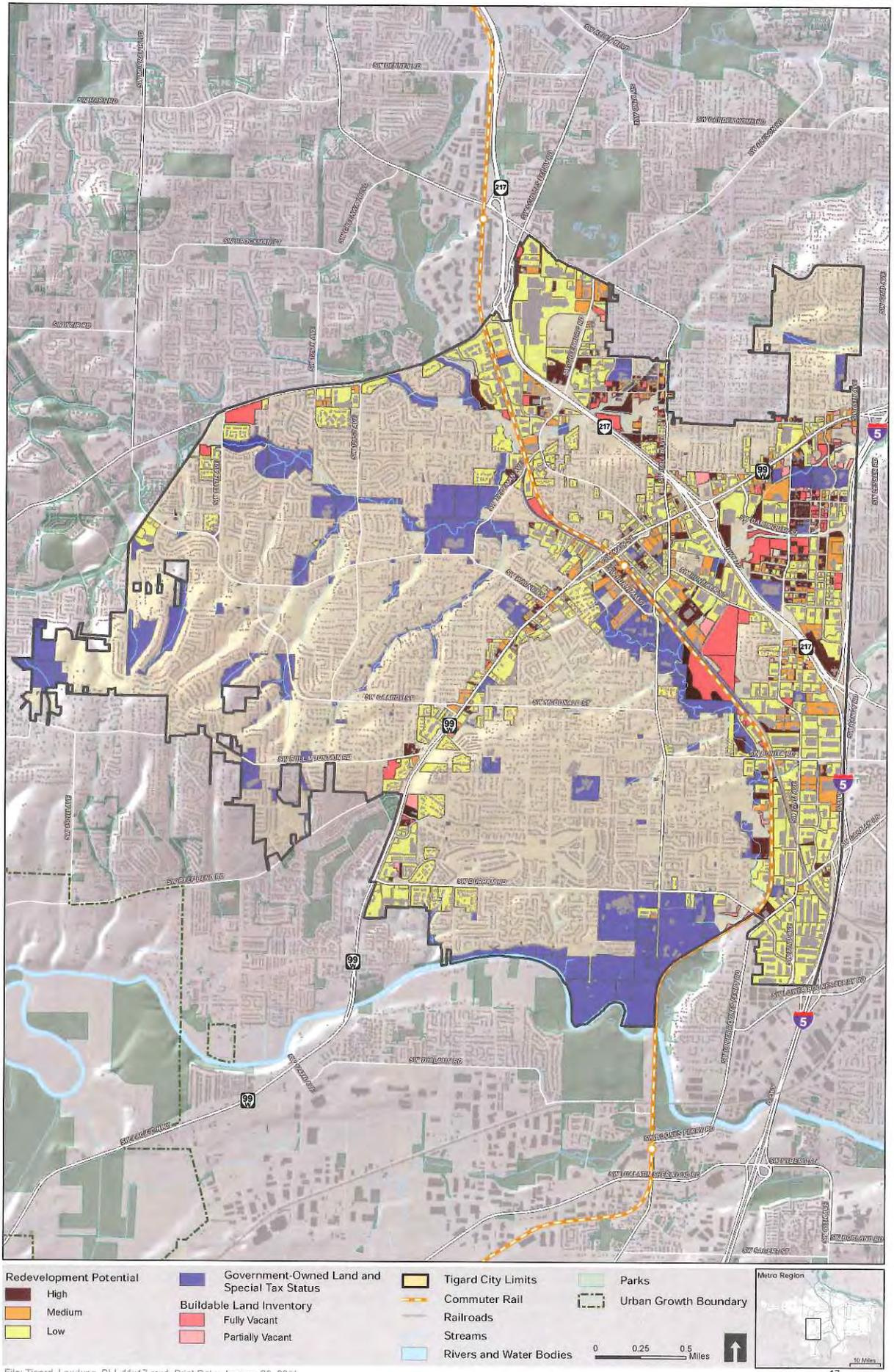


Figure 1-4: City of Tigard - Land Use - Comprehensive Plan

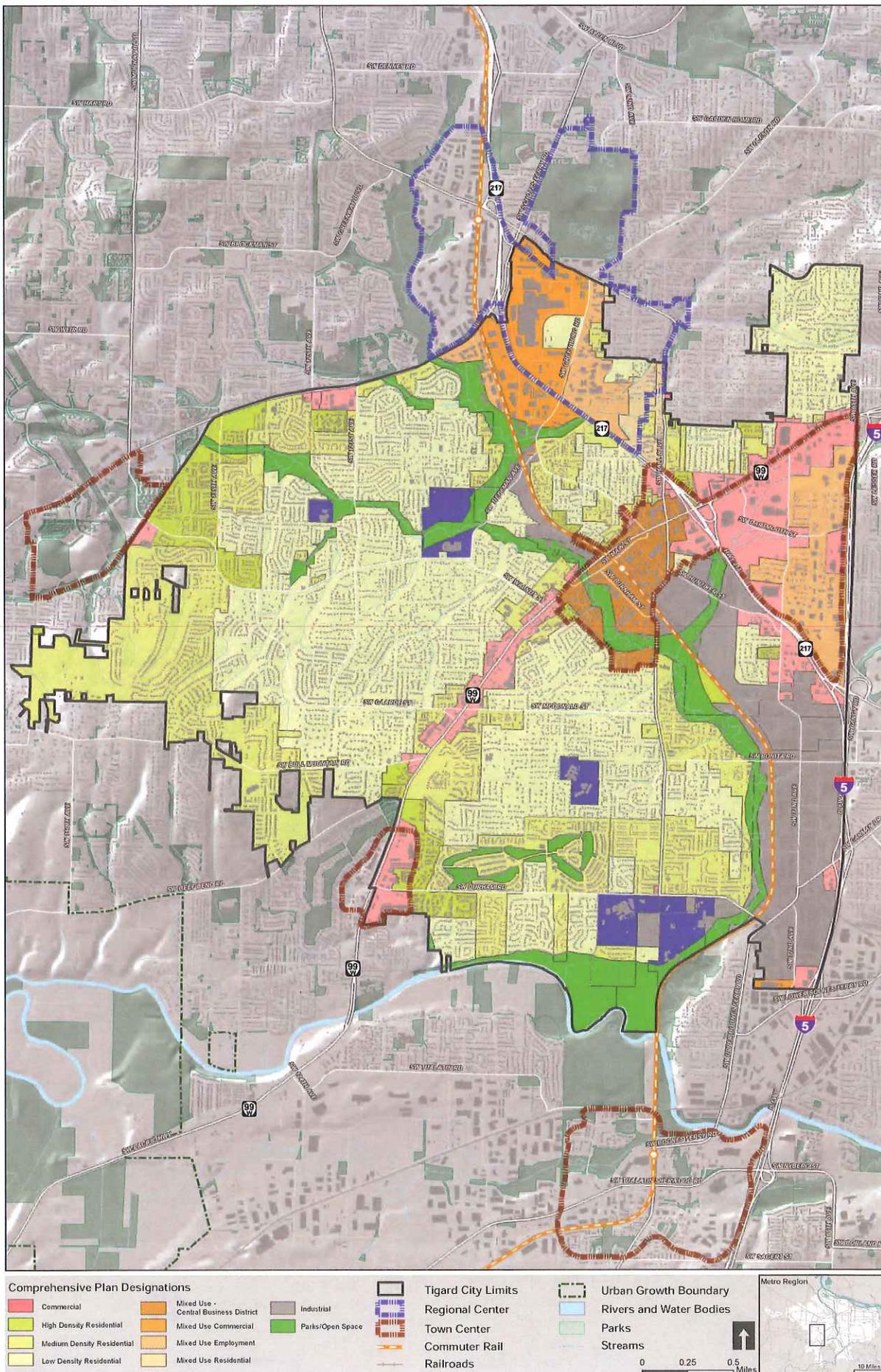


Exhibit 1-1 City of Tigard - Soils and Wetland Areas

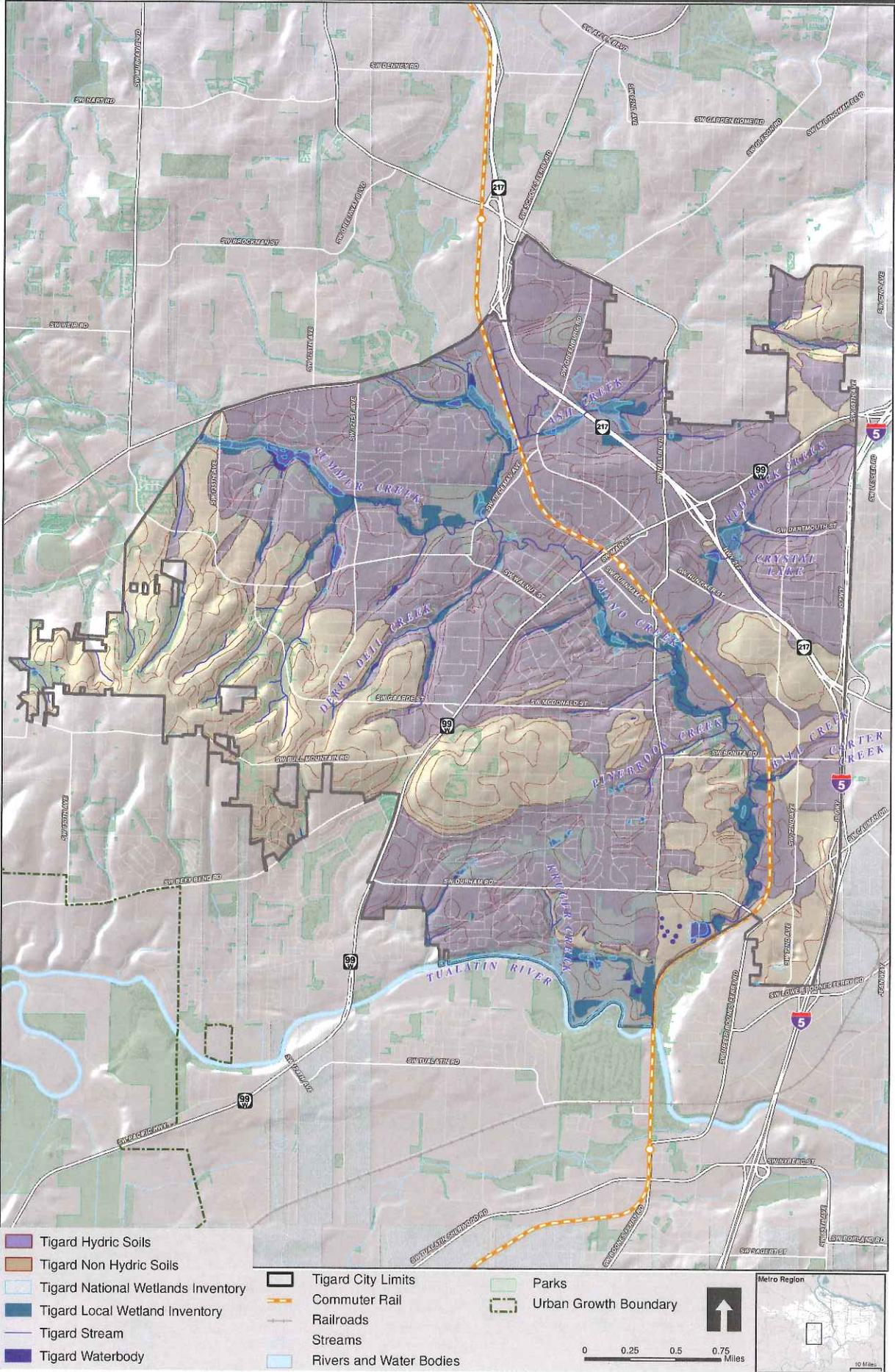
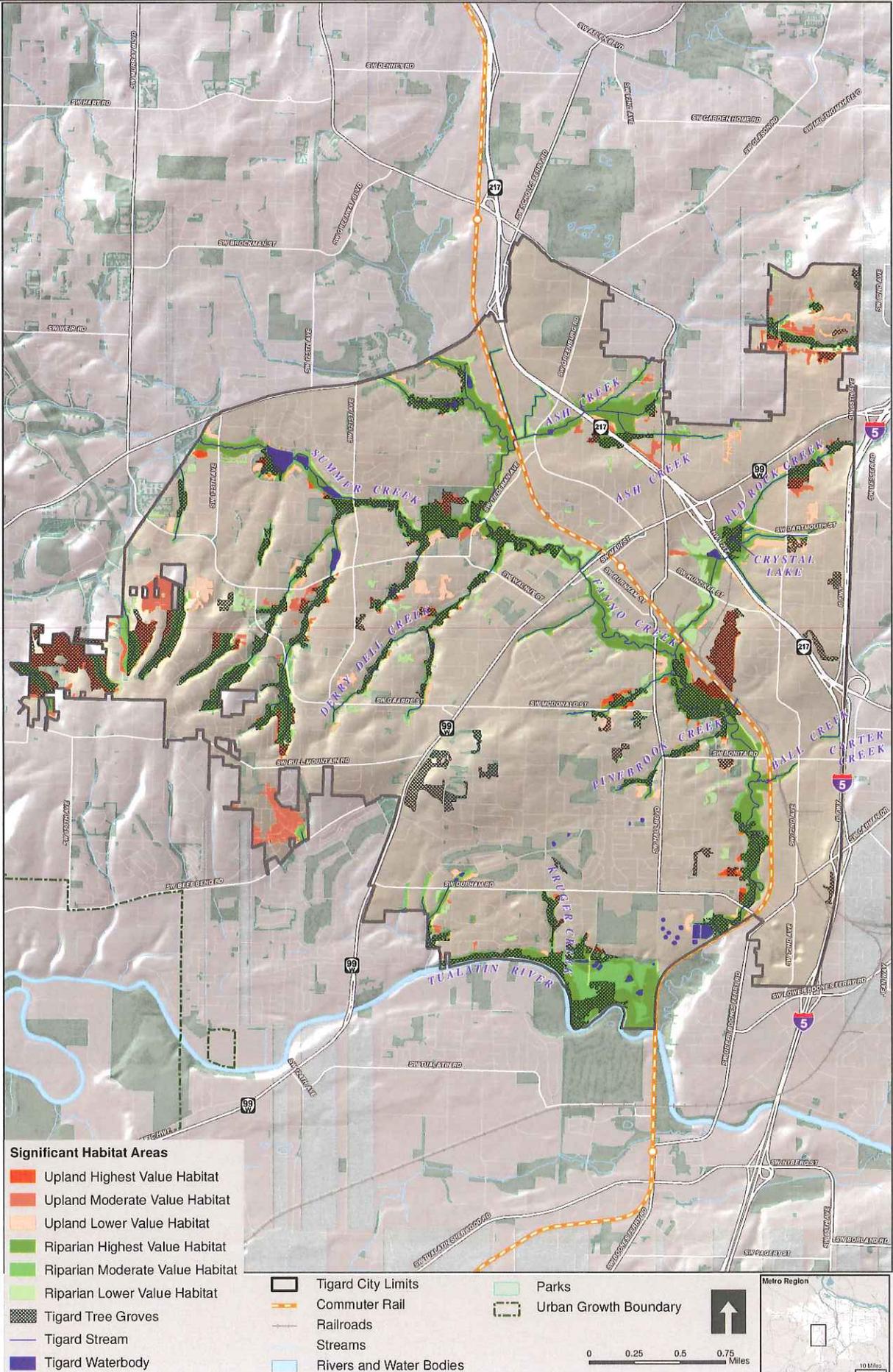


Exhibit 1-2 City of Tigard - Significant Habitat Areas



- Significant Habitat Areas**
- Upland Highest Value Habitat
 - Upland Moderate Value Habitat
 - Upland Lower Value Habitat
 - Riparian Highest Value Habitat
 - Riparian Moderate Value Habitat
 - Riparian Lower Value Habitat
 - Tigard Tree Groves
 - Tigard Stream
 - Tigard Waterbody

- Tigard City Limits
 - Commuter Rail
 - Railroads
 - Streams
 - Rivers and Water Bodies
 - Parks
 - Urban Growth Boundary
- 0 0.25 0.5 0.75 Miles



Figure 1. City of Tigard Water System

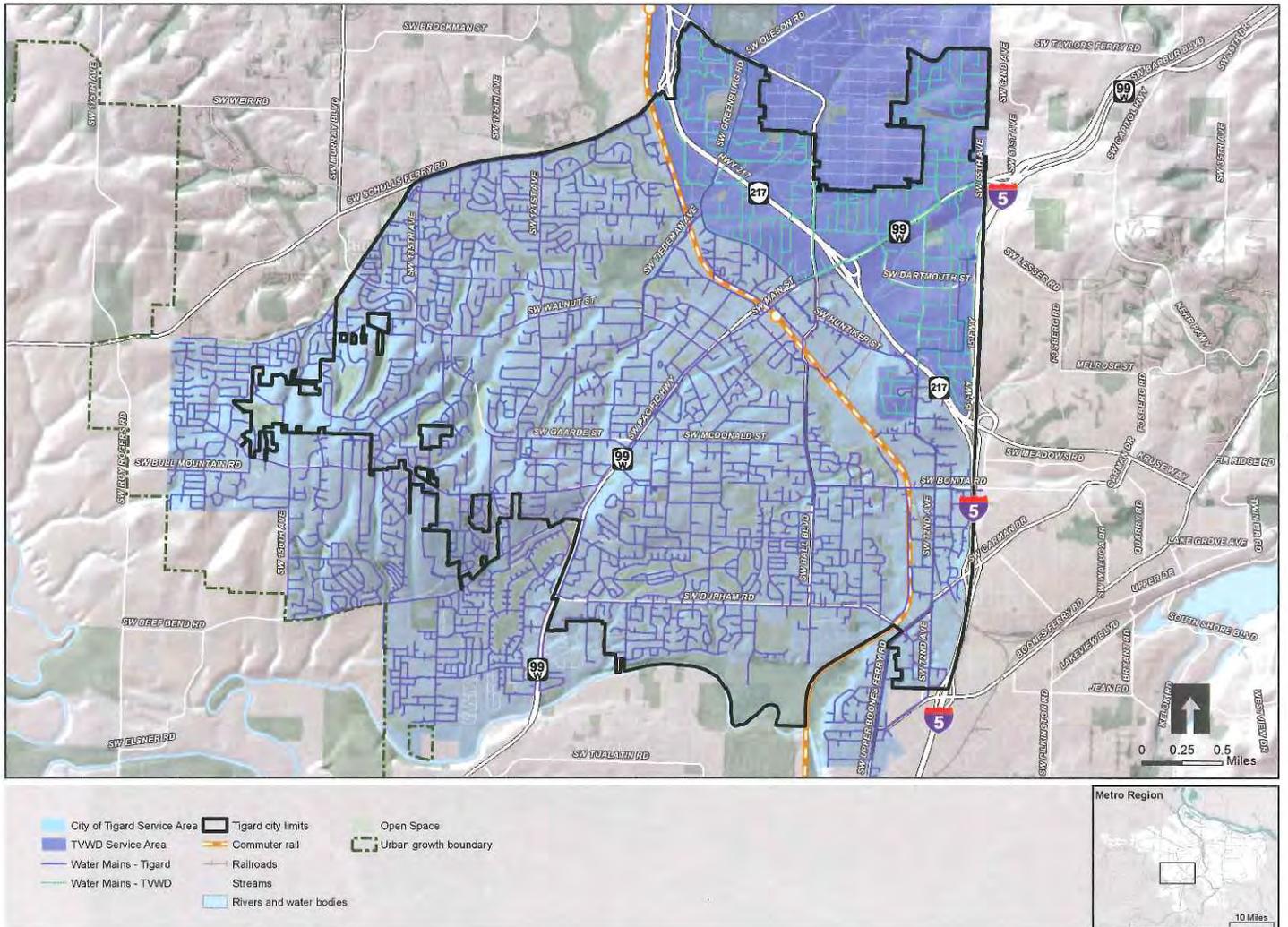
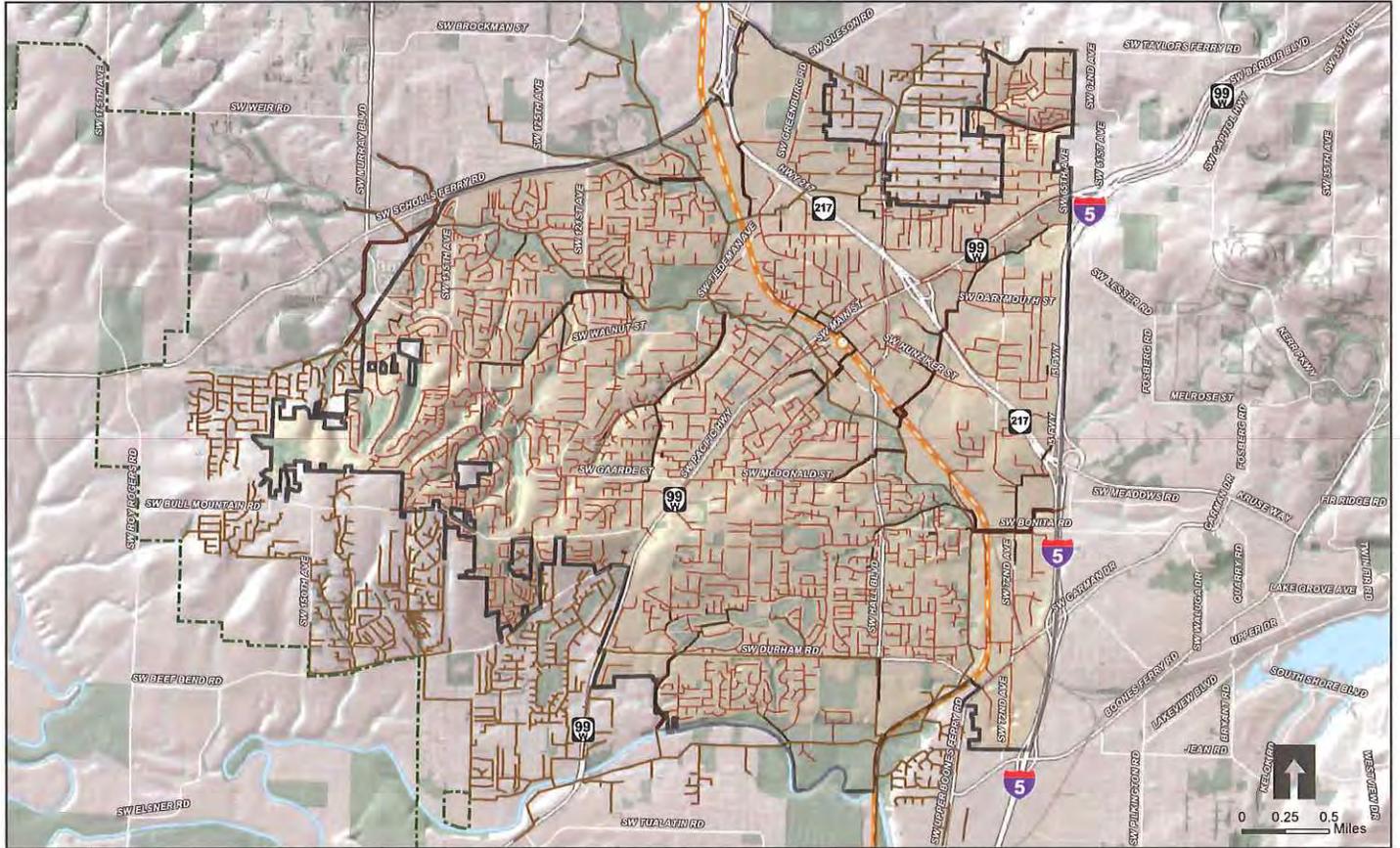


Figure 2. City of Tigard Sanitary Sewer System



- | | | |
|--------------------------------------|-------------------------|--------------------|
| City of Tigard Sanitary Mains | Urban growth boundary | Open Space |
| 4 - 8 in | Commuter rail | Tigard city limits |
| 9 - 10 in | Railroads | |
| 11 - 15 in | Streams | |
| 16 - 24 in | Rivers and water bodies | |
| CWS Owned | | |



Figure 3. City of Tigard Stormwater System

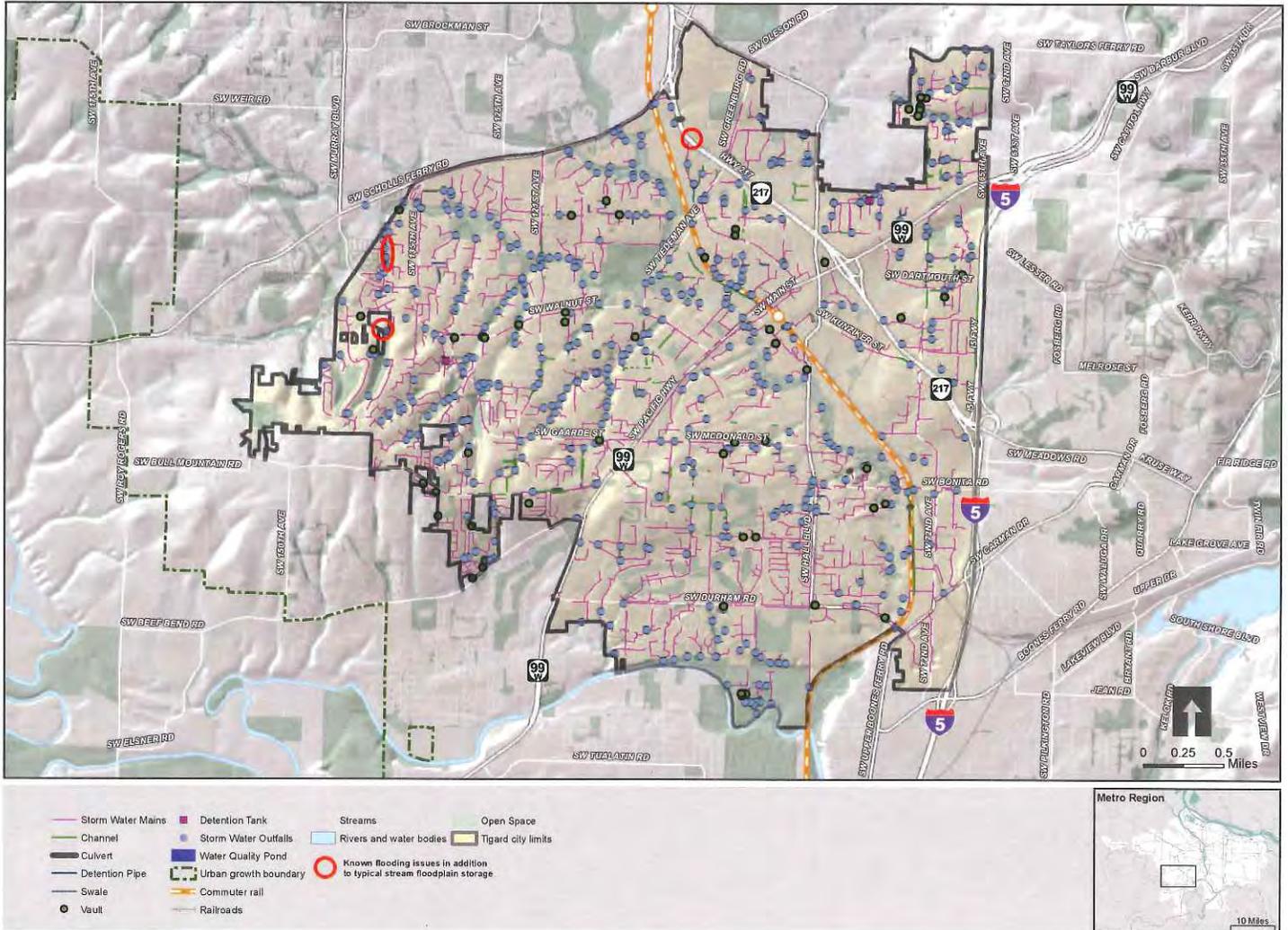
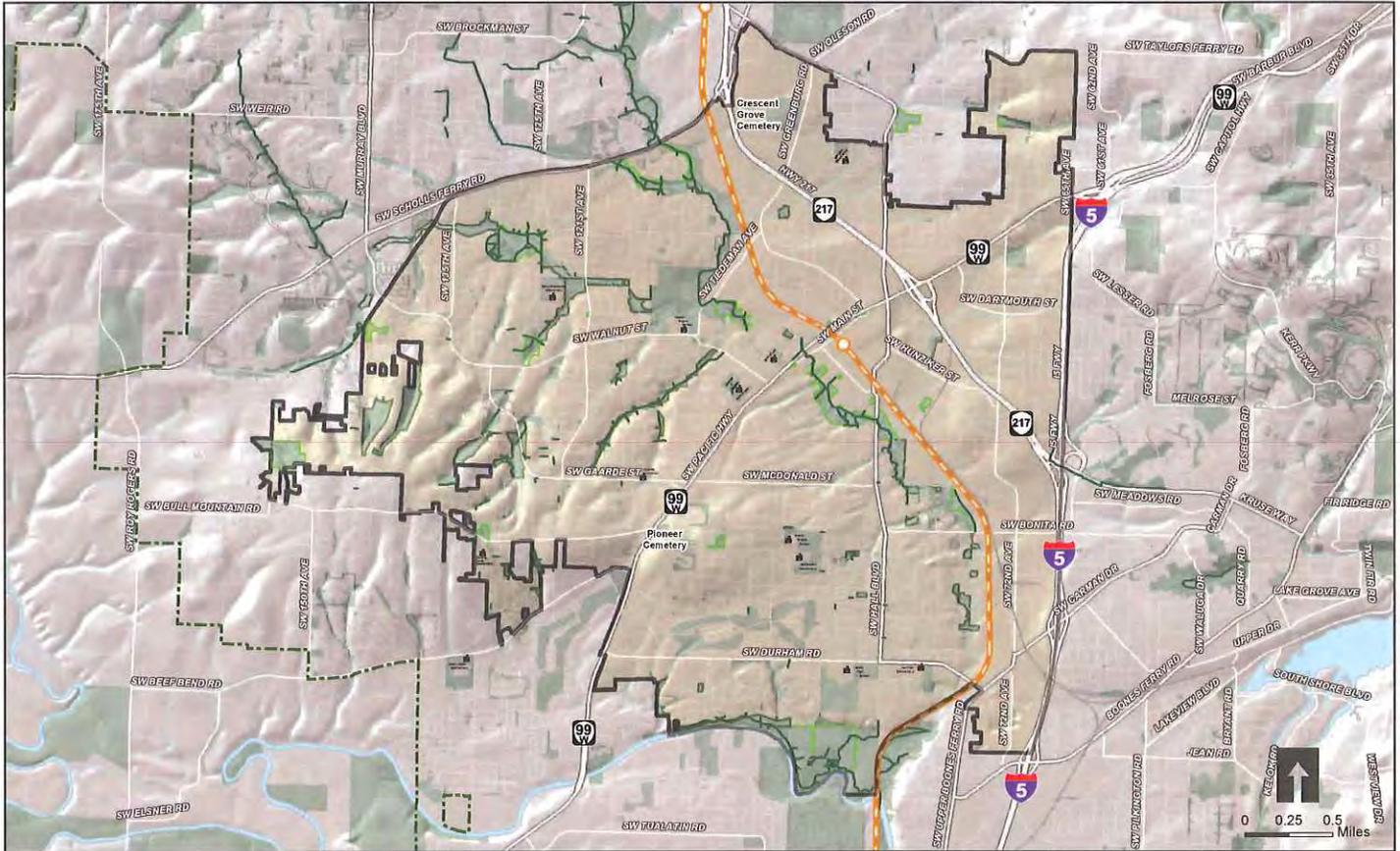


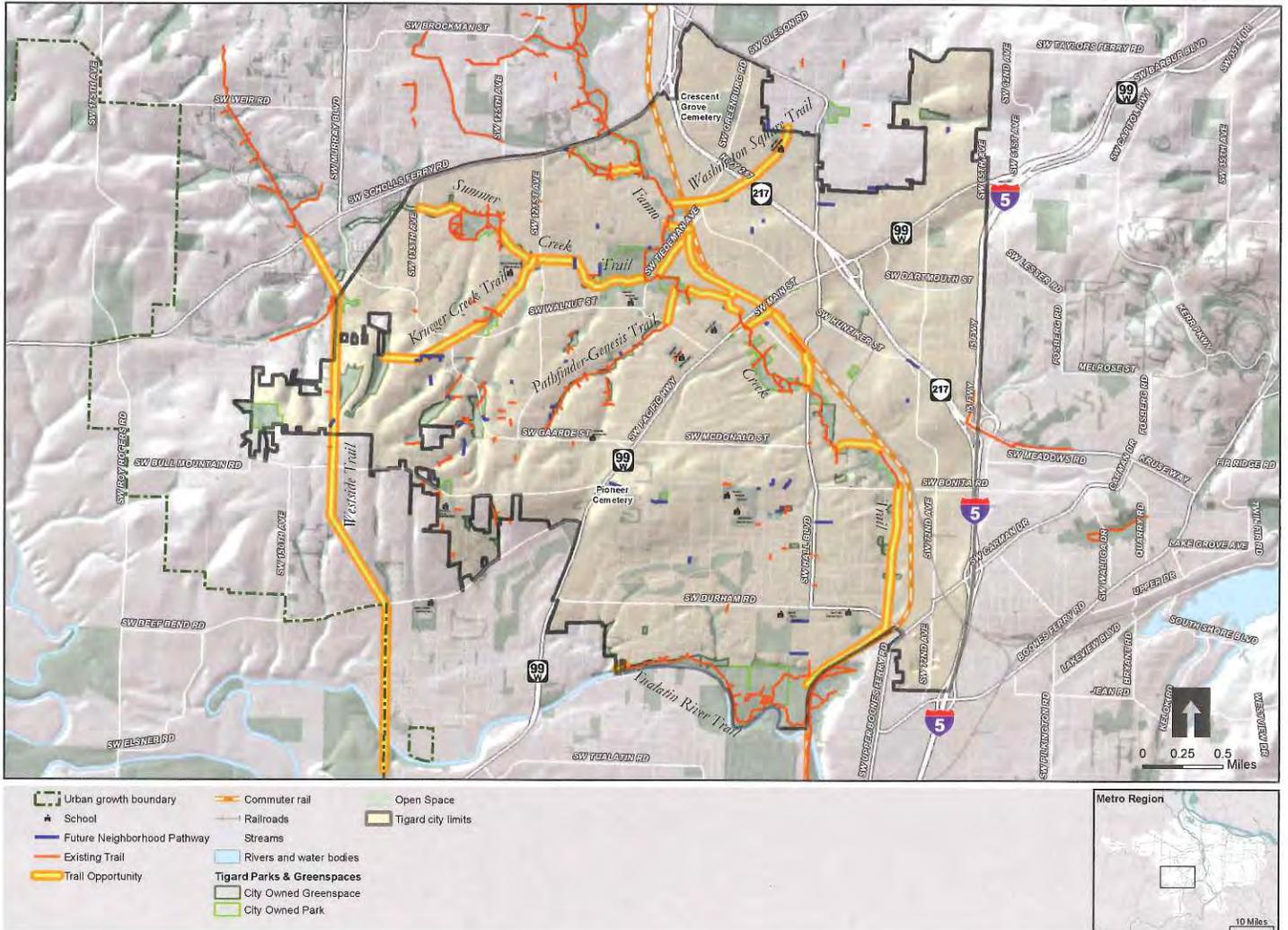
Figure 4. City of Tigard Parks and Greenspaces



- | | | |
|---------------------------------------|-------------------------|-----------------------|
| Tigard Parks & Greenspaces | Commuter rail | Open Space |
| City Owned Greenspace | Railroads | Urban growth boundary |
| City Owned Park | Streams | |
| Trails | Rivers and water bodies | |
| School | | |
| Tigard city limits | | |



Figure 5. City of Tigard Existing and Planned Trail System



CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

STATION COMMUNITY LOCATION MEMORANDUM

APPENDIX 2C





Date: Tuesday, May 10, 2011
To: Jason Franklin, Parametrix; Sean Farrelly & Judith Grey, Tigard; Lidwien Rahman, ODOT
From: Crista Gardner and Alan Gunn, Metro
Subject: TGM Tigard HCT Land Use Plan Task 3.1: Draft Station Community Location Memo

Community planning must balance multiple interests to create vibrant communities that offer a diversity of jobs, housing and amenities while enhancing each neighborhood's unique character. However traditional planning for high capacity transit has focused on potential transit ridership and travel times, as supported by existing land uses conditions and zoning.

The Portland metropolitan area has created a new approach: Local community aspirations should shape the route of high capacity transit. Before a line has been drawn on the map, communities decide where to promote the development of high amenity, mixed-use and prosperous neighborhoods and job centers to be served by high capacity transit. Leading with land use planning enhances local control in shaping the look of station communities and leverages other investments, such as bicycle and pedestrian access improvements, to support the transit investment.

The region designated the Southwest Corridor as the next priority for the development of high capacity transit (HCT) and will begin an Alternatives Analysis in fall 2011. In order to shape potential candidate station communities and routes, the City of Tigard embarked on the HCT Land Use Plan in 2010.

This memo outlines the locations for six potential station area communities in the city, chosen for the current community assets, such as urban form, amenities, bicycle and pedestrian connectivity, development potential and transit ridership indicators.

Each of these potential candidate station communities represents options for potential high capacity transit routes. Not all of these candidate station communities will be developed as station communities or with station platforms. Potential HCT routes will be identified, analyzed and narrowed through the Transit Alternatives Analysis.

The following proposed station community locations are based on the data collected and analyzed for the Tigard HCT Land Use Plan Existing Conditions Report and Maps, Stakeholder Interview Summary, and Typologies Memo. The locations of these candidate station communities were based on the Tigard HCT Land Use Plan evaluation objectives:

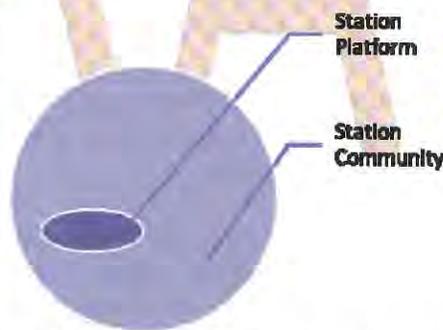
- Community: Link land use and transportation solutions to promote an efficient and compact urban form that fosters vibrant, healthy communities; optimizes public investments; serves as a catalyst for private investment; preserves and protects existing stable neighborhoods; and supports active transportation options, jobs, schools, shopping, services, recreational opportunities and housing proximity.

- **Economy:** Support a diverse and growing local economy through the movement of people, goods, and services and access to housing, jobs, services, shopping, educational, cultural and recreational opportunities.
- **Transportation:** Provide safe, efficient, and affordable transportation options for accessing housing, jobs, services, shopping, educational, cultural and recreational opportunities, and facilitate competitive choices for goods movement.
- **Environment:** Create access to natural resources, open spaces, trails and parks; support active living that contributes to human health; minimize impacts to natural systems.
- **Equity:** Create a place that provides opportunities and benefits for members of the community.
- **Fiscal Stewardship & Policy Coordination:** Leverage the policies and investments of Southwest Corridor Plan and other applicable studies or grant opportunities.

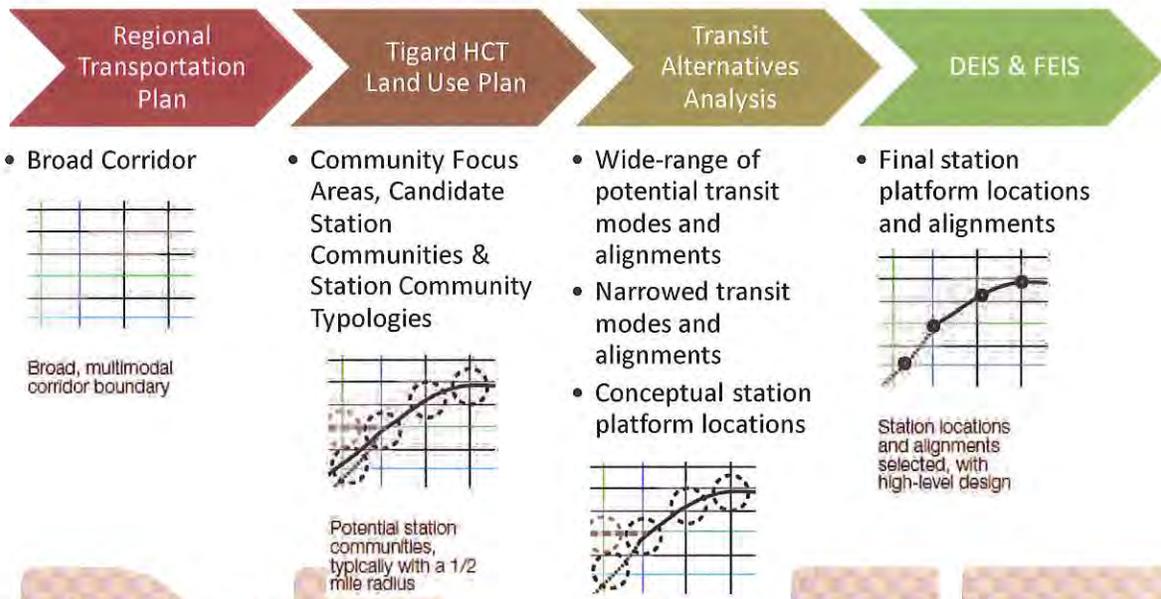
Introduction

Determining station community and station platform locations is an iterative process, completed over many years with the input of citizens, politicians, planners, engineers, transit operators, environmental specialists, and high capacity transit designers.

For the Tigard HCT Land Use Plan, the first step in preparing for high capacity transit is to identify places with an established community character or where Tigard citizens would like to see new development or revitalization. The places identified in this analysis have one-mile diameter to include all possible public improvement and private development potential within walking distance of a potential transit station platform. These candidate station community locations are for the HCT Land Use Plan purposes of analyzing the potential for land use and infrastructure changes only. These may change depending on future high capacity transit project development phases.



These station community locations must also fit the protocol to locate an eventual station platform. Station platforms could occur anywhere within these candidate station communities and this analysis does not assign the station platform to a specific intersection, block or other identifier. Rather, this analysis looks at the whole station community. Station platform locations are most often decided during the FEIS or Preliminary Engineering Phase of a high capacity transit project. In the case of the Southwest Corridor, that phase is not expected to happen for five to ten years at the earliest.



Graphic Source: Nelson Nygaard

The final high capacity transit route, mode and stations will be analyzed during the Southwest Corridor Transit Alternatives Analysis. The final transit alignment, mode and stations would not be determined until or if the Southwest Corridor Final Environmental Impact Statement and Preliminary Engineering are completed.

Background

This is the first time in the Portland region that land use has led a high capacity transit effort. Therefore, we conducted research to see if we could learn from the experience of other transit systems or metropolitan regions.

Nelson Nygaard completed a *System Expansion Policy Best Practices Memo* (2011) on Transit Station Locations, which contains a summary of research and literature review on U.S. transit systems, academic papers, GIS journals, and appropriate publications of professional organizations (APA, APTA, TRB, etc.) This research shows that most national transit systems have only considered station community locations after the general high capacity transit route had been determined. None have let land use lead.

The station location guidelines analyzed in the *System Expansion Policy Best Practices Memo* include those by the Fort Worth Transportation Authority, the Metropolitan Council (Minneapolis/Saint Paul, MN), and the Dallas Area Rapid Transit (DART). This analysis also considered the previous efforts in the Portland region to define successful station communities, for the Portland-Milwaukie Light Rail Project and for the I-205 Light Rail Project, *Portland LRT Station Area Best Practices Assessments and Recommendations* (2009 & 2007). These documents provide a basis for considering station community locations and station platform locations after a route is chosen. However, the type of criteria considered provides insight on how to design the initial station community locations.

In order to gain the institutional expertise and experience for the purpose of determining station community locations, we met with the following stakeholders: Tigard engineers and land use planners;

TriMet engineers and planners; ODOT engineers and planners; and Metro transportation, land use and transit-oriented development planners. Each stakeholder brought different perspectives, underlying interests and positions on how to best determine station community locations. Some concentrated on federal funding eligibility, transit usage, transportation and transit system operations while other focused on community and economic development. The scale of considerations ranged from federal requirements for transportation projects to neighborhood character and from the state transportation system to the regional land use and transit system.

Finally, we reviewed the System Expansion Policy Framework. The System Expansion Policy Framework was adopted as part of the 2035 Regional Transportation Plan (2010). The subsequent *Draft System Expansion Policy Implementation Guidance* (Metro, April 2011) directs the development of new high capacity transit routes in the Portland Metro Region through a series of performance criteria. When considering potential transit corridors, the policies help guide ridership development, the creation of transit oriented development, station area planning policies, and strategic right-of-way acquisition. The SEP guidelines serve as benchmarks, relative to other locations within the Portland region that Tigard needs to consider when making future land-use decisions along the transit corridor.

System Expansion Criteria	Description
<i>People - Density of People</i>	Current households and jobs per net acre within ½ mile
<i>Place -Density of Urban Amenities</i>	Number of urban amenities (cafes, grocery stores, bookstores, etc.) within ½ mile
<i>Physical Form - Average Block Size</i>	Density of acres of blocks within ½ mile
<i>Ped/Bike - Sidewalk Coverage & Bicycle Facility Coverage</i>	Completeness of sidewalk infrastructure within ½ mile and Access to bicycle infrastructure measured as distance to nearest bicycle facility within ½ mile
<i>Performance - Transit Connectivity</i>	Bus frequency within ½ mile of corridor

Methodology

Phase One- Identify Community Focus Areas - evaluated the overall potential for transit location in that area. Transit is generally located in proximity to either established community densities or planned densities, around major activity centers or landmarks, where there is established transit ridership, at key roadway intersections, and avoiding single family neighborhoods and federally protected environmentally sensitive lands and parks. This step allowed the project to identify general sketch-level community focus areas where potential candidate station communities would likely be based on basic transit location theory.

Phase Two -- Analysis of Community Focus Areas to support Candidate Community Stations - evaluated the station community locations sketched in the first phase for distinct differences among them. The candidate station communities were evaluated based on their existing community assets, development potential, and transit ridership potential.



Phase Three - Tradeoffs –During the Southwest Corridor Transit Alternatives Analysis and Transportation Plan, the region will need to examine the balance between system access and operating speed. Additional stations provide more convenient access for riders living nearby and more community development potential, but increase overall travel time which may have a negative effect on transit ridership and increased operating costs.

Phase One - Identify Community Focus Areas

Phase one focuses on the importance of initial, basic screening to determine community focus areas for the analysis conducted in phase two and next steps. Using a map of the following information, we sketched out logical community focus areas within the City of Tigard for potential candidate station communities based on the following geographical data:

- System Expansion Policy – Community Assets
 - People – Density of people
 - Place – Density of urban amenities
- Development Potential Indicator
 - 2040 Centers & Corridors
- Transit Ridership indicators
 - Major activity centers or landmarks
 - Existing Transit ridership
- Transit Location Factors
 - Avoid single family neighborhoods
 - Avoid environmentally sensitive lands (title 13) and parks
 - Locate near major or minor arterial roadways and intersections

The resulting map is attached in the Appendix.

Phase Two – Analysis of Community Focus Areas to support Candidate Community Stations

Phase two focuses on the importance of community characteristics, potential future development, and potential future ridership in determining candidate station communities. During Phase One we identified at a sketch-level 13 community focus areas that might be appropriate for candidate station communities. In this phase, we refined that analysis by looking at data for each of the 13 areas to determine which would be the most advantageous/appropriate for candidate station communities.

In each of these subject areas, the data was divided into classes using the natural breaks, or Jenks method. Each of the community focus areas was assigned a one, the least desirable, to a four, for the most desirable outcome in each subject area.

First the 13 community focus areas were examined according to the *Draft System Expansion Policy Implementation Guidance* (Metro, April 2011) criteria, which are: People - Density of People¹, Place - Density of Urban Amenities, Physical Form - Average Block Size², Ped/Bike - Sidewalk Coverage & Bicycle Facility Coverage³, and Performance - Transit Connectivity⁴.

References - Similar measures were applied in the *TOD Strategic Plan* (Metro, 2011), *Tri-Met Primary Transit Network Phase II* (Nelson\Nygaard, 1997), *Twin Cities (MN) Regional Transitway Guidelines* (Metropolitan Council, 2011), *Southwest to Northeast Rail Corridor Station Planning Process and Guidelines Handbook* (Fort Worth Transportation Authority, 2007), *TOD Guidelines Handbook* (DART, 2008), the *Portland LRT 10 Station Area Best Practices Assessments and Recommendations*, and interviews with stakeholders. Market strength was also a criterion in the *TOD Strategic Plan* (Metro, 2011).

¹ Out of "40 land use and demographic variables studied, the most significant for determining transit demand are the overall housing density per acre, and the overall employment density per acre. These two variables alone predict 93% of the variance in transit demand among different parts of the region." (Nelson\Nygaard 1995). Density has been found to be more strongly associated with alternative mode choice than any other characteristic. (TCRP 1996). Studies by Ewing and Cervero (2001), and Seskin and Cervero (1996) measured one of six different outcome variables: trip frequency, trip length, mode choice, cumulative person miles traveled (PMTs), vehicle miles traveled (VMTs), or vehicle hours traveled (VHTs). They found mode choice is affected primarily by density and land use. (A. Johnson, 2003)

² Metro has found that, in addition to density and land use mix, street connectivity is a significant explanatory variable of pedestrian mode choice. Its experience is confirmed in several simulations, which have found significant reductions in VMT in rectilinear vs. suburban neighborhoods. (TCRP 1995 and Metro 1997)

³ The acceptable walking distance has generally been found to be about 0.25 of a mile to transit, although research has shown that people will walk further for higher-quality rail service. A study of walking in Calgary found that the average walking distance to bus stops is a little less than a quarter mile. The quality and frequency of transit service also impacts the choice to take transit. If service is reliable and frequent, people will tend to walk further to use transit. (O'Sullivan and Morrall 1995) Continuous sidewalks provide a safe haven for pedestrians. Sidewalks along roadways decrease pedestrian-vehicle accidents by as much as 35%. (Untermann 1984) The Land Use Transportation Air Quality (LUTRAQ) identified a composite of four attributes influencing the choice to walk and bicycle including ease of crossings, sidewalk continuity, street connectivity, and topography. The analysis of the LUTRAQ simulation of the Portland suburbs revealed that in areas with high PEF scores people would make fewer automobile trips. Households would make over three times as many transit trips and four times as many walk and bicycle trips as those in areas with lower PEFs. (TCRP 1995.) (Portland Bureau of Transportation, 2011:

<http://www.portlandonline.com/transportation/index.cfm?a=90122&c=36900>) "Transit systems can only be successful and self-sustaining if most people live, work, and shop near a transit stop. When people cannot easily walk to and from the transit stop, they are unlikely to use the system." (Local Government Commission 1992)

⁴ "If transit runs every 15 minutes or better, wait times are short enough that the system can be used spontaneously. Passengers can simply wait at a stop without worrying about whether schedules are coordinated or the bus is on time. ...Very frequent transit service provides basic freedoms that people associate with driving, such as the ability to make trips spontaneously or to make multiple stops in the course of a trip." (Nelson\Nygaard 1995)

System Expansion Policy - Community Assets							
Community focus areas	People – Density of people	Performance – Transit connectivity	Ped - pedestrian connectivity and access	Bike – Bicycle connectivity and access	Place – Density of urban amenities	Physical form – Density of intersections, or block size	Total
Washington Square	4	4	1	2	4	1	16
King City/ Summerfield	2	3	3	2	3	3	16
Tigard Triangle on 99W	1	4	3	3	3	3	17
Downtown	2	4	1	4	3	1	15
Tigard Triangle Central	1	4	3	2	2	2	14
Scholls Ferry	3	3	3	4	2	3	18
South Downtown	2	4	2	4	3	2	17
Murray Scholls Town Center	3	2	2	2	2	3	14
Gaarde & 99W	2	3	3	3	2	3	16
Tigard High School	2	2	4	3	1	4	16
Kruze Way Adjacent	2	1	3	1	1	2	10
Bridgeport Village	3	3	1	2	4	1	14
Upper Bridgeport Village	3	2	1	1	2	1	10

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Then the 13 community focus areas were examined according to development potential based on the 2040 Growth Concept designation, vacant or partial vacant lands, market strength and floor area ratio.

References -Development potential was a station location criteria noted in the *Twin Cities (MN) Regional Transitway Guidelines* (Metropolitan Council, 2011), *TOD Guidelines Handbook* (DART, 2008), the *Portland LRT 10 Station Area Best Practices Assessments and Recommendations*, and interviews with stakeholders. Market strength was also a criterion in the *TOD Strategic Plan* (Metro, 2011).

Community focus areas	Development Potential Indicator						Total
	2040 Center	2040 Corridor	Vacant Acreage	Partial Vacant Acreage	Market Strength	Floor Area Ratio	
Washington Square	2	2	2	2	1	2	11
King City/ Summerfield	2	2	1	3	3	3	14
Tigard Triangle on 99W	2	2	3	4	2	1	14
Downtown	2	2	1	3	2	1	11
Tigard Triangle Central	2	2	4	4	1	1	14
Scholls Ferry	2	2	*	*	3	2	9
South Downtown	2	2	1	2	2	1	10
Murray Scholls Town Center	2	2	1	*	3	4	12
Gaarde & 99W	0	2	1	1	3	2	9
Tigard High School	0	2	*	*	4	2	8
Kruze Way Adjacent	2	2	4	1	1	3	13
Bridgeport Village	0	0	*	*	1	1	2
Upper Bridgeport Village	0	0	*	3	1	2	6

*No data. Outside City of Tigard Boundaries.

Finally, the 13 community focus areas were examined according to ridership potential based on current transit ridership, auto ownership per household⁵, retail businesses and employment⁶, and major activity centers, including hospitals, major retail sites, grocery stores, elementary, middle and high schools, parks/open spaces, major social service centers, colleges and universities, large employers, libraries and major government.

References -Transit ridership potential was a station location criteria used in the *Tri-Met Primary Transit Network Phase II* (Nelson\Nygaard, 1997), *Twin Cities (MN) Regional Transitway Guidelines* (Metropolitan Council, 2011), *TOD Guidelines Handbook* (DART, 2008), and interviews with stakeholders.

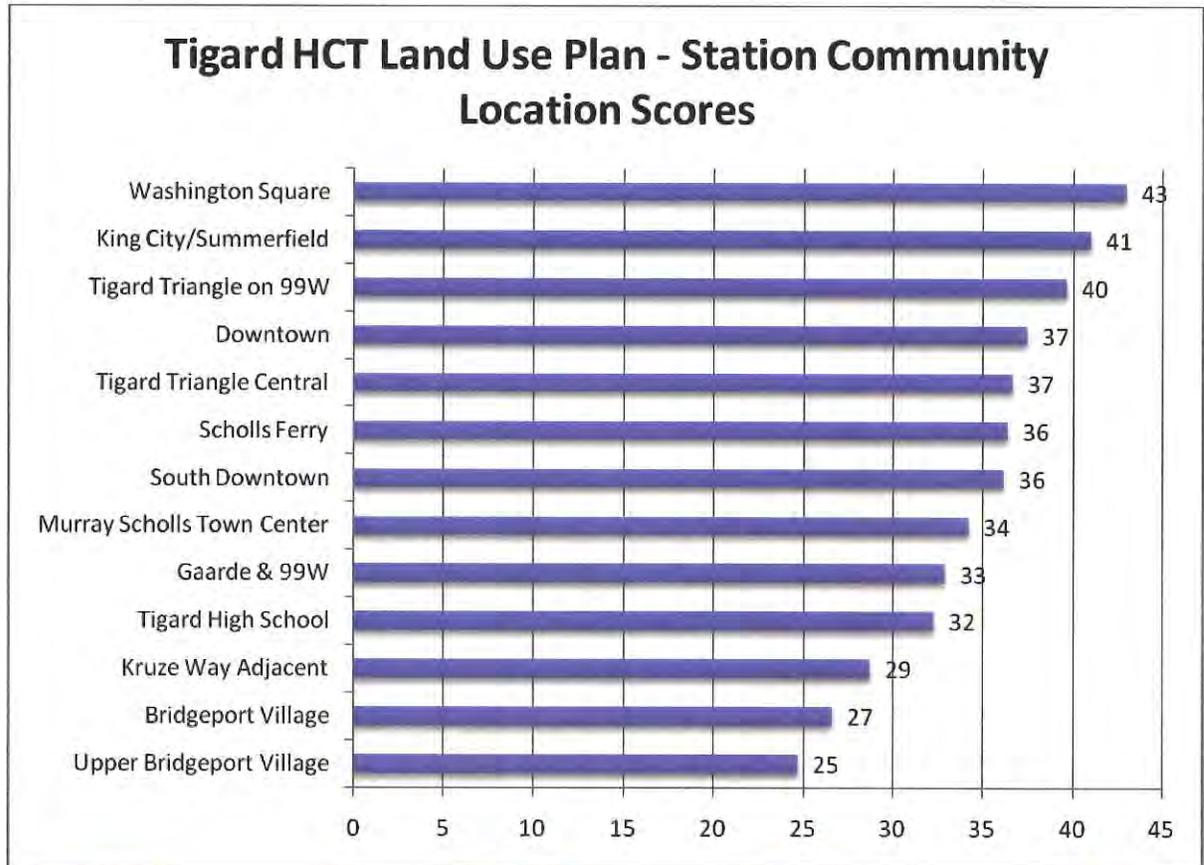
Transit Ridership indicators						
Community focus areas	Transit Ons & Offs	Auto Ownership	Retail Businesses	Retail Employment	Major Activity Centers*	Total
Washington Square	4	3	4	4	1	16
King City/ Summerfield	2	4	2	2	1	11
Tigard Triangle on 99W	3	1	2	2	0.6	8.6
Downtown	4	3	2	1	1.5	11.5
Tigard Triangle Central	2	2	2	2	0.6	8.6
Scholls Ferry	2	4	1	1	1.4	9.4
South Downtown	4	1	2	1	1.2	9.2
Murray Scholls Town Center	1	3	1	2	1.2	8.2
Gaarde & 99W	2	3	1	1	0.9	7.9
Tigard High School	1	4	1	1	1.3	8.3
Kruze Way Adjacent	1	1	1	2	0.7	5.7
Bridgeport Village	3	1	3	3	0.6	10.6
Upper Bridgeport Village	2	2	2	2	0.7	8.7

*Major Activity Centers, as defined in the 2035 Regional Transportation Plan: hospitals, major retail sites, grocery stores, elementary, middle and high schools, parks/open spaces, major social service centers, colleges and universities, large employers, libraries and major government.

⁵ Households without autos make less than one-quarter the daily number of trips of households reporting that they have cars. (Twin Cities Metropolitan Council, 1994) Certain demographic factors are commonly used when modeling travel behavior. Household income, household size, age distribution in household, and auto ownership are some of the standard inputs into Metro’s travel forecast model.

⁶ The *Tri-Met Primary Transit Network Phase II* (Nelson\Nygaard, 1997) found relationship between ridership and: Household density, Employment density and Retail employment density. These findings were the result of a regression analysis that controlled for 40 land use and socio-demographic variables. Where retail uses are found near transit stops, transit mode split increases. (TCRP 1996.) The mix of housing and retail uses are more predictive of non-work travel behavior while the mix of housing and employment is more strongly linked to commute travel behavior. (Bernick 1997) The results of this research suggest there are three primary means available to planners to enhance transit ridership through land use planning: increase residential density in the areas near transit corridors, concentrate mixed-use development within an eighth mile of the transit corridors, and channel a greater proportion of the retail development within a quarter mile of transit lines. (Andrew Johnson, 2003)

Finally, we combined these three elements into a single score. The graph and table below demonstrate the strengths of each of the community focus areas to be successful candidate station communities. Those with the highest scores could become the best candidate station communities.



The community focus areas with the most potential as candidate station communities follow the general principles for great places and great communities. They are vibrant, walkable areas where people want to be. They have good current bus service and transit ridership and will continue to grow with the potential expansion of high capacity transit in the area. In the Tigard HCT Land Use Stakeholder interviews, the places that people liked had similar attributes to these community focus areas. The result was the top eight community focus areas that would make great candidate station communities: Washington Square, King City/Summerfield, Tigard Triangle on 99W, Downtown, Tigard Triangle Central, Scholls Ferry at 121st, South Downtown, and Murray Scholls Town Center. The resulting map is attached in the Appendix.

The community focus areas identified above could be adjusted through planned investments like sidewalks, private investments, and community planning efforts.

Phase Three – Tradeoffs

Often difficult tradeoffs must be made in locating stations and determining alignments. One of the most difficult discussions between local jurisdictions, the Federal Transit Administration, the regional agency and the transit agency is the balance between system access and operating speed. Additional stations provide more convenient access for riders living nearby and more community development potential, but increase overall travel time which may have a negative effect on transit ridership and increased operating costs.

Station spacing is a criteria applied in the *Twin Cities (MN) Regional Transitway Guidelines* (Metropolitan Council, 2011), *TOD Guidelines Handbook* (DART, 2008), the *Portland LRT 10 Station Area Best Practices Assessments and Recommendations*, and interviews with stakeholders. Market strength was also a criterion in the *TOD Strategic Plan* (Metro, 2011). TriMet stakeholders and the *Twin Cities (MN) Regional Transitway Guidelines* agreed on the average station spacing as one mile for highway bus rapid transit and light rail.

In addition, stop spacing is a critical piece of federal funding and transit modeling. The Federal Transit Administration currently awards grant funding by using a technical rating system of Transit System User Benefit (TSUB), which takes into account travel times and new transit riders for every capital dollar spent. The Regional Transportation Model is based on travel surveys and diaries (1994). The model estimates the probability that an individual will take a particular mode, based on various factors, including cost, in-vehicle time, wait time, number of transfers, and demographic factors.

In the next steps of the Southwest Corridor Transit Alternatives Analysis, the importance of stop spacing will need to be examined. In a traditional high capacity transit corridor project, a stop spacing analysis is the first step in determining the location of station communities or platforms. For the Tigard HCT Land Use Plan, we are putting the community first.

In anticipation of this next step, we examined the top eight community focus areas to see which of them have a center point within one mile of another station community center point. Downtown Tigard and South Downtown (Walnut and 99W) were closer than a one mile distance. Tigard Triangle Central and Tigard Triangle on 99W were also closer than a one mile distance. Therefore, for the purposes of this project, we combined those two candidate station communities into one larger station community to be examined. In conclusion, we have a list of the best community focus area to be candidate station communities: Washington Square, King City/Summerfield, Downtown Tigard & Walnut combined, Tigard Triangle Combined, Scholls Ferry, and Murray Scholls Town Center.

The Southwest Corridor Transit Alternatives Analysis and Transportation Plan will examine in more detail the balance between system access and operating speed. Those planning efforts will consider route directness and right-of-way opportunities. Convenient service to major trip generators, such as hospitals, higher education institutions, and large employment campuses, must be balanced with the operational inefficiency of route deviations to provide direct service (unless these locations anchor the end of a line). In developed areas the path of least resistance for a new HCT investment may be in the median of or adjacent to a freeway, railroad ROW, or in a major arterial ROW. Such an alignment can often deliver fast travel times, have fewer property impacts, and be less expensive to construct than one integrated into an urban street. Possible tradeoffs include reduced potential for placemaking, development around the station, overall motor vehicle capacity and pedestrian and bicycle accessibility.

Representative Station Communities –

The HCT Land Use Plan is a City of Tigard land use and transportation plan. The first step in considering these community focus areas is to conduct a public workshop on May 25, 2011. For that workshop, the City of Tigard will examine a mix of community focus areas within the City of Tigard boundaries. The representative station communities for the workshop will include: Washington Square, King City/Summerfield, Downtown Tigard & Walnut combined, Tigard Triangle Combined, Scholls Ferry, Upper Bridgeport Village and Gaarde & 99W. The resulting map is attached in the Appendix.

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APPENDICES

RESULTING MAPS

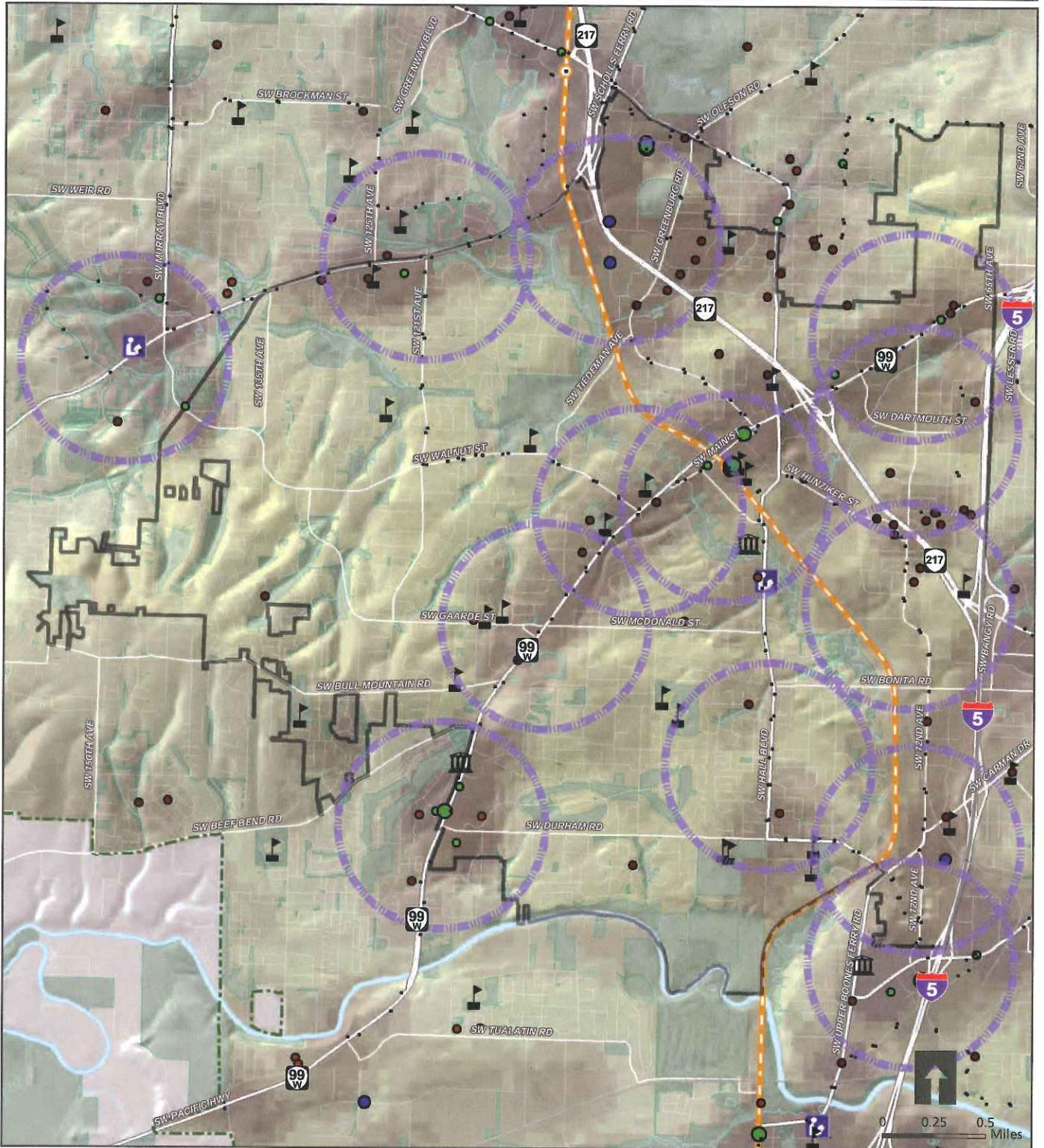
Phase One - Identify Community Focus Areas1
Phase Two – Analysis of Community Focus Areas to support Candidate Community Stations2
Representative Stations3

SUPPORTING MAPS

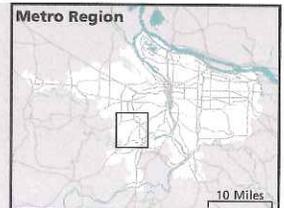
Transportation.....1
 Figure 1: City of Tigard- Transportation – Roadway Functional Classification
 Figure 9: City of Tigard- Transportation – Pedestrian Facilities and Deficiencies
 Figure 10: City of Tigard- Transportation – Planned Pedestrian Facilities
 Figure 11: City of Tigard- Transportation – Bicycle Facilities and Deficiencies
 Figure 12: City of Tigard- Transportation – Planned Bicycle Facilities
 Figure 13: City of Tigard- Transportation – 2009 Transit Routes
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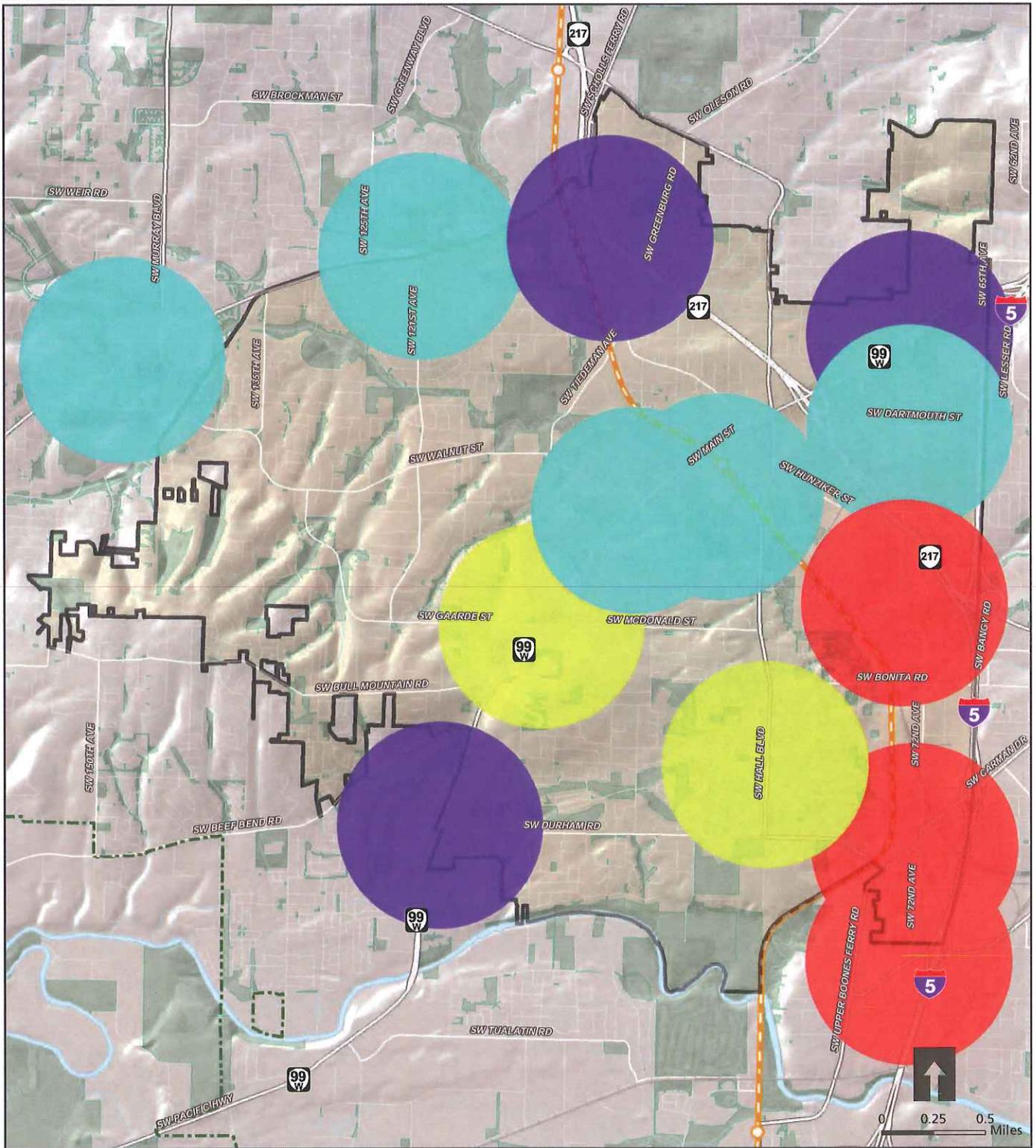
City of Tigard - Phase One Focus Areas



- | | | | |
|---------------------------|---------------|---------------------------|----------------------|
| ● Major Employers | 📖 Libraries | 📐 Urban growth boundary | 🌳 Parks |
| ● Grocery Stores | 🏥 Hospitals | 🚆 Commuter rail | 🚏 Transit Ons & Offs |
| ● Social Services | 🏛️ City halls | 🚂 Railroads | TOTAL |
| ● Social Services Seniors | 🏠 Schools | 🌊 Streams | ● 0 - 250 |
| | | 🌊 Rivers and water bodies | ● 251 - 2500 |
| | | | ● 2501 - 7302 |



City of Tigard - Phase Two Analysis



- | | | |
|-------------------------------|--------------------|-------------------------|
| Candidate Station Communities | Tigard city limits | Parks |
| Total Score | Commuter rail | Urban growth boundary |
| 25 - 29 | Railroads | Rivers and water bodies |
| 30 - 33 | Streams | |
| 34 - 37 | | |
| 38 - 43 | | |

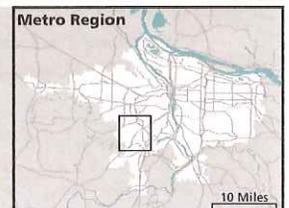
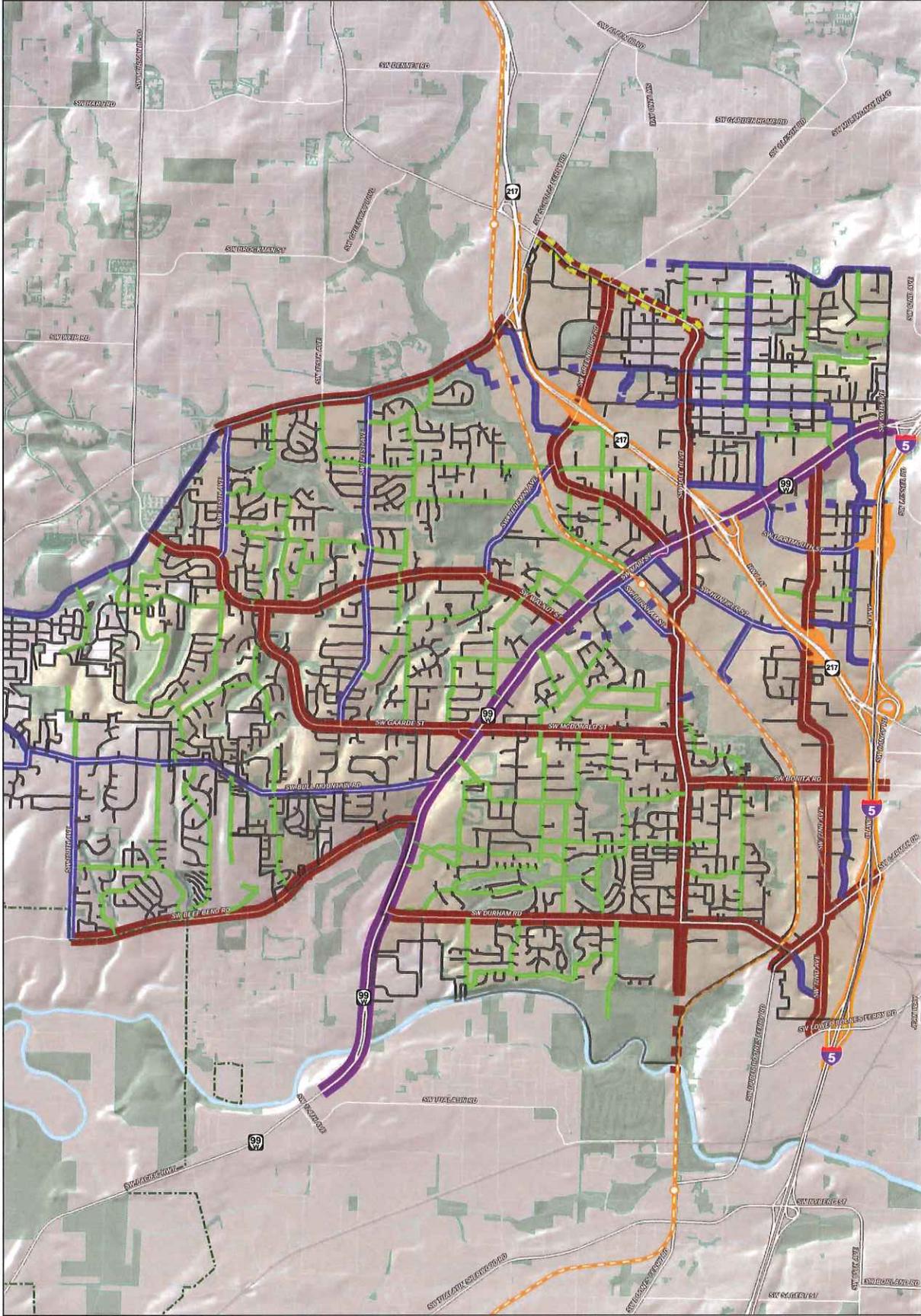


Fig. 1: City of Tigard - Transportation - Roadway Functional Classification



Functional Classification		Tigard City Limits	Parks
Freeway	Local	Commuter Rail	Urban Growth Boundary
Principal Arterial	Special Transportation Area (STA)	Railroads	
Arterial	Future Roadways	Streams	
Collector		Rivers and Water Bodies	
Neighborhood			

Fig. 10: City of Tigard - Transportation - Planned Pedestrian Facilities

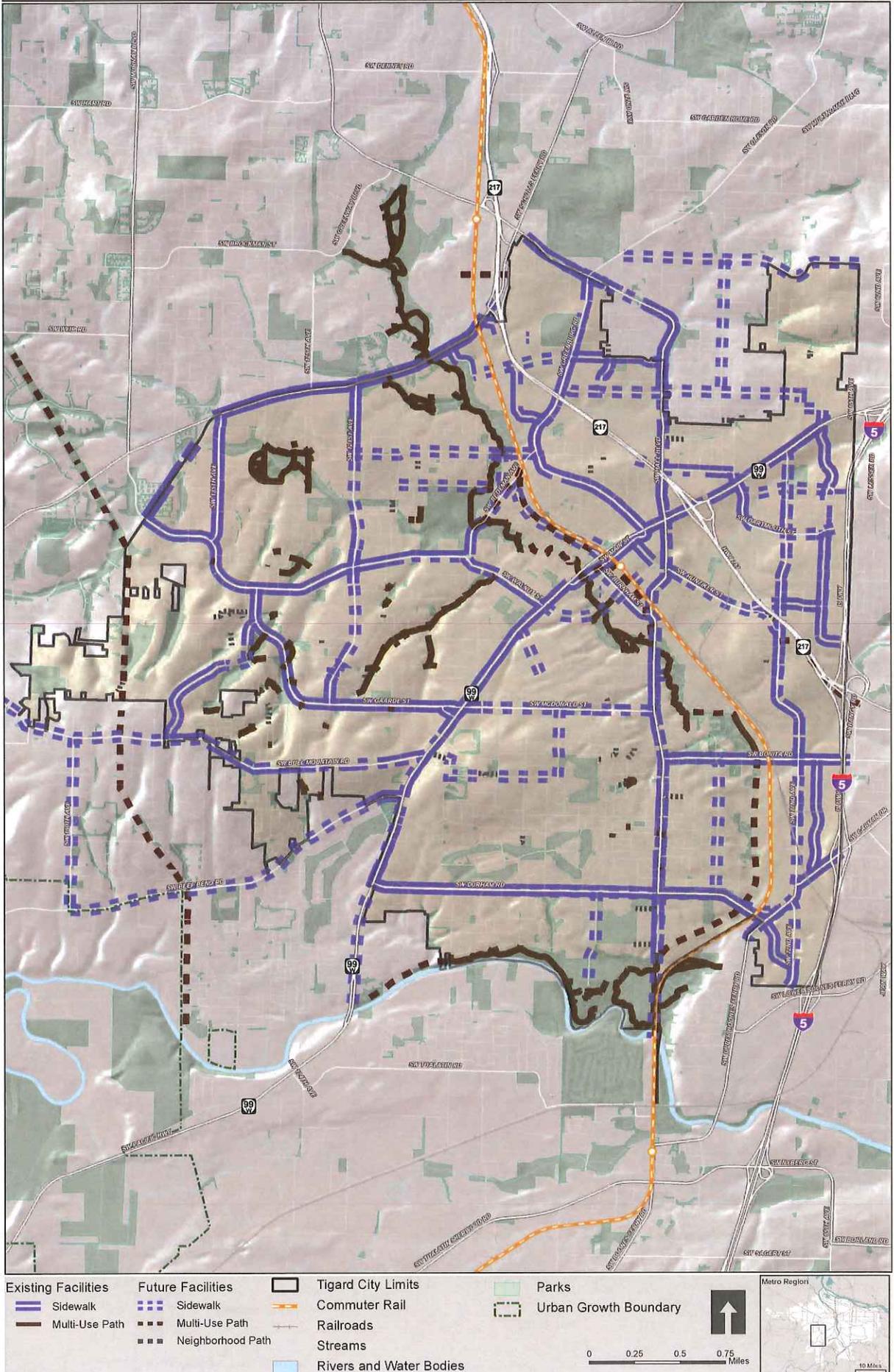


Fig. 12: City of Tigard - Transportation - Planned Bicycle Facilities

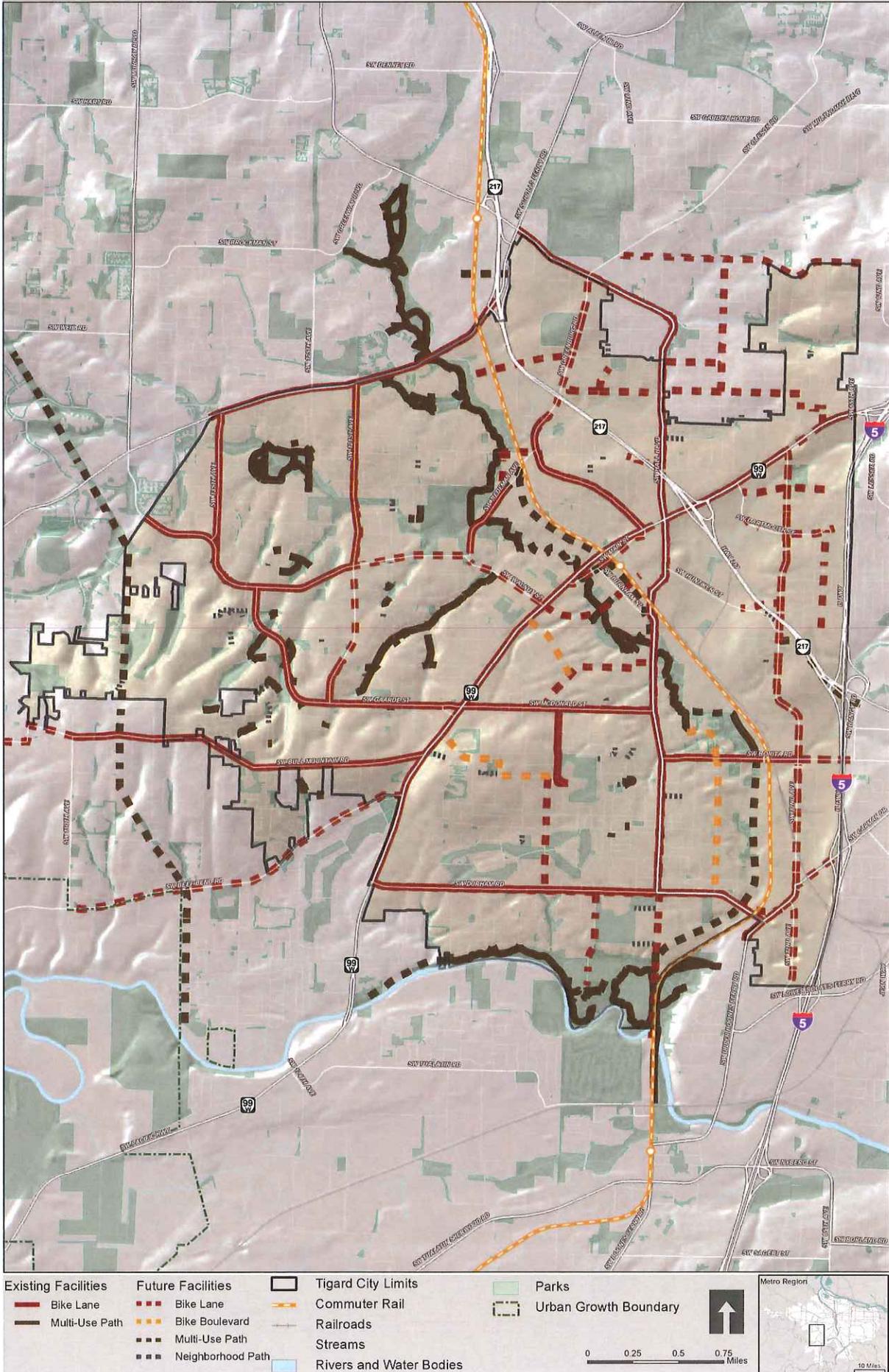


Fig. 13: City of Tigard - Transportation - 2009 Transit Routes

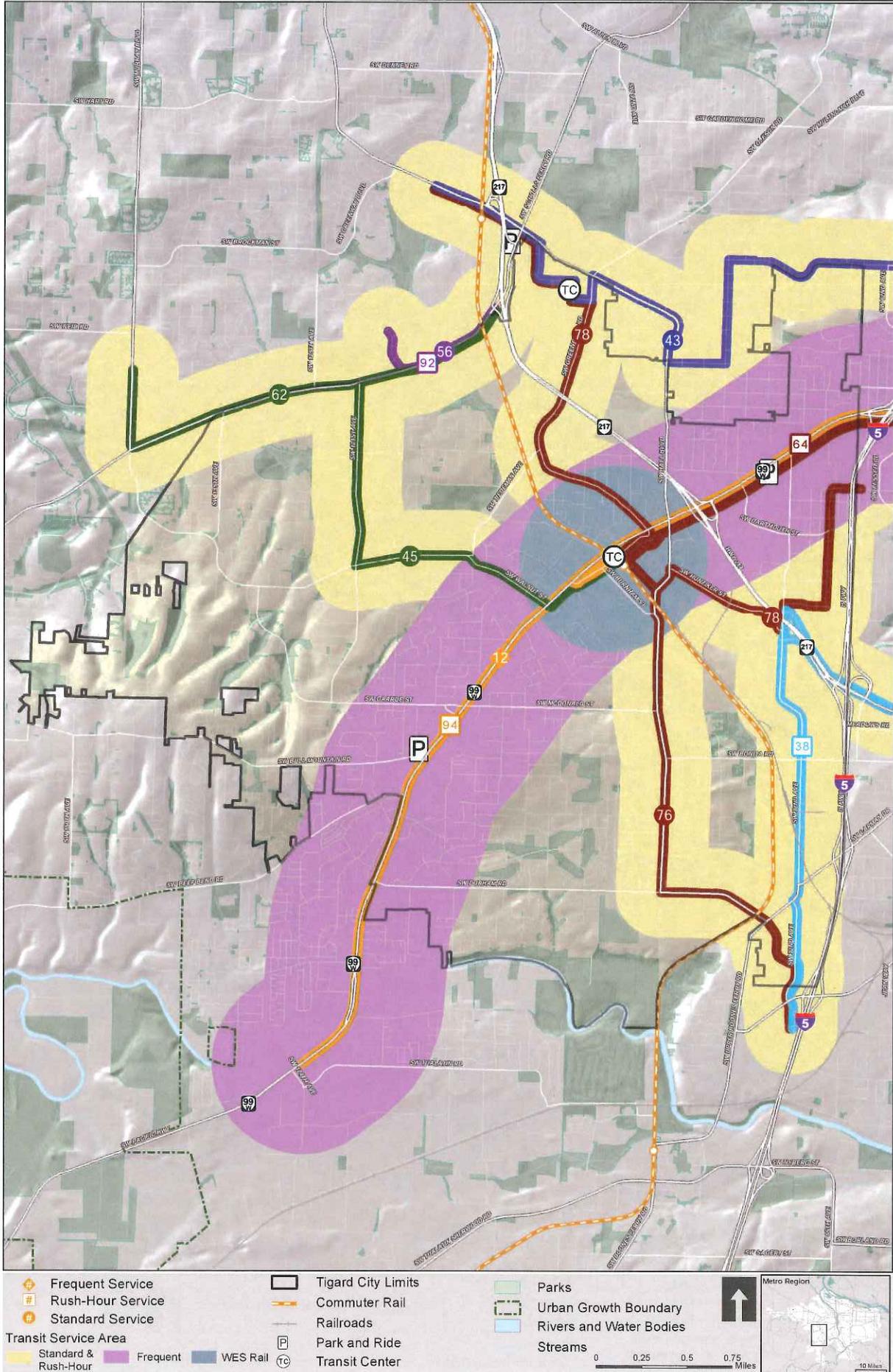


Fig. 14: City of Tigard - Transportation - 2009 Daily Transit Boardings and Alightings

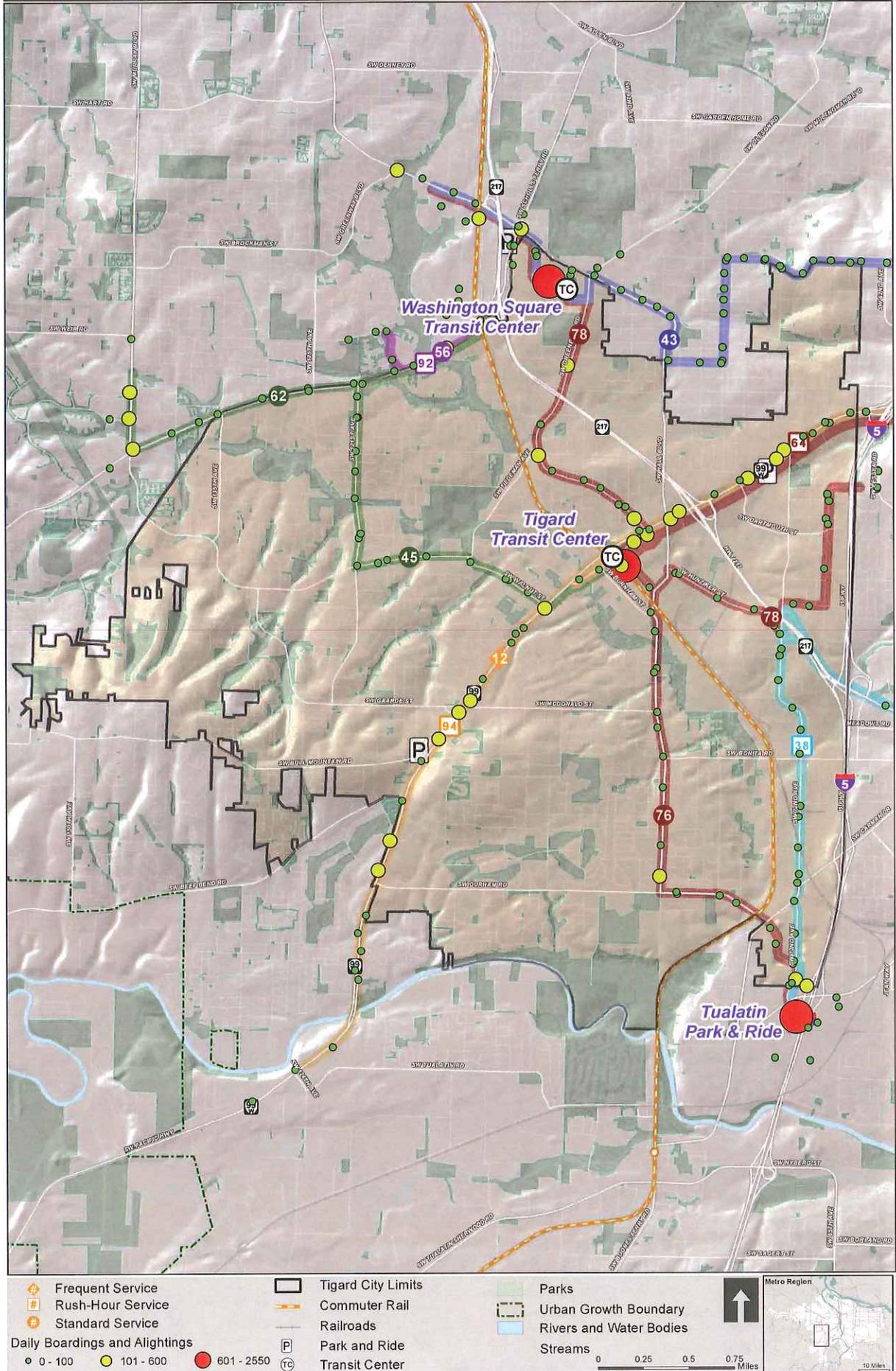


Figure 1-1: City of Tigard - Land Use - Existing

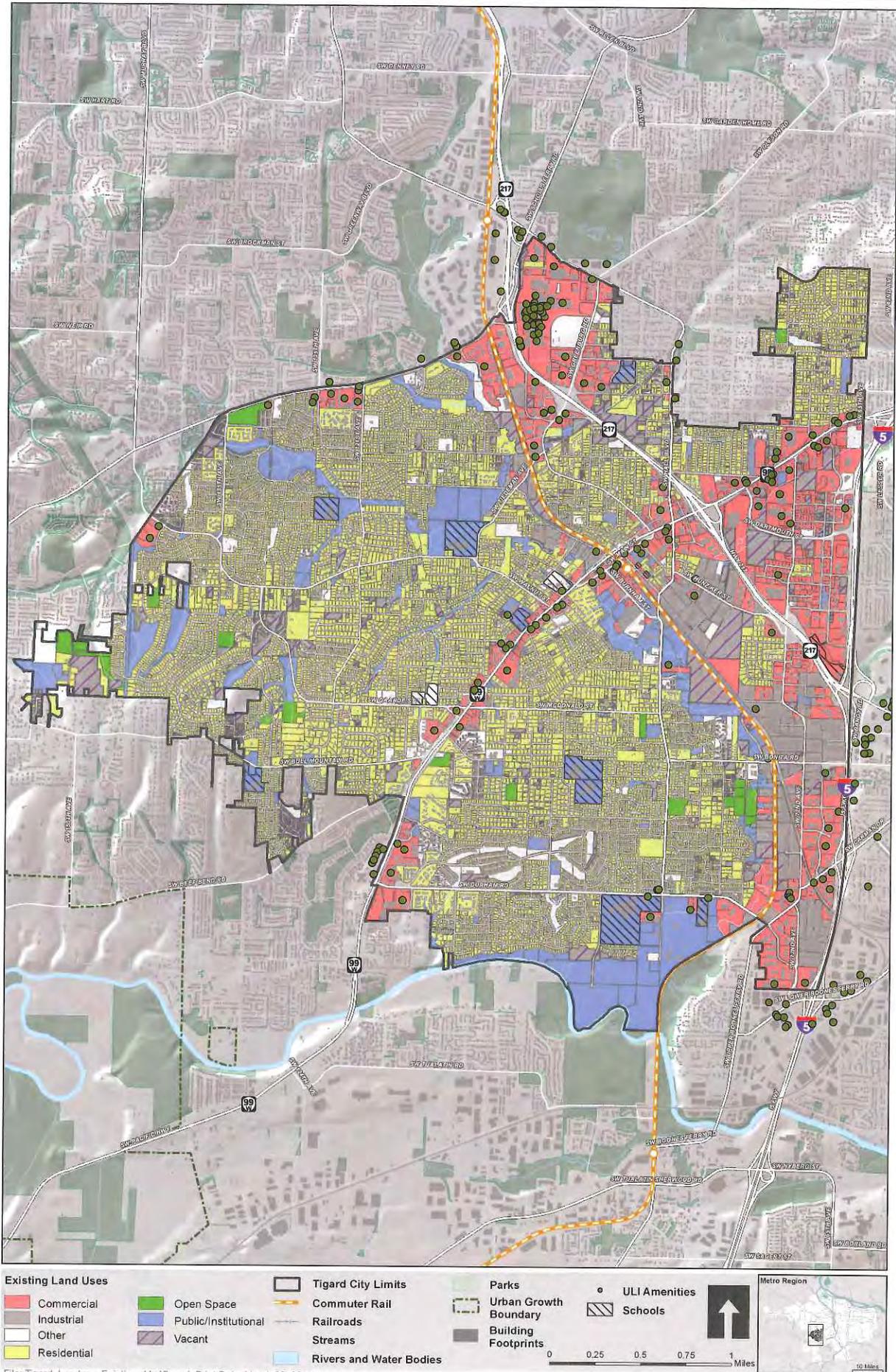


Figure 1-2: City of Tigard - Land Use - Floor Area Ratios

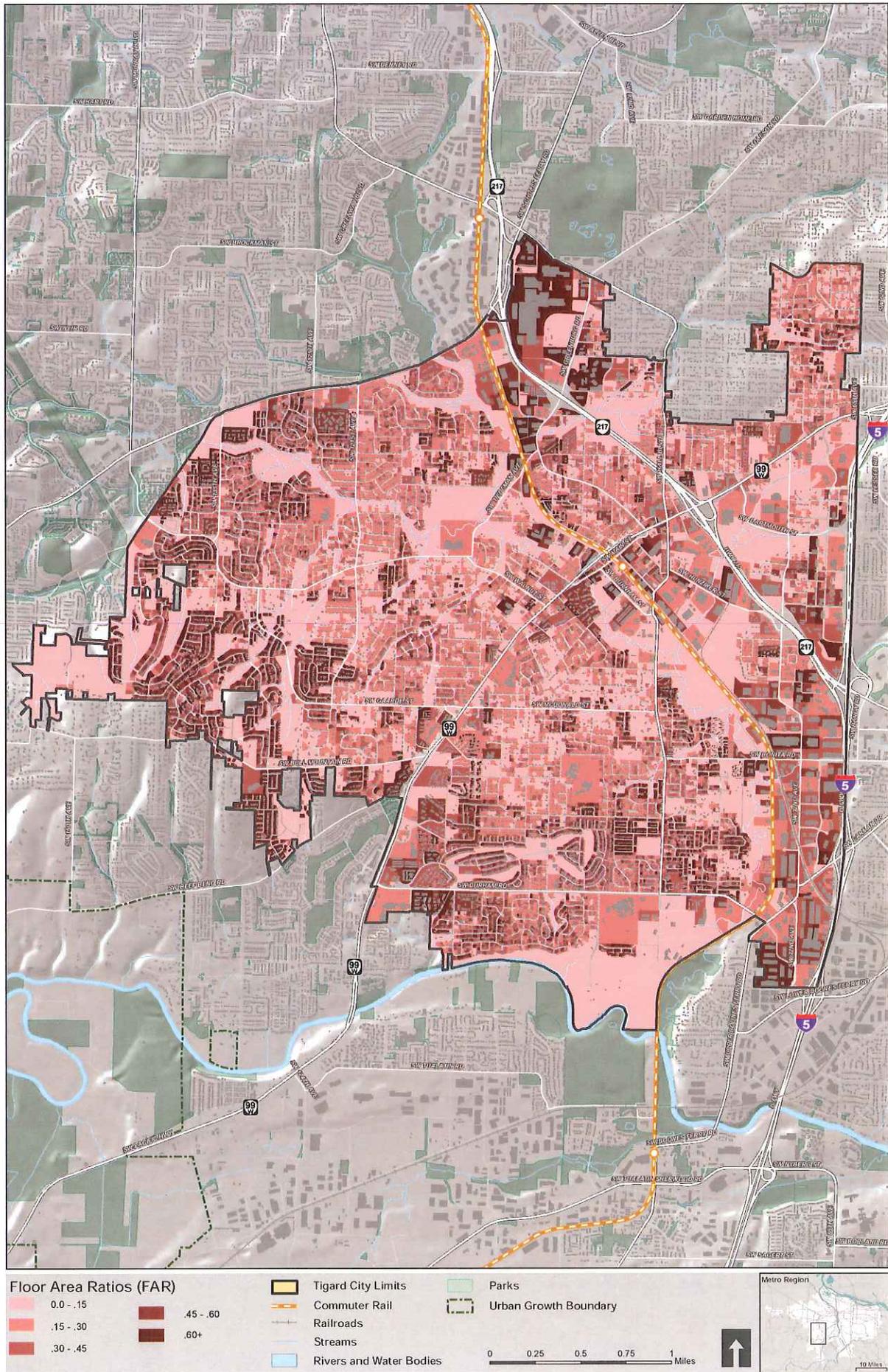


Figure 1-3: City of Tigard - Land Use - Buildable Land Analysis

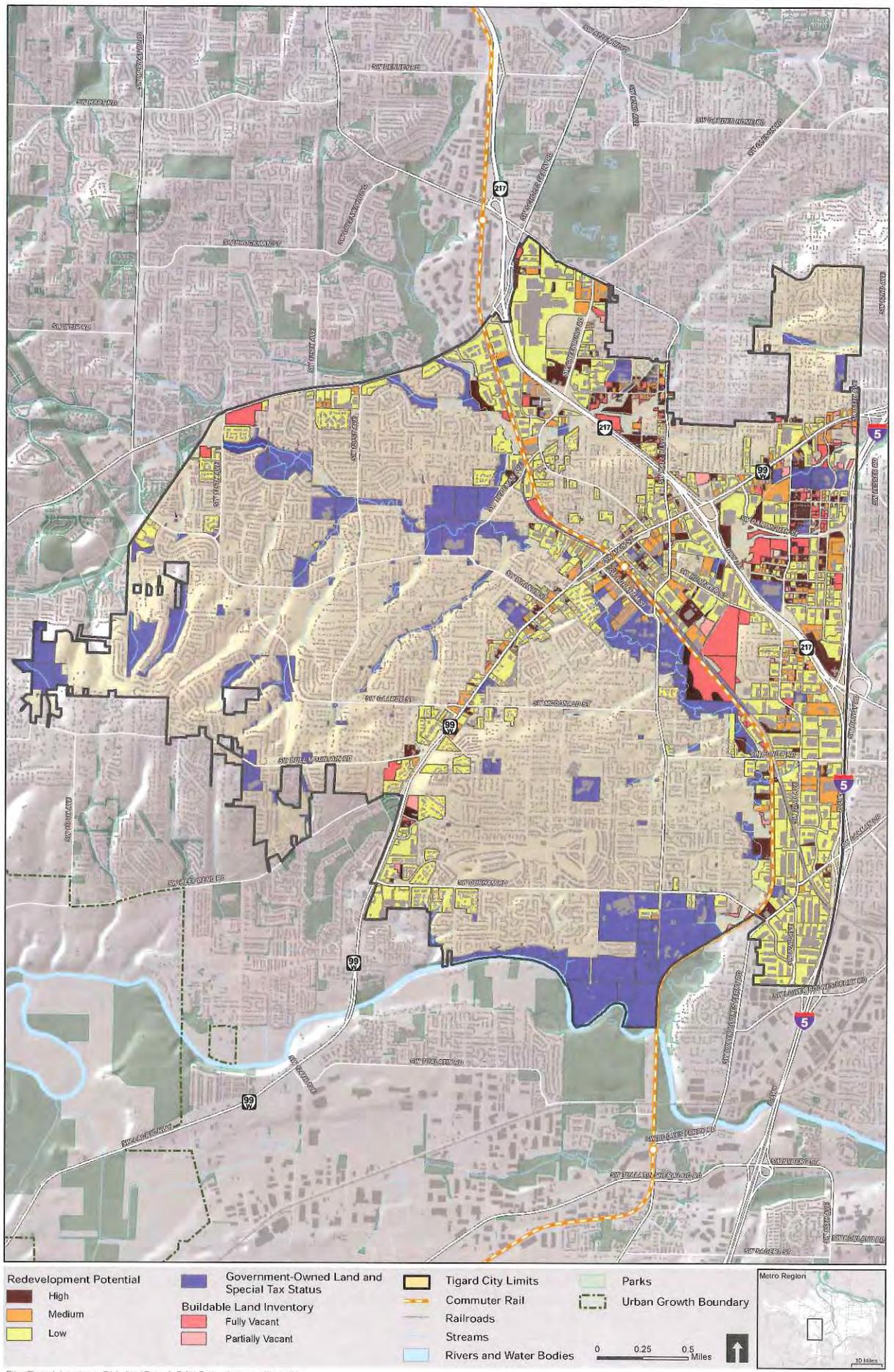
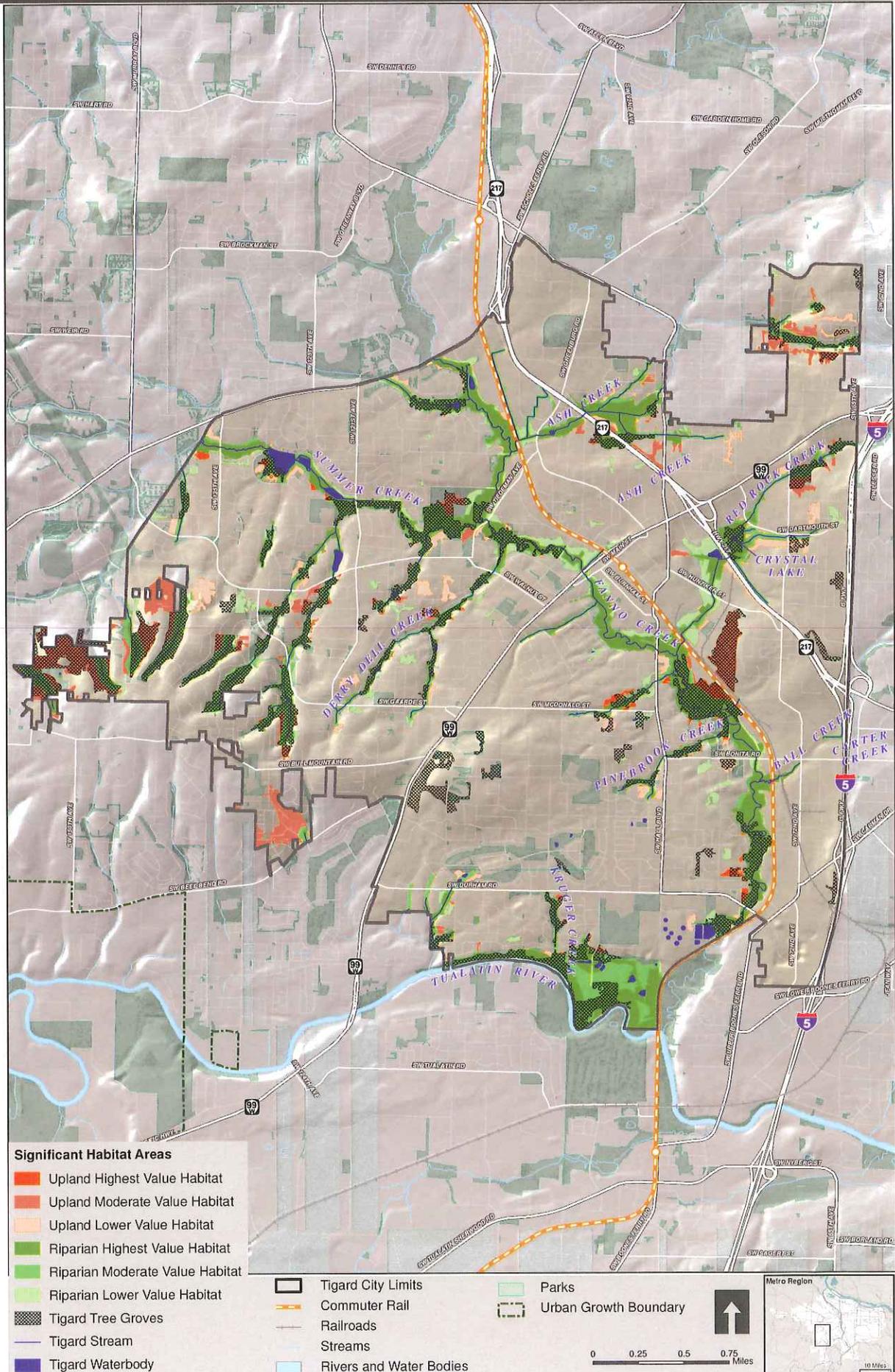


Exhibit 1-2 City of Tigard - Significant Habitat Areas



- Significant Habitat Areas**
- Upland Highest Value Habitat
 - Upland Moderate Value Habitat
 - Upland Lower Value Habitat
 - Riparian Highest Value Habitat
 - Riparian Moderate Value Habitat
 - Riparian Lower Value Habitat
 - Tigard Tree Groves
 - Tigard Stream
 - Tigard Waterbody

- Tigard City Limits
- Commuter Rail
- Railroads
- Streams
- Rivers and Water Bodies
- Parks
- Urban Growth Boundary

0 0.25 0.5 0.75 Miles



Figure 4. City of Tigard Parks and Greenspaces

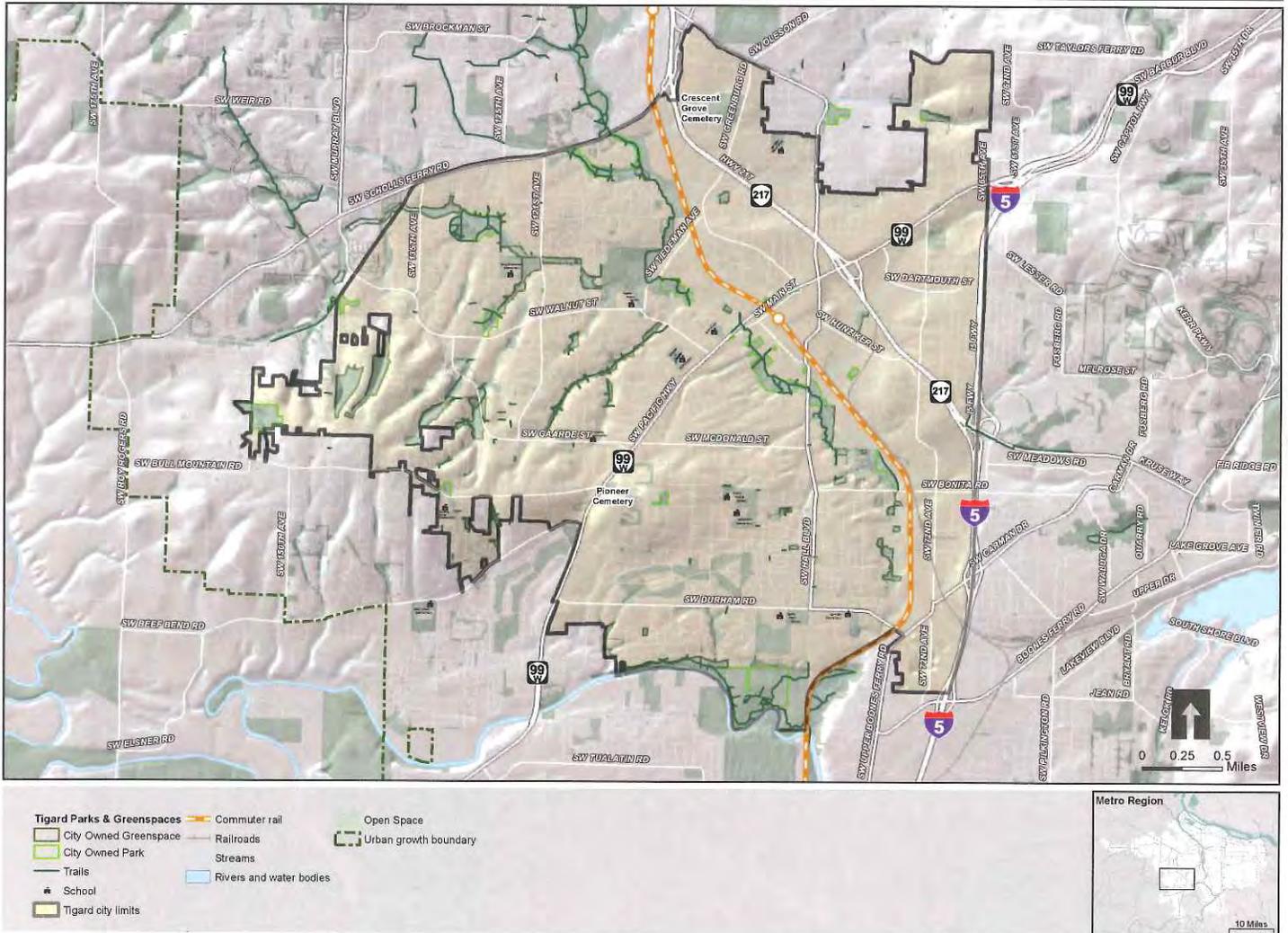
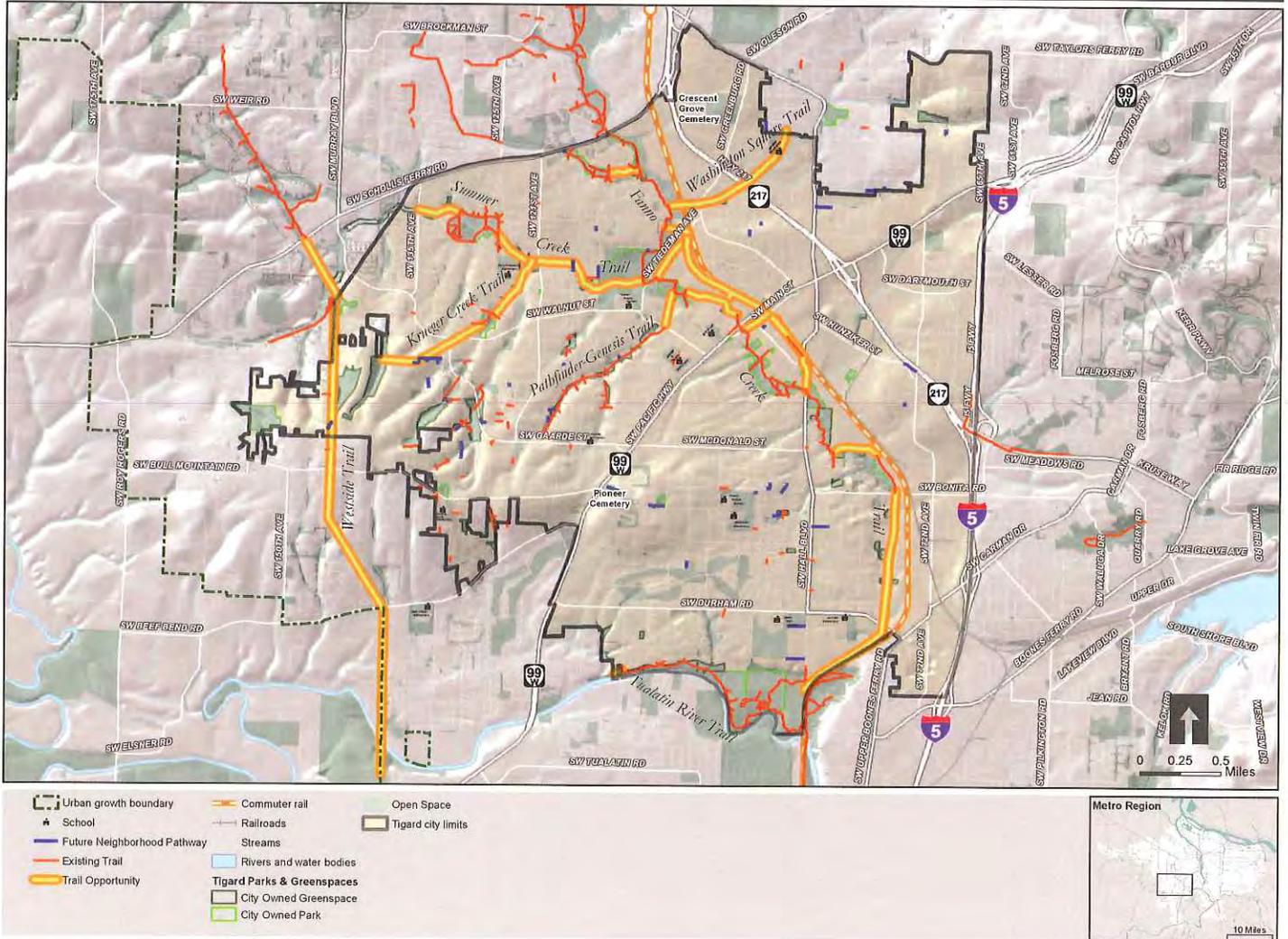


Figure 5. City of Tigard Existing and Planned Trail System



CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

STATION COMMUNITY TYPOLOGY MEMORANDUM

APPENDIX 2D



Introduction **A Station Community Typology for Tigard**

A clearly articulated and defined Station Community Typology, customized for the Tigard community, and responsive to community feedback, will help develop common expectations and enhance community acceptance for future high capacity transit. This report creates a framework for thinking about, and engaging the community in a dialogue about, how high capacity transit can fit into, support and serve the different areas of Tigard. It acknowledges that Station Communities are not all alike and different locations demand different guiding visions and implementation plans.

Four Station Community Types

Following this introduction is a section that describes four Station Community Types that may form a framework for the project and public involvement. The four types are:

- Town Center / Main Street
- Employment / Retail Destination
- Transit Corridor
- Transit Neighborhood

What is a Station Community Typology?

A typology is a term that planners use to describe general land use characteristics of a transit station area. More generally, a "typology" is a study, or the systematic classification of "types." For this project the terms are being applied to high capacity transit (HCT) station areas, called Station Communities. This study, or "typology" describes four distinct Station Community "types," and classifies the urban design and land use characteristics of each one, including the primary land use or mix of land uses (for example, employment, residential, civic), and measurable characteristics such as persons per acre, jobs per household, floor area ratio, etc. It also describes more qualitative characteristics that cannot always be measured, generally described as a "sense of place." It should be noted that even within one specific Station Community Type, there can be a wide range of characteristics, both qualitative and quantitative.

How does the Station Community Typology relate to Tigard and the HCT project?

The four Station Community types respond to Tigard's specific geography, land use and transportation patterns. They also respond to the Tigard Comprehensive Plan goals, policies and action measures that are supportive of high capacity transit.

In anticipation of HCT, they address what station area communities intend to provide in the future to take advantage of access to high capacity transit, such as provide a diversity of housing and employment opportunities, greater synergy between different modes of transportation, and enhanced mobility for all users, whether on bike, on foot, or in a car. The Tigard HCT Land Use Plan will develop a set of Station Community Types for Tigard that can be used to create places that Tigard residents and stakeholders desire.

Station Communities and City of Tigard and Metro Plans and Policies

The City of Tigard Comprehensive Plan has goals, policies and action measures that are supportive of HCT. The Metro Regional 2040 Growth Concept, plans and policies provide substantial guidance on the different possible Station Communities and their characteristics. This report outlines the relationship between the different plans and policies and the Tigard Station Community Typology.

Station Communities in the Metro 2040 Regional Growth Concept

"Station Communities," are one of the ten urban design types defined by the Metro 2040 Growth Concept, along with "Town Centers," "Main Streets," "Regional Centers," "Neighborhoods," and "Corridors." "Station Communities" are described as "areas of development centered around a light-rail or high-capacity-transit station that feature a variety of shops and services that will remain accessible to bicyclists, pedestrians and transit users as well as cars." The Station Community urban design type is intended to address a broad range of land uses, including housing, employment and institutional, and access for all transportation modes, including the auto.

The current Metro definition for Station Communities assumes a mix of land uses and there are numerous examples in the Portland region and other places of mixed use Station Communities. However, Station Communities may also emphasize one land use such as employment or residential. Given the wide range of possible locations within Tigard for potential stations, the Tigard Typology includes one type that focuses primarily on employment - "Employment / Retail Destination," and one type that focuses on residential - "Transit Neighborhood."

In the region there are also examples of station communities co-located with 2040 Growth Concept urban design types (e.g. Town Center, Main Street, Corridor), in which the boundaries of each overlaps or is coincident. Thus, the Tigard Typology includes one type that concentrates on the aspiration and character of town centers and main streets - "Town Center / Main Street," and one type emphasizes the character of a linear district - "Transit Corridor."

Station Communities and the Metro State of the Centers Report, 2009

In 2009, Metro published the State of the Centers, an overview and comparison of all 37 Regional and Town Centers in the region. The report includes a description of each center and eleven different measurements for comparison, such as activity level, jobs to housing ratios, median household size, people per acre and dwellings per acre. The report includes a typology of centers in the form of an "Activity Spectrum." The Activity Spectrum is a useful framework for thinking about the differences and similarities of each center, and the corresponding local aspirations, guiding visions and implementation plans. This report uses the measurements provided for a number of Centers, as a way of describing, in quantifiable terms, the physical and demographic characteristics of the Station Communities.

Themes from Stakeholder Interviews

Places people like

Downtowns: Lake Oswego, Portland, Tigard, Vancouver, WA

Established neighborhoods: First Addition (Lake Oswego); Hawthorne, Hillsdale, Ladd's Addition, Laurelhurst, Multnomah Village, Northwest District (Portland); Summerfield (Tigard)

New Urbanist and transit-oriented developments: Bridgeport Village (Tualatin), Orenco Station (Hillsboro), Pearl District (Portland), NewPort Village (Port Moody, B.C.)

Open spaces: Oregon Coast, Black Butte, Tualatin River Wildlife Refuge

Characteristics of good places

Walkable | Continuous and well-maintained sidewalks, bike paths, and streets | Active and safe streets | Flexible public spaces for community gathering and events | Density and diversity of people | Equity and economic diversity, especially in housing | Neighborhood scale and feel: compact form, small businesses and retail, single-family homes | Architecture that fits in, promotes community | Variety of businesses for shopping, eating and drinking, entertainment | Strong feeling of community identity | Close proximity to work, schools, parks | Access to recreation—parks, dog parks, trails, etc.—on foot and by bike or transit

Metro Station Area Charts Data

In February 2011, Metro updated calculations for all the existing (and some planned) station areas within the region. As part of the TOD Strategic Plan the Metro TOD program created a methodology known as the 'Five "P's"' to measure five desirable characteristics of station communities..

- People (density of residents and employees)
- Pedestrian/Bicycle (presence of sidewalks and low-stress bikeways)
- Physical Form (average block size)
- Places (neighborhood serving retail and services)
- Performance (rail and bus frequency)

In the future, the Five P's will be useful in comparing and contrasting the Tigard Station Community types with existing station areas in the region, particularly those that are seen as having similar challenges and opportunities. There is interest in including data or other ways to measure several additional "P's" for comparison purposes: political support, property ownership, parks and open space, and parking policies. How and whether to include these additional characteristics is under discussion.

Station Communities Typology and Public Involvement

Between November 2010 and February 2011, City of Tigard planners interviewed more than 45 local stakeholders representing a broad cross section of the community. Stakeholders were encouraged to talk about their ideas, concerns, and priorities related to transit and planning for the community.

Stakeholder interviews revealed a number of desirable and undesirable characteristics that can be applied to the Station Community Typology. For the purposes of this report, these themes have been used to categorize physical characteristics for the purposes of comparing and contrasting the Station Types to one another. In the future these characteristics may provide a framework for evaluating the Station Communities.



Images: City of Tigard and University of Oregon

Town Center / Main Street Station Community Type One

Focus Specialty retail, office, dining, medium to high-density housing, urban village feel

The Town Center / Main Street Station Community includes significant housing, employment and commercial businesses and serves the local population. The area within 1/2 mile of the high capacity transit station is a mix of housing, retail, services, civic uses and office. This area has a jobs to housing balance of 2:1. Residential units in the form of flats (apartments or condominiums) occupy the upper level of some buildings. Moving away from the station, there may be townhouses with ground floor office and home-based businesses. The edges of the station area are predominantly residential, blending into the surrounding single dwelling neighborhood.

The physical character, urban form, streetscape design and mix of uses is unique to each Town Center / Main Street Station Community, and is a reflection of the distinctive personality of the community in which it is located.

The area includes a growing housing stock in the form of urban-style multi-floor attached housing, allowing one to live and work within the station community.

This station community is considered a 14-hour activity center, with daytime uses that includes office jobs, retailers, and restaurants. Nighttime activity includes restaurants and bars. Entertainment, recreation, arts and culture are also important uses. A broad range of urban amenities, including pedestrian amenities, open spaces and businesses combine to create inviting, vibrant streets.

Residents, workers and visitors can easily access the area through a variety of transportation options. The area is served by pedestrian friendly streetscapes based on an urban style grid network and narrow streets. Auto access is convenient but not dominant, and balanced by bus, commuter rail and other forms of high capacity transit. Auto access to major thoroughfares further support the area's accessibility to others from outside the region.

Most residential buildings provide structured or no parking, however, surface parking lots may be found along the edge of the station community, providing shared parking for nearby retail and office uses. In the future, there may be opportunities to provide parking in structures that are designed to blend in with the architecture of the area. On-street parking is plentiful and integrated into the pedestrian-friendly streetscape. Various forms of public transit and walkable streetscapes help make the car a secondary choice for travel within the district, and it is easy to access all parts of the Town Center by bike and on foot.

An extensive network of bicycling routes through and within the area is provided, on low-traffic streets, including bike lanes and multi-use trails. Bicycle connections to transit stops are direct and convenient, and bicycle parking is plentiful at transit stops and other destinations within the area.

Within walking or biking distance are natural areas and parks and lower density neighborhoods.



Station Community One: Town Center / Main Street

References for comparison

Stakeholder interviews From Stakeholder interviews, "Places People Love," this Station Community is most like Lake Oswego/First Addition, Downtown Milwaukie and Downtown Vancouver.

Metro State of the Centers From Metro State of the Centers, this Station Community could resemble Hollywood, Multnomah Village and Lake Oswego Downtown District.

State of the Centers Report Data			
Center	Hollywood	Downtown Milwaukie	Lake Oswego Downtown
Activity level	14 hour*	14 hour*	14 hour*
Jobs to housing ratio	3:1	2:1	2:1
Median household size	1.34	2.1	1.71
Median household income	\$35,888	\$46,139	\$71,492
Median age	47	39	45
Home ownership	37%	42%	47%
People per acre	77	21	30
Dwelling units per acre	12	5	8
Total businesses per acre	5.3	0.9	2.8

* Estimated for the purposes of this report. All other data is from the Metro State of the Centers Report.

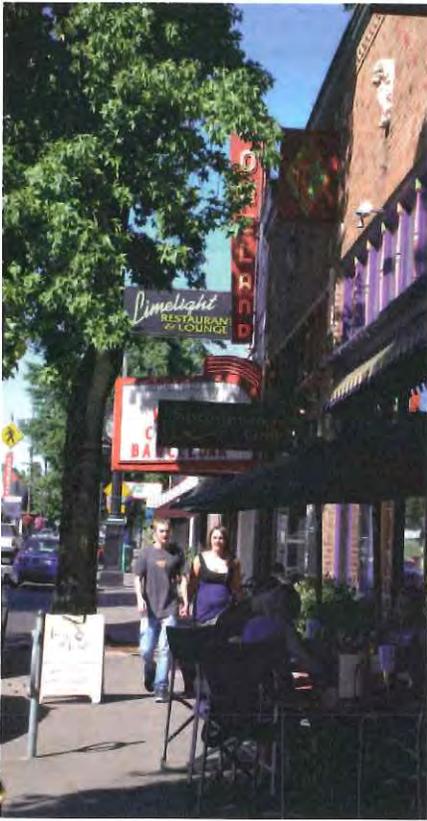


Photo: Metro



Photo: Metro

The area within 1/2 mile around the station area is a mix of housing, retail, services, civic uses and office. A broad range of urban amenities, including pedestrian amenities, open spaces and businesses combine to create inviting, vibrant streets.



Photo: Metro



Photo: Metro



Photo: Metro



Photo: US2000/OKS

The area is considered a 14-hour activity center, with daytime uses that includes office jobs, retailers, and restaurants. Nighttime activity includes restaurants and bars. Each Town Center / Main Street reflects the distinctive personality of the community in which it is located.

Residential units in the form of flats (apartments or condominiums) occupy the upper level of some buildings. Moving away from the station, there may be townhouses with ground floor office and home businesses.



Photo: Urban



Photo: Urban

The area includes a growing housing stock in the form of urban-style multi-floor attached housing, allowing one to live and work within the station community.

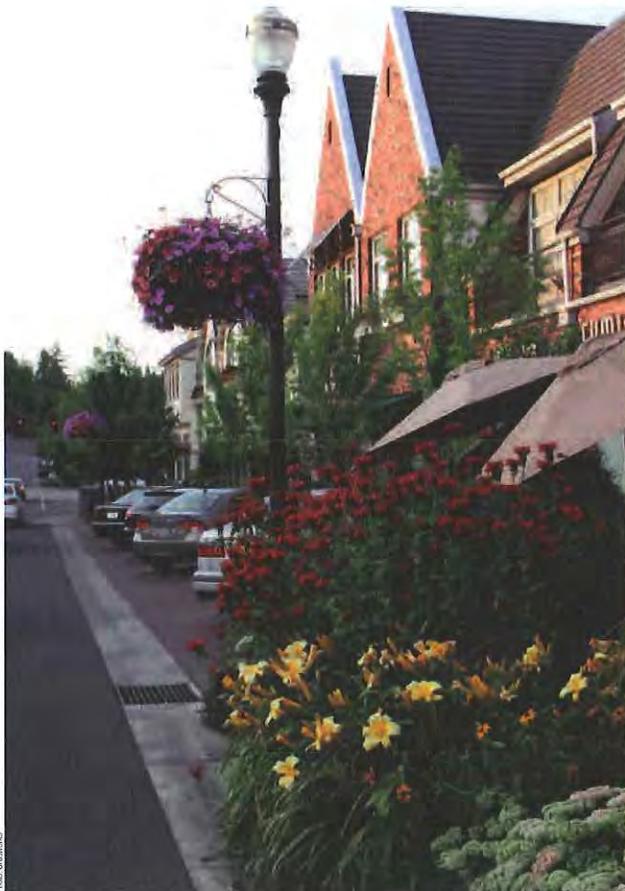


Photo: Urbanworks

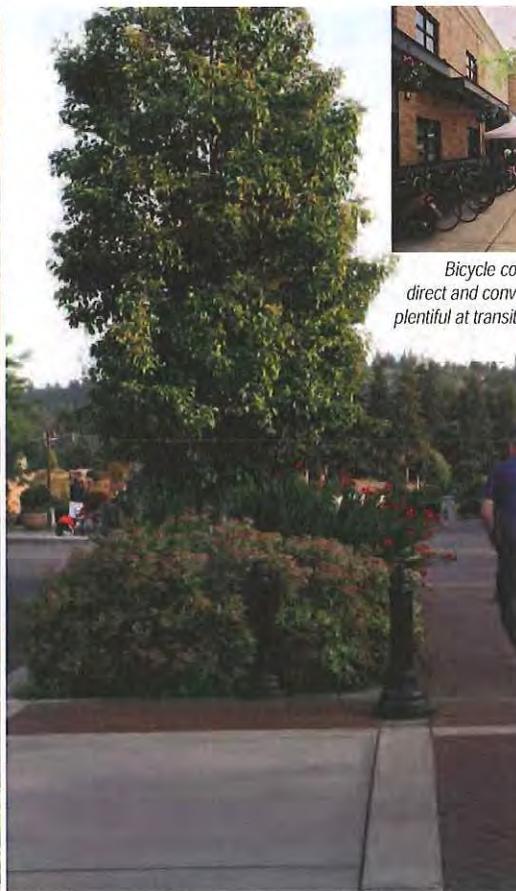


Photo: Urbanworks



Photo: Urbanworks

Bicycle connections to transit stops are direct and convenient, and bicycle parking is plentiful at transit stops and other destinations within the area.

The area is served by pedestrian friendly streetscapes based on an urban style grid network and narrow streets. Auto access is convenient but not dominant, and balanced by bus, commuter rail and other forms of high capacity transit. On-street parking is plentiful and integrated into the pedestrian-friendly street design. Various forms of public transit and walkable streetscapes help make the car a secondary choice for transportation within the district.



Photo: Metro



Photo: Metro



Photo: Metro

The area has community destinations, civic uses and planned events. Art and public realm design creates a strong feeling of community identity.

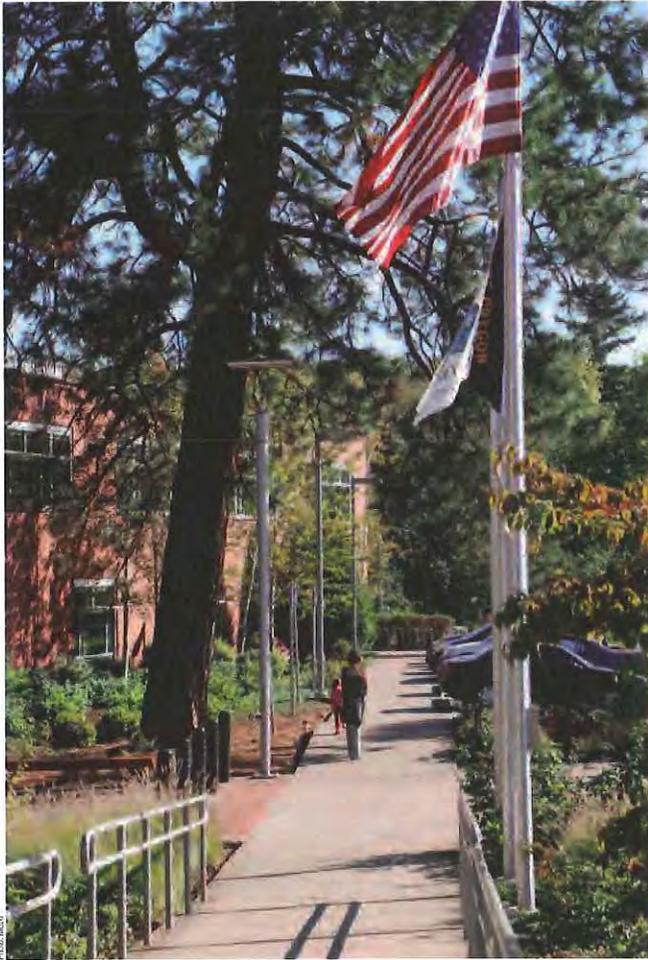


Photo: Mico



Photo: Mico

The area within 1/2 mile of the high capacity transit station is a mix of housing, retail, services, civic uses and office. Within walking or biking distance are natural areas and parks and lower density neighborhoods. An extensive network of bicycling routes through and within the area includes bike lanes and multi-use trails.





Images: City of Tigard and URBAN CONCEPTS

Employment / Retail Destination Station Community Type Two

Focus Regional employment and/or commercial activity and institutional

The Employment / Retail Destination Station Community is a moderately to intensely populated district with an emphasis on employment and commercial retail activities. A destination for transit trips, this district focuses on office and/or retail employment, and is highlighted by a regional shopping center and/or large-scale office complexes. Employment uses include a range of professional, research and technology-based manufacturing. Civic uses and colleges can also be found here. The core of the center is surrounded by medium to high density multi-story housing in the form of townhouses and apartment buildings, creating opportunities to live and work in close proximity.

The area has a jobs to housing ratio of almost 7:1, which indicates that a large percentage of the workers in the center travel from outside the area to a job within the district. Additionally, the regional shopping center draws many trips in from outside the area.

The district is considered an 18-hour activity center, with a majority of daytime uses in the form of office jobs and retail shoppers and employment. These uses are supported by restaurants serving breakfast and lunch as well as dry cleaners, child-care and coffee shops. Nighttime activity includes full-service fine dining restaurants and a major movie theater or entertainment venue.

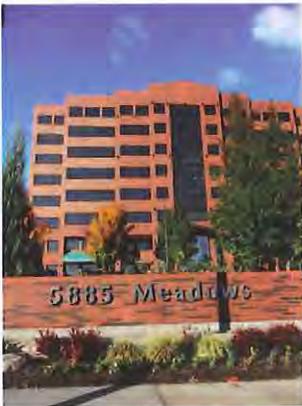
As an employment and regional shopping destination, the area can be easily accessed by a variety of transportation options. Several major thoroughfares provide access to the regional shopping and employment locations.

The area is mainly comprised of surface and on-street parking with some structured parking attached to major employment/office locations. Surface parking is separated from adjacent sidewalks by landscaping and architectural screening. Where structured parking is provided in buildings, it is located behind or above active ground floor uses, such as retail.

Auto access is convenient but not dominant. The street network is characterized by a curvilinear street network in the adjacent residential neighborhood areas. Blocks are larger in the office and shopping areas than in the Town Center Station Community, however, walking routes are direct, attractive and safe.

Bicycling through and within the area is easy and safe, because of an extensive network of low-speed, shared streets, dedicated bike lanes, and active transportation trails. Transit stops are easy to walk and bike to, and plenty of bike parking is provided at transit stops and at other destinations in the district.

Employees and residents enjoy nearby recreational paths, parks and open space. Regional open space is easily accessible and serves to help define the station community. Groves of mature native trees have been preserved within office complexes and on the edges of the residential neighborhood.



Station Community Two: Employment / Retail Destination

References for comparison

Stakeholder interviews From “Places People Love,” this Station Community is most like Bridgeport Village.

Metro State of the Centers From Metro State of the Centers, this Station Community is most like Lloyd/Irvington, Tanasbourne and Bridgeport Village.

State of the Centers Report Data			
Center	Lloyd District	Tanasbourne	Bridgeport Village
Activity level	18 hour	12 hour*	14 hour*
Jobs to housing ratio	7:1	1:1	22:1
Median household size	1.5	1.97	2.38
Median household income	\$42,000	\$60,882	\$67,268
Median age	37	30	40.9
Home ownership	20%	1%	59%
People per acre	71	24	13
Dwelling units per acre	8	8	0.6
Total businesses per acre	na**	0.5	0.8

* Estimated for the purposes of this report. All other data is from the Metro State of the Centers Report.

** Metro State of the Centers Report provided no data for this center type.

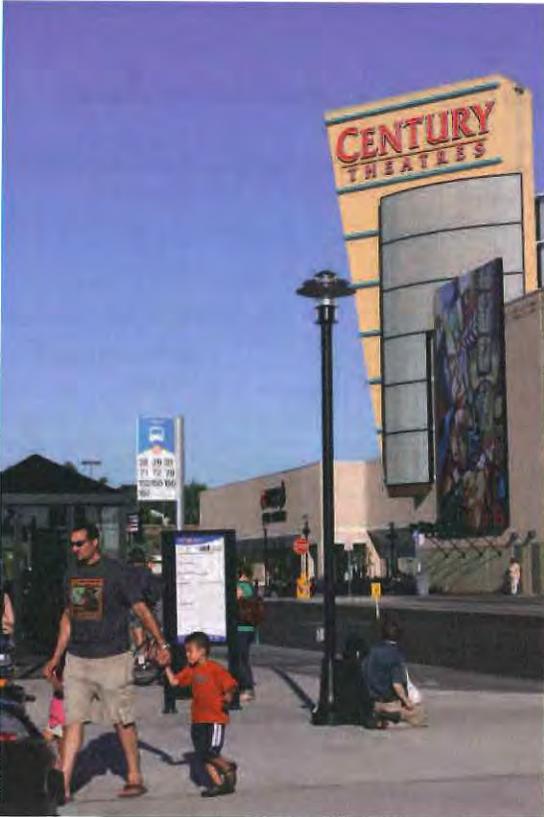


Photo: Libenworks



Photo: Voss



Photo: Libenworks

A destination for transit trips, the district focuses on office and/or retail employment, which is highlighted by a regional shopping center and/or large-scale office complexes. Nighttime activity includes full-service fine dining restaurants and a major movie theater or entertainment venue.



Photo: Metrom



Photo: Metrom



Photo: Metrom

The district is considered an 18-hour activity center, with a majority of daytime uses in the form of office jobs and retail shoppers and employment.



The area has community destinations, civic uses and planned events. Art and public realm design creates a strong feeling of community identity. Employees and residents enjoy nearby recreational paths, parks and open space.

Photo: W&A



Open space is easily accessible and serves to help define the station community. Groves of mature native trees have been preserved within office complexes and on the edges of the residential neighborhood.



Photo: USNews

Auto access is convenient but not dominant. Even when there are large blocks in the office and shopping areas, walking routes are direct, attractive and safe. Bicycling through and within the area is easy because of an extensive network of low-speed, shared streets, dedicated bike lanes, and active transportation trails. Transit stops are easy to walk and bike to, and plenty of bike parking is provided at transit stops and at other destinations in the district.

The area is mainly comprised of surface and on-street parking with some structured parking attached to major employment/office locations. Surface parking is separated from adjacent sidewalks by landscaping and architectural screening. Where structured parking is provided in buildings, it is located behind or above active ground floor uses, such as retail.

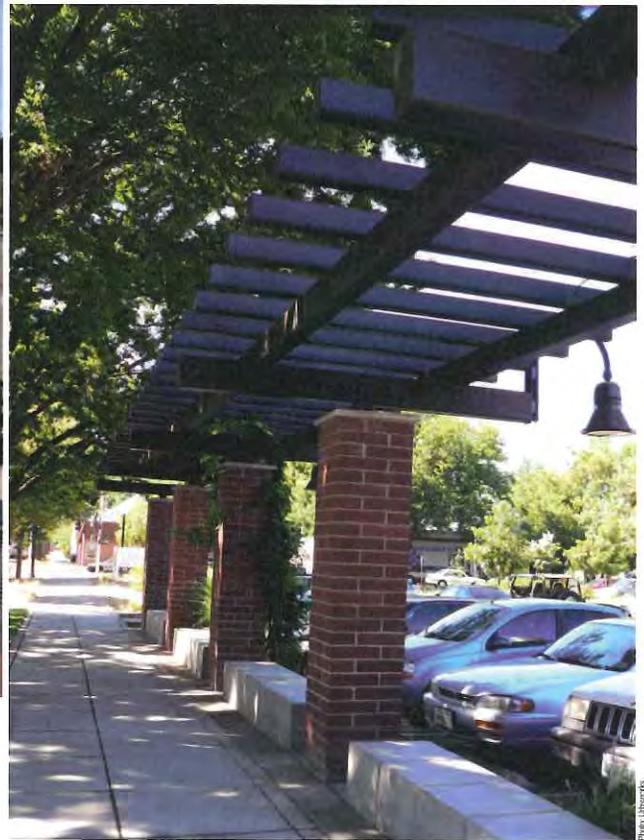


Photo: USNews



Image: City of Tigard and University of Oregon

Transit Corridor Neighborhood Station Community Type Three

Focus Shopping, dining and residential

The Transit Corridor Station Community has a suburban residential feel. The arterial serving the corridor was originally designed to serve auto traffic, but significant efforts have been made to improve the pedestrian environment. The corridor has evolved into a destination location for restaurants and a mix of national chain retail and small-scale, locally-owned retail. The area has schools within walking distance of the district. High capacity transit stations located strategically along the corridor serve adjacent neighborhoods. Employment land uses, shopping and dining may be located near the station but are smaller in scale than the same uses at the other Station Communities. The station area allows for a synergy of land uses because they are oriented to customers who use either transit or the auto.

The majority of residents leave the area to work, while any jobs found within the corridor are predominantly retail or restaurant focused. Housing in the district is mainly single dwelling

residential in the form of townhomes and detached dwellings. Multi-dwelling housing is located in clusters near the corridor.

The Transit Corridor Station Community is considered a 14-hour activity center, with a majority of daytime uses in the form of coffee shops and restaurants, clothing stores and childcare. Schools, medical centers, drugstores and food stores are found here, as well as a range of personal and professional services. Nighttime uses are centered around the restaurants found in the center.

Auto access is convenient but not dominant. The area has a curvilinear street pattern but a complete sidewalk network. Walking in the area is easy, safe and convenient because of the extensive network of sidewalks combined with multi-use trails. Transit stops and other destinations on the nearby corridor are accessible via direct pedestrian connections. Bicycles also take advantage of the multi-use trails, as well as the low-speed, shared streets and dedicated bike lanes. Plenty of bike

parking is provided at transit stops and at other destinations in the district. Transit stops are conveniently located, safe, well-lit and attractive, enabling easy transfer between different transit options.

Parking is generally found in surface lots and on the street. The use of parking structures is limited due to land values and uses in this center. Surface parking is shared by adjacent retail and restaurant uses. Low walls, architectural treatment and/or landscaped areas, engineered to collect stormwater runoff, are located along the edges of surface parking lots where they meet the sidewalk, providing a buffer and pedestrian-friendly edge.

Large mature native trees are visible throughout the area. Just one block off of the main highway, groves have been preserved within the residential neighborhood. Even within and along the edges of the surface parking lots, large mature trees have been preserved. Residents enjoy nearby recreational paths, parks and open space.



Station Community Three: Transit Corridor Neighborhood

References for comparison

Stakeholder interviews From “Places People Love,” this Station Community is most like Hillsdale.

Metro State of the Centers From Metro State of the Centers, this Station Community is most like Hillsdale, Orengo and Lake Grove.

State of the Centers Report Data			
Center	Hillsdale	Orengo	Lake Grove
Activity level	14 hour	12 hour*	14 hour*
Jobs to housing ratio	3:1	2:1	5:1
Median household size	2.08	1.35	2.05
Median household income	\$55,000	\$44,447	\$66,642
Median age	33	60	30
Home ownership	36%	47%	32%
People per acre	29	16	15
Dwelling units per acre	10	5	2
Total businesses per acre	na**	1.6	1.1

* Estimated for the purposes of this report. All other data is from the Metro State of the Centers Report.

** Metro State of the Centers Report provided no data for this center type.



The Transit Corridor Station Community is considered a 14-hour activity center, with a majority of daytime uses in the form of coffee shops and fast food restaurants, clothing stores and childcare. Schools, medical centers, drugstores and food stores are found here, as well as a range of personal and professional services. Nighttime uses are centered around the restaurants found in the center. The corridor is a destination location for restaurants and a mix of national chain retail and small-scale, locally-owned retail.



Photo: Metro



Photo: Metro

Housing in the district is mainly single dwelling residential in the form of townhomes and detached dwellings. Multi-dwelling housing is located in clusters near the corridor.

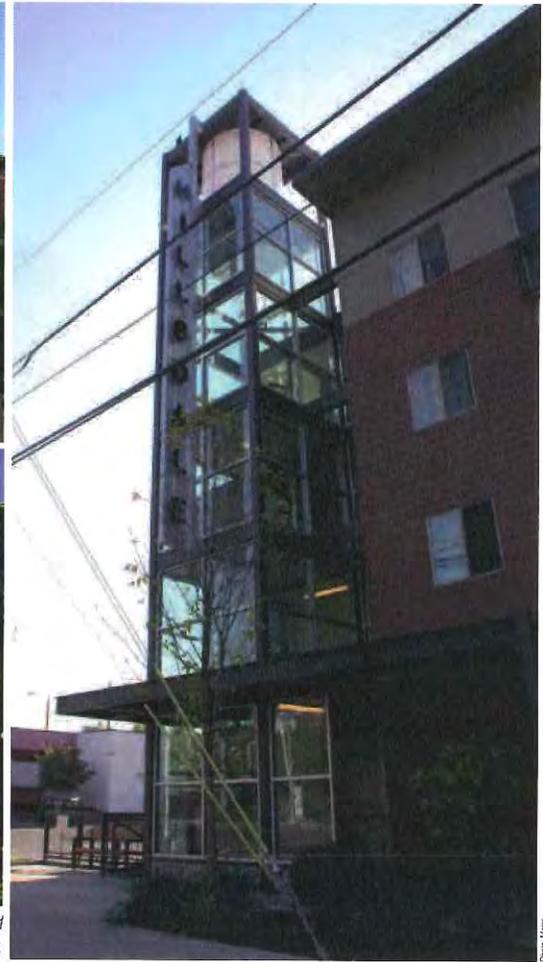


Photo: Metro



Photo: Urbanwerks

Auto access is convenient but not dominant. The area has a complete sidewalk network.



Photo: Naim

The arterial serving the corridor was originally designed to serve auto traffic, but significant efforts have been made to improve the pedestrian environment. Transit stops are conveniently located, safe, well-lit and attractive, enabling easy transfer between different transit options.



Photo: Urbanwerks



Photo: Metro



Photo: Metro

The area has community destinations, civic uses and planned events. Art and public realm design creates a strong feeling of community identity.

Large mature native trees are visible throughout the area. Just one block off of the main highway, groves have been preserved within the residential neighborhood. Within and along the edges of the surface parking lots, large mature trees have been preserved. Residents enjoy nearby recreational paths, parks and open space.



Photo: MUM



Photo: SEPA



Photo: SEPA

Parking is generally found in surface lots and on the street. The use of parking structures is limited due to land values and uses in this center. Surface parking is shared by adjacent retail and restaurant uses. Low walls, architectural treatment and/or landscaped areas, engineered to collect stormwater runoff, are located along the edges of surface parking lots where they meet the sidewalk, providing a buffer and pedestrian-friendly edge.



Images: City of Tigard and Urban Design

Transit Neighborhood Station Community Station Community Type Four

Focus Residential

The Transit Neighborhood Station Community is moderately populated and has a residential feel. There are few commercial land uses in this Station Community, and when they are present, they occur at locations where such uses have historically located; usually at the crossroads of through streets. When they occur, commercial land uses take the form of small-scale retail or office, usually on the ground floor of one or two corner buildings. Examples of the retail that might be found here includes coffee shops and specialty stores, while office uses may include professional services, some in the form of home-based businesses. Some of these buildings have residential uses above or behind the retail or office use. More significant clusters of retail and restaurants are within walking and biking distance.

Housing in the district is mainly single-dwelling residential with some multi-dwelling housing mixed in, although the majority of housing is owner-occupied. Infill development in this area primarily takes the form of accessory dwelling units and townhouses.

The area has several schools within walking distance.

The majority of residents leave the area to work, while any jobs found nearby are predominantly retail or restaurant focused.

The area has a curvilinear street pattern but there is a complete sidewalk network, auto speeds are slow, and there is an extensive system of multi-use paths through blocks, so the area is pedestrian friendly. There are numerous direct, safe and attractive bike routes through the area and to nearby transit stops, and one can choose to ride along a quiet street, in a dedicated bike path, or on a multi-use trail to most destinations.

Residential parking is mostly provided in the form of attached or detached garages occupying the same lot as the dwelling. Other parking is provided on the street. Nearby commercial uses rely upon on-street parking and the occasional surface lot.

Large mature native trees are visible throughout the area. Residents enjoy nearby recreational paths, parks and open space, and access to community gardens.



Station Community Four: Transit Neighborhood Station Community

References for comparison

Stakeholder interviews From “Places People Love,” this Station Community is most like Laurelhurst, Ladd’s Addition/Hawthorne and Summerfield.

Metro State of the Centers From Metro State of the Centers, this Station Community is most like Clinton, King City, and Sellwood/Westmoreland.

State of the Centers Report Data			
Center	Clinton	King City	Sellwood/ Westmoreland
Activity level	14 hour	12*	18 hour
Jobs to housing ratio	3:1	2:1	3:1
Median household size	2.08	1.35	1.8
Median household income	\$55,000	\$44,447	\$49,000
Median age	33	60	41
Home ownership	36%	47%	55%
People per acre	29	16	42
Dwelling units per acre	10	5	9
Total businesses per acre	na**	1.6	na**

* Estimated for the purposes of this report. All other data is from the Metro State of the Centers Report.

** Metro State of the Centers Report provided no data for this center type.



Photo: Meier



Photo: Meier



Photo: Meier

Housing in the district is mainly single-dwelling residential with some multi-dwelling housing mixed in, although the majority of housing is owner-occupied. Infill development in this area primarily takes the form of accessory dwelling units and townhouses.

There are few commercial land uses in this Station Community, and when they are present, they occur at locations where such uses have historically located; usually at the crossroads of through streets. When they occur, commercial land uses take the form of small-scale retail or office, usually on the ground floor of one or two corner buildings, and include coffee shops, specialty stores and professional services, some in the form of home-based businesses.





Photo: Metro

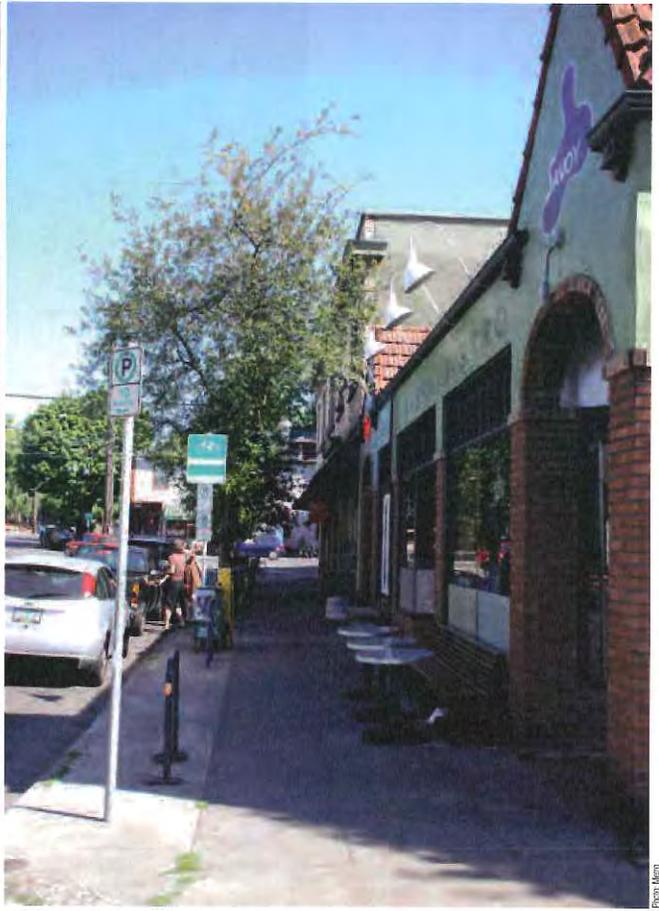


Photo: Metro

Significant clusters of retail and restaurants are within walking and biking distance.



Photo: Ulsarworks

The area has a curvilinear street pattern but there is a complete sidewalk network, auto speeds are slow, and there is an extensive system of multi-use paths through blocks.



Photo: Mapin

There are numerous direct, safe and attractive bike routes through the area and to nearby transit stops, and one can choose to ride along a quiet street, in a dedicated bike path, or on a multi-use trail to most destinations.



Photo: Ulsarworks



Photo: Metro

The area has community destinations, civic uses and planned events. Art and public realm design creates a strong feeling of community identity.



Photo: Metro



Photo: Urban



Photo: Libsco



Photo: City of Tigard

Large mature native trees are visible throughout the area. Residents enjoy nearby recreational paths, parks and open space, and access to community gardens.

CITY OF **TIGARD**

CONCEPTS FOR POTENTIAL
STATION COMMUNITIES

HIGH CAPACITY TRANSIT LAND USE PLAN

STATION COMMUNITY PLAN ALTERNATIVES REPORT + TRANSPORTATION EVALUATION REPORT

APPENDIX 2E



DRAFT

TIGARD HCT CORRIDOR LAND USE PLAN

STATION COMMUNITY PLAN ALTERNATIVES

26 JULY 2011

Tigard HCT Corridor Land Use Plan | Station Community Plan Alternatives Report - Draft

Parametrix, Urbsworks, Nelson\Nygaard, Johnson Reid, SERA,

Portland, Oregon. July 2011

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETY-LU), local government, and State of Oregon funds.

The contents of this document do not necessarily reflect views or policies of the State of Oregon.

INTRODUCTION

REPORT PURPOSE

The purpose of the Conceptual Station Community Plan Alternatives Report is to describe the alternatives for each potential station community created by the Citizen Advisory Committee (CAC) and other members of the public, the Technical Advisory Committee (TAC), city staff and the consultant team. This report describes the process used to create the alternatives, the initial scoring based on the viability of those alternatives and a preliminary review of the tradeoffs inherent in each alternative. In addition, this report briefly describes the criteria by which the alternatives were measured and the typology used in creating the alternatives. Cost assessment of alternatives implementation is not included in this report and will be evaluated at a later juncture.

PROJECT BACKGROUND

In 2009, the *High-Capacity Transit (HCT) System Expansion Plan* ranked the Southwest Corridor the highest of 17 potential HCT corridors in the Portland metropolitan region based on a number of criteria that relate to community and economic development benefits, environment quality, fiscal competitiveness, and project feasibility. As part of the “Near-Term Regional Priority Corridor” tier, the Southwest Corridor is among the corridors most viable for HCT implementation in the next several years.

The HCT plan features a conceptual alignment of the corridor (Study Corridor 11) that loosely follows the path of Barbur Boulevard-OR 99W and Interstate 5 south from Portland Central City to Tigard, possibly extending further southwest to Sherwood. An alternate routing (Study Corridor 11T) considers deep-bore tunneling under the Tualatin Mountains in an effort to better serve the Oregon Health and Sciences University campus on Marquam Hill. The HCT plan did not intend these routings to be the only alignment options available, but rather to serve as a starting point to guide subsequent corridor refinement planning efforts that will look at a range of possible transportation improvements.

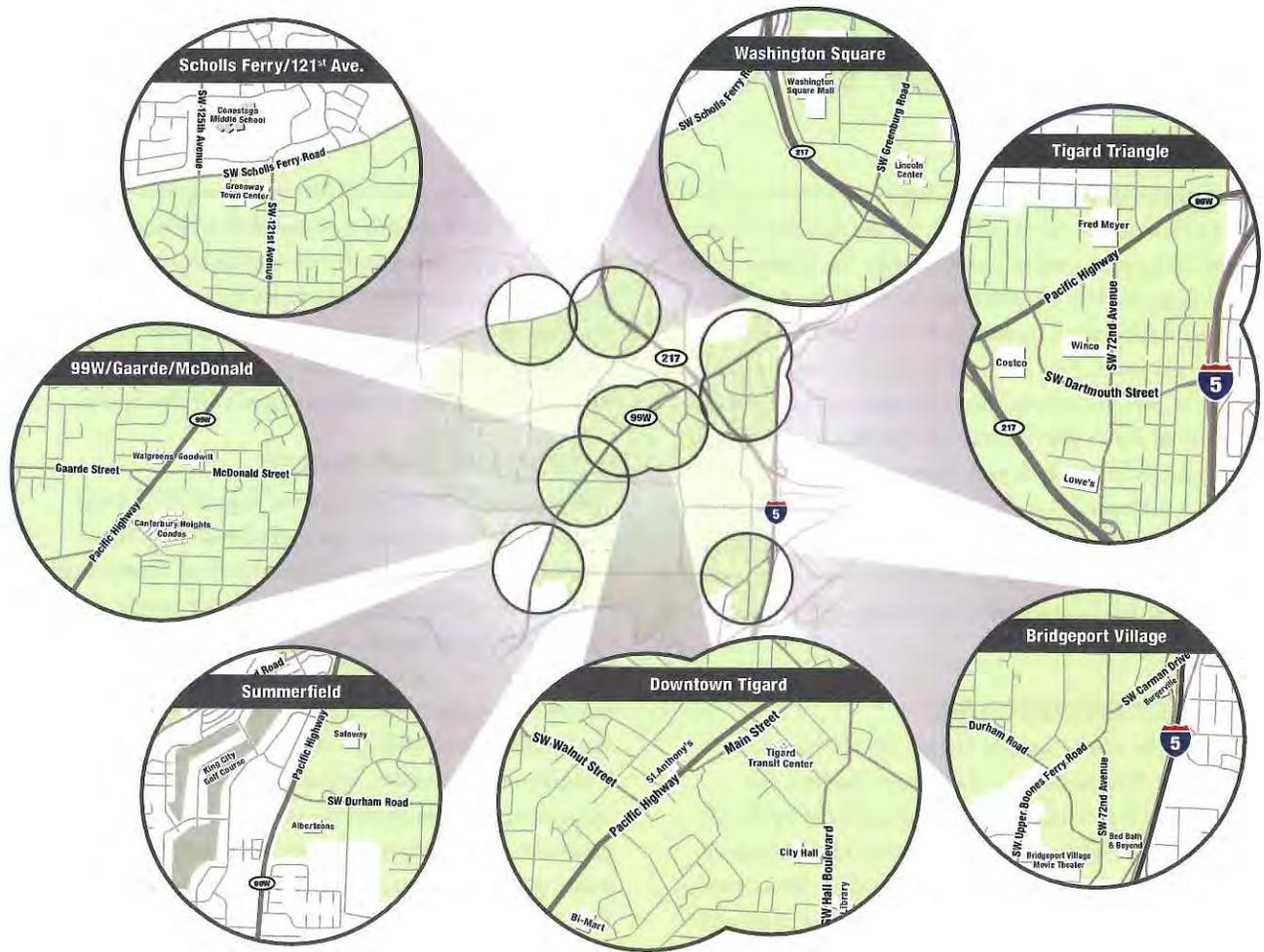
In a shift from traditional HCT planning initiatives in the Metro region, the Southwest Corridor project will coordinate land-use and transportation planning more closely to ensure

that future station areas will feature the requisite compact urban form, land use mix and population density that is a hallmark of economically vital, pedestrian-friendly, sustainable communities. Moreover, these initiatives are necessary to engender strong ridership that will help ensure the success of future HCT investment along the corridor while furthering the community’s goals for the future.

HOW TO USE THIS REPORT

This report is part of Task 3 of the Tigard HCT Land Use Plan that is currently being developed by City of Tigard, Metro, and Oregon Department of Transportation. Recently, design workshops were held that sought to elicit community input on a preferred vision for achieving desired land use and transportation objectives at several strategic locations within Tigard. The workshops employed the INDEX PlanBuilder modeling software that utilizes Geographic Information Systems (GIS) to create and evaluate future development scenarios using specified performance indicators which include demographics, housing, employment, recreation, travel and climate change. This document:

- Examines existing conditions for the seven potential station communities that have been chosen for further analysis and compares the viability of station areas at these seven locations for future investments in transit-oriented development.
- Provides a description of alternatives for each potential station community created by the CAC and other members of the public, the TAC, city staff and the consultant team that includes station community typology (to help inform future land-use designations and intensity) as well as new transportation connections.
- Highlights distinguishing features for each development alternative in a table that compares alternatives within each potential station community based on measures of community/economy, transportation, environment and policy/plan coordination.
- Summarizes the tradeoffs between alternatives at each potential station community based on quantitative and qualitative criteria to help determine viability for future investment.



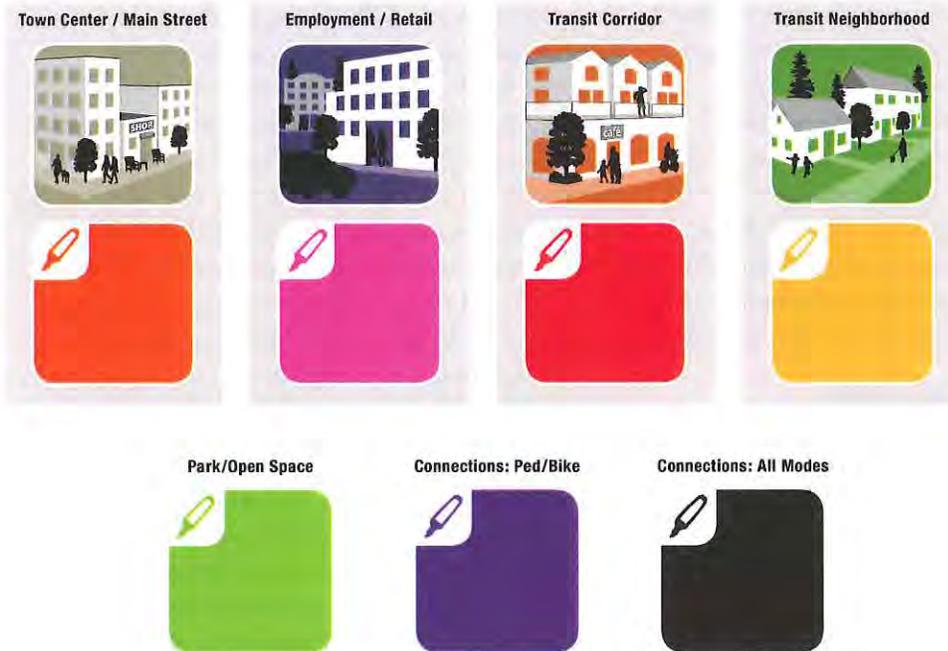
KEY MAP: STATION COMMUNITY LOCATIONS

Based on direction from the CAC, TAC and the public the project team will develop the preferred alternative for each potential station community. The preferred alternative is likely to be a combination of multiple alternatives, pulling the best features together in a way that best implements the Tigard Typology and meets the City's long-term goals, including supporting high capacity transit.

STATION COMMUNITY LOCATIONS

A forthcoming HCT Alternatives Analysis will look at a range of transit modes, alignments, and conceptual station platform locations. Prior to this, the local jurisdictions of Portland, Tigard and Tualatin, in collaboration with Metro and Oregon Department of Transportation, will lead the effort in pinpointing places with an established

community character or where citizens would like to see new development or revitalization. To that end, the Tigard HCT Corridor Land Use planning process has sought to identify locations within the City of Tigard that would be receptive to intensifying land uses in conjunction with the planned implementation of HCT in the vicinity of Pacific Highway-OR 99W from Downtown Portland to Tigard, including the possibility of serving the Washington Square Regional Center and/or Bridgeport Village retail center. These locations, or candidate station communities, are primarily one mile in diameter to include all possible public improvement and private development potential within walking distance of a potential transit station platform. Station platforms could be sited anywhere within these candidate station communities and this analysis does not assign the station platform to a



TYOLOGY "PAINTS"

specific intersection, block, or other identifier; these details, along with mode and alignment, will not be finalized until an environmental impact statement is completed as part of several studies necessary for eventual implementation of HCT, several years from today.

The seven candidate station community areas that were chosen for further analysis are:

- Tigard Triangle (in the vicinity of Pacific Highway-OR 99W, SW Dartmouth Street and SW 72nd Avenue)
- Downtown Tigard (in the vicinity of Pacific Highway-OR 99W, SW Walnut Street and SW Burnham Street)
- Gaarde-McDonald (in the vicinity of Pacific Highway-OR 99W at SW McDonald and Gaarde Streets)
- Summerfield/King City (in the vicinity of Pacific Highway-OR 99W at SW Durham Road)
- Scholls Ferry (in the vicinity of Scholls Ferry Road and SW 121st Ave)
- Washington Square (in the vicinity of SW Greenburg Road at SW Washington Square Road)
- Upper Bridgeport Village (in the vicinity of SW 72nd Avenue and SW Upper Boones Ferry Road)

PROJECT OBJECTIVES AND CRITERIA

Six categories of objectives and corresponding evaluation criteria were created to help the project team and the public make decisions about the alternatives. The project objectives and criteria reflect a wide range of input, from federal and regional policy to local City of Tigard goals, policies, and aspirations. The six broad categories are as follows:

- Community
- Economy
- Transportation
- Environment
- Equity
- Fiscal Stewardship & Policy Coordination

Some of the criteria within each of the categories are more quantitative in nature such as density of people per acre or impacts to traffic congestion, while others are more qualitative such as the opportunity to leverage local support. Appendix A of this report includes a detailed list of the criteria used to rate alternatives as well as how each alternative scored.

Equity is a project objective that is more effectively evaluated when station community planning is more detailed. Equity will also be an important consideration in selecting the final locations for station locations to ensure that future transit investments benefit the broadest cross section of the population, including those who rely on public transit due to physical mobility or a the relative economic burden of transportation costs. At this conceptual level, the potential station community alternatives do not preclude nor ensure the choices that will best provide equitable transit benefits.

STATION COMMUNITY TYPOLOGY

As part of this plan, a station community typology was developed with four Station Community Types to be used as frameworks for describing the character of different places. The typology was developed based in large part on interviews with community stakeholders and in discussion with the CAC and TAC and includes the following Station Community Types (see page 6 for additional information about the four Types):

- **Town Center/Main Street:** Urban village character, with mix of medium-to-high density housing, ground-floor retail, services, civic uses and offices within ½ mile of transit station. As one travels further away from the station, intensity and building heights decrease as the area transitions to surrounding residential neighborhoods.
- **Employment/Retail Destination:** Focuses on large-scale commercial and office development with interspersed institutional uses, surrounded by medium-to-high density residential development.
- **Transit Corridor:** Medium-density residential development mixed with medium-scale intensity office, retail and service commercial uses closer to the transit corridor. Likely situated in suburban, auto-oriented settings.
- **Transit Neighborhood:** Low-to-medium density residential in character, with predominately single-family housing (and occasional multi-family dwellings). Limited small-scale retail and office commercial, intended to primarily serve the immediate community.

ALTERNATIVES DEVELOPMENT

On May 25, 2011, the project team conducted two public design workshops at Tigard Public Library to solicit community input on a preferred vision for achieving land use and transportation objectives within each potential station community. Both workshops employed the INDEX PlanBuilder modeling software that utilizes Geographic

Information Systems (GIS) to create and evaluate future development scenarios using specified performance indicators which include demographics, housing, employment, recreation, travel and climate change. These scenarios were then ranked according to how well they promote levels of development intensity and transportation connectivity that are commensurate with local aspirations. The afternoon session was geared primarily to members of the TAC and the evening session was geared toward members of the CAC. However, there was some cross over between groups and inclusion of other members of the community. In total, approximately 70 individuals participated in the design sessions.

During the afternoon session, there were four workshop groups, with each group focusing on two station communities except for one group which focused solely on the Tigard Triangle. Discussions within each group were led by a facilitator who explained the mechanisms of the INDEX software and asked participants to describe their aspirations for the area, including what they liked about the neighborhood now and what they wanted to see changed. Questions were asked regarding the location of key pedestrian, bicycle, transit and vehicular connections (existing and desired), as well the location of the perceived center of activity where development could be focused, the envisioned neighborhood character (typology), and the presence of natural or perceived edges in the area. In addition, the session identified opportunities to preserve existing open space and natural resources. Priority for conversation was directed to areas nearest to the center of each potential station community before working outward in a concentric fashion. A scribe recorded important findings and sentiments borne out of the group discussion. A GIS technician designated one of four possible station community types within the typology for each parcel and also inputted new connections as desired by the group into INDEX. At the conclusion of the session, the INDEX model was run. This process was done once for each potential station community. The evening workshop was conducted in a similar fashion, with the exception that data was collected manually during the session which was later computed in the software, while the afternoon workshop utilized INDEX during the session.

First, INDEX was used to input desired new transportation connections within each potential station community. These connections included pedestrian and bike-only paths as

well as streets open to automobile traffic. In many potential station communities throughout, large parcels were broken up into smaller blocks using a new street grid, while other areas saw new access points created across existing barriers, such as Fanno Creek, Portland and Western Railroad (PNWR), and Interstate 5.

Next, existing parcels were categorized using one of the four devised station community types. After the parcels were “paired” with different station types, the scenarios were modeled with INDEX, which evaluated them using the identified performance indicators. The station community model scenarios developed by both design workshop sessions, along with a third conceived by project consultants for each potential station community, were ranked based on the projected totals for each indicator. In addition, each alternative was compared against the baseline alternative which is based on the existing zoning. Some of these alternatives were not further evaluated for certain station communities due to overarching similarities in station typology and transportation links with other alternatives while others were modified slightly from their original form. The communities that feature three alternatives (afternoon and evening workshop, consultant) were all sufficiently distinct to warrant modeling of each. It is important to note that the INDEX model output is only meant to compare between different alternatives within the same potential station community, and cannot be used to compare results between multiple station communities.

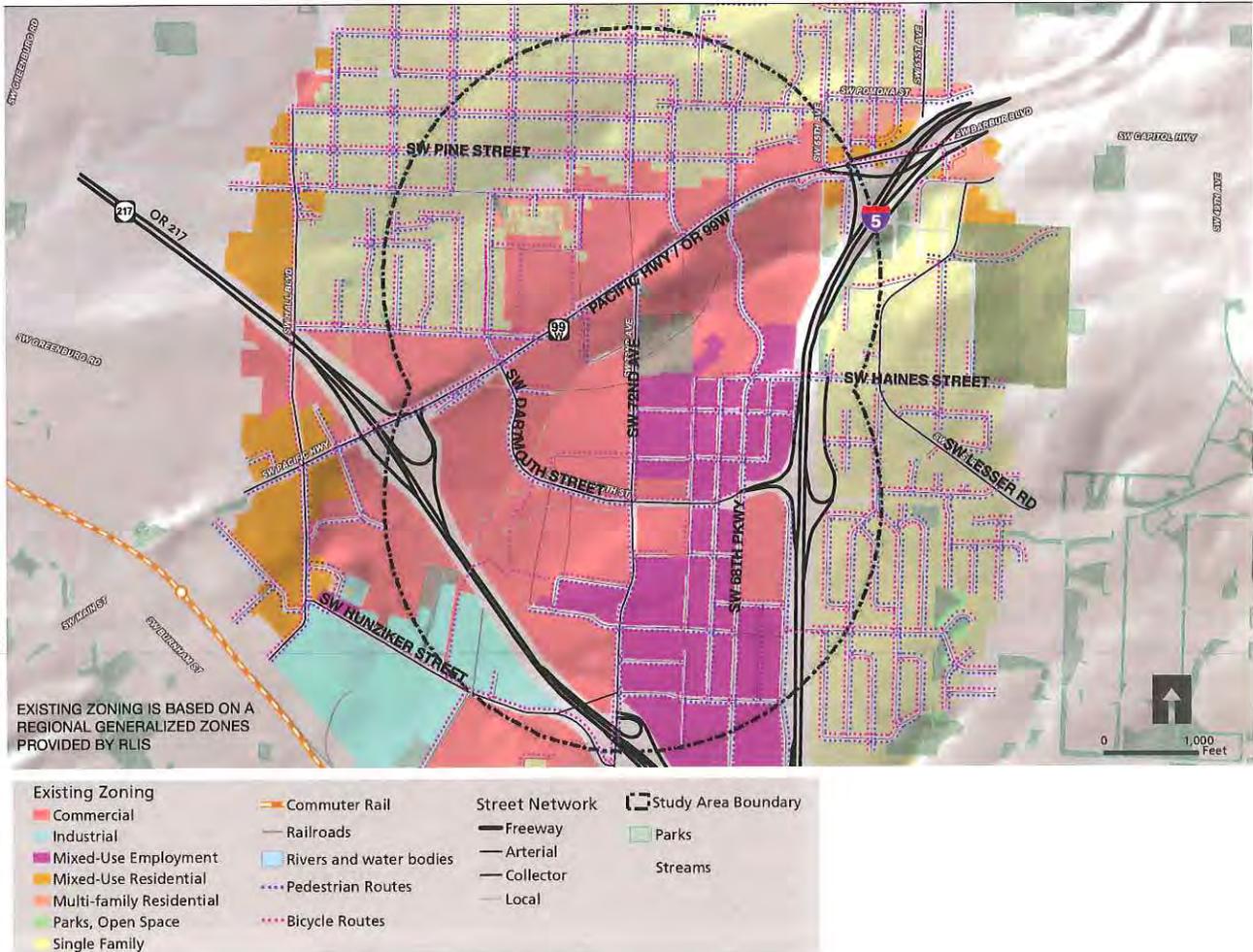
STATION COMMUNITY ALTERNATIVES

The following section briefly describes each station community alternative and provides the quantitative evaluation developed through INDEX for selected performance indicators, as well as a qualitative evaluation to reflect current local plans and policies. These alternatives are also compared to existing conditions in the subject areas of community (land use), economy (market assessment), environment (parks and open space; natural resources), and transportation as described in the previously completed *Existing Conditions Summary Report*.

COMPARISON OF STATION COMMUNITY TYPES

	TOWN CENTER / MAIN STREET	EMPLOYMENT / RETAIL	TRANSIT CORRIDOR	TRANSIT NEIGHBORHOOD
LAND USE FOCUS	Specialty retail, office, dining, medium to high-density housing.	An employment and regional shopping destination.	Shopping, dining and residential.	Primarily residential.
CHARACTER AND LAYOUT	The area has an urban village feel. Within one half mile around the station is a mix of housing, retail, services, civic uses and office. Open spaces and businesses combine to create vibrant streets. Apartments or condominiums occupy the upper level of some buildings. Moving away from the station, there may be townhouses with ground floor office and home-based businesses. The edges of the station area are predominantly residential, blending into the surrounding neighborhoods.	A moderately to intensely populated station area with a land use emphasis on employment and retail activities. Other possibilities include civic buildings and colleges. This central employment/retail core is surrounded by medium to high density multi-story housing in the form of townhouses and apartment buildings. This creates opportunities to live and work in close proximity.	A suburban residential feel mixed with commercial uses closer to the transit corridor. Housing is in the form of townhouses and detached houses with apartments located in clusters near the corridor. The area also has moderately scaled office employment, shopping and dining located near the station.	Moderately populated with a residential feel. Housing in the district is mainly single-dwelling residential with some multi-dwelling housing mixed in. There are limited commercial uses which take the form of small-scale retail or office. More significant clusters of retail and restaurants are within walking and biking distance.
SIMILAR PLACES	Lake Oswego/First Addition, downtown Milwaukie and downtown Vancouver	Bridgeport Village, Tanasbourne, and Lloyd/Irvington	Hillsdale, Orenco and Lake Grove	Laurelhurst, Ladd's Addition/ Hawthorne, Summerfield, and Sellwood/Westmoreland
ACTIVITY LEVEL	The area is considered a 14-hour activity center, with daytime uses that include office jobs, retail and restaurants. Nighttime activity includes eating and drinking establishments.	The district is considered an 18-hour activity center, with a majority of daytime activity in the form of office jobs and shopping. Nighttime activity includes full-service restaurants and entertainment.	A 14-hour activity center, with a majority of daytime uses in the form of restaurants, cafes and retail. Schools and a range of personal and professional services are also found here. Nighttime uses are centered on restaurants.	A 12-14 hour activity center. The majority of residents leave the area to work. Most jobs found nearby are retail or restaurant focused.
AVERAGE FLOOR AREA RATIO	1.00	0.33	0.40	0.50
UNITS PER ACRE	24	8	10	12
EMPLOYEES PER ACRE	40	50	15	5
INDEX PERFORMANCE	Highest land use intensity. Tends to have a more balanced number of jobs to housing; lower VMT per capita; lower CO2 emissions.	High land use intensity. Ratio of jobs to housing skewed toward jobs; tends to have higher VMT per capita; higher CO2 emissions.	Relatively low land use intensity. Tends to have a more balanced number of jobs to housing.	Lowest land use intensity; Ratio of jobs to housing skewed toward housing; tends to have higher VMT per capita; higher CO2 emissions.

TIGARD TRIANGLE



TIGARD TRIANGLE EXISTING ZONING

EXISTING CONDITIONS

This station community is roughly bounded by Pacific Highway-OR 99W to the northwest, OR 217 to the southwest, and I-5 to the east. Potential nodes include the intersection of Pacific Highway-OR 99W/SW 72nd Avenue and the intersection of SW Dartmouth Street/72nd Avenue. The Triangle is emblematic of auto-oriented highway commercial form, with large parcels that feature a great quantity of surface parking. Owing to the suburban-style street grid, pedestrian and bicycle connections are fairly discontinuous in this station community, especially west of 72nd Avenue. Pacific Highway-OR 99W, I-5 and OR 217 are formidable barriers, each having few streets available for

crossing from one side of the roadways to the other. The area features generally poor sidewalk coverage, particularly along 72nd Avenue which serves as the principal north-south route in the area. Line 12 is the major bus service that operates along Pacific Highway-OR 99W and is a Frequent Service line. Tigard Park and Ride is located within this station community.

There are higher densities of people (which include estimated households and employment) located both north of Pacific Highway-OR 99W and south of SW Elmhurst Street within the station community. The area features fairly large block sizes due to larger parcels and a curvilinear street grid, although blocks are smaller east of 72nd Avenue.

In addition, higher concentrations of amenities are located along Pacific Highway-OR 99W.

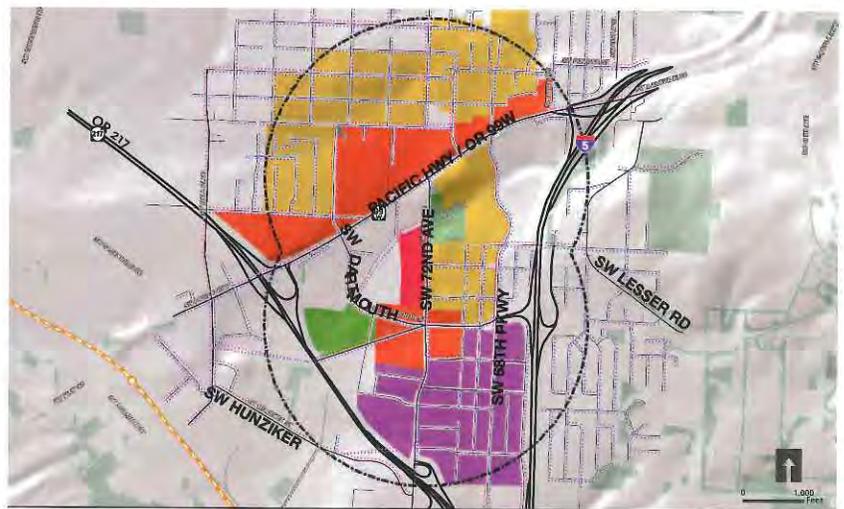
Natural resources in this station community include Red Rock Creek, Crystal Lake, a creek parallel to Dartmouth Street, and adjacent wetlands. There is less than optimal access to parks and open spaces and no trails or planned trails in the area.

In addition to small strip centers or shopping malls and standalone businesses, this area features a significant presence of “big box” retail stores, as well as a large number of office and institutional uses. The Tigard Triangle is an attractive location due to the confluence of three major transportation routes, and as such achieves the highest office rents and is the heart of Tigard’s employment base. The area is expected to continue supporting up to 5 or 6-story mixed-use office buildings in the future with single-story retail and industrial development. There is also a small area of low-density residential households located within the station community that is expected to see future redevelopment at higher intensities. Currently there is an abundance of land that is fully or partially vacant as well as numerous smaller parcels that have high redevelopment potential.

The entirety of Tigard Triangle (as defined by the boundaries of I-5, OR 217, and Pacific Highway-OR 99W) is classified as “Employment” land in Metro Title 4, Industrial and Other Employment Areas. In the Metro 2040 Growth Concept map, the area is included within the Tigard Town Center boundaries and also includes a 2040 Corridor (Pacific Highway-OR 99W) bisecting the station community; however, additional planning is needed to gain ODOT recognition of the Town



AFTERNOON WORKSHOP ALTERNATIVE



PUBLIC EVENING WORKSHOP ALTERNATIVE



CONSULTANTS' ALTERNATIVE

Center designation. Local planning efforts are just underway for this area.

According to the 2005-2009 American Community Survey (5-year estimate), Tigard Triangle has the lowest transit commute mode share of the seven station communities. The ACS also reports the highest percentages of renter-occupied households and individuals living below the poverty line and the lowest residential density within this station community. See Appendix B for a table and general discussion of methodology used to calculate these statistics.

TIGARD TRIANGLE WORKSHOP RESULTS

AFTERNOON WORKSHOP ALTERNATIVE

This workshop session envisioned the corridor along SW 72nd Avenue as a town center/main street while the area immediately to the east of SW 70th Avenue and south of SW Beveland Street would consist of the employment/retail type; this area would be bounded by I-5 and OR 217. Pacific Highway-OR 99W would feature the transit corridor type except for the parcels immediately surrounding the intersection with 72nd Avenue, while small-size parcels located directly north would be designated as transit neighborhood.

This alternative would feature a more robust street network that prioritizes increased multimodal access across the existing barriers of Pacific Highway-OR 99W, I-5 and OR 217. New connections of note include a multi-use trail along Red Rock Creek and extensions of SW Southwood Drive west across I-5, SW Hampton Street west across OR 217, and SW 70th Avenue, SW 72nd Avenue and SW 74th Avenue across Pacific Highway-OR 99W. Many of the large parcels both north and south of Pacific Highway-OR 99W are broken up to allow for the facilitation of new connections.

This alternative links Red Rock Creek, wetlands and existing open space together with a multi-use path that parallels Pacific Highway-OR 99W and from SW 68th Parkway, crossing OR 217 to connect with SW Hunziker.

PUBLIC EVENING WORKSHOP ALTERNATIVE

This workshop session proposed that the intersection of SW 72nd Avenue and SW Dartmouth Street would be one focus of town center/main street type, along with a large area north of Pacific Highway-OR 99W between SW 65th Avenue to the northeast and OR 217 to the southwest. Employment/retail uses would occupy land generally south of Dartmouth Street and to both sides of SW 72nd Avenue, while the corridor type would be featured along one side of 72nd Avenue north of Dartmouth Street. The transit neighborhood type was contained in an area roughly bounded by Pacific Highway-OR 99W to the north, 72nd Avenue to the west, SW 68th Avenue to the east and Dartmouth Street to the east (with the exception of some parcels that were slated for parkland); existing residential parcels north of and west of existing strip commercial properties along Pacific Highway-OR 99W were designated this type as well.

This alternative would also feature a more tightly connected grid of streets than what exists currently; however the connections are geared more towards facilitating pedestrian movement as opposed to bicyclist or motorist access. New multi-use connections would connect across OR 217 at roughly SW Hampton Street and SW Garden Place; another path is slated along Red Rock Creek. Many large-lot parcels would remain under this alternative.

This alternative provides a new open space between OR 217 and SW Dartmouth Street, linked to the existing open space at SW 72nd Street with a multi-use trail that parallels Red Rock Creek.

CONSULTANTS ALTERNATIVE

This sketch features the town center/main street typology across the entire Triangle area east of SW 74th Avenue and north of SW Hampton Street; exceptions include parkland along Red Rock Creek and transit neighborhood located to the west of the SW Dartmouth Street/74th Avenue intersection. Corridor type development is envisioned along

Proposed Typologies	Commuter Rail	Street Network	Study Area Boundary
Corridor	Railroads	Freeway	Parks
Employment / Retail	Rivers and water bodies	Arterial	Streams
Neighborhood	Pedestrian Routes	Collector	
Town Center/Main Street	Bicycle Routes	Local	
Proposed Park			

LEGEND

the north side of Pacific Highway-OR 99W and parcels immediately abutting OR 217 to the south.

This alternative features a more tightly connected street grid within the Triangle area, as well as a new multi-use path along Red Rock Creek but otherwise maintains much of the large-lot parcels currently present along Pacific Highway-OR 99W.

This alternative links Red Rock Creek, wetlands and existing open space together with a multi-use path that parallels OR99W and extends from SW 64th Avenue, crossing OR 217 to connect with SW Hall.

OVERVIEW OF ALTERNATIVES

In the Tigard Triangle alternatives the biggest differences are generally found in the application of the different Types. The afternoon workshop alternative provides the highest densities of jobs and housing but also creates the most new traffic, a tradeoff that will be necessary to analyze further. The consultant alternative has the highest application of the Town Center Type leading to more housing but less employment and a better jobs to housing balance, another tradeoff that will need to be considered. The treatment of Pacific Highway-OR 99W is another key differentiator between the alternatives with the afternoon workshop alternative attempting to bridge 99W with the Town Center Type and the other alternatives placing the Corridor type along the highway. How, or whether to connect the two sides of 99W as part of the Tigard Triangle is a decision point for the preferred alternative. Providing additional connectivity to the Town Center requires a significant investment in infrastructure to cross OR 217 as shown in all three alternatives. Finally, the creation of significant open space within the Tigard Triangle is likely a key ingredient to future development and is shown all three alternatives but increases costs and removes potentially buildable land.

EVALUATION AND COMPARISON OF TIGARD TRIANGLE ALTERNATIVES	
AFTERNOON WORKSHOP SESSION ALTERNATIVE	
COMMUNITY / ECONOMY <i>Two Town Center nodes linked by a main street.</i>	
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center Type creates the most transit-supportive land use pattern, with the greatest number of employees and residents. · Supports the greatest number of urban amenities. · Has the most even mix of all four Types. · Shows almost no change over existing jobs to housing balance, about 2.5 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> · Town Center Type buildings, including 4-5 story office and 2-3 story residential development is considered financially viable in this area in near to mid term; nonetheless, the Town Center Type applied to areas north and south of OR 99W represents a significant change from current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · The Town Center Type is applied to land north of OR 99W identified as having low redevelopment potential; the area south of OR 99W is identified as having significant redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · Most representative of City Council priorities and potential Town Center designation. · Current Comprehensive Plan designation includes mixed use zoning, but suggested Types include more intensive development. · The application of Town Center Type on both sides of OR 99W is inconsistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION <i>Bridges OR 99W with regularly spaced multi-modal crossings.</i>	
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Has the highest bicycle network coverage across the entire area. · Provides a high quality multi-use trail facility through future green space stretching from the southwest to the northeast.
Connectivity	<ul style="list-style-type: none"> · Provides the highest local street connectivity. · Enhances regional connectivity by adding a crossing of Hunziker Road over OR 217 and the extension of Atlantic Street to Dartmouth.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows relatively low VMT per person/employee and low vehicle trips of all types.
PM peak trips	<ul style="list-style-type: none"> · PENDING DATA.
Transit adjacency	<ul style="list-style-type: none"> · Provides next highest transit accessibility.
Additional infrastructure needs	<ul style="list-style-type: none"> · Improvements at OR 217 and Greenburg and I-5 south of Dartmouth. · Will have significant traffic impacts/mitigation needs; consistent with other alternatives.
Consistency with policies / plans	<ul style="list-style-type: none"> · Changes made to Atlantic are not in the plan (true of all alternatives) and greenway trail is added that could serve bikes and pedestrians; otherwise is consistent. · Only alternative that includes two significant TSP/RTP projects: Highway 217 crossing at Hunziker and Atlanta extension
ENVIRONMENTAL FEATURES <i>Most extensive open space link</i>	
Open space	<ul style="list-style-type: none"> · Provides the most residents with access to open space. · Has the greatest park/schoolyard adjacency to housing.
CO2 emissions	

PUBLIC EVENING WORKSHOP ALTERNATIVE

COMMUNITY / ECONOMY *One Town Center node at SW 72nd and Dartmouth, and Town Center Type applied to a large area north OR 99W.*

Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · This alternative has the lowest land use intensity, fewer residents and employees than currently, and fewer than the other two alternatives. · Improves jobs to housing balance over existing.
Market feasibility	<ul style="list-style-type: none"> · Town Center Type buildings, including 4-5 story office and 2-3 story residential development, is considered financially viable in this area in near to mid term; nonetheless, the Town Center Type applied to the intersection of SW 72nd and Dartmouth and the area north of OR 99W represents a significant change from current development patterns. · Application of Transit Corridor Type west of SW 72nd, is consistent with current development patterns. · The application of Transit Neighborhood Type east of 72nd Ave represents a change from current zoning, from mixed-use employment to residential. · 4-5 story office and 2-3 story residential development considered viable in near to mid term.
Redevelopment potential	<ul style="list-style-type: none"> · The Town Center Type south of OR 99W is applied to land that is predominantly vacant. · The Town Center Type north of OR 99W and west of SW 72nd is applied to land identified as having some redevelopment potential. · Transit Neighborhood Type east of 72nd Ave is applied to land that is identified as having significant redevelopment potential. · Transit Neighborhood Type is applied to a large area north of OR 99W, identified as having low to no redevelopment potential. Since Transit Neighborhood assumes relatively low intensity infill, however, application of this Type may not be inconsistent with current development patterns.
Consistency with policies / plans	<ul style="list-style-type: none"> · Most representative of City Council priorities and potential Town Center designation. · Current Comprehensive Plan designation includes mixed use zoning, but suggested Types include more intensive development. · The application of Town Center Type on the north side of OR 99W is inconsistent with Oregon Highway Plan Land Use and Transportation Policy (1B). · Transit Neighborhood Type applied to large area north of OR 99W would require infill-supportive regulations, and a large portion of land is not within the City of Tigard boundaries.

TRANSPORTATION

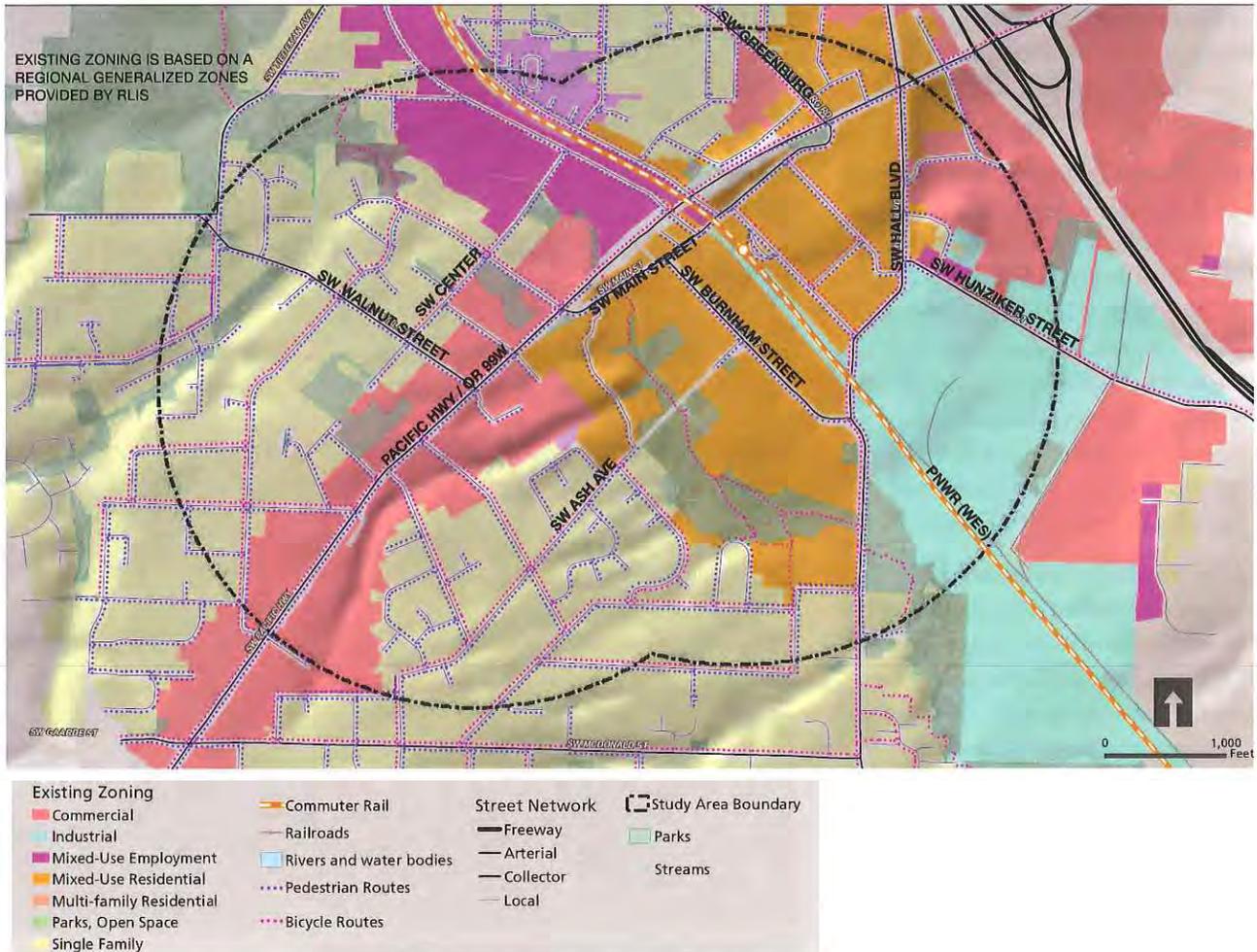
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Has the lowest bicycle network coverage across the entire area. · Provides a multi-use facility that combines local street access with multi-use trail stretching from the southwest to the northeast.
Connectivity	· PENDING DATA
VMT per person / employee	· In spite of the increased land use intensity, shows the lowest VMT per person and the lowest vehicle trips of all types.
PM peak trips	· PENDING DATA
Transit adjacency	· Provides the lowest level of transit accessibility.
Additional infrastructure needs	<ul style="list-style-type: none"> · Improvements at OR 217 and Greenburg and I-5 south of Dartmouth. · Will have significant traffic impacts/mitigation needs; consistent with other alternatives.
Consistency with policies / plans	<ul style="list-style-type: none"> · A new NE to SW trail is added for bikes and pedestrians. · Does not include two significant TSP/RTP projects: Highway 217 crossing at Hunziker and Atlanta extension.

ENVIRONMENTAL FEATURES *Large park near OR 217.*

Open space	· Has the greatest amount of park/schoolyard space, although the open space is not easily accessible to residents.
CO2 emissions	· Shows the highest vehicle CO2 emissions per employee than any other alternative (including existing), in spite of the relatively low intensity of employment uses.

CONSULTANTS' ALTERNATIVE	
COMMUNITY / ECONOMY	<i>Largest Town Center area.</i>
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> The amount of Town Center Type and the absence of Employment/Retail Type creates the highest residential intensity of the three alternatives, and comes the closest to a 1:1 jobs to housing ratio of all the alternatives.
Market feasibility	<ul style="list-style-type: none"> Town Center Type buildings, including 4-5 story office and 2-3 story residential development is considered financially viable in this area in near to mid term; nonetheless, the Town Center Type applied to areas north and south of OR 99W represents a significant change from current development patterns. Application of Transit Corridor Type north of OR 99W is consistent with current development intensity. Employment/Retail Type is consistent with current development. 4-5 story office and 2-3 story residential development considered viable in near to mid term.
Redevelopment potential	<ul style="list-style-type: none"> The Town Center Type is applied to land which is vacant or identified as having significant redevelopment potential. Employment/Retail Type is applied to land with high redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> Most representative of City Council priorities and potential Town Center designation. Current Comprehensive Plan designation includes mixed use zoning, but suggested Types include more intensive development. The application of Transit Corridor Type on the north side of OR 99W is consistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION	<i>Bridges OR 99W with regularly spaced multi-modal crossings.</i>
Pedestrian / bicycle network	<ul style="list-style-type: none"> Has the next highest bicycle network coverage across the entire area. Provides a high quality multi-use trail facility through future green space stretching from the southwest to the northeast.
Connectivity	<ul style="list-style-type: none"> Provides the next highest local street connectivity.
VMT per person / employee	<ul style="list-style-type: none"> In spite of the increased land use intensity, shows the next lowest VMT per person and the lowest vehicle trips of all types.
PM peak trips	<ul style="list-style-type: none"> PENDING DATA.
Transit adjacency	<ul style="list-style-type: none"> Provides the highest adjacency to transit for both residents and employees.
Additional infrastructure needs	<ul style="list-style-type: none"> Improvements at OR 217 and Greenburg and I-5 south of Dartmouth. Will have significant traffic impacts/mitigation needs; consistent with other alternatives.
Consistency with policies / plans	<ul style="list-style-type: none"> Adds a greenway trail for bikes and pedestrians; otherwise consistent. Does not include two significant TSP/RTP projects: Highway 217 crossing at Hunziker and Atlanta extension.
ENVIRONMENTAL FEATURES	<i>Most extensive open space link.</i>
Open space	<ul style="list-style-type: none"> Provides most residents with access to open space.
CO2 emissions	<ul style="list-style-type: none"> Shows the lowest vehicle CO2 emissions for residents and employees, in spite of the high land use intensity.

DOWNTOWN TIGARD



DOWNTOWN TIGARD EXISTING ZONING

EXISTING CONDITIONS

Tigard’s downtown is bounded by Pacific Highway-OR 99W, Hall Boulevard, and Fanno Creek Park with much of the retail commercial focused along SW Main Street. The PNWR (WES) line generally bisects the downtown in two, with limited crossings available; Pacific Highway-OR 99W and Fanno Creek also pose formidable barriers for circulation to the west and south. Parking on Main Street is in the form of time-limited on-street as well as off-street parking. The downtown features a comparatively well-connected sidewalk and bikeway network on most collectors and arterials. The multi-use path along Fanno Creek provides access to neighborhoods southeast and northwest of

downtown, although there is an existing gap between Main Street and Woodard Park to the west. Conditions along Hall Boulevard and Pacific Highway-OR 99W are not as robust, with substandard pedestrian facilities and few opportunities for crossing the thoroughfares. Bicycle conditions are generally best along low-traffic streets in downtown and the Fanno Creek trail, while Pacific Highway-OR 99W and higher-volume roadways pose more challenges for bicycle mobility. TriMet routes 12, 45, 64, 76, and 78 provide bus service at Tigard Transit Center, which also features a Westside Express Service commuter rail station.

Greater densities of households and jobs are found along

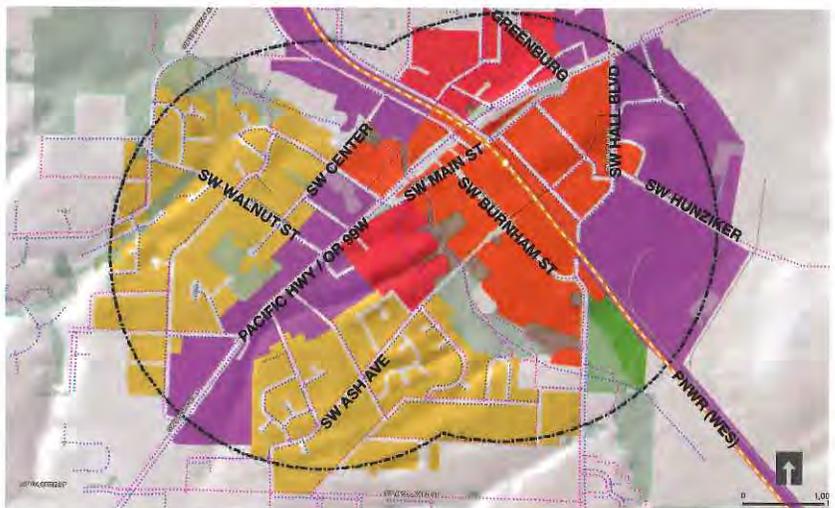
Pacific Highway-OR 99W in downtown. Pacific Highway-OR 99W (and Main Street) feature some of the highest densities of urban amenities in Tigard, while downtown features smaller than average block sizes compared to the city as a whole, owing to the area's semblance of a grid street pattern.

Fanno Creek roughly forms downtown's southern edge and is a major natural resource within the station community area, while Pine Brook Creek and the creek paralleling McDonald Street are other examples of nearby water and wetland features. The area features generally good access to parks, open spaces, and trails (Fanno Creek Trail) and there are opportunities for trail facilities along the PNWR line.

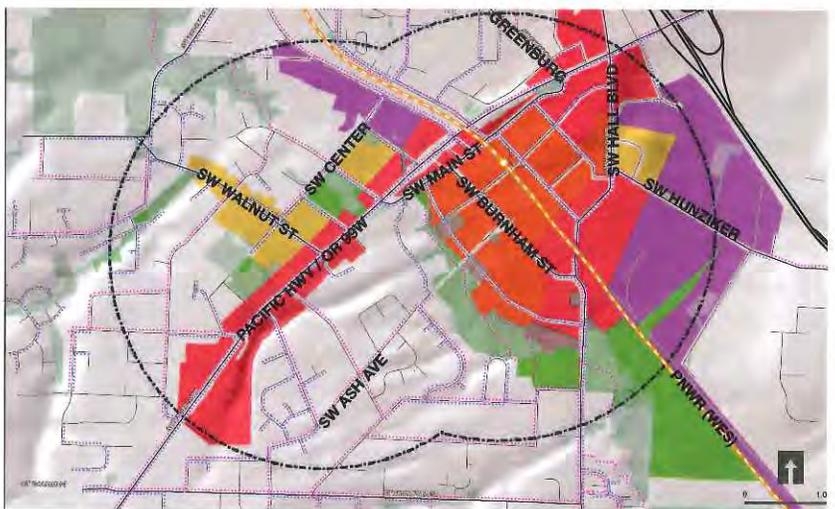
Downtown is predominately made up of auto-oriented strip commercial properties along Pacific Highway-OR 99W and low-rise traditional storefront retail along Main Street. It remains a key destination for neighborhood-serving retail and service commercial (compared to Washington Square and Tigard Triangle which have a more regional draw), therefore uses will likely be smaller in scale and employment densities will be lower than in the other locations. There are industrial uses located to the southeast of the historic core along the PNWR line, SW Hall Boulevard and SW Hunziker Road. Existing residential development is located to the south and west of Fanno Creek as well as to the north of Pacific Highway-OR 99W and in the vicinity of Hall Boulevard/Hunziker Road intersection. There is good potential for compact, mixed-use residential development of moderate to high density in the district that would provide convenient access to nearby services. Currently there are a sizable number of smaller parcels that have medium to high redevelopment potential.



AFTERNOON WORKSHOP ALTERNATIVE



PUBLIC EVENING WORKSHOP ALTERNATIVE



CONSULTANTS' ALTERNATIVE

Areas south of SW Hunziker Road and east of Hall Boulevard are classified as “Industrial” land in Metro Title 4, Industrial and Other Employment Areas. In the Metro 2040 Growth Concept map, the entirety of Downtown Tigard (as well as areas adjacent to Hall Boulevard north of Pacific Highway-OR 99W) is included within the Tigard Town Center boundaries. The station community also includes three 2040 Corridors (Pacific Highway-OR 99W, Hall Boulevard, Hunziker Road). The area has been the subject of several recent local planning initiatives, including a downtown plan and a \$22 million urban renewal district.

Downtown Tigard contains the highest proximity to subsidized housing properties and populations covered under Title VI of the 1964 Civil Rights Act. According to the 2005-2009 American Community Survey, Downtown Tigard contains the greatest transit commute mode share and longest travel commute times of residents living within the seven station communities.

DOWNTOWN TIGARD WORKSHOP RESULTS

AFTERNOON WORKSHOP ALTERNATIVE

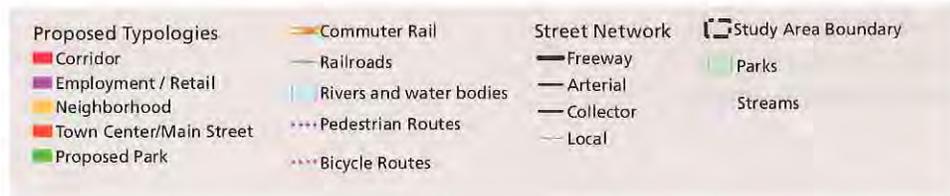
This workshop session alternative includes Town Center/Main Street Type development focused on Tigard’s historic downtown core along SW Main Street, SW Burnham Street, and SW Commercial Street as well as the Tigard Transit Center. This type would extend as far northwest as Pacific Highway-OR 99W, as far northeast as SW Scoffins Street, as far southeast as SW Ash Avenue, and as far southwest as Fanno Creek. Corridor Type development would be applied to parcels fronting Pacific Highway-OR 99W, extending from the PNWR line south to the southern boundary of the station community area. Transit Neighborhood Type development would be located behind these parcels in traditional single-family neighborhoods, farther away from Pacific Highway-OR 99W. The Corridor station area type would also be situated between Burnham Street and Fanno Creek, and to the west of SW Hall Boulevard from SW Hunziker Street to Burnham Street. Transit Neighborhood Type is also placed along SW Commercial Street west of

Pacific Highway-OR 99W to SW 95th Avenue. Finally, the node at Pacific Highway-OR 99W/Hall Boulevard would be reserved for Employment/Retail Destination Type uses. This type would extend along Hall Boulevard from the northern boundary of the station community to Hunziker Street where existing commercial and industrial development is located; additional Employment/Retail Type is set aside along Hall Boulevard south of Burnham Street as well as beside Pacific Highway-OR 99W south to Commercial Street. Parks and open spaces are identified along Fanno and Derry Dell Creeks.

Bridging the divide caused by the PNWR line and Fanno Creek is a major justification for the new transportation links proposed in this alternative. An extended Ash Avenue would connect across both barriers to allow better access for pedestrians and bicycles between Downtown and neighborhoods to the south while a new parallel path to the east would connect Fanno Creek Trail to Burnham Street. The new pedestrian trail would traverse along the creek parallel to the existing trail from Main Street to Hall Boulevard.

PUBLIC EVENING WORKSHOP ALTERNATIVE

The evening public workshop session conceptualizes the historic downtown core featuring Town Center/Main Street Type development; this area is bounded by Pacific Highway-OR 99W to the northwest, SW Hall Boulevard to the east, and Fanno Creek to the southwest. Moreover, the Town Center/Main Street station type would also be placed west of Pacific Highway-OR 99W between the PNWR line and SW Johnson Street. Corridor Type development would be located west of Pacific Highway-OR 99W north of the PNWR line to approximately SW Greenburg Road, as well as south of Fanno Creek between Pacific Highway-OR 99W and SW Ash Avenue. Employment/Retail Destination station type occupy existing strip commercial properties alongside Pacific Highway-OR 99W south of Fanno Creek, existing industrial uses centered on SW Hunziker Street as well as along SW Tigard Street and the PNWR line. Existing



LEGEND

single-family residences south of Fanno Creek are set aside for future Transit Neighborhood Type uses, while parkland is situated east of Hall Boulevard, proximate to Fanno Creek Park.

This alternative includes the completion of the Fanno Creek Trail throughout the station community (from SW Tiedeman Avenue east to Hall Boulevard) as well as a new pedestrian path paralleling the PNWR line east from SW Main Street. Both of these proposed additions would improve access for bicycles and pedestrians traveling east-west. In addition, an extension of SW Lincoln Avenue across the PNWR line to SW Johnson Street would provide improved north-south connectivity west of Pacific Highway-OR 99W, while extending Ash Avenue south to SW Burnham Street and north to Hall Boulevard would improve mobility within the historic downtown core. Pacific Highway-OR 99W would have pedestrian connections improved between SW Center Street and Johnson Street.

CONSULTANTS ALTERNATIVE

This sketch features the Town Center/Main Street Type primarily in the historic gridiron downtown on either side of the WES commuter rail corridor and centered on the WES station platform. Transit Corridor Type development will be the principal urban form along OR 99 W and SW Hall Boulevard. Employment/Retail Destination Type is applied to those areas where industrial employment has been the predominant land use. Application of this type will make these areas less automobile-dependent for access by employees and staff. Transit Neighborhood development will add new intensity and variety in dwelling unit types along selected arterial streets, such as SW Walnut Street.

This alternative would also feature a more tightly connected grid of streets within the town center/main street type than what exists currently. New connections are geared as much towards facilitating pedestrian movement as bicycle or automobile access.

Fanno Creek forms an effective natural edge to downtown Tigard. It is a major natural resource within the station community area and Pine Brook Creek and the creek paralleling McDonald Street offer other nearby water and wetland features that could be linked to extend the effective range of the habitat network. The area features good access to parks, open spaces, and trails.

OVERVIEW OF ALTERNATIVES

Downtown Tigard has been the focus of the most intense planning within the City and any alternatives that deviate from that planning will require good reasons for moving in a new direction. Of the three alternatives, the application of the Town Center/Main Street Type in the public workshop alternative and the consultant alternative most closely match with current adopted City plans. In general, the public workshop alternative most aggressively applied the typology, leaving very few areas with no changes, including applying the Transit Neighborhood Type throughout the western edge of the downtown indicating more opportunities for density in these areas. This alternative also creates the most transit-supportive land use pattern, showing that both an increase in population and employment produces the best transit “score,” but the tradeoff is more vehicle trips and likely more public intervention to fully implement this alternative. All plans show improved connectivity but the consultant’s alternative provides the most new connections and likely the highest cost for new infrastructure. Only the afternoon workshop alternative shows a new connection at Ash Avenue across the railroad, a project that is in the transportation system plan. All alternatives build on the presence of Fanno Creek to increase the amount of open space.

EVALUATION AND COMPARISON OF DOWNTOWN TIGARD ALTERNATIVES	
AFTERNOON WORKSHOP SESSION ALTERNATIVE	
COMMUNITY / ECONOMY <i>Focused application of Town Center/Main Street Type on Downtown Tigard.</i>	
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center Type creates the lowest land use intensity of all the alternatives. · Supports the greatest number of urban amenities. · Jobs to housing balance is slightly skewed toward employment over existing, at about 2 jobs for every dwelling unit, compared with existing 1.5.
Market feasibility	<ul style="list-style-type: none"> · The Town Center Type is consistent with current development trends that have been identified for the downtown. · Application of Transit Corridor Type north and south of OR 99W is consistent with current development intensity. · Employment Retail Type applied north of Hunziker and south of Burnham is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · The Town Center Type is applied to land that has some redevelopment potential. · Transit Corridor Type north and south of OR 99W is applied to land identified as having predominantly low redevelopment potential. · Employment Retail Type applied north of Hunziker and south of Burnham is applied to land identified as having medium redevelopment potential or government-owned.
Consistency with policies / plans	<ul style="list-style-type: none"> · The location and amount of the Town Center Type is less consistent with Tigard plans and policies than in the other alternatives. · Downtown urban renewal district is the focus of the city's redevelopment efforts. · The application of Transit Corridor Type on OR 99W is consistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION	
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other two alternatives in pedestrian and bicycle network coverage.
Connectivity	<ul style="list-style-type: none"> · Similar to other alternatives.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows relatively low VMT and vehicle trips of all types.
PM peak trips	<ul style="list-style-type: none"> · At 5,700, generates the smallest increase in number of trips, up from 2,900.
Transit adjacency	<ul style="list-style-type: none"> · Very comparable to other two alternatives in transit adjacency for both residents and employees.
Additional infrastructure needs	<ul style="list-style-type: none"> · May require additional roadway improvements, but lowest among alternatives.
Consistency with policies / plans	<ul style="list-style-type: none"> · Generally consistent.
ENVIRONMENTAL FEATURES <i>Most extensive open space link</i>	
Open space	<ul style="list-style-type: none"> · Provides the most residents with access to open space. · Has the greatest park/schoolyard adjacency to housing.
CO2 emissions	

PUBLIC EVENING WORKSHOP ALTERNATIVE

COMMUNITY / ECONOMY *Most extensive application of Town Center Type on Downtown Tigard, on both sides of OR 99W.*

Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center Type creates the most transit-supportive land use pattern, with the greatest number of employees and residents. · Comes closest to providing 1:1 jobs to housing ratio of all the alternatives.
Market feasibility	<ul style="list-style-type: none"> · The Town Center Type, particularly higher density housing, is consistent with current development trends that have been identified for the downtown. · Application of Transit Corridor Type north and south of OR 99W is consistent with current development intensity. · Employment Retail Type applied north and south of OR 99W would require some change from current development patterns. · Employment Retail and Town Center applied east of SW Hall Boulevard would require some change from current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · The Town Center Type is applied to land that has significant redevelopment potential. · Transit Corridor Type north and south of OR 99W is applied to areas identified as having predominantly low redevelopment potential. · Employment Retail Type is applied to areas identified as having predominantly low redevelopment potential, except for the area east of SW Hall Boulevard, which is identified as having significant redevelopment potential. · Transit Neighborhood Type is applied to a large areas north and south of OR 99W, identified as having low to no redevelopment potential. Since Transit Neighborhood assumes relatively low intensity infill, however, application of this type may not be inconsistent with current development patterns.
Consistency with policies / plans	<ul style="list-style-type: none"> · The location and amount the Town Center type is most consistent with Tigard plans and policies. · Downtown urban renewal district is the focus of the city's redevelopment efforts. · The application of Town Center Type on both sides of OR 99W is inconsistent with Oregon Highway Plan Land Use and Transportation Policy (1B). · Transit Neighborhood Type applied to large areas north and south of OR 99W would require infill-supportive policies and regulations.

TRANSPORTATION

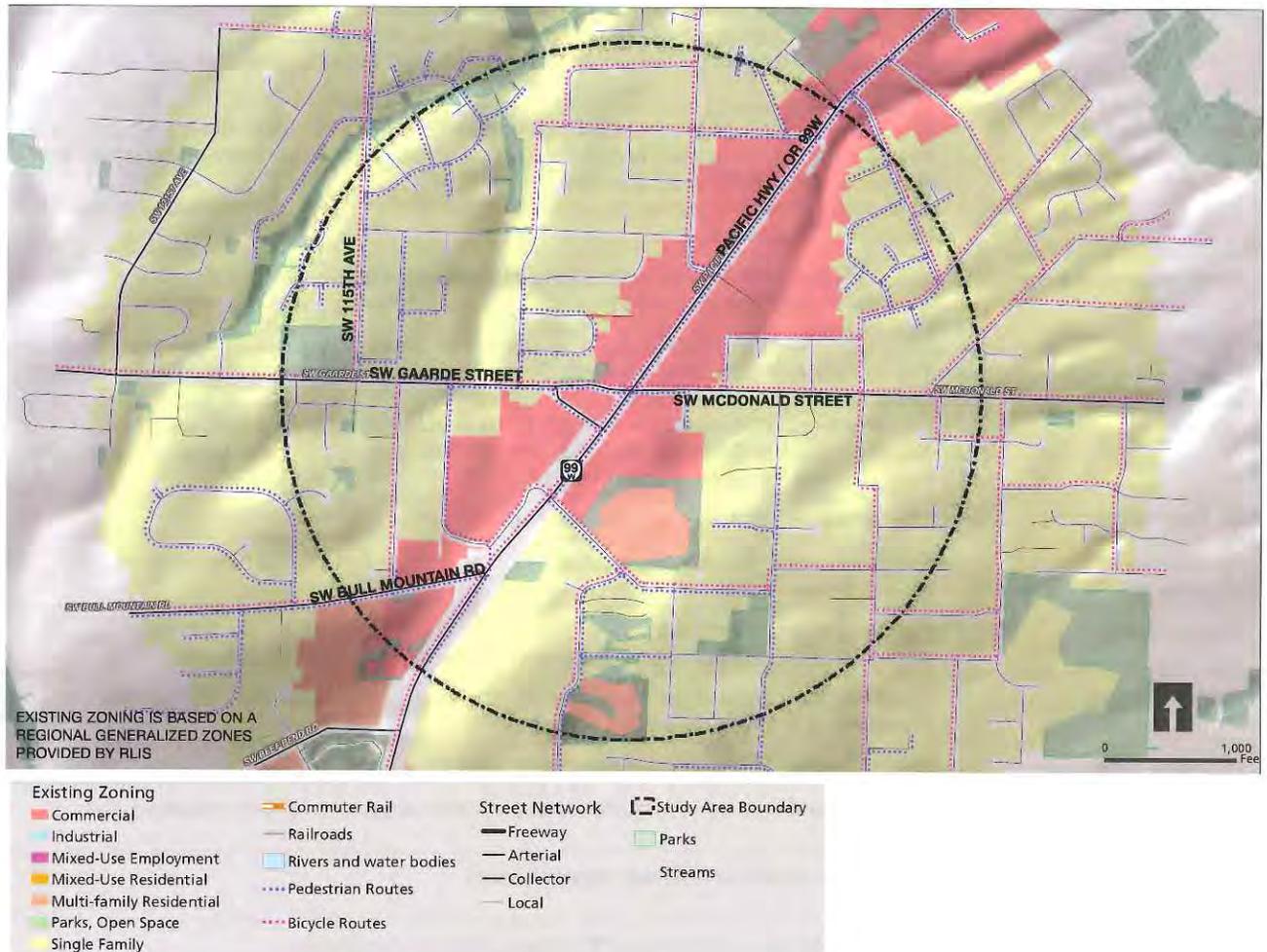
Pedestrian / bicycle network	· Very comparable to other two alternatives in pedestrian and bicycle network coverage.
Connectivity	· Similar to other alternatives.
VMT per person / employee	· In spite of the increased land use intensity, shows relatively low VMT and vehicle trips of all types..
PM peak trips	· At 10,700, generated the highest number of trips, up from 2,900 in the base case.
Transit adjacency	· Very comparable to other two alternatives in transit adjacency for both residents and employees.
Additional infrastructure needs	· May require additional roadway improvements.
Consistency with policies / plans	<ul style="list-style-type: none"> · Extension of Lincoln crossing railroad track will likely be precluded by ODOT Rail. · TSP/RTP identifies Ash Avenue RR crossing, which would take priority for limited at-grade RR crossings.

ENVIRONMENTAL FEATURES

Open space	· Very comparable to other two alternatives in amount of open space and open space that is adjacent to housing.
CO2 emissions	· Similar to other alternatives.

CONSULTANTS' ALTERNATIVE	
COMMUNITY / ECONOMY <i>Next most extensive application of Town Center Type on Downtown Tigard, limited to area south of OR 99W</i>	
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center Type creates the most transit-supportive land use pattern, with the greatest number of employees and residents. · Shows almost no change over existing jobs to housing balance, about 1.5 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> · The Town Center Type is consistent with current development trends that have been identified for the downtown, particularly 2-3 story housing and 1-2 story office, which are considered financially feasible in near-to-mid term. · Application of Transit Corridor Type north and south of OR 99W is consistent with current development intensity.
Redevelopment potential	<ul style="list-style-type: none"> · The Town Center Type is applied to land that has some redevelopment potential. · Transit Corridor Type is applied to areas identified as having predominantly low redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · The amount and location of the Town Center typology is most consistent with Tigard plans and policies. · Downtown urban renewal district is the focus of the city's redevelopment efforts. · The application of Transit Corridor Type on OR 99W is consistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION <i>Bridges OR 99W with regularly spaced multi-modal crossings.</i>	
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other two alternatives in pedestrian and bicycle network coverage. · No Ash Street connection.
Connectivity	<ul style="list-style-type: none"> · Similar to other alternatives. · Adds one additional new roadway connection parallel to and west of Burnham.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows the next lowest VMT per person and lowest number of vehicle trips of all types.
PM peak trips	<ul style="list-style-type: none"> · At 7,800, generated the next highest number of trips, up from 2,900.
Transit adjacency	<ul style="list-style-type: none"> · Very comparable to other two alternatives in transit adjacency for both residents and employees.
Additional infrastructure needs	<ul style="list-style-type: none"> · May require additional roadway improvements.
Consistency with policies / plans	<ul style="list-style-type: none"> · TSP/RTP identifies Ash Avenue RR crossing through downtown.
ENVIRONMENTAL FEATURES <i>Most extensive open space link.</i>	
Open space	<ul style="list-style-type: none"> · Very comparable to other two alternatives in amount of open space and open space that is adjacent to housing.
CO2 emissions	<ul style="list-style-type: none"> · Shows the lowest vehicle CO2 emissions for residents and employees, in spite of the high land use intensity.

GAARDE MCDONALD



GAARDE MCDONALD EXISTING ZONING

EXISTING CONDITIONS

This station community is focused on the node of Pacific Highway-OR 99W and SW Gaarde and SW McDonald Streets located south of downtown. Gaarde and McDonald Streets are among the most heavily traveled commuter routes in Tigard, especially for east-west travel. This area features challenging topography which was cited as a barrier to pedestrian mobility during the workshop sessions. Parking is in the form of large surface lots that serve individual businesses or strip shopping centers. Sidewalk coverage is poor throughout the area, with significant gaps in sidewalks along Pacific Highway-OR 99W and McDonald Street;

higher densities of sidewalks are found in nearby residential neighborhoods. Pacific Highway-OR 99W serves as a major bike route, with shared bikeways along low and moderate-traffic streets in adjacent neighborhoods. Line 12 is the primary bus line that serves the area along Pacific Highway-OR 99W.

The Pacific Highway-OR 99W corridor features the highest densities of households and jobs as well as amenities in the station community. The large-lot parcels along Pacific Highway-OR 99W lead to blocks of fairly large size; block sizes within adjacent residential neighborhoods are typically smaller.

The area features Derry Dell Creek and creeks paralleling Pacific Highway-OR 99W and SW 110th Avenue and their associated wetlands. There is generally good access to parks and open spaces, as well as the multi-use path along Derry Dell Creek.

The potential station community is dominated by auto-oriented service and retail uses fronting Pacific Highway-OR 99W, with residential neighborhoods located farther away from the corridor. These low-density commercial properties could become attractive sites for higher-intensity redevelopment in future years, particularly for older or underdeveloped properties. However, the presence of low- to medium-density single family detached homes in the residential areas limit opportunities for redevelopment. Parking is likely to continue to be in high demand within this station community. Future development will likely take the form of single-story retail and industrial uses, with 1-2 story office buildings. Currently there are a limited number of properties that have medium or high redevelopment potential, including parcels abutting all four corners of the Pacific Highway-OR 99W/Gaarde-McDonald Streets intersection.

The area includes a 2040 Corridor (Pacific Highway-OR 99W) bisecting the station community. To date, the area has not been a focus of local planning and/or redevelopment efforts.

Gaarde-McDonald contains the highest proximity to populations covered under Title VI of the 1964 Civil Rights Act. According to the 2005-2009 American Community Survey, the station community has the highest rate of household automobile ownership of the seven station communities.

GAARDE MCDONALD WORKSHOP RESULTS

CONSULTANTS' ALTERNATIVE

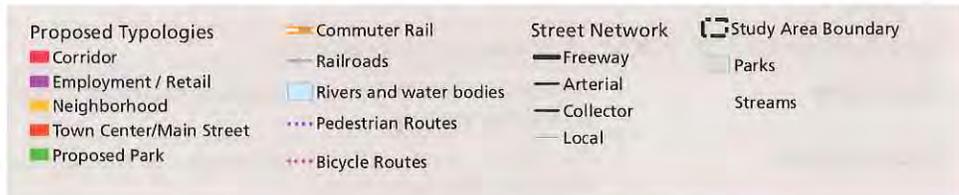
The three concepts generated for this station community all featured similar land-use and transportation elements and thus the consultant's alternative was the sole concept retained for further review. It features Transit Corridor Type development as the principal urban form along Pacific Highway-OR 99W. Transit Neighborhood development type will add new intensity and variety in dwelling unit types along SW Gaarde Street.

Changes to the street network are limited to minor, targeted interventions, access management, and improvements to the pedestrian and bicycle networks along Pacific Highway-OR 99W to make this street safe and walkable.

Additions to the open space system at Derry Dell Creek will improve habitat network connectivity and promote watershed health.



CONSULTANTS' ALTERNATIVE



LEGEND

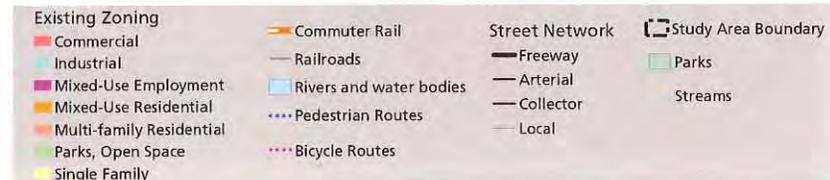
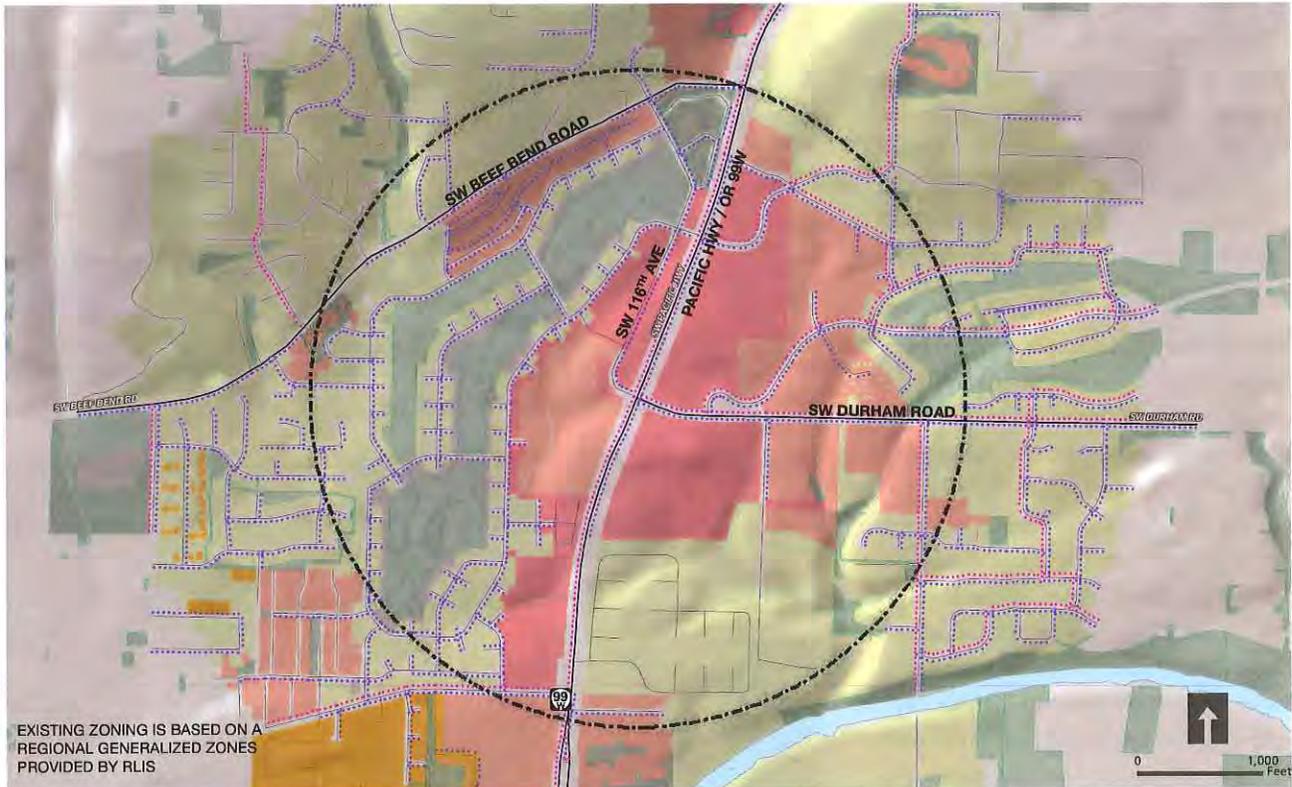
OVERVIEW OF ALTERNATIVE

Similar to the concepts developed in the afternoon and evening design sessions, the consultant's alternative does not make significant changes to the area with a limited application of the typology. The primary tradeoff is whether this small amount of intervention produces the transit supportive densities necessary for high capacity transit. Due to the limited development opportunities and close adjacencies to neighborhoods the Transit Corridor Type was primarily applied indicating that each side of Pacific

Highway-OR 99W will operate independently. This makes the alternative more consistent with ODOT policies but potentially misses some opportunities for place making or increased density of people and amenities.

EVALUATION OF GAARDE MCDONALD ALTERNATIVE	
CONSULTANTS' ALTERNATIVE	
COMMUNITY / ECONOMY	<i>Focused application of Transit Corridor Type on OR 99W.</i>
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> Amount and location of Transit Corridor Type increases the land use intensity immediately adjacent to OR 99W No change in jobs to housing balance over existing, about 5 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> Application of Transit Corridor Type north and south of OR 99W is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> Transit Corridor Type is applied to land identified as having some redevelopment potential. Transit Neighborhood Type is applied to land north and south of OR 99W, identified as having low to no redevelopment potential. Since Transit Neighborhood assumes relatively low intensity infill, however, application of this type may not be inconsistent with current development patterns.
Consistency with policies / plans	<ul style="list-style-type: none"> The suggested Types feature mixed use development, a change from the current comprehensive plan designations that call for separate commercial and low to medium density residential. The application of Transit Corridor Type on OR 99W is consistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION	<i>No significant changes to the transportation system.</i>
Pedestrian / bicycle network	<ul style="list-style-type: none"> Very comparable to other two alternatives in pedestrian and bicycle network coverage.
Connectivity	<ul style="list-style-type: none"> Similar to other alternatives.
VMT per person / employee	<ul style="list-style-type: none"> Very comparable to Existing Conditions in VMT and vehicle trips of all types.
PM peak trips	<ul style="list-style-type: none"> At 1,100, generates some additional trips, up from 900.
Transit adjacency	<ul style="list-style-type: none"> Slightly increases transit adjacency for residents and employees.
Additional infrastructure needs	<ul style="list-style-type: none"> Some additional improvements along 99W within station community. Relatively modest roadway impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> Generally consistent.
ENVIRONMENTAL FEATURES	<i>Most extensive open space link</i>
Open space	<ul style="list-style-type: none"> Very comparable to Existing Conditions in amount of open space and open space that is adjacent to housing.
CO2 emissions	<ul style="list-style-type: none"> Shows lower vehicle CO2 emissions for residents and employees, in spite of the increased land use intensity.

SUMMERFIELD



SUMMERFIELD EXISTING ZONING

EXISTING CONDITIONS

This potential station community is focused on the node of Pacific Highway-OR 99W and SW Durham Road located at Tigard’s southern boundary with King City (where roughly half of the station community area is located). Durham Street is among the most heavily traveled commuter routes in Tigard, especially for east-west travel. Parking is in the form of large surface lots that serve individual businesses or strip shopping centers. Sidewalk coverage is poor on most arterials, with significant gaps in sidewalks along Pacific Highway-OR 99W and Beef Bend Road; higher density of sidewalks are found in nearby residential neighborhoods, including the Summerfield community and areas along

Durham Road. Pacific Highway-OR 99W and Durham Road serve as major bike routes, with shared bikeways along low and moderate-traffic streets in adjacent neighborhoods. TriMet route 12 is the primary bus line that serves the area along Pacific Highway-OR 99W.

The Pacific Highway-OR 99W and Durham Road corridors feature the highest densities of households and jobs in the station community; in addition, there is a high instance of people per acre at the Pacific Highway-OR 99W/SW Fischer Road intersection. The highest amenity densities are concentrated at the Pacific Highway-OR 99W/Durham Road intersection. The large-lot parcels along Pacific

Highway-OR 99W lead to blocks of fairly large size; block sizes within adjacent residential neighborhoods are typically smaller.

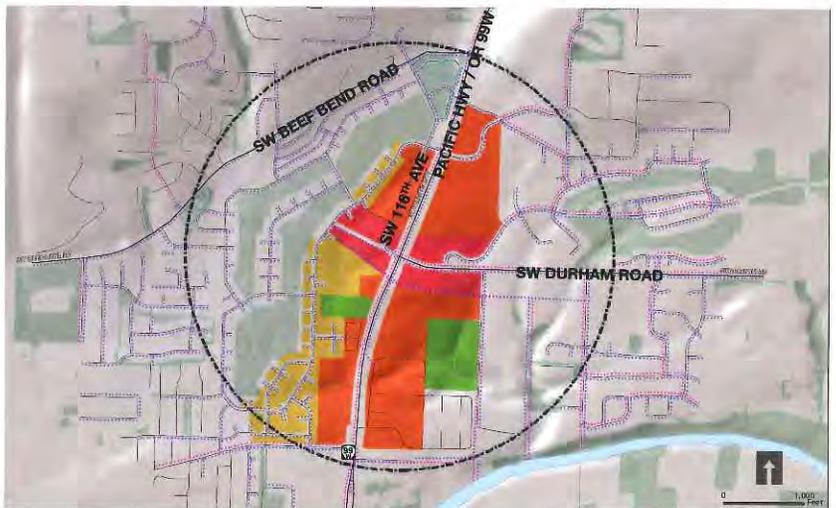
The area features the Tualatin River close to the southern edge of the station community, as well as creeks in the vicinity of SW 108th and SW 113th Avenues and their associated wetlands. There is generally good access to parks and open spaces, as well as the multi-use path along Tualatin River.

The potential station community is dominated by auto-oriented service and retail uses fronting Pacific Highway-OR 99W, with residential neighborhoods located farther away from the corridor. These low-density commercial properties could become attractive sites for higher-intensity redevelopment in future years, particularly for older or underdeveloped properties. However, the presence of low- to medium-density single family detached homes in the residential areas limit opportunities for redevelopment. Parking is likely to continue to be in high demand within this station community. Future development will likely take the form of single-story retail and industrial uses, with 1-2 story office buildings. Currently there are an extremely limited number of properties either classified as fully or partially vacant or as having high redevelopment potential (within the City of Tigard).

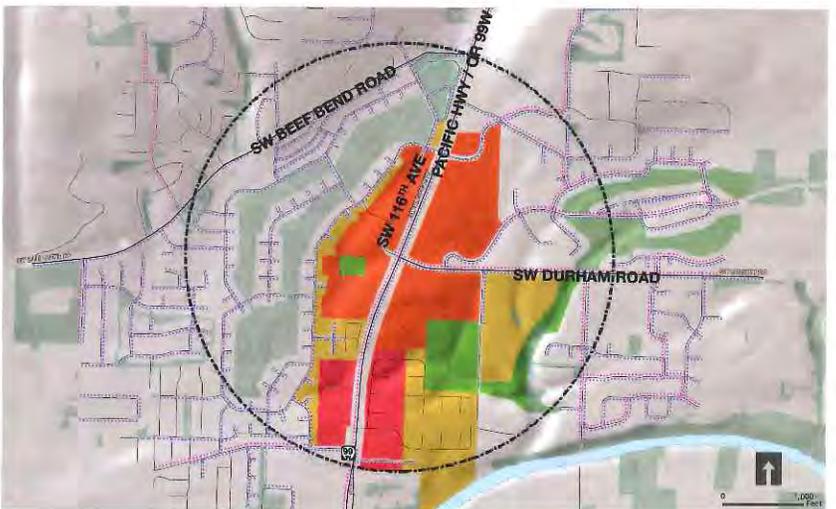
In the Metro 2040 Growth Concept map, much of the station community is included within the King City Town Center boundaries. Pacific Highway-OR 99W is classified as a 2040 Corridor and bisects the station community. To date, the area has not been a focus of local planning and/or redevelopment efforts in the City of Tigard or the City of King City.



AFTERNOON WORKSHOP ALTERNATIVE



PUBLIC EVENING WORKSHOP ALTERNATIVE



CONSULTANTS' ALTERNATIVE

According to the 2005-2009 American Community Survey, Summerfield has the highest density of elderly populations and highest rate of owner-occupied households of the seven station communities. It also features the lowest percentage of individuals living below the poverty line.

SUMMERFIELD WORKSHOP RESULTS

AFTERNOON WORKSHOP ALTERNATIVE

This workshop session features a preponderance of the Corridor Type along Pacific Highway-OR 99W from SW Naeve Street south to SW Fischer Road where there is currently strip commercial located. The existing manufactured home community east of Pacific Highway-OR 99W at SW Royal Villa Drive is envisioned as Transit Neighborhood Type eastward to approximately SW 110th Avenue. Additional Transit Neighborhood Type land uses are situated along SW Royalty Parkway, west of the Transit Corridor Type development that fronts Pacific Highway-OR 99W.

This alternative highlights increased pedestrian access from retirement communities in King City to existing and future amenities along Pacific Highway-OR 99W at SW King James Place, SW Royalty Court, just north of SW Durham Road and SW Majestic Lane. The transit neighborhood area north of Royal Villa Drive and the strip commercial properties south of Durham Road would also feature new multimodal connections.

PUBLIC EVENING WORKSHOP ALTERNATIVE

The public workshop session produced a community vision which features Corridor Type development fronting both sides of SW Durham Road from SW Royalty Parkway east to SW 113th Avenue. Town Center/Main Street Type development (to the extent where existing strip commercial development is located) would be situated along Pacific Highway-OR 99W from SW Naeve Street to SW Fischer Road with the exception of the area immediately surrounding the Pacific Highway-OR 99W/Durham Road intersection. Transit Neighborhood Type development

would be located to the west of Pacific Highway-OR 99W along Royalty Parkway, which is currently comprised of exclusively single-family residential development. Two parks are envisaged: one to the west of Pacific Highway-OR 99W in the vicinity of SW Royalty Court and one to the west of 113th Avenue south of the existing Albertsons shopping center.

New pedestrian routes would largely facilitate access between Pacific Highway-OR 99W and King City neighborhoods to the west. A new pedestrian route would be established along an extension of Durham Road west of SW 116th Avenue, as well as behind the corridor development to the north and south of the thoroughfare. Additional provisions for new connections would be located at Naeve Street and SW King James Place.

CONSULTANTS ALTERNATIVE

This sketch features the Town Center/Main Street Type as the primary urban form for the crossroads of Pacific Highway-OR 99W and SW Durham Road. Transit Corridor Type development will become the principal urban form along Pacific Highway-OR 99W at the outer edge of the walkable, high intensity land use node. Transit Neighborhood Type development will add new intensity and variety in dwelling unit types at the edges of the town center.

Changes to the street network are limited to minor, targeted interventions, access management, and improvements to the pedestrian and bicycle networks along Pacific Highway-OR 99W to make this street safe and walkable.

This alternative extends an existing watershed drainage and open space to the western branch of Fanno Creek.

OVERVIEW OF ALTERNATIVES

Currently, the Summerfield area is trending towards a corridor land use pattern despite its designation as a Metro 2040 Town Center. The afternoon workshop embraced this trend with a large application of the Transit Corridor Type

Proposed Typologies		Street Network		Study Area Boundary	
■ Corridor	— Commuter Rail	— Freeway	 Study Area Boundary	■ Parks	
■ Employment / Retail	— Railroads	— Arterial		— Streams	
■ Neighborhood	— Rivers and water bodies	— Collector			
■ Town Center/Main Street	— Pedestrian Routes	— Local			
■ Proposed Park	— Bicycle Routes				

LEGEND

while the other two alternatives applied the Town Center/ Main Street Type with the consultant's alternative showing the greatest amount of this particular type. Therefore the consultant's alternative shows the best transit adjacency score and the most opportunity for a higher density of people and amenities. The tradeoff is the likely need for significant public intervention to counter the current development trends and the low redevelopment potential in this area. The treatment of Pacific Highway-OR 99W is also important to note as the Corridor Type is more consistent with ODOT policy while the other two alternatives attempt to bridge

the divide created by the highway to better join King City and Tigard together in this area. The afternoon workshop was the only alternative to show the full redevelopment of the mobile home park in the southern portion of the station community, another change that may require public intervention and higher infrastructure costs to build the new streets and other utilities required with redevelopment. Finally both the public workshop and consultant's alternative created a significant open space south of Durham Road likely requiring significant public investment but also providing a potential catalyst for development in the area.

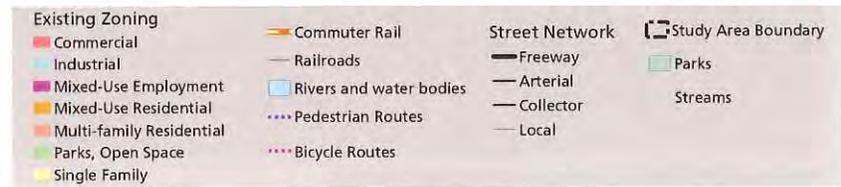
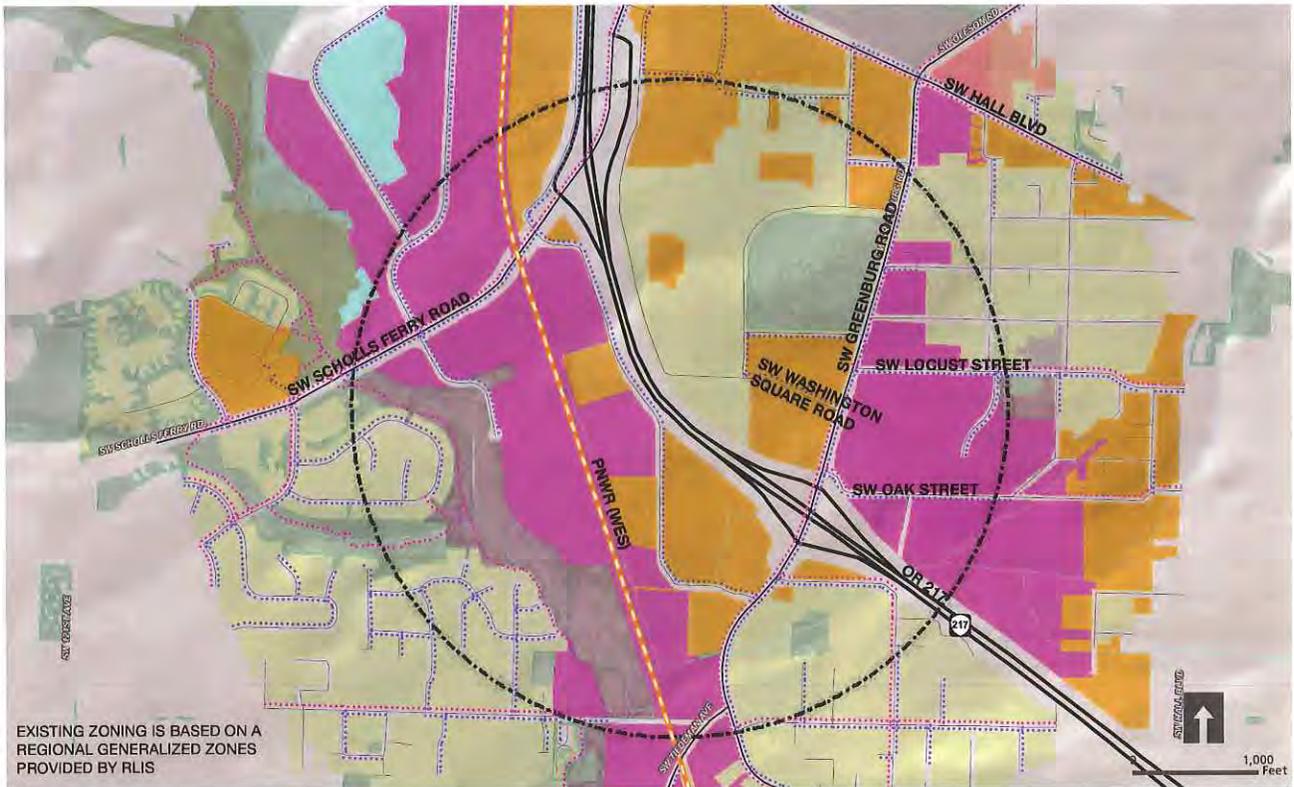
EVALUATION AND COMPARISON OF SUMMERFIELD ALTERNATIVES	
AFTERNOON WORKSHOP SESSION ALTERNATIVE	
COMMUNITY / ECONOMY	<i>Transit Corridor Type applied to OR 99W.</i>
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · No increase to land use intensity. · Jobs to housing balance is same as existing, at about 4 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> · Application of Transit Corridor Type north and south of OR 99W is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Transit Corridor Type is applied to areas identified as having predominantly low redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · The alternative is less consistent with the area's designation as a 2040 Town Center. · Transit Neighborhood Type applied to large area northwest of OR 99W would require infill-supportive regulations, and land is not within City of Tigard boundaries. · The application of Transit Corridor Type on both sides of OR 99W is consistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION	<i>Very little intervention</i>
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Provides greater bicycle and pedestrian connectivity over existing.
Connectivity	<ul style="list-style-type: none"> · Some enhancement of regional street network connectivity.
VMT per person / employee	<ul style="list-style-type: none"> · VMT and vehicle trips of all types remain same as existing.
PM peak trips	<ul style="list-style-type: none"> · All alternatives generate significantly more trips than existing. · At 1,100, this alternative generates the smallest increase in number of trips, up from 700.
Transit adjacency	<ul style="list-style-type: none"> · No increase in numbers of employees or residents with adjacency to transit. Provides next highest transit accessibility.
Additional infrastructure needs	<ul style="list-style-type: none"> · New connection to Royalty Parkway from OR 99W. · Additional local roads to support redevelopment in southeast quadrant. · Relatively modest roadway traffic impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> · New connections to OR 99W will be subject to ODOT access management rules which may preclude or limit proposed connections. · Much of the area is outside of the City of Tigard.
ENVIRONMENTAL FEATURES	<i>Very little intervention</i>
Open space	<ul style="list-style-type: none"> · No increase to parks/schoolyard space or residents' adjacency to open space from existing.
CO2 emissions	<ul style="list-style-type: none"> · Shows nearly the same vehicle CO2 emissions as existing.

PUBLIC EVENING WORKSHOP ALTERNATIVE	
COMMUNITY / ECONOMY	<i>Two Town Center/Main Street nodes to either side of OR 99W and Durham Road.</i>
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center Type increases land use intensity, with a slightly higher number of employees. · Shows an increase in jobs to housing imbalance, about 8 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> · Application of Town Center Type north and south of OR 99W would require significant change from current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Town Center Type is applied to areas identified as having predominantly low redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · The use of the Town Center type is consistent with the area's designation as a Metro 2040 Town Center. · The mixed use Type is a change from current comprehensive plan designations that allow commercial only and medium to high density residential. · The application of Town Center Type on both sides of OR 99W is inconsistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION <i>Greatest number of new east-west bike-pedestrian connections.</i>	
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Provides the highest pedestrian and bicycle network coverage and the shortest walk distance.
Connectivity	<ul style="list-style-type: none"> · Some enhancement of regional street network connectivity.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows lower VMT and vehicle trips of all types than existing.
PM peak trips	<ul style="list-style-type: none"> · All alternatives generate significantly more trips than existing. · This alternative generates 1,500 trips, an increase from 700.
Transit adjacency	<ul style="list-style-type: none"> · Increase in number of residents with adjacency to transit.
Additional infrastructure needs	<ul style="list-style-type: none"> · Two new north-south streets parallel to and east of 113th. · New connection to Royalty Parkway from OR 99W. · Relatively modest off-site impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> · New connections to OR 99W will be subject to ODOT access management rules which may preclude or limit proposed connections. · Much of the area is outside of the City of Tigard.
ENVIRONMENTAL FEATURES <i>Two new parks</i>	
Open space	<ul style="list-style-type: none"> · Substantial increase to residents' adjacency to open space from existing.
CO2 emissions	<ul style="list-style-type: none"> · Shows lower CO2 emissions for residents and employees, in spite of the high land use intensity.

CONSULTANTS' ALTERNATIVE

COMMUNITY / ECONOMY <i>Town Center/Main Street Node focused on intersection of OR 99W and Durham Road.</i>	
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center Type increases land use intensity, with a slightly higher number of residents. · Shows an increase in jobs to housing imbalance, about 8 jobs for every dwelling unit. · Provides greatest opportunity for urban amenities.
Market feasibility	<ul style="list-style-type: none"> · Application of Town Center Type north and south of OR 99W would require significant change from current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Town Center Type is applied to areas identified as having predominantly low redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · The use of the Town Center type is consistent with the area's designation as a Metro 2040 Town Center. · The mixed use Type is a change from current comprehensive plan designations that permit separate commercial only and medium to high density residential · The application of Town Center Type on both sides of OR 99W is inconsistent with Oregon Highway Plan Land Use and Transportation Policy (1B).
TRANSPORTATION <i>No significant changes to the transportation system.</i>	
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Provides greater bicycle and pedestrian connectivity over existing.
Connectivity	<ul style="list-style-type: none"> · Some enhancement of regional street network connectivity.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows lower VMT and vehicle trips of all types than existing.
PM peak trips	<ul style="list-style-type: none"> · All alternatives generate significantly more trips than existing. · This alternative generates 1,500 trips, an increase from 700.
Transit adjacency	<ul style="list-style-type: none"> · Increases number of residents with adjacency to transit.
Additional infrastructure needs	<ul style="list-style-type: none"> · Relatively modest roadway traffic impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> · New connections to OR 99W will be subject to ODOT access management rules which may preclude or limit proposed connections. · Much of the area is outside of the City of Tigard.
ENVIRONMENTAL FEATURES <i>Most extensive open space link.</i>	
Open space	<ul style="list-style-type: none"> · Highest increase in park/schoolyard space. · Shows the greatest increase to residents' adjacency to open space from existing.
CO2 emissions	<ul style="list-style-type: none"> · Shows lower CO2 emissions for residents and employees, in spite of the high land use intensity.

WASHINGTON SQUARE



WASHINGTON SQUARE EXISTING ZONING

EXISTING CONDITIONS

The Washington Square Regional Center is bounded by OR 217 to the south, Scholls Ferry Road to the west, SW Hall Boulevard to the north, and SW Greenburg Road to the east. These roadways provide local and regional access to the area, as well as facilitate through traffic. The area is characterized by large suburban form office and retail developments in Washington Square and along Hall Boulevard and SW Nimbus Avenue with substantial acreage reserved for surface and structured parking. The commercial properties are surrounded by single-family residential neighborhoods. There is low to moderate concentration of sidewalks in the area, including within the Washington

Square Mall property itself. Many arterial and collector roadways such as SW Lincoln Street, Hall Boulevard and Greenburg Road feature substantial gaps in the pedestrian network. OR 217, Fanno Creek, and the PNWR line pose formidable barriers to east-west mobility. Surrounding residential neighborhoods also have poor sidewalk coverage. Bicycle facility coverage is moderate, with bike lanes along Scholls Ferry Road, Hall Boulevard and portions of Greenburg Road as well as shared roadways with moderate or high traffic elsewhere such as SW Oak Street. Residential neighborhoods to the south also feature shared roadway facilities on low traffic streets. The multi-use path along Fanno Creek provides quality north-south connections, yet

bicyclists encounter the same barriers to east-west mobility that pedestrians face as well. TriMet lines 43, 45, 56, 62, 76, 78 serve the Washington Square Transit Center; the Hall/Nimbus WES station is located ½ mile from the mall.

The station community features significant employment and household density on both sides of OR 217, along Scholls Ferry Road, Nimbus Avenue and Hall Boulevard. Amenities are also concentrated at the mall, along Hall Boulevard, Scholls Ferry Road, Greenburg Road and SW Cascade Avenue. The area features large block sizes typified by a regional suburban mall development and other assorted commercial uses.

Washington Square is the strongest retail location in Tigard, with 1.4 million square feet of retail space capable of drawing customers from the entire Metro region. It is also an attractive location for office development, particularly along the Nimbus corridor and the Lincoln Center complex. The area can be expected to continue to support 5-6 story office buildings with ground-floor retail opportunities along busy arterial streets that will allow for sizable employment densities. Furthermore, single-story retail and industrial development is also expected to continue in the near-term. Residential development is located farther away from the commercial core, with access to Washington Square hampered in some locations by Fanno Creek and OR 217. The possibility exists for redevelopment of low-density suburban development into mixed-use residential buildings, such as near the Greenburg Road/SW Locust Street intersection. Currently there are an extremely limited number of properties that are classified as having medium or high redevelopment potential.



AFTERNOON WORKSHOP ALTERNATIVE



PUBLIC EVENING WORKSHOP ALTERNATIVE



CONSULTANTS' ALTERNATIVE

Areas south and west of OR 217 between Scholls Ferry Road and Greenburg Road are classified as “Employment” land in Metro Title 4, Industrial and Other Employment Areas. In the Metro 2040 Growth Concept map, the entirety of land east of OR 217, as well as along Nimbus Avenue between Fanno Creek Park and OR 217, is included within the Washington Square Regional Center boundaries. This station community includes two 2040 Corridors: Scholls Ferry Road, and Hall Boulevard. The area has been the subject of several local significant planning initiatives, including the Washington Square Regional Plan.

According to the 2005-2009 American Community Survey, Washington Square has the lowest rate of household automobile ownership of the seven station communities. It also features the highest job densities. It also features the highest job densities based on 2009 data from the Census Longitudinal Employer-Household Dynamics program.

WASHINGTON SQUARE WORKSHOP RESULTS

AFTERNOON WORKSHOP ALTERNATIVE (MODIFIED)

Employment/Retail Type is applied to those areas where retail and industrial employment has been the predominant land use. Application of this type will make these areas less automobile-dependent for access by employees and staff.

This alternative features a more tightly connected grid of pedestrian and bike routes within the Employment/Retail Type than what exists currently. New connections are geared toward facilitating pedestrian movement and bicycle access.

PUBLIC EVENING WORKSHOP ALTERNATIVE

This alternative focuses the Town Center/Main Street Type roughly on the intersection of SE Greenburg Road and SW Washington Square Road, spanning between SW Locust Street and SW Oak Street. It creates a new “Main Street” along the extension of SW Washington Street to the east. The focus of this alternative is east of Washington Square, and is intended to connect to and build on the Metzger residential neighborhood east of SW Hall Boulevard, which has a full complement of neighborhood-serving schools,

parks and other amenities. This alternative applies a modest amount of Employment/Retail Destination Type to the restaurant and service retail area south of Washington Square mall, and otherwise leaves the retail mall alone. Transit Neighborhood Type adds new intensity and variety in dwelling unit types along SW Greenburg Road, east of the mall.

Changes to the street network are limited to minor, targeted interventions—mostly improvements to the pedestrian and bicycle amenities on Greenburg Road and smaller blocks within the proposed town center node. A new multiuse path extends SW Locust Street west across OR 217 and the PNWR line and connects to SW Nimbus Avenue.

CONSULTANTS ALTERNATIVE

This sketch features Employment/Retail Type as the universal type for this node. Employment/Retail Type is applied to those areas where retail, office, and industrial employment have been the predominant land uses. Application of this type will make these areas somewhat less automobile-dependent for access by employees and staff.

Significant barriers including the PNWR rail corridor and OR 217 break down the coherence of the urban form and diminish the functional efficiency of the street network. Changes to the street network are limited to minor, targeted interventions—specifically new improvements and amenities to the pedestrian and bicycle network on SW Greenburg Road that will make crossing OR 217 more safe and convenient.

This alternative extends the existing Fanno Creek open space and links to potential new park and open space to the east.

OVERVIEW OF ALTERNATIVES

Washington Square is a Metro designated Regional Center giving it the highest development expectations within Tigard. Interestingly, the alternatives do not necessarily reflect this regional expectation, likely due to the presence of Washington Square Mall and the well-established land use pattern. The lack of intensity results in less transit adjacency than expected for this area. The afternoon and public workshop alternatives move the center of intensity to the

Proposed Typologies	Transit	Street Network	Study Area Boundary
Corridor	Commuter Rail	Freeway	Parks
Employment / Retail	Railroads	Arterial	Streams
Neighborhood	Rivers and water bodies	Collector	
Town Center/Main Street	Pedestrian Routes	Local	
Proposed Park	Bicycle Routes		

LEGEND

east, with the public workshop very clearly laying out a new town center area with a focused application of the typology. However these changes are likely to require some public intervention to overcome the current development patterns, including additional infrastructure costs. In addition, they bring new development closer to established neighborhood areas requiring close attention to the transition areas. The

afternoon workshop alternative does not apply the typology to some areas that have high redevelopment potential west of Greenburg Road. The consultant's alternative applies the Employment/Retail Destination Type throughout while increasing the amount of open space but does not include a key project identified by city plans, a new crossing of Highway 217.

EVALUATION AND COMPARISON OF WASHINGTON SQUARE ALTERNATIVES	
AFTERNOON WORKSHOP SESSION ALTERNATIVE	
COMMUNITY / ECONOMY <i>Application of Employment/Retail Type broadens land use mix within single use employment retail, industrial and office areas, and Transit Corridor Type is applied to SW Greenburg Road.</i>	
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · Focused on improving walkability, connectivity and broadening land use mix within employment retail areas. · The amount and location of Employment/Retail Type increases land use intensity, adds to the number of residents and adds the greatest number of employees. · Shows a high jobs to housing imbalance (about 10 jobs for every dwelling unit) · Increases opportunity for urban amenities over existing.
Market feasibility	<ul style="list-style-type: none"> · The Town Center Type applied to the area east of Greenburg Road represents a significant change from current development patterns. · The application of Employment Retail Type is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Town Center Type is applied to land identified as vacant and/or having significant redevelopment potential. · No Type is applied to land identified as high redevelopment potential, south of SW Washington Square Road and west of Greenburg.
Consistency with policies / plans	<ul style="list-style-type: none"> · Alternative has less intensive development than permitted by city comprehensive plan designation, and regional center designation.
TRANSPORTATION <i>Focused on improving walkability and connectivity within employment areas; maximizes east-west access across area.</i>	
Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other two alternatives in pedestrian and bicycle network coverage.
Connectivity	<ul style="list-style-type: none"> · Similar to other alternatives. · Adds a new connection across OR 217.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows lower VMT and vehicle trips of all types than existing.
PM peak trips	<ul style="list-style-type: none"> · At 7,230, generates the greatest increase in number of trips, up from 3,900.
Transit adjacency	<ul style="list-style-type: none"> · Slightly increases transit adjacency for residents, same as other two alternatives
Additional infrastructure needs	<ul style="list-style-type: none"> · This alternative would likely have the highest need for traffic mitigations.
Consistency with policies / plans	<ul style="list-style-type: none"> · Generally consistent.
ENVIRONMENTAL FEATURES <i>Some new parks to west.</i>	
Open space	<ul style="list-style-type: none"> · Shows highest increase in park/schoolyard space, and the greatest increase to residents' adjacency to open space from existing.
CO2 emissions	<ul style="list-style-type: none"> · Shows a lower CO2 emissions for residents and employees, in spite of the high land use intensity.

PUBLIC EVENING WORKSHOP ALTERNATIVE

COMMUNITY / ECONOMY *Town Center/Main Street node east of SW Greenburg Road focused on connecting to existing Metzger neighborhood to the east of SW Hall Boulevard.*

, land use mix & urban vibrancy	<ul style="list-style-type: none"> · The amount and location of Town Center/Main Street and Employment/Retail Types increases land use intensity, adding to the number of residents and slightly increasing employees over existing. · Shows a high jobs to housing imbalance (about 9 jobs for every dwelling unit) · Increases opportunity for urban amenities over existing.
Market feasibility	<ul style="list-style-type: none"> · The Town Center Type applied to the area east of Greenburg Road and south of Locust Street represents a significant change from current development patterns. · The application of Employment Retail Type is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Town Center Type is applied to land identified as vacant and/or having some redevelopment potential. · The Employment Retail Type is applied to land identified as high redevelopment potential, south of SW Washington Square Road and west of Greenburg.
Consistency with policies / plans	<ul style="list-style-type: none"> · Alternative has less intensive development than permitted by current city comprehensive plan designation, and regional center designation.

TRANSPORTATION *Improves east-west access across area, especially to connect residential neighborhood east and west of Washington Square to the new center of intensity.*

Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other two alternatives in pedestrian network coverage. · Improves bicycle network coverage over existing.
Connectivity	<ul style="list-style-type: none"> · Similar to other alternatives.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of the increased land use intensity, shows lower VMT and vehicle trips of all types than existing.
PM peak trips	<ul style="list-style-type: none"> · At 4,000, generates about the same amount of trips as current zoning, up slightly from 3,900.
Transit adjacency	<ul style="list-style-type: none"> · Slightly increases transit adjacency for residents, same as other two alternatives.
Additional infrastructure needs	<ul style="list-style-type: none"> · Relatively modest traffic system impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> · Does not include the Highway 217 overcrossing identified in the TSP/RTP.

ENVIRONMENTAL FEATURES *No new parks / open space; connects center of intensity to Greenway Park west of OR 217.*

Open space	
CO2 emissions	<ul style="list-style-type: none"> · Shows lower CO2 emissions for residents and employees, in spite of the high land use intensity. Due to reduction in VMT and vehicle trips.

CONSULTANTS' ALTERNATIVE

COMMUNITY / ECONOMY *Application of Employment/Retail Type broadens land use mix within single use employment retail, industrial and office areas.*

Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · Focused on improving walkability, connectivity and broadening land use mix within employment retail areas. · The amount and location of Employment/Retail Type increases land use intensity, and adds to the number of residents and employees. · For an employment-focused area, shows the best jobs to housing balance (about 7 jobs for every dwelling unit) · Provides greatest opportunity for urban amenities.
Market feasibility	<ul style="list-style-type: none"> · The Employment Retail Type is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · The Employment Retail Type is applied to land identified as having medium to low redevelopment potential, including a large portion of land identified as having high redevelopment potential, south of SW Washington Square Road and west of Greenburg.
Consistency with policies / plans	<ul style="list-style-type: none"> · Alternative has less intensive development than permitted by current city comprehensive plan designation, and regional center designation.

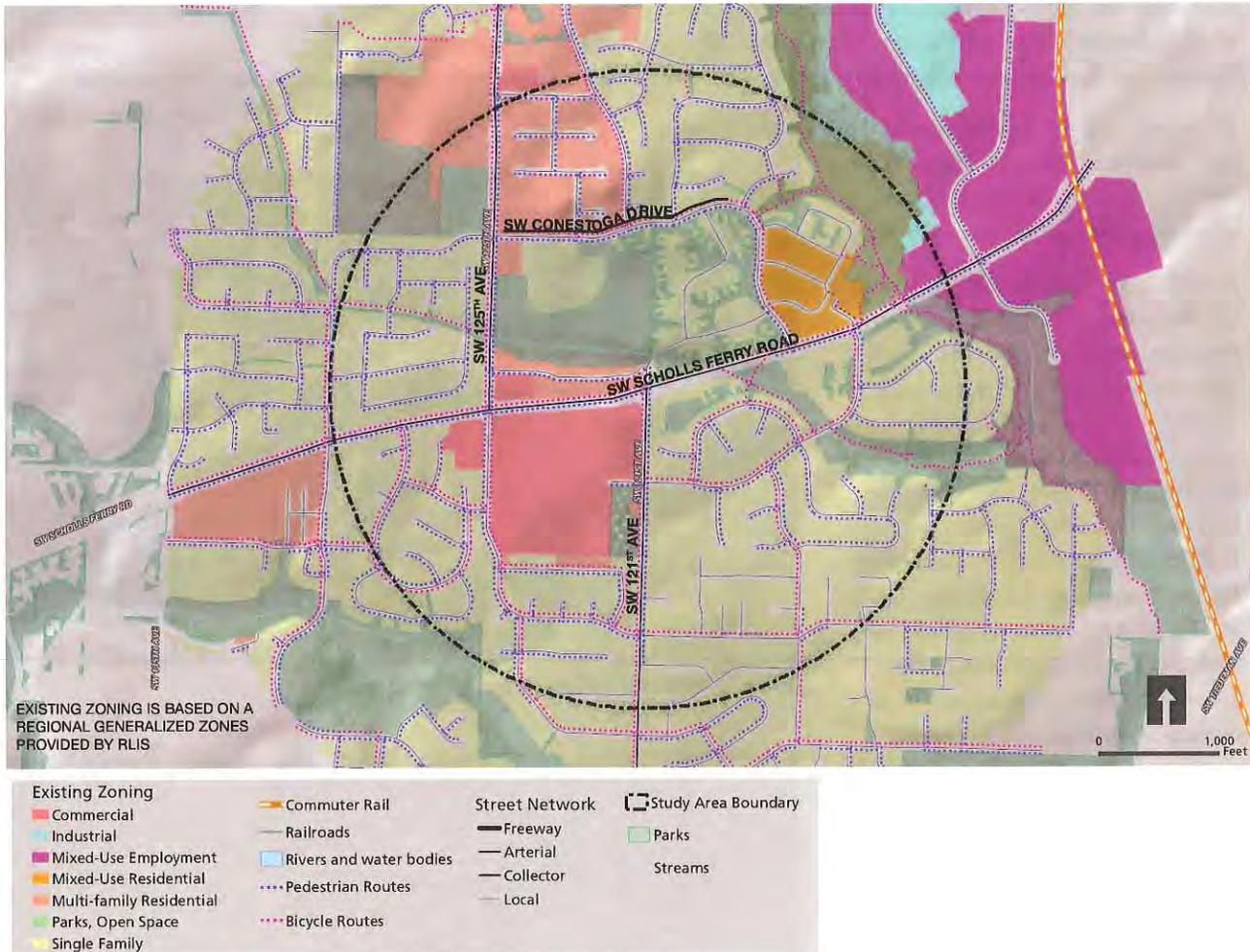
TRANSPORTATION *Application of Employment/Retail Type focused on improving walkability and connectivity within employment retail areas; targeted interventions aimed at improving pedestrian and bicycle network on existing streets.*

Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other two alternatives in pedestrian network coverage.
Connectivity	<ul style="list-style-type: none"> · Similar to other alternatives.
VMT per person / employee	<ul style="list-style-type: none"> · In spite of showing the greatest increase in land use intensity, shows lower VMT and vehicle trips of all types than existing.
PM peak trips	<ul style="list-style-type: none"> · At 5,700, generates a significant increase in number of trips, up from 3,900.
Transit adjacency	<ul style="list-style-type: none"> · Slightly increases transit adjacency for residents.
Additional infrastructure needs	<ul style="list-style-type: none"> · Likely will require some additional transportation system mitigation.
Consistency with policies / plans	<ul style="list-style-type: none"> · Does not include the Highway 217 overcrossing identified in the TSP/RTP.

ENVIRONMENTAL FEATURES *Most extensive open space link.*

Open space	<ul style="list-style-type: none"> · Shows substantial increase in park/schoolyard space, and substantial increase to residents' adjacency to open space from existing.
CO2 emissions	<ul style="list-style-type: none"> · Shows a lower CO2 emissions for residents and employees, in spite of the high land use intensity. Due to lower VMT and vehicle trips, and addition of open space.

SCHOLLS FERRY / 121ST



SCHOLLS FERRY / 121ST EXISTING ZONING

EXISTING CONDITIONS

This station community is centered along the node at Scholls Ferry Road and SW 121st Avenue. The area features generally good sidewalk and bicycle facility coverage when compared to the city as a whole. Major roadways such as Scholls Ferry Road, SW 121st and 125th Avenues as well as local neighborhood streets feature connected pedestrian facilities with some minor exceptions. Scholls Ferry Road and 121st Avenue features bike lanes while lower-traffic neighborhood streets allow bicyclists shared use of roadways. There is also access to multi-use trails along Fanno, Summer, Krueger and Hiteon Creeks. Parking is provided off-street at the Greenway Town Center retail area as well as most of the

surrounding residential properties. TriMet line 56 provides the principal bus service along Scholls Ferry Road (as a Frequent Service line) while lines 76, 78, 45, and 62 provide complementary service within the area.

The entire station community generally features high densities of households and jobs, including the Scholls Ferry Road corridor as well as in residential neighborhoods along 121st and 125th Avenues. Amenities and smallest block sizes are most concentrated at the Greenway Town Center, while surrounding areas are comprised of a suburban-style street grid.

Major natural resource features include Fanno Creek, Hiteon Creek, Summer Creek, Krueger Creek, and

associated wetlands. Park and open space access is adequate, with nearby trails along Fanno, Summer, Krueger and Hiteon Creeks providing recreational opportunities.

Currently there are an extremely limited number of parcels south of Scholls Ferry Road between 121st and 125th Avenues that have medium redevelopment potential.

The station community includes a 2040 Corridor (Scholls Ferry Road) that bisects the area. To date, the area has not been a focus of local planning and/or redevelopment efforts.

According to the 2005-2009 American Community Survey, Scholls Ferry is the most residential-oriented of the seven station communities, featuring the lowest employment density and highest residential density. According to the 2005-2009 American Community Survey and the 2009 Census Longitudinal Employer-Household Dynamics program, Scholls Ferry is the most residential-oriented of the seven station communities, featuring the lowest employment density and highest residential density.

parking and building layout. Transit Neighborhood Type adds new intensity and variety in dwelling unit types in the existing residential neighborhood immediately south of the shopping center, and extending to the east across 121st Avenue.

A much more extensive, connected network of bicycle and walking routes through the area is intended to make

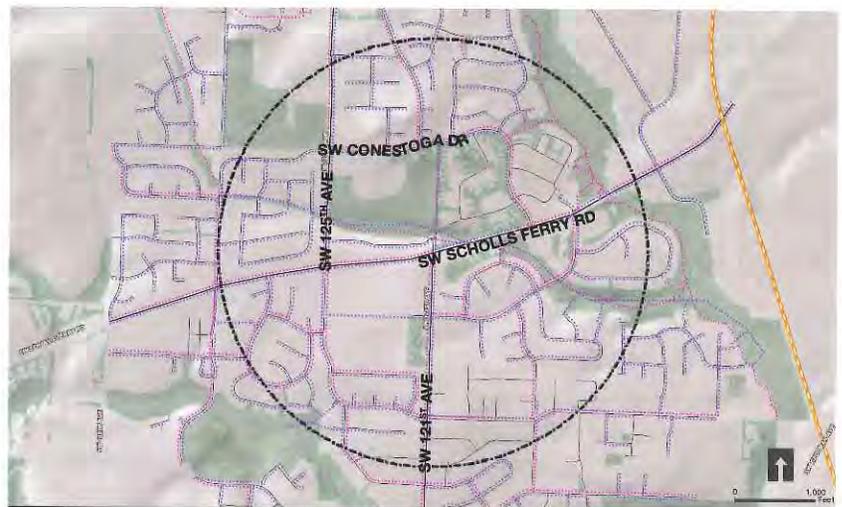


AFTERNOON WORKSHOP ALTERNATIVE

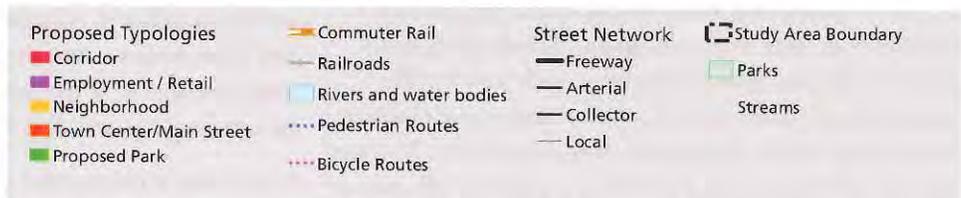
SCHOLLS FERRY / 121ST WORKSHOP RESULTS

AFTERNOON WORKSHOP ALTERNATIVE (MODIFIED)

This alternative focuses the Transit Corridor Type on both sides of Scholls Ferry Road, between SW 121st Avenue and SW 125th Avenue. Application of this type is intended to make the existing shopping and destination restaurant cluster in this location more pedestrian friendly while maintaining its general



PUBLIC EVENING WORKSHOP ALTERNATIVE



LEGEND

residents in the area less automobile-dependent for access to schools, parks, shopping and dining. New connections include a multi-use path that crosses Scholls Ferry Road just east of 121st Avenue and provides east-west access through the area from SW 135th Avenue to Fanno Creek Trail, parallel to Scholls Ferry Road. Changes to Scholls Ferry Road are targeted interventions such as access management and pedestrian and bicycle amenities to make this street safe and walkable.

New open spaces are created to connect existing wetlands and open space together with the multi-use path that parallels Scholls Ferry Road and extends from Englewood City Park to Forest Glen Park.

PUBLIC EVENING WORKSHOP ALTERNATIVE

This alternative focuses on providing a connected network of safe, walkable and bikeable streets and multi-use paths connecting existing destinations such as schools, parks, shopping and dining. There are no new station community types applied, because the area is already seen as providing the desired mix of uses and the intensity and variety in dwelling unit types that the Transit Corridor Type or the Transit Neighborhood Type would have added.

A much more extensive, connected network of bicycle and walking routes through the area is intended to make

residents in the area less automobile-dependent for access to schools, parks, shopping and dining. Targeted pedestrian crossings, especially along SW 121st, 135th and SW Walnut Street were seen as critical to the network. New connections include a multi use path that crosses Scholls Ferry Road just east of 121st Avenue and provides east west access through the area from SW 135th Avenue to Fanno Creek Trail, parallel to Scholls Ferry Road. Changes to Scholls Ferry Road are targeted interventions such as access management and pedestrian and bicycle amenities to make this street safe and walkable.

No new parks were proposed in this Alternative.

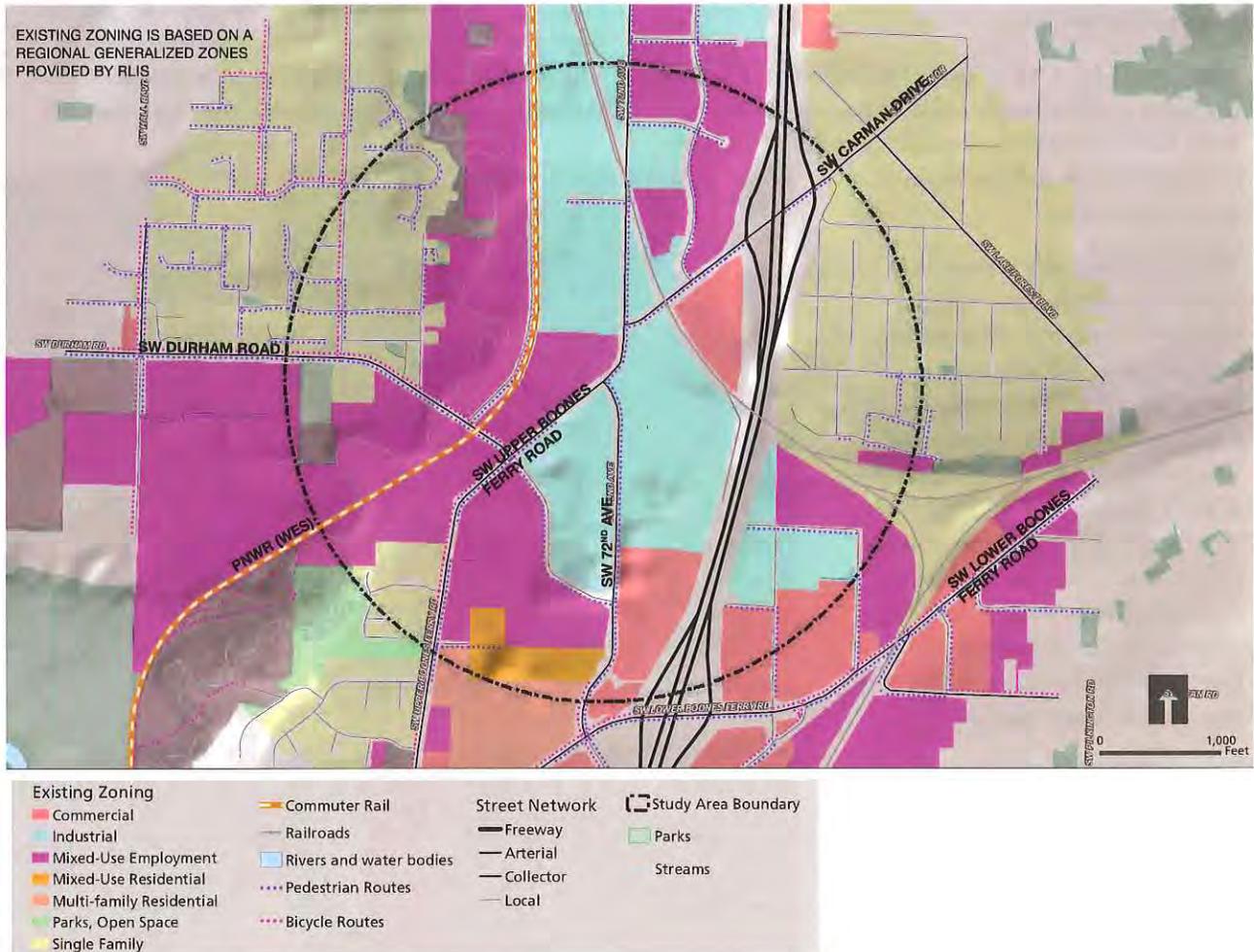
OVERVIEW OF ALTERNATIVES

The Scholls Ferry alternatives describe a minimal amount of change with the public workshop alternative not applying any of the types. It is clear that each of the groups looking at this area saw little opportunity for improving the ability of this area to support high capacity transit. While the afternoon workshop alternative applied the Corridor Type and some Transit Neighborhood Type, the changes did not differ significantly from the existing conditions. Effort was put on improving connections in the area which does help connect people more easily to transit.

EVALUATION AND COMPARISON OF SCHOLLS FERRY / 121ST ALTERNATIVES	
AFTERNOON WORKSHOP SESSION ALTERNATIVE	
COMMUNITY / ECONOMY <i>Transit Corridor Node focused on existing shopping center south of SW Scholls Ferry Road, and addition of some Transit Neighborhood Type on both sides of SW 121st Avenue.</i>	
Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> Increases land use intensity, adds to the number of residents but decreases the number of employees from existing. Shows the most improvement in jobs to housing balance over existing (about 2 jobs for every dwelling unit).
Market feasibility	<ul style="list-style-type: none"> The Transit Corridor Type is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> The Transit Corridor Type is applied to land identified as having low to medium redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> The application of Transit Corridor Type on OR 99W is consistent with Oregon Highway Plan Land Use and Transportation Policy (1B). North of Scholls Ferry Transit Corridor Types is applied to land is not within the City of Tigard. Generally consistent with existing comprehensive plan designations, commercial and low to medium-high density residential.
TRANSPORTATION <i>Improved network of bicycle and walking routes through the area.</i>	
Pedestrian / bicycle network	<ul style="list-style-type: none"> Pedestrian network coverage comparable to existing and other alternative. Improves bicycle network coverage over existing.

Connectivity	· Connectivity comparable to existing and other alternative.
VMT per person / employee	· Shows slight increase in VMT and vehicle trips of all types over existing.
PM peak trips	· Same as other alternative: at 1,200, generates more trips compared with current zoning, up from 1,000.
Transit adjacency	· Slightly increases transit adjacency for residents.
Additional infrastructure needs	· No significant impact mitigations.
Consistency with policies / plans	· No significant inconsistencies. · Proposed improvements north of Scholls Ferry are not within the City of Tigard.
ENVIRONMENTAL FEATURES <i>Some addition to parks and open space to connect and extend existing recreational opportunities and provide parallel-to-Scholls Ferry off-street access for bikes and pedestrians.</i>	
Open space	· Provides the most residents with access to open space. · Has the greatest park/schoolyard adjacency to housing.
CO2 emissions	· Slight decrease in residential vehicle and total CO2 emissions. Slight increase in non home-based vehicle CO2 emissions. · Substantial decrease in non residential total CO2emissions.
PUBLIC EVENING WORKSHOP ALTERNATIVE	
COMMUNITY / ECONOMY <i>No land use intensity is added, current land uses are viewed as sufficiently mixed and intense, although better connections and improvements to walkability will improve transit supportiveness.</i>	
Population, land use mix & urban vibrancy	· Shows some difference in jobs to housing balance over existing (about 3 jobs for every dwelling unit, as compared with existing, which is about 4 jobs for every dwelling unit). · Increases land use intensity, adds the greatest number of residents and employees.
Market feasibility	· No change from current development patterns.
Redevelopment potential	· Not applicable.
Consistency with policies / plans	· Consistent with comprehensive plan designations.
TRANSPORTATION <i>This Alternative is focused on improving the network of bicycle and walking routes through the area.</i>	
Pedestrian / bicycle network	· Pedestrian network coverage comparable to existing and other alternative. · Improves bicycle network coverage over existing.
Connectivity	· Connectivity comparable to existing and other alternative.
VMT per person / employee	· Shows slight decrease in VMT and vehicle trips of all types over existing.
PM peak trips	· Same as other alternative: at 1,2004 generates about the same amount of trips as current zoning, up slightly from 1,000.
Transit adjacency	· Slightly increases transit adjacency for residents.
Additional infrastructure needs	· No significant impact mitigations.
Consistency with policies / plans	· Proposed improvements north of Scholls Ferry are not within the City of Tigard. · No significant inconsistencies.
ENVIRONMENTAL FEATURES <i>No new parks / open space; connects center of intensity to Greenway Park west of OR 217.</i>	
Open space	· No change from existing.
CO2 emissions	· Slight decrease in residential vehicle and total CO2 emissions. Slight increase in non home-based vehicle CO2 emissions. · No decrease in non residential total CO2 emissions.

UPPER BRIDGEPORT



UPPER BRIDGEPORT EXISTING ZONING

EXISTING CONDITIONS

This station community is centered at the intersection of SW 72nd Avenue/SW Upper Boones Ferry Road. It is bounded to the east by Interstate 5 and to the west by Fanno Creek and the dual PNWR lines (Oregon Electric [WES] and Southern Pacific); these features form substantial barriers to east-west pedestrian and bicycle mobility. SW Durham Road is the principal access point to residential neighborhoods located to the west of Fanno Creek, while Upper Boones Ferry Road and SW Lower Boones Ferry Road provide the only connections across I-5 within the station community. There is a preponderance of surface parking and vehicle storage serving the employees

and customers of light industrial businesses as well as retail commercial uses. Pedestrian connections are fairly continuous on most major streets, with some gaps located along 72nd Avenue; however bicycle facility coverage is poor with lanes or shared facilities on high-traffic arterials and a lack of available low-speed alternative routes. The area is served by the Tualatin Park and Ride lot and TriMet bus lines 36, 37, 38, 76, and 96 Express.

The area between Fanno Creek and I-5 features substantial densities of households and employment, particularly along 72nd Avenue, Upper Boones Ferry Road, and the Bridgeport Village retail center. In addition, high densities

of urban amenities exist at Bridgeport Village as well as at the intersection of 72nd Avenue and Upper Boones Ferry Road. Block sizes are mostly medium to large in size which is attributed to large-lot industrial and commercial parcels found within the area.

Major wetland and water features include Fanno Creek, Ball Creek and Pinebrook Creek. The area generally has lower than optimal access to parks, open spaces and trails, although there are trail opportunities along Fanno Creek.

The area immediately surrounding I-5 on both sides is home to high employment concentrations due to prime visibility and access on and off the freeway. The 72nd Avenue corridor is expected to continue to house light industrial development while parcels closer to Bridgeport Village will likely see new redevelopment opportunities for mixed-use retail and commercial development. Currently there are an extremely limited number of properties that are classified as having medium or high redevelopment potential.

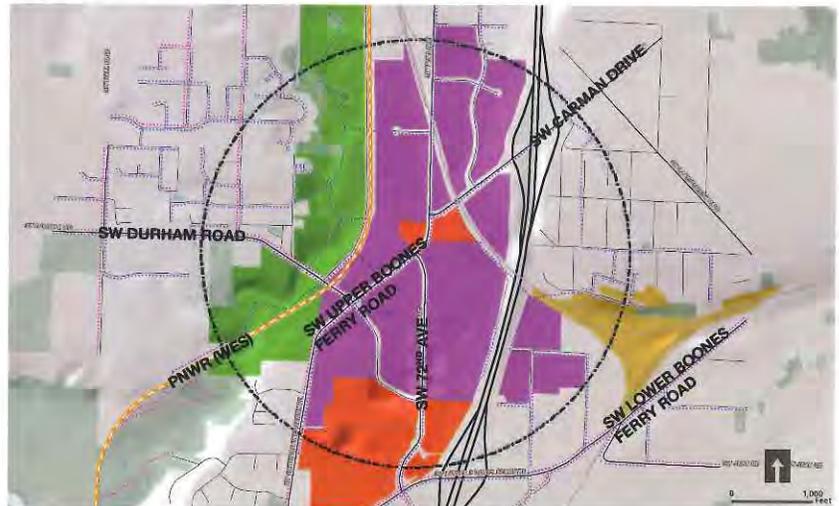
The area of land roughly between Fanno Creek Park and I-5 is classified alternatively as “Industrial” or “Employment” land in Metro Title 4, Industrial and Other Employment Areas. The area has not been a focus of local planning and/or redevelopment efforts.

According to the 2005-2009 American Community Survey, Upper Bridgeport Village has the shortest travel commute time for residents of the seven station communities.

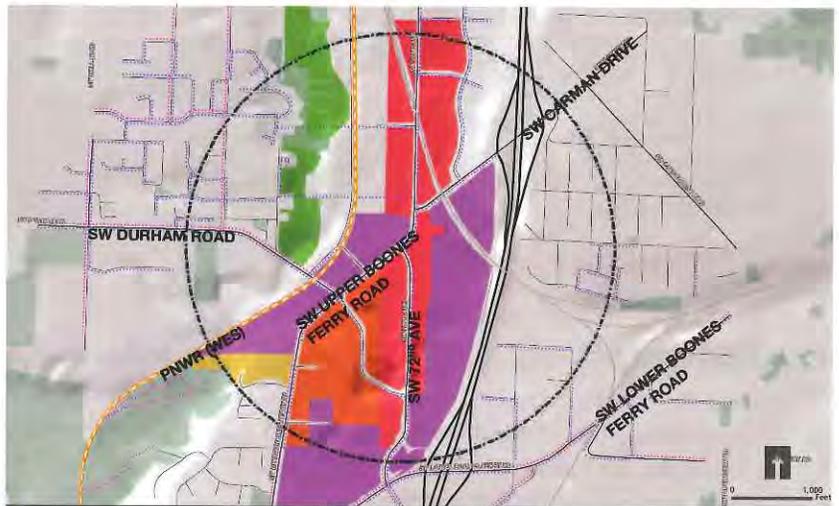
UPPER BRIDGEPORT WORKSHOP RESULTS

AFTERNOON WORKSHOP ALTERNATIVE

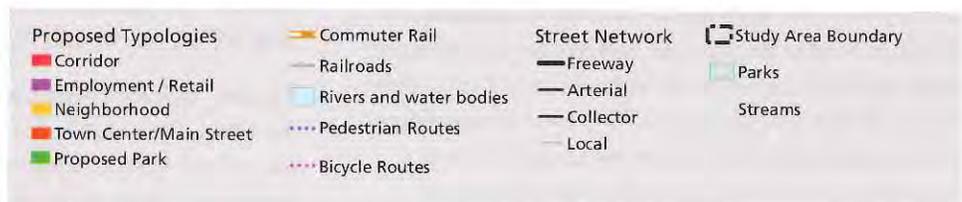
This workshop session features the Town Center/Main Street Type at the intersection of SW Upper Boones Ferry Road and SW 72nd Avenue, at the existing Bridgeport Village retail center and parcels located immediately to the north and east that are currently light industrial and



AFTERNOON WORKSHOP ALTERNATIVE



PUBLIC EVENING WORKSHOP ALTERNATIVE



LEGEND

strip commercial. Employment/Retail Destination Type encompasses the remaining area between Fanno Creek and I-5 within the station community, as well as light industrial parcels located to the east across I-5.

This alternative focuses on bridging the divides that are formed by Fanno Creek, I-5 and the multiple railroads that all run north-south within this station community. Two pedestrian connections are proposed across the PNWR (OE) line parallel to SW 74th Avenue to a new Fanno Creek trail (at SW Kable Lane and roughly SW Alder Street). Residential neighborhoods to the west of Fanno Creek would see increased access to the trail as well with new access points at SW Bond Street and SW 76th Avenue. New sidewalk construction would mitigate the area's poor pedestrian conditions, such as along 72nd Avenue between SW Redwood Lane and the PNWR (SP) crossing and along Upper Boones Ferry Road in various places between SW Afton Lane and I-5, by removing existing network gaps. In addition, new pedestrian paths between existing large-lot industrial parcels east of 72nd Avenue would provide more grid-like circulation. To help facilitate access to residential neighborhoods and retail east of I-5, a new trail would be built parallel to the PNWR (SP) line that crosses underneath I-5 south of the Upper Boones Ferry Road interchange.

PUBLIC EVENING WORKSHOP ALTERNATIVE

The public workshop session featured a desire to implement Transit Corridor Type development along SW 72nd Avenue throughout the station community area (from just south of SW Cardinal Lane to just north of SW Lower Boones Ferry Road in the vicinity of the Bridgeport Village retail center). Parcels along SW Durham Road between Upper Boones Ferry Road and 72nd Avenue would be reserved for Town Center/Main Street Type development, complementing the amenities and urban form found in Bridgeport Village to the south. Areas to the east of 72nd Avenue and south of SW Upper Boones Ferry Road would include Employment/Retail Destination Type. Employment/Retail Destination Type is also applied to areas between the PNWR (OE) line and Upper Boones Ferry Road (from 72nd Avenue to just north of SW Afton Lane), as well as the existing Bridgeport Village development. The Transit Neighborhood Type is included to the west of Upper Boones Ferry Road, immediately north of Afton Lane. Parkland is proposed along the entire length of Fanno Creek within the station community.

This alternative promotes new east-west pedestrian connections across the existing north-south barriers of Fanno Creek and the PNWR (OE) line, one at SW Kable Lane and another at SW Bond Street. New sidewalk along 72nd Avenue between SW Redwood Lane and the PNWR (SP) crossing would remove the existing network gap.

OVERVIEW OF ALTERNATIVES

Both alternatives introduce the Town Center type into areas that are now primarily light industrial. The public workshop alternative goes the furthest with a main street concept running along SW 72nd Ave. while applying the Employment/Retail Destination Type around the edges and leaving some areas as their existing condition. While the public workshop alternative increases the numbers of people and amenities it may have the effect of reducing the long term viability of the industrial job base. The afternoon workshop alternative has a much more limited application of the Town Center/Main Street Type where it may serve to support the surrounding employment uses and serve as the center of intensity. This alternative also looked to bridge the divide created by I-5 through improved pedestrian and bike connections requiring additional public investment. Both alternatives look to improve the connection between the Fanno Creek Greenway and the employment area through a series of pedestrian and bicycle connections. However, crossing the railroad and the creek would likely require large structures, driving up the costs of these connections while not providing a significant improvement to the transit adjacency scores.

EVALUATION AND COMPARISON OF UPPER BRIDGEPORT ALTERNATIVES

AFTERNOON WORKSHOP SESSION ALTERNATIVE

COMMUNITY / ECONOMY *Two Town Center/ Main Street nodes on SW 72nd Avenue, one at intersection with SW Durham Road, one at intersection with SW Upper Boones Ferry Road.*

Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · No change from existing land use intensity. · Greater opportunity for urban amenities. (not sure why, if there are no additional residents or employees) · Shows the same jobs to housing balance as existing: about 10 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> · Town Center Type would require significant change from current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Town Center Type is applied to areas identified as having predominantly low redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · The Town Center type would represent a change from the Industrial comprehensive plan and regional Industrial and Employment Area designation.

TRANSPORTATION *Very little intervention.*

Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other alternative.
Connectivity	<ul style="list-style-type: none"> · Similar to existing
VMT per person / employee	<ul style="list-style-type: none"> · Shows slight decrease in VMT of all types over existing. · Shows no change in vehicle trips of all kinds over existing.
PM peak trips	<ul style="list-style-type: none"> · Generates considerably more trips than other alternative and existing; 1,900 trips, up from 1,100.
Transit adjacency	<ul style="list-style-type: none"> · No change compared with existing in transit adjacency for residents.
Additional infrastructure needs	<ul style="list-style-type: none"> · No significant impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> · Generally consistent.

ENVIRONMENTAL FEATURES *Substantial increase in parks / open space.*

Open space	<ul style="list-style-type: none"> · Increase to parks/schoolyard space · Residents' adjacency to open space is same as existing.
CO2 emissions	<ul style="list-style-type: none"> · Slight decrease in all types of CO2 emissions.

PUBLIC EVENING WORKSHOP ALTERNATIVE

COMMUNITY / ECONOMY *Application of Transit Corridor Type to SW 72nd Avenue; Town Center / Main Street node at SW 72nd Ave south of SW Durham Road.*

Population, land use mix & urban vibrancy	<ul style="list-style-type: none"> · Location and placement of Town Center /Main Street Type and Transit Corridor Type creates greater land use intensities. · Large increase in new residents; substantial increase of employees · Greater opportunity for urban amenities. CONFIRM - NEED THIS NUMBER. · Has the most even mix of all four Types. · Shows the most improvement in jobs to housing balance over existing: about 3 jobs for every dwelling unit, compared with existing 10 jobs for every dwelling unit.
Market feasibility	<ul style="list-style-type: none"> · Town Center Type would require significant change from current development patterns. · Transit Corridor Type is consistent with current development patterns.
Redevelopment potential	<ul style="list-style-type: none"> · Town Center Type is applied to areas identified as having predominantly low redevelopment potential.
Consistency with policies / plans	<ul style="list-style-type: none"> · Much of the Town Center Type is applied to land is not within the City of Tigard. · The Town Center type would represent a change from the Industrial comprehensive plan and regional Industrial and Employment Area designation.

TRANSPORTATION *Very little intervention; SW Redwood Lane and SW Cardinal Lane extended west, across WES and creek, to connect to neighborhoods.*

Pedestrian / bicycle network	<ul style="list-style-type: none"> · Very comparable to other alternative.
Connectivity	<ul style="list-style-type: none"> · Arterial street connectivity provided by two new east-west road crossings of the existing railroad between Durham and Bonita Roads.
VMT per person / employee	<ul style="list-style-type: none"> · Shows decrease in VMT and vehicle trips of all types over existing.
PM peak trips	<ul style="list-style-type: none"> · Generates more trips than existing; 1,400 trips, up from 1,100.
Transit adjacency	<ul style="list-style-type: none"> · Slightly increases transit adjacency for residents.
Additional infrastructure needs	<ul style="list-style-type: none"> · No significant impacts.
Consistency with policies / plans	<ul style="list-style-type: none"> · Concept includes two new roadways crossing the railroad tracks. · ODOT Rail policies on at grade crossings will likely preclude these.

ENVIRONMENTAL FEATURES *Some increase in parks / open space.*

Open space	<ul style="list-style-type: none"> · No increase to parks/schoolyard space · Residents' adjacency to open space is increased from existing.
CO2 emissions	<ul style="list-style-type: none"> · Decrease in residential and non home-based vehicle CO2 emissions. · Substantial decrease in residential total CO2 emissions. · Increase in non residential total CO2 emissions.

APPENDIX

APPENDIX A — Index Evaluation Measures: Methodology and Individual Ratings for each Station Community Alternative

APPENDIX B — 2005-2009 American Community Survey (ACS) and 2009 Census Longitudinal Employer-Household Dynamics (LEHD) Data

APPENDIX C — Transportation Evaluation of Station Community Alternatives (Task 3.4)

APPENDIX A—INDEX EVALUATION MEASURES

INDEX METHODOLOGY

Metro evaluated the representative station community alternatives against the project objectives and evaluation criteria using the INDEX tool by Criterion Planners. The project team chose indicators in INDEX that correspond to project objectives and criteria. The Tigard HCT Land Use Plan evaluation objectives are as follows:

- **Community:** Link land use and transportation solutions to promote an efficient and compact urban form that fosters vibrant, healthy communities; optimizes public investments; serves as a catalyst for private investment; preserves and protects existing stable neighborhoods; and supports active transportation options, jobs, schools, shopping, services, recreational opportunities and housing proximity.
- **Economy:** Support a diverse and growing local economy through the movement of people, goods, and services and access to housing, jobs, services, shopping, educational, cultural and recreational opportunities.
- **Transportation:** Provide safe, efficient, and affordable transportation options for accessing housing, jobs, services, shopping, educational, cultural and recreational opportunities, and facilitate competitive choices for goods movement.
- **Environment:** Create access to natural resources, open spaces, trails and parks; support active living that contributes to human health; minimize impacts to natural systems.
- **Equity:** Create a place that provides opportunities and benefits for members of the community.
- **Fiscal Stewardship & Policy Coordination:** Leverage the policies and investments of Southwest Corridor Plan and other applicable studies or grant opportunities.

Seventeen alternatives were evaluated in the seven representative station communities. The seventeen alternatives represent the widest spectrum of alternatives that were developed the afternoon workshop and evening workshop session on May 25, 2011 and by the consultant team. Participants in the workshops included the TAC, TTAC, stakeholders, City staff, and the general public.

Each alternative was evaluated according to forty-five indicators in INDEX. Of these, twenty-one indicators were chosen to represent the project objectives and criteria. These twenty-one indicators were weighted and used to calculate a Total Index Score for each alternative and are as follows:

COMMUNITY

- Population - residents
- Employment - employees
- Intersection Density
- Amenities Adjacency
- Jobs to Housing Balance

TRANSPORTATION

- Pedestrian Network Coverage
- Street Route Directness
- Bicycle Network Coverage
- Transit Adjacency to Employment
- Transit Adjacency to Housing
- Parking Requirements
- Home Based VMT Produced
- Non-Home Based VMT Attracted
- Home Based VT Produced
- Non-Home Based VT Attracted

ENVIRONMENT

- Park/Schoolyard Space Supply
- Park/Schoolyard Adjacency to Housing
- Residential Vehicle CO2 Emissions
- Residential Total CO2 Emissions
- Non-Home Based Vehicle CO2 Emissions
- Non-Residential Total CO2 Emissions

In addition, to highlight the difference between the alternatives in each representative station community, each of the alternatives were compared by the above indicators and rated. See the following tables for the rating of each Station Community Alternative.

TIGARD TRIANGLE				
	EXISTING	AFTERNOON	EVENING	CONSULTANTS
COMMUNITY				
number of residents	9,734	10,485	9,456	12,867
number of employees	11,915	13,062	9,988	9,449
intersection density	99.8	115.3	103	106.3
adjacency to urban amenities	67.5	89.7	83.5	84.7
jobs to housing balance (ideal = 1:1)	2.34	2.29	1.93	1.42
TRANSPORTATION				
pedestrian network coverage	30.6	100	100	100
street route directness (walk distance)	1.46	1.51	1.92	1.31
bicycle network coverage	34.7	95.03	40.24	49.54
transit adjacency to employment	90.4	91.5	90.0	95.8
transit adjacency to housing	80.4	82.9	80.8	89.3
parking required	19,210	27,589	21,324	27,860
home-based VMT per capita	40.7	37.8	35.9	37.1
non home based VMT per employee	36.8	34.2	32.5	33.6
home based vehicle trips per capita	3.1	3	2.8	2.9
non home-based vehicle trips per employee	5.7	5.4	5.1	5.3
ENVIRONMENT				
park/schoolyard space	3.1	2.9	3.1	3.1
park/schoolyard adjacency to housing	75.6	82.7	74.1	73.7
residential vehicle CO2 emissions	10,333	9,592	9,108	9,412
residential total CO2 emissions	16,364	12,549	11,049	11,173
non home-based vehicle CO2 emissions	9,342	8,672	8,235	8,509
non-residential total CO2 emissions	9,342	14,003	23,062	8,935
TOTAL	44	67.2	74.6	69.7

DOWNTOWN TIGARD

	EXISTING	AFTERNOON	EVENING	CONSULTANTS
COMMUNITY				
number of residents	4,768	7,743	13,641	11,902
number of employees	2,923	6,383	15,002	9,547
intersection density	100.6	100.6	100.6	108.2
adjacency to urban amenities	81.8	87.1	80.8	84.3
jobs to housing balance (ideal = 1:1)	1.47	1.73	1.96	1.6
TRANSPORTATION				
pedestrian network coverage	94	42.6	42.6	45.5
street route directness (walk distance)	1.4	1.38	1.54	1.44
bicycle network coverage	63.22	62.2	98.1	62.58
transit adjacency to employment	99.3	99.7	90.1	99.8
transit adjacency to housing	87.6	92.4	92.7	95
parking required	33,848	28,162	23,748	30,849
home-based VMT per capita	34	34.7	30.1	31.3
non home based VMT per employee	40	40.8	35.4	36.9
home based vehicle trips per capita	3	3.1	2.7	2.8
non home-based vehicle trips per employee	5	5.1	4.6	4.7
ENVIRONMENT				
park/schoolyard space	11.1	11.9	5.0	9.1
park/schoolyard adjacency to housing	96	95.8	96.6	97.5
residential vehicle CO2 emissions	8,622	8,788	7,637	7,948
residential total CO2 emissions	17,640	13,034	8,737	11,374
non home-based vehicle CO2 emissions	10,143	10,339	8,985	9,350
non-residential total CO2 emissions	2,726,570	318,954	37,692	239,246
TOTAL				
	53.4	58.8	63	60.7

GAARDE MCDONALD				
	EXISTING	CONSULTANTS		
COMMUNITY				
number of residents	4,496	5,615		
number of employees	958	1,191		
intersection density	123.5	123.5		
adjacency to urban amenities	62.1	69.7		
jobs to housing balance (ideal = 1:1)	.47	.46		
TRANSPORTATION				
pedestrian network coverage	39.9	39.9		
street route directness (walk distance)	1.45	1.62		
bicycle network coverage	48.08	48.08		
transit adjacency to employment	96.2	98.2		
transit adjacency to housing	69	75.4		
parking required	26,019	22,556		
home-based VMT per capita	22.2	22		
non home based VMT per employee	16.7	16.6		
home based vehicle trips per capita	1.4	1.4		
non home-based vehicle trips per employee	2.7	2.7		
ENVIRONMENT				
park/schoolyard space	1.6	4.6		
park/schoolyard adjacency to housing	90.8	88.9		
residential vehicle CO2 emissions	6,340	5,583		
residential total CO2 emissions	17,449	12,732		
non home-based vehicle CO2 emissions	1,268	4,201		
non-residential total CO2 emissions	10,001	5,200		
TOTAL				
	58.5	69.9		

SUMMERFIELD				
	EXISTING	AFTERNOON	EVENING	CONSULTANTS
COMMUNITY				
number of residents	4,320	4,320	7,571	7,736
number of employees	1,244	1,244	3,748	3,663
intersection density	142.6	146.4	145.2	142.6
adjacency to urban amenities	61.7	67.2	66.2	69
jobs to housing balance (ideal = 1:1)	.44	.44	.83	.81
TRANSPORTATION				
pedestrian network coverage	16.2	22.7	18.3	16.2
street route directness (walk distance)	1.96	1.50	1.36	2.78
bicycle network coverage	22.01	20.82	31.97	22.01
transit adjacency to employment	98.6	98.6	99.5	96.8
transit adjacency to housing	56.3	56.3	75.1	76.2
parking required	21,624	21,616	20,044	18,224
home-based VMT per capita	16.8	15.9	15.6	15.9
non home based VMT per employee	12.3	11.6	11.4	11.6
home based vehicle trips per capita	1.0	1.0	1.0	1.0
non home-based vehicle trips per employee	2.0	2.0	1.9	1.9
ENVIRONMENT				
park/schoolyard space	0	0	2.2	4
park/schoolyard adjacency to housing	0	0	64.7	78.6
residential vehicle CO2 emissions	4,266	4,034	3,952	4,043
residential total CO2 emissions	19,483	12,080	14,229	9,351
non home-based vehicle CO2 emissions	3,108	2,939	2,879	2,945
non-residential total CO2 emissions	12,433	4,918	3,719	3,779
TOTAL				
	55.7	66.5	77.5	78.5

WASHINGTON SQUARE				
	EXISTING	AFTERNOON	EVENING	CONSULTANTS
COMMUNITY				
number of residents	1,233	3,133	2,208	3,232
number of employees	8,949	18,518	10,519	14,745
intersection density	61.1	62.4	66.2	61.1
adjacency to urban amenities	79	90.9	86.7	92
jobs to housing balance (ideal = 1:1)	18.45	9.26	9.78	6.85
TRANSPORTATION				
pedestrian network coverage	52.8	55.3	55.5	52.8
street route directness (walk distance)	1.72	2.85	3.82	4.70
bicycle network coverage	28.26	30.40	37.05	28.55
transit adjacency to employment	99.9	100	99.9	100
transit adjacency to housing	95.6	98.3	97.6	98.4
parking required	25,266	16,502	21,259	20,349
home-based VMT per capita	25	20.9	20.8	20.9
non home based VMT per employee	5.0	4.2	4.2	4.2
home based vehicle trips per capita	5.0	4.4	4.3	4.3
non home-based vehicle trips per employee	1.0	0.9	0.9	0.9
ENVIRONMENT				
park/schoolyard space	0	20.1	9.5	13.4
park/schoolyard adjacency to housing	0	91.0	51.0	77.3
residential vehicle CO2 emissions	6,340	5,288	5,234	5,244
residential total CO2 emissions	18,313	16,731	11,016	13,879
non home-based vehicle CO2 emissions	1,268	1,058	1,047	1,049
non-residential total CO2 emissions	5,955	1,109	2,242	1,129
TOTAL	39.6	60.9	63	59.8

SCHOLLS FERRY / 121ST AVE				
	EXISTING	AFTERNOON	EVENING	
COMMUNITY				
number of residents	6,026	7,818	7,818	
number of employees	969	979	979	
intersection density	123.5	123.5	123.5	
adjacency to urban amenities	80	83.6	83.7	
jobs to housing balance (ideal = 1:1)	.37	.27	.27	
TRANSPORTATION				
pedestrian network coverage	69.5	69.5	69.5	
street route directness (walk distance)	1.75	1.55	1.46	
bicycle network coverage	54.29	58.62	58.62	
transit adjacency to employment	99.4	99.4	99.4	
transit adjacency to housing	94.6	95.8	95.8	
parking required	24,718	24,106	24,106	
home-based VMT per capita	17.4	17.3	17.3	
non home based VMT per employee	13.5	13.4	13.4	
home based vehicle trips per capita	1.3	1.3	1.3	
non home-based vehicle trips per employee	2.4	2.4	2.4	
ENVIRONMENT				
park/schoolyard space	5.6	4.3	4.3	
park/schoolyard adjacency to housing	100	100	100	
residential vehicle CO2 emissions	4,423	4,387	4,379	
residential total CO2 emissions	15,297	16,190	16,182	
non home-based vehicle CO2 emissions	3,430	3,403	3,396	
non-residential total CO2 emissions	5,186	5,141	5,134	
TOTAL	66.6	68.4	70.4	

UPPER BRIDGEPORT				
	EXISTING	AFTERNOON	EVENING	
COMMUNITY				
number of residents	1,071	1,071	4,966	
number of employees	5,435	5,435	7,827	
intersection density	66.2	66.2	66.2	
adjacency to urban amenities	62.1	93.2	86.9	
jobs to housing balance (ideal = 1:1)	15.18	15.18	2.97	
TRANSPORTATION				
pedestrian network coverage	43.9	43.9	43.9	
street route directness (walk distance)	1.5	1.69	1.38	
bicycle network coverage	9.41	9.41	9.41	
transit adjacency to employment	100	100	100	
transit adjacency to housing	98.5	98.5	99.7	
parking required	17,465	17,248	17,349	
home-based VMT per capita	7.7	7.3	5.8	
non home based VMT per employee	14	13.2	10.5	
home based vehicle trips per capita	.5	.5	.4	
non home-based vehicle trips per employee	2	2	1.6	
ENVIRONMENT				
park/schoolyard space	9.9	9.9	7.7	
park/schoolyard adjacency to housing	66.7	66.7	75	
residential vehicle CO2 emissions	1,961	1,537	1,465	
residential total CO2 emissions	12,369	7,289	5,671	
non home-based vehicle CO2 emissions	3,562	2,792	2,662	
non-residential total CO2 emissions	7,334	11,058	9,392	
TOTAL	56.9	59.5	56	

Appendix B – 2005-2009 American Community Survey (ACS) and 2009 Census Longitudinal Employer-Household Dynamics (LEHD) Data

Table

Candidate Station Community Areas	Total Population Density Persons (Residents and Jobs)/ sq. mile	Residential Density Residents/ sq. mile	Job Density Jobs/ sq. mile	Density of Elderly Population Persons age 65+/ sq. mile	Households Without Vehicle Access Percent of Households That Don't Own Vehicles	Population Below Poverty Line Percent of Individuals Below Poverty Line	Renter-Occupied Households Percent of Renter-Occupied Non-Vacant Households	Travel Time to Work For Residents, In Minutes	Transit Commute Mode Share Percent of Residents That Commute to Work by Transit
Tigard Triangle	7864.95	2410.74	5454.03	315.66	8.2%	16.4%	68.2%	21.01	2.4%
Downtown Tigard	7326.82	4040.42	3286.09	433.46	6.6%	15.2%	55.8%	22.63	5.6%
Gaarde McDonald	6229.71	4936.35	1293.82	611.1	2.9%	7.4%	24.9%	15.7	3.4%
Summerfield	5210.95	3441.38	1770.09	1942.91	5.2%	5%	22.9%	16.2	3.3%
Washington Square	14588.63	4017.61	10570.9	413.33	10%	11.6%	46.4%	17.28	4.9%
Scholls Ferry	6465.3	5332.02	1133.37	362.67	4.1%	7.1%	33.3%	17.28	3.5%
Upper Bridgeport	11234.37	3271.09	7962.88	531.47	3.6%	7.8%	39.1%	14.03	3.5%

Methodology

This areal interpolation analysis employed Geographic Information Systems (GIS) using aggregated census tract-level data provided by the 2005-2009 American Community Survey (ACS). The estimates were obtained by first deriving the percentage of a given census tract that lied within a station community area buffer; the aggregated ACS data was multiplied by this percentage for each tract. For density calculations (e.g. residential density), the proportionate totals of all census tracts within each station community were totaled and then divided by the station community (1/2 mile) buffer square mileage. For percentage calculations (e.g. transit commute mode share), a weighted average of aggregated rates was derived using the percentage of area that each census tract occupied the station community area buffer.

The Census Longitudinal-Employer Household Dynamics (LEHD) program provided 2009 data regarding employment within the study area. Employment density figures were achieved in GIS by totaling the number of jobs within each station community area buffer and dividing by the buffer square mileage.

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TECHNICAL MEMORANDUM

Date: July 11, 2011
To: Judith Gray and Sean Farrelly, City of Tigard, Crista Gardner, Metro,
and Lidwien Rahman, ODOT
From: Anne Sylvester, PTE
Subject: Final Draft Report on Transportation Evaluation of
Station Community Alternatives (Task 3.4)
Project Number: 277-2395-078
Project Name: Tigard HCT Corridor Land Use Plan

INTRODUCTION

Purpose

This memo summarizes a planning level assessment of potential multi-modal transportation impacts and issues associated with the development of station community alternatives for the Tigard High Capacity Transit (HCT) Land Use Plan. The assessment focuses on seven station communities located throughout the City of Tigard. In each station community, the relative transportation impacts of land use alternatives have been assessed. In all station communities the assessment has included a Base Case condition which reflects existing zoning, and from one to three alternative land use patterns that modify existing zoning, land use mix and/or development densities. Additionally, the land use alternatives include modifications or enhancements to the existing multi-modal transportation system.

The analysis was conducted using a range of evaluation criteria that were defined by the project team in consultation with the Citizens Advisory Committee (CAC) and the Technical Advisory Committee (TAC). The criteria included all travel modes and were built upon existing and/or future transportation system conditions as identified in City's Transportation System Plan (TSP), Metro's Regional Transportation Plan (RTP), and from information made available by the Oregon Department of Transportation (ODOT).

The purpose of this memo is to provide support from a transportation perspective to the comprehensive analysis of station community alternatives. Station community alternatives are being evaluated based on six major project objectives including: Community, Economy, Transportation, Environment, Equity, and Fiscal Stewardship and Policy Coordination. The information contained in this memo will be combined with materials prepared for and presented in reports prepared under Tasks 3.3 and 3.5, to provide a comprehensive, planning level assessment of each station community. The outcome of this effort will help to inform future decisions on optimal preferred station community plans, and on station community priorities at such time as a future HCT corridor alignment is identified.

This memo focuses on several transportation system effects associated with the station community plan options. There is quantitative discussion of potential PM peak hour traffic generation and likely impact location, connectivity improvements for regionally-significant arterials, local street, bicycle and pedestrian facilities. Projections of potential transit ridership with each land use alternative are also discussed. Further information

concerning bicycle, pedestrian and transit opportunities, benefits and impacts is provided in the technical memoranda prepared as a part of Tasks 3.3 and 3.5.

Report Content and Organization

This report is organized into three major sections including this introduction. The following section describes the evaluation criteria used in this multi-modal transportation analysis, and the analysis methodology including major assumptions inherent in the assessment.

The third section provides a summary of key findings and conclusions from the planning level assessment, and outlines key areas for further analysis as the HCT planning process moves into later phases wherein road and transit system alternatives will be defined and evaluated in greater detail.

ANALYSIS CRITERIA, METHODS, AND ASSUMPTIONS

The assessment of traffic-related issues and opportunities in this memo focuses largely on potential trip generation and localized traffic impacts. In some cases, the effects associated with station community land use alternatives would add more peak hour traffic to the surrounding street system, while in other cases traffic volumes may actually be lower than the level anticipated under existing zoning. Other transportation-related criteria selected for use in evaluating the station community alternatives focus on positive benefits associated with added regional and local street connectivity, added bicycle and/or pedestrian connectivity, and accessibility of transit to future employees and residents.

Criteria

The transportation analysis documented in this memo focused on quantitative and qualitative criteria. The criteria developed for and applied to each station community alternative included:

- Measureable criteria that could be obtained from the INDEX planning tool (INDEX is an integrated suite of interactive Geographic Information System (GIS) planning support tools for assessing community conditions and designing, measuring and monitoring future scenarios). These criteria included:
 - Daily vehicle trips (including home-based trip productions/capita and non-home based trip attractions/capita).
 - Daily vehicle miles of travel or VMT (also for both home-based trip productions/capita and non-home based trip attractions/capita).
 - Total PM peak hour trips (derived from the daily vehicle trip data by multiplying the per capita rates identified by INDEX by the related population and employment projections to get total daily trips, and then multiplying by 10 percent to convert daily trips to PM peak hour trips).
 - Local street connectivity expressed as intersection density (e.g., intersections/square mile).
 - Pedestrian and bicycle network coverage expressed as the percentage of streets with sidewalks or bicycle lanes.
 - Transit adjacency to population and employment land uses. Although the specific mode of High Capacity Transit has not been identified, this INDEX tool output was used as a proxy for general transit ridership.
- Quantitative and qualitative criteria that relied on some of the data identified above, as well as a general assessment of the proposed transportation system improvements in relation to existing conditions and adopted plans. These criteria included:
 - Identification of the location and magnitude of “critical” intersections and roadway segments within one mile of the edge of each station community planning area. “Critical” intersections and roadway

segments were determined based on information presented in the City's recently adopted TSP that flagged arterial locations where major 2035 PM peak hour congestion problems were identified (see attached map). It should be noted that this assessment is meant only to be used to compare station community alternatives to each other and not to determine actual anticipated intersection or roadway operating performance. This is because the process of quantifying potential congestion impacts is not refined and may grossly over or understate the scale of impact at specific locations.

- Regional roadway connectivity that could be added by the proposed station community transportation system.
- Opportunities to improve pedestrian and bicycle connectivity including major arterial crossings, and relationships with existing plans and/or proposed projects.
- Relationship of potential congestion problems and locations with adopted improvement plans (e.g., the City's TSP and the RTP) including identification of locations where new improvement projects might be necessary.

Analysis Methods

This section includes a short discussion of the analysis methods used to apply the evaluation criteria discussed above. The discussion includes the identification of potential impacts to the street and highway system, as well as a qualitative assessment of connectivity enhancements and consistency with adopted plans.

Impacts to the Street and Highway System

The assessment of potential impacts to the street and highway system focused on identifying the potential magnitude of vehicle traffic that could be generated by each station community alternative and determining the general location where impacts might be experienced. The evaluation methodology addresses trip generation, trip distribution and assignment including daily vehicle trips and VMT, PM peak hour total trips, and critical intersections and arterial segments affected.

Trip Generation

For purposes of the traffic assessment documented in this memo, trip generation was based on output from the INDEX planning tool for each station community alternative. As noted above, the software estimates daily home-based trip productions/capita and non-home based trip attractions/employee. This information can be converted into total daily trips by multiplying these values by the estimated population or employment for each alternative. Daily trips can then be converted to PM peak hour trips through multiplication by .10 (or 10 percent). It should be noted that the trip generation process is not the same as using ITE rates or the output from a regional travel demand model. The daily trip estimates are based on residential and employment density. They are only Productions and Attractions¹ and do not reflect the interaction of trips both within the station community and to surrounding areas. Thus, the trip estimate from INDEX may overstate the total number of peak hour trips that would be generated by each alternative. On the other hand, INDEX output does not include home-based trip attractions and non-home based trip productions which may result in an understatement of trips at certain locations. Nevertheless, the information provided by the INDEX tool is useful and appropriate for identifying and describing the relative differences among the land use alternatives.

¹ Productions are defined as estimated trips generated by a given land use within a specific geographic area. Attractions are defined as the receiving end of trips produced in other locations. Together, a production and an attraction account for both ends of a single trip. Typically, productions and attractions are balanced in relation to each other and then assigned to the roadway system.

Trip Distribution and Assignment

To augment the estimate of total trips generated by station community alternatives, these trips were distributed and assigned to the surrounding street system. This allows for an assessment of both the locations and relative degree of traffic impact that could be associated with the alternative. The distribution of trips for each alternative was based on information provided by Metro's regional travel demand model. For each station community, a single Transportation Analysis Zone (TAZ) was selected to represent each station community, and a select zone loading to/from that TAZ was conducted to identify the general pattern of trips that could travel to and from the community, linking it with the larger region. While this approach is technically sound, it does generalize the effects of entire station community which might include more than one TAZ. All trips were assumed to focus on a single central point in a TAZ which overstates potential traffic impacts on streets and roads that are close to that center. This approach does not reflect the fact that, in the real world, trips will arrive and depart from a myriad of locations and traffic will be spread throughout the arterial, collector and local street system.

Identification of Potential Impacts

Generated trips were distributed and assigned to the major street system within one mile of the edge of each station community. Within that area "critical" intersections and "critical" arterial street segments were identified and became the focus of the impact assessment. The logic of this approach relied on the assumption that these locations would be most significantly impacted by traffic traveling to/from the station communities, and would represent locations that were most likely to need improvement as the land use alternatives were implemented. The magnitude and specific location of development within the station communities would dictate actual impacts and specific appropriate mitigation. However, this information cannot be determined at this time and will be developed as the HCT planning process continues beyond this current effort.

"Critical intersections" and "critical arterials" are defined as those locations where 2035 weekday PM peak hour demand-to-capacity ratios are expected to exceed 1.00. Figure 7 of the Existing and Future Conditions Transportation Report prepared for the Tigard HCT study, and included as an attachment to this memo, illustrate these locations which include the following.

Critical Intersections

Critical intersections identified in the City's TSP for the 2035 weekday PM peak hour include:

- Pacific Highway (99W) at 68th Avenue, 72nd Avenue, Dartmouth Street, northbound and southbound ramps with OR 217, Hall Boulevard (recently improved), Greenburg Road (recently improved), Walnut Street, Gaarde/McDonald Street, Canterbury Lane, Bull Mountain Road, Royalty Parkway, and Durham Road.
- Greenburg Road at Hall Boulevard, through the OR 217 interchange and at Tiedeman Avenue.
- Scholls Ferry Road at Hall Boulevard and the OR 217 northbound on-ramp
- Hall Boulevard at the OR 217 southbound off-ramp, McDonald Street, Bonita Road and Durham Road
- Bonita Road at 72nd Avenue

Critical Arterials

Critical arterials identified in the City's TSP for the 2035 weekday PM peak hour include:

- Scholls Ferry Road, westbound from Nimbus Avenue to Springwood Drive.
- Greenburg Road, northbound from Hall Boulevard to outside the city limits.
- Walnut Street, eastbound from Scholls Ferry Road to 135th Avenue.
- Nimbus Avenue, northbound from the southern terminus to Scholls Ferry Road.
- Hunziker Street westbound approaching Hall Boulevard.

- Hall Boulevard, southbound from the rail road to Durham Road with a short northbound section between Bonita Road and McDonald Street.
- 85th Avenue, in both directions south of Durham Road.
- Bonita Road, westbound from 72nd Avenue to Hall Boulevard.
- 72nd Avenue, northbound from the southern city limits to Upper Boones Ferry Road.
- Bull Mountain Road, westbound from Pacific Highway to 150th Avenue.
- Upper Boones Ferry Road, southbound from 72nd Avenue to south city limits.

Interpretation of Results

The assessment of potential traffic-related impacts should focus on comparing the differences in both magnitude and locations associated with the range of land use/transportation alternatives for each station community, especially as they may impact known issue areas. This information is useful in understanding the potential implications of each alternative to inform the selection of a preferred alternative. It will also inform the development of future study efforts that will rely on a more formal and detailed modeling assessment of the station communities that will result in a finer level of traffic distribution to a broader array of streets and intersections. This will allow an assessment of future intersection, road and highway segment and interchange operations analyses to be conducted and appropriate mitigation measures to be identified.

Connectivity Enhancements

Existing connectivity for autos, bicyclists, pedestrians and transit in the city is severely challenged by several barriers including: Highway 217, I-5 and the WES commuter/freight rail line, as well as Fanno Creek, Bull Mountain, and other natural features, as well as the built environment. SW Scholls Ferry Road and Pacific Highway provide major arterial-level crossing opportunities in the northern part of Tigard. However, south of Pacific Highway east/west crossing opportunities are limited to Bonita Road and Durham Road, both of which have only one travel lane in each direction. In addition, there are limited lower order crossings of these barriers. This places considerable demand on facilities with relatively limited capacity and will be a major constraint in accommodating the travel demands associated with future community growth. Additionally, several streets within the city (Pacific Highway/99W, Gaarde, McDonald, Bull Mountain, Bonita, and sections of Hall) were identified as locations with challenging roadway crossing conditions for pedestrians and bicyclists.

The City's TSP indicates that opportunities for enhancing local connectivity should be fully considered in both locating and developing potential future HCT station communities. The connectivity enhancements identified in each of the station community alternative were measured using both output from the INDEX planning tool and from a qualitative assessment of existing connectivity opportunities and constraints. Criteria included:

- Local street connectivity (measured by INDEX as intersections per square mile).
- Regional connectivity (assessed by reviewing existing and planned street/highway connections and identifying where station community alternatives offered physical enhancements that could affect regional traffic).
- Pedestrian and bicycle network coverage (measured by INDEX as percent of streets with sidewalks or bicycle lanes).
- Opportunities for improving pedestrian and bicycle connections across major arterials or freeways (assessed by reviewing the proposed station community circulation systems).

Consistency with Adopted Plans

The City's adopted TSP and Metro's RTP both identify a range of specific projects that are intended to enhance transportation opportunities for all travel modes and to offer significant improvement for the bicycle, pedestrian, and transit systems. As much as adding expensive roadway capacity to accommodate increases in future travel demand, the use of transit, walk, and bicycle modes will be an essential part of the City of Tigard's overall

transportation system. Evaluation of the proposed transportation networks associated with each station community alternative included a comparison between these networks and planned improvements to determine:

1. If there was general consistency between the types of improvements identified in the alternatives and those included in adopted plans.
2. If other potential street or highway improvements might be necessary to accommodate the expected traffic demand resulting from the alternatives.
3. The extent to which the alternatives addressed city and regional policy related to expansion of non-automobile mode choices.

The evaluation criteria identified to guide this assessment were largely qualitative and included the following:

- Relationship of proposed bicycle and pedestrian network enhancements to previously planned and adopted improvement recommendations.
- Transit adjacency or accessibility to employment and residents (from the INDEX tool), as a proxy for future HCT boardings.
- Relationship of proposed street network enhancements and potential impact locations to TSP and RTP street and/intersection improvement recommendations.
- Identification of roads or intersections that may be sufficiently impacted by station community land use alternatives to warrant consideration of potential improvements that were not identified by or included in existing adopted plans.

KEY FINDINGS AND CONCLUSIONS

Key findings related to the transportation system in the City of Tigard that are of particular importance in identifying and conceptualizing potential future HCT station communities are summarized in this section. More detailed information that describes the evaluation criteria, and both quantitative and qualitative findings is presented in the attached tables. One table has been prepared for each station community and a comparison of findings for condition with existing zoning and all station community alternatives is included. It should be noted that the focus of this assessment is primarily identifying differences among the alternatives, informing the process of selecting a preferred HCT land use plan, and identifying useful and desirable components of the proposed multi-modal transportation network to support that plan. While considerable quantitative information has been developed related to vehicular traffic effects, a more qualitative assessment has been conducted related to the bicycle and pedestrian systems. The primary focus of analysis for these modes has been on increasing network coverage, providing significant increases in connectivity, and ensuring consistency with local and regional plans. The discussion of benefits to the transit system in this memo focuses primarily on quantitative information from INDEX related to future transit accessibility. Additional discussion of transit benefits in relation to system accessibility is discussed in a similar technical memorandum prepared for land use.

Tigard Triangle

The Afternoon alternative offers the greatest degree of local street and bicycle system connectivity, followed by the Consultant's alternative. The Consultants alternative would offer the highest level of transit accessibility followed by the Afternoon alternative. Each station community alternative would add a multi-use trail generally running through the area from the southwest to the northeast with the Afternoon and Consultant's alternatives offering the highest quality facility through future green space. Some of this multi-use path alignment would follow the local street system with the Evening alternative. Similar to Existing conditions, the Afternoon alternative also provides for enhanced regional connectivity by adding a crossing of Hunziker Road over OR 217, and the extension of Atlantic Street to Dartmouth. Each of the station community alternatives could generate significantly greater weekday PM peak hour traffic than the Existing conditions (e.g., existing zoning) but the

TECHNICAL MEMORANDUM (CONTINUED)

existing alternative generates the most per capita trips. The Afternoon alternative could be expected to generate approximately 7,000 more PM peak hour trips than existing. The most significant traffic impacts could occur along Pacific Highway (OR 99W) between I-5 and OR 217 with the Afternoon alternative, followed by the Consultant's Alternative.

Downtown Tigard

All alternatives offer the comparable levels of potential transit ridership. All three alternatives would have similar connectivity benefits except that the Consultant's alternative would add one additional new roadway connection parallel to and west of Burnham. Bicycle and pedestrian network coverage would be similar, but there would be no Ash Street connection with the Consultant's alternative. Each of the station community alternatives could generate significantly more weekday PM peak hour traffic than conditions with existing zoning. The most significant traffic impacts could occur with the Evening alternative along Pacific Highway between I-5 and Walnut, and along Greenburg Road in the vicinity of Tiedeman Avenue and OR 217. The alternatives may require additional improvements along Pacific Highway west of Greenburg Road.

Washington Square

The alternatives would have similar effects on connectivity except that the Afternoon alternative would add a new connection across OR 217. General pedestrian coverage would be similar for all alternatives, while the Evening alternative would add more bicycle coverage. All alternatives would likely generate a comparable level of transit trips. The Afternoon alternative would add additional local street connectivity in the vicinity of the Mall. Two of the station community alternatives (Afternoon and Consultant alternatives) could generate substantively more weekday PM peak hour traffic than Existing conditions. The remaining alternative (Evening alternative) could generate peak period traffic similar to existing zoning. The most significant traffic impacts could occur along Greenburg Road, generally from Washington Square southward. Portions of Pacific Highway near Greenburg Road could also see major impacts.

Scholls Ferry

Only the Afternoon and Evening alternatives were evaluated for this location. Street and pedestrian network connectivity would be similar, but the Afternoon and Evening alternatives would offer more bicycle connectivity than Existing conditions. All three alternatives would likely generate similar transit ridership. Existing conditions and the two station community alternatives could generate similar weekday PM peak hour traffic volumes. No significant differences in traffic impacts would likely occur, but the two alternatives may need some improvements along Scholls Ferry Road in the vicinity of OR 217, and near the intersection of Greenburg Road and Tiedeman in comparison with existing zoning.

Gaarde

Only the Consultant's alternative was evaluated for this location as the other alternatives included virtually the same land use and transportation network components. There would be no significant differences in multi-modal network connectivity, but the Consultant's alternative could be expected to generate slightly higher transit ridership. It should be noted that the HCT land use plan alternative considered at this location is heavily focused along Pacific Highway and the ease of pedestrian and bicycle connectivity across this major roadway facility will influence the success of development as a station community. The Consultant's alternative could generate slightly more traffic than existing conditions, with the greatest impacts experienced along Pacific Highway in the vicinity of Gaarde/McDonald Streets.

Summerfield (King City)

All alternatives offer some degree of enhanced regional street network connectivity. The Evening alternative offers greater bicycle and pedestrian connectivity and generates the highest level of transit ridership. The Evening alternative provides additional local street connectivity along 113th Avenue and with two new north/south streets parallel to and east of 113th. Each of the station community alternatives could generate significantly more

weekday PM peak hour traffic than with existing zoning. The most significant traffic impacts could occur along Pacific Highway in the vicinity of Bull Mountain and Beef Bend Roads.

Upper Bridgeport

The Evening alternative would provide more arterial street connectivity by including two new east/west road crossings of the existing railroad between Durham and Bonita Roads. Bicycle and pedestrian connectivity would be similar among all alternatives. Transit ridership would likely be similar with all alternatives. The Afternoon alternative could generate considerably more weekday PM peak hour trips than either Existing conditions or the Evening alternative. The most significant traffic impacts associated with the two alternatives would occur in the vicinity of the intersection of 72nd Avenue and Bonita Road.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Tigard Triangle

Evaluation Criteria	Existing	Afternoon Workshop	Evening Workshop	Consultant's Alternative
Daily Vehicle Trips				
Home-Based Outbound (trips/capita)	3.1	3.0	3.0	2.9
Non-Home-Based Inbound (trips/employee)	5.7	5.4	5.6	5.3
Daily Vehicle Miles of Travel				
Home-Based Outbound (trips/capita)	40.7	37.7	39.1	37.1
Non-Home-Based Inbound (trips/employee)	36.8	34.1	35.3	33.6
PM Peak Hour Total Trips	3,069	10,199	6,867	8,739
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS				
Pacific Hwy @ 68th	300	+688	+346	+537
Pacific Hwy @ 72nd	147	+379	+215	+376
Pacific Hwy @ Dartmouth	668	+1544	+782	+1217
Pacific Hwy @ OR 217 NB	491	+1165	+605	+969
Pacific Hwy @ OR 217 SB	359	+762	+346	+467
Pacific Hwy @ Hall	62	+142	+72	+113
Pacific Hwy @ Greenburg	62	+142	+72	+113
Greenburg @ Tiedeman	39	+94	+51	+86
Greenburg @ Hall	31	+71	+36	+56
Greenburg @ OR 217 NB	23	+71	+46	+89
Critical Arterials Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONS ANALYSIS				
Hunziker e/o Hall WB	70	+213	+213	+266
Hall r/o McDonald SB	8	+23	+23	+29
Bonita e/o Hall WB	31	+95	+95	+118
Hall s/o Bonita SB	31	+95	+95	+118
I-5, Haines to OR 217 SB	94	+284	+284	+354
I-5, OR 217 to Carmen Drive SB	94	+284	+284	+354
I-5 s/o Lower Boones Ferry Road NB	229	+476	+210	+272
I-5 s/o Lower Boones Ferry Road SB	94	+284	+182	+354
Traffic Circulation				
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	99.8	115.3	103	106.3
Regional Network Connectivity Added	Hunziker xing of OR 217. Extension of Atlantic to Dartmouth	Hunziker xing of OR 217. Extension of Atlantic to Dartmouth	None	None
Pedestrian Circulation				
Network Coverage (% of streets with sidewalks)	30.6	100	100	100
Opportunities to Improve Arterial Crossings (2)	1 added xing of I-5 & OR 217	1 added xing of I-5 & OR 217	2 added xings of OR 217	2 added xings of OR 217
Relationship to Existing/Planned System	Consistent except along Atlantic	Consistent except along Atlantic. Adds greenway trail.	Consistent except along Atlantic. Adds NE/SW trail.	Consistent except along Atlantic. Adds greenway trail.
Bicycle Circulation				
Bicycle Network Coverage (% of streets with bike lanes)	34.7	95.03	40.24	49.54
Relationship to Existing/Planned System	Same as for peds.			
Transit Adjacency to:				
Housing	90.4	91.5	88.3	95.8
Employment	80.4	82.9	76.4	89.3
TSP/RTP Improvement Projects				
TSP Recommended Projects	All impacted critical locations have projects, except OR 217 NB/ Greenburg & portions of I-5 s/o Dartmouth.	All impacted critical locations have projects, except OR 217 NB/ Greenburg & portions of I-5 s/o Dartmouth.	All impacted critical locations have projects, except OR 217 NB/ Greenburg & portions of I-5 s/o Dartmouth.	All impacted critical locations have projects, except OR 217 NB/ Greenburg & portions of I-5 s/o Dartmouth.
RTP Recommended Projects (in addition to TSP)	None	None	None	None
Roads/intersections may need Project not in TSP/RTP	OR 217/Greenburg, I-5 s/o Dartmouth			
Roads/Intersections Where Project May Need Enhancement	OR 99W	OR 99W	OR 99W	OR 99W

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).

(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Downtown Tigard

Evaluation Criteria	Existing	Afternoon Workshop	Evening Workshop	Consultant's Alternative
Daily Vehicle Trips				
Home-Based Outbound (trips/capita)	3.0	3.1	2.7	2.8
Non-Home-Based Inbound (trips/employee)	5.0	5.1	4.6	4.7
Daily Vehicle Miles of Travel				
Home-Based Outbound (trips/capita)	34.0	34.5	30.1	31.3
Non-Home-Based Inbound (trips/employee)	40.0	40.6	35.4	36.8
PM Peak Hour Total Trips	2,892	5,656	10,720	7,820
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS				
Pacific Hwy @ 68th	419	+397	+1120	+709
Pacific Hwy @ 72nd	463	+486	+1296	+832
Pacific Hwy @ Dartmouth	535	+631	+1579	+1033
Pacific Hwy @ OR 217 NB	740	+1078	+2515	+1650
Pacific Hwy @ OR 217 SB	840	+1246	+2782	+1883
Pacific Hwy @ Hall	1042	+1642	+3532	+2431
Pacific Hwy @ Greenburg	1881	+3282	+6641	+4698
Pacific Hwy @ Walnut	390	+331	+982	+619
Pacific Hwy @ Gaarde/McDonald	318	+194	+729	+429
Pacific Hwy @ Canterbury	303	+162	+660	+385
Pacific Hwy @ Bull Mountain	303	+162	+660	+385
Pacific Hwy @ Beef Bend	274	+105	+554	+306
Greenburg @ Tiedeman	724	+1029	+2384	+1582
Greenburg @ OR 217 NB	391	+357	+1074	+654
Greenburg @ OR 217 SB	259	+64	+453	+250
Critical Arterials Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONS ANALYSIS				
Hunziker e/o Hall WB	88	+108	+326	+182
Hall n/o McDonald SB	272	+184	+454	+362
Hall s/o McDonald NB	146	+179	+544	+303
Hall s/o McDonald SB	257	+175	+430	+343
Bonita e/o Hall WB	29	+36	+109	+61
Hall s/o Bonita NB	117	+143	+435	+242
Hall s/o Bonita SB	243	+165	+406	+324
Bull Mountain Road w/o Pacific Hwy	272	+184	+454	+362
Traffic Circulation				
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	100.6	100.6	100.6	108.2
Regional Network Connectivity Added	None	None	None	New road, Main to Hall w/o Burnham
Pedestrian Circulation				
Network Coverage (% of streets with sidewalks)	94	42.6	42.6	45.5
Opportunities to Improve Arterial Crossings (2)	None	None	None	None
Relationship to Existing/Planned System	Consistent except along RR (Main to Hall), Walnut extension to Burnham.	Consistent except along RR (Main to Hall), Walnut extension to Burnham. Adds Ash St connection.	Consistent except along RR (Main to Hall), Walnut extension to Burnham. Adds Ash St connection.	Consistent except along RR (Main to Hall), Walnut extension to Burnham. No sidewalk along Fenwig as shown in other
Bicycle Circulation				
Bicycle Network Coverage (% of streets with bike lanes)	63.2	62.2	62.2	62.6
Relationship to Existing/Planned System	Same as peds.	Same as peds. except no Ash St connection.	Same as peds. except no Ash St connection.	Same as peds.
Transit Adjacency to:				
Housing	87.6	92.4	90.1	95.0
Employment	99.3	99.7	98.1	99.8
TSP/RTP Improvement Projects				
TSP Recommended Projects	All impacted critical locations have projects, except OR 217 NB/ Greenburg, OR 99W/Bull Mtn, along Bull Mtn Rd & portions of I-5 s/o Dartmouth.	All impacted critical locations have projects, except OR 217 NB/ Greenburg, OR 99W/Bull Mtn, along Bull Mtn Rd & portions of I-5 s/o Dartmouth.	All impacted critical locations have projects, except OR 217 NB/ Greenburg, OR 99W/Bull Mtn, along Bull Mtn Rd & portions of I-5 s/o Dartmouth.	All Impacted critical locations have projects, except OR 217 NB/ Greenburg, OR 99W/Bull Mtn, along Bull Mtn Rd & portions of I-5 s/o Dartmouth.
RTP Recommended Projects (in addition to TSP)	None	None	None	None
Roads/intersections may need Project not in TSP/RTP	OR 217/Greenburg,OR 99W/Bull Mtn, Bull Mtn Rd, I-5 s/o Dartmouth	OR 217/Greenburg,OR 99W/Bull Mtn, Bull Mtn Rd, I-5 s/o Dartmouth	OR 217/Greenburg,OR 99W/Bull Mtn, Bull Mtn Rd, I-5 s/o Dartmouth	OR 217/Greenburg,OR 99W/Bull Mtn, Bull Mtn Rd, I-5 s/o Dartmouth
Roads/Intersections Where Project May Need Enhancement	None	OR 99W w/o Greenburg	OR 99W w/o Greenburg	OR 99W w/o Greenburg

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).

(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Washington Square

Evaluation Criteria	Existing	Afternoon Workshop	Evening Workshop	Consultant's Alternative
Daily Vehicle Trips				
Home-Based Outbound (trips/capita)	2.1	1.8	1.8	1.8
Non-Home-Based Inbound (trips/employee)	4.1	3.6	3.5	3.5
Daily Vehicle Miles of Travel				
Home-Based Outbound (trips/capita)	24.2	20.2	20.0	19.9
Non-Home-Based Inbound (trips/employee)	24.1	20.1	19.9	19.9
PM Peak Hour Total Trips	3,928	7,230	4,079	5,743
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS				
Pacific Hwy @ 72nd	37	+30	0	+15
Pacific Hwy @ Dartmouth	113	+93	+2	+48
Pacific Hwy @ OR 217 NB	110	+90	0	+45
Pacific Hwy @ Hall	115	+96	+3	+51
Pacific Hwy @ Greenburg	513	+432	+21	+239
Pacific Hwy @ Walnut	139	+123	+16	+80
Hall @ OR 217 NB Ramps	404	+330	+1	+164
Hall @ Scholls Ferry	388	+324	+12	+175
Scholls Ferry @ OR 217 NB Ramps	375	+309	+5	+159
Scholls Ferry @ 121st	39	+33	+2	+18
Greenburg @ Hall	165	+141	+10	+82
Greenburg @ OR 217 NB Ramps	1155	+963	+33	+515
Greenburg @ OR 217 SB Ramps	1199	+1015	+56	+570
Greenburg @ Tiedeman	911	+769	+39	+427
Critical Arterials Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONS ANALYSIS				
Hunziker e/o Hall WB	73	+60	+1	+30
Traffic Circulation				
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	61.1	62.4	66.2	61.1
Regional Network Connectivity Added	None	Added e/w road xing RR and OR 217 (Nimbus-Wash Sq)	None	None
Pedestrian Circulation				
Network Coverage (% of streets with sidewalks)	58.8	55.3	55.5	52.8
Opportunities to Improve Arterial Crossings (2)	None	2 xings of OR 217	1 xing of OR 217	None
Relationship to Existing/Planned System	Consistent except for OR 217 xing and 80th Ave.	Consistent except for OR 217 xing and 80th Ave. Some added connectivity at Mall.	Consistent except for OR 217 xing and 80th Ave.	Consistent except for OR 217 xing and 80th Ave.
Bicycle Circulation				
Bicycle Network Coverage (% of streets with bike lanes)	28.3	30.4	37.1	28.6
Relationship to Existing/Planned System	Same as ped.	Same as ped.	Same as ped.	Same as ped.
Transit Adjacency to:				
Housing	95.6	98.3	97.6	98.4
Employment	99.9	100.0	99.9	100.0
TSP/RTP Improvement Projects				
TSP Recommended Projects	All impacted critical locations have identified projects except OR 217 NB/Greenburg, OR 217 SB/Hall & portions of I-5 s/o Dartmouth.	All impacted critical locations have identified projects except OR 217 NB/Greenburg, OR 217 SB/Hall & portions of I-5 s/o Dartmouth.	All impacted critical locations have identified projects except OR 217 NB/Greenburg, OR 217 SB/Hall & portions of I-5 s/o Dartmouth.	All impacted critical locations have identified projects except OR 217 NB/Greenburg, OR 217 SB/Hall & portions of I-5 s/o Dartmouth.
RTP Recommended Projects (in addition to TSP)	None	None	None	None
Roads/Intersections may need Project not in TSP/RTP	OR 217/Greenburg, I-5 s/o Dartmouth			
Roads/Intersections Where Project May Need Enhancement	None	Along Greenburg & Scholls Ferry Roads	Along Greenburg & Scholls Ferry Roads	Along Greenburg & Scholls Ferry Roads

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).

(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Scholls Ferry

Evaluation Criteria	Existing	Afternoon Workshop	Evening Workshop
Daily Vehicle Trips			
Home-Based Outbound (trips/capita)	1.3	1.3	1.3
Non-Home-Based Inbound (trips/employee)	2.4	2.4	2.4
Daily Vehicle Miles of Travel			
Home-Based Outbound (trips/capita)	17.4	17.3	17.3
Non-Home-Based Inbound (trips/employee)	13.5	13.4	13.4
PM Peak Hour Total Trips	1,016	1,251	1,251
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS			
Scholls Ferry @ Hall	109	+24	+24
Scholls Ferry @ OR 217 NB Ramps	156	+38	+38
Hall @ Greenburg	41	+9	+9
Greenburg @ Tiedeman	218	+61	+61
Greenburg @ OR 217 NB	14	0	0
Pacific Hwy @ 121st	66	+16	+16
Pacific Hwy @ 135th	72	+19	+19
Critical Arterials Affected (1)			
None			
Traffic Circulation			
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	123.5	123.5	123.5
Regional Network Connectivity Added	None	None	None
Pedestrian Circulation			
Network Coverage (% of streets with sidewalks)	69.5	69.5	69.5
Opportunities to Improve Arterial Crossings (2)	None	Scholls at Springwood	None
Relationship to Existing/Planned System	Consistent except for sidewalks on N. Dakota and portions of greenway trail n/o Scholls. Includes sidewalks on 121st n/o Scholls & 125th s/o Scholls.	Consistent, includes full greenway trail n/o Scholls & sidewalks on Schollwood Ct, & 125th s/o Scholls	Consistent, includes full greenway trail n/o Scholls & sidewalks on Schollwood Ct, & 125th s/o Scholls
Bicycle Circulation			
Bicycle Network Coverage (% of streets with bike lanes)	54.3	58.6	58.6
Relationship to Existing/Planned System	Consistent plus lanes on N. Dakota and 125th s/o of Scholls.	Consistent plus lanes on N. Dakota and 125th s/o of Scholls.	Consistent plus lanes on N. Dakota and 125th s/o of Scholls.
Transit Adjacency to:			
Housing	94.6	95.8	95.8
Employment	99.4	99.4	99.4
TSP/RTP Improvement Projects			
TSP Recommended Projects	All impacted critical locations have identified projects except OR 217 NB at Greenburg & OR 217 SB at Hall.	All impacted critical locations have identified projects except OR 217 NB at Greenburg & OR 217 SB at Hall.	All impacted critical locations have identified projects except OR 217 NB at Greenburg & OR 217 SB at Hall.
RTP Recommended Projects (in addition to TSP)	Hall/Scholls OR 217 NB/Greenburg & OR 217 SB/Hall	Hall/Scholls OR 217 NB/Greenburg & OR 217 SB/Hall	Hall/Scholls OR 217 NB/Greenburg & OR 217 SB/Hall
Roads/Intersections may need Project not in TSP/RTP	None	Scholls Ferry in area of OR 217, Greenburg at Tiedeman.	Scholls Ferry in area of OR 217, Greenburg at Tiedeman.
Roads/Intersections Where Project May Need Enhancement	None	Scholls Ferry in area of OR 217, Greenburg at Tiedeman.	Scholls Ferry in area of OR 217, Greenburg at Tiedeman.

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).
(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Gaarde

Evaluation Criteria	Existing	Consultant's Alternative
Daily Vehicle Trips		
Home-Based Outbound (trips/capita)	1.4	1.4
Non-Home-Based Inbound (trips/employee)	2.7	2.7
Daily Vehicle Miles of Travel		
Home-Based Outbound (trips/capita)	22.2	22.0
Non-Home-Based Inbound (trips/employee)	16.7	16.6
PM Peak Hour Total Trips	888	1,108
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS		
Pacific Hwy @ Greenburg	204	+51
Pacific Hwy @ Walnut	240	+59
Pacific Hwy @ Gaarde/McDonald	685	+170
Pacific Hwy @ Canterbury	198	+49
Pacific Hwy @ Bull Mountain	198	+49
Pacific Hwy @ Beef Bend	182	+45
Pacific Hwy @ Royalty	137	+34
Pacific Hwy @ Durham	104	+26
Hall @ McDonald	84	+21
Hall @ Bonita	87	+14
Hall @ Durham	93	+23
Critical Arterials Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONS ANALYSIS		
Hall s/o McDonald NB	34	+8
Hall s/o McDonald SB	50	+13
Bonita e/o Hall WB	23	+6
Hall s/o Bonita SB	6	+2
Bull Mountain w/o Pacific Hwy WB	13	+3
Traffic Circulation		
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	123.5	123.5
Regional Network Connectivity Added	None	None
Pedestrian Circulation		
Network Coverage (% of streets with sidewalks)	39.9	39.9
Opportunities to Improve Arterial Crossings (2)	None	None
Relationship to Existing/Planned System	Consistent except for n/s on 100th. Adds n/s connection on 112th & 115th.	Consistent except for n/s on 100th. Adds n/s connection on 112th & 115th.
Bicycle Circulation		
Bicycle Network Coverage (% of streets with bike lanes)	48.1	48.1
Relationship to Existing/Planned System	Consistent. Adds n/s connection on 114th & 115th.	Consistent. Adds n/s connection on 115th.
Transit Adjacency to:		
Housing	69.0	75.4
Employment	96.2	98.2
TSP/RTP Improvement Projects		
TSP Recommended Projects	All impacted critical locations have identified projects except for OR 99W/Bull Mtn, OR 99W/Royalty & Bull Mtn w/o OR 99W.	All impacted critical locations have identified projects except for OR 99W/Bull Mtn, OR 99W/Royalty & Bull Mtn w/o OR 99W.
RTP Recommended Projects (in addition to TSP)	None	None
Roads/Intersections may need Project not in TSP/RTP	OR 99W/Bull Mtn, OR 99W/Royalty, Bull Mtn w/o OR 99W.	OR 99W/Bull Mtn, OR 99W/Royalty, Bull Mtn w/o OR 99W.
Roads/Intersections Where Project May Need Enhancement	None	Along OR 99W thru Tigard.

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).

(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Summerfield (King City)

Evaluation Criteria	Existing	Afternoon Workshop	Evening Workshop	Consultant's Alternative
Daily Vehicle Trips				
Home-Based Outbound (trips/capita)	1.0	1.0	1.0	1.0
Non-Home-Based Inbound (trips/employee)	2.0	1.9	1.9	1.9
Daily Vehicle Miles of Travel				
Home-Based Outbound (trips/capita)	16.8	15.8	15.4	15.5
Non-Home-Based Inbound (trips/employee)	12.3	11.5	11.2	11.3
PM Peak Hour Total Trips	681	1,118	1,469	1,470
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS				
Pacific Hwy @ Gaarde/McDonald	147	+88	+182	+181
Pacific Hwy @ Canterbury	94	+56	+118	+117
Pacific Hwy @ Bull Mountain	167	+103	+200	+199
Pacific Hwy @ Beef Bend	167	+103	+200	+199
Pacific Hwy @ Royalty	222	+144	+255	+256
Pacific Hwy @ Durham	528	+342	+60	+605
Critical Arterials Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONS ANALYSIS				
Bull Mountain w/o Pacific Hwy WB	9	+7	+6	+7
Traffic Circulation				
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	142.6	142.6	145.2	142.6
Regional Network Connectivity Added	Royalty connection e/o & w/o OR 99W.			
Pedestrian Circulation				
Network Coverage (% of streets with sidewalks)	16.2	16.2	18.3	16.2
Opportunities to Improve Arterial Crossings (2)	OR 99W/Royalty	OR 99W/Royalty	OR 99W/Royalty	OR 99W/Royalty
Relationship to Existing/Planned System	Consistent, plus along Royalty e/o & w/o OR 99W, along Summerfield & 109th.	Consistent, plus along Royalty e/o & w/o OR 99W, along Summerfield & 109th.	Consistent, plus along Royalty e/o & w/o OR 99W, along Summerfield, 109th, 113th & new n/s street e/o 113th.	Consistent, plus along Royalty e/o & w/o OR 99W, along Summerfield & 109th.
Bicycle Circulation				
Bicycle Network Coverage (% of streets with bike lanes)	22.0	22.0	32.0	22.0
Relationship to Existing/Planned System	Same as ped.	Same as ped.	Same as ped.	Same as ped.
Transit Adjacency to:				
Housing	56.3	56.3	75.1	76.2
Employment	98.6	98.6	99.5	96.8
TSP/RTP Improvement Projects				
TSP Recommended Projects	All impacted critical locations have identified projects except OR 99W/Bull Mtn, OR 99W/Royalty & Bull Mtn w/o OR 99W	All impacted critical locations have identified projects except OR 99W/Bull Mtn, OR 99W/Royalty & Bull Mtn w/o OR 99W	All impacted critical locations have identified projects except OR 99W/Bull Mtn, OR 99W/Royalty & Bull Mtn w/o OR 99W	All impacted critical locations have identified projects except OR 99W/Bull Mtn, OR 99W/Royalty & Bull Mtn w/o OR 99W
RTP Recommended Projects (in addition to TSP)	None	None	None	None
Roads/Intersections may need Project not in TSP/RTP	OR 99W/Bull Mtn, OR 99W/Royalty, Bull Mtn w/o OR 99W.	OR 99W/Bull Mtn, OR 99W/Royalty, Bull Mtn w/o OR 99W.	OR 99W/Bull Mtn, OR 99W/Royalty, Bull Mtn w/o OR 99W.	OR 99W/Bull Mtn, OR 99W/Royalty, Bull Mtn w/o OR 99W.
Roads/Intersections Where Project May Need Enhancement	None	Along OR 99W s/o Gaarde & along Durham Rd.	Along OR 99W s/o Gaarde & along Durham Rd.	Along OR 99W s/o Gaarde & along Durham Rd.

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).

(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Tigard HCT Land Use Study - Transportation Evaluation Summary
Station Community: Upper Bridgeport

Evaluation Criteria	Existing	Afternoon Workshop	Evening Workshop
Daily Vehicle Trips			
Home-Based Outbound (trips/capita)	0.5	0.4	0.4
Non-Home-Based Inbound (trips/employee)	2.0	1.7	1.6
Daily Vehicle Miles of Travel			
Home-Based Outbound (trips/capita)	7.7	6.1	5.9
Non-Home-Based Inbound (trips/employee)	14.0	11.1	10.7
PM Peak Hour Total Trips	1,141	1,954	1,451
Critical Intersections Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONAL ANALYSIS			
Hall @ McDonald	82	+61	+28
Hall @ Bonita	82	+61	+28
Hall @ Durham	90	+62	+20
Bonita @ 72nd	406	+280	+96
Critical Arterials Affected (1) - COMPARATIVE ONLY, CANNOT BE USED FOR OPERATIONS ANALYSIS			
Hall n/o McDonald SB	22	+14	+3
Hall s/o McDonald NB	6	+13	+16
Hall s/o McDonald SB	76	+49	+12
Bonita e/o Hall WB	7	+15	+19
I-5, Haines to OR 217 SB	130	+84	+20
I-5, OR 217 to Carmen SB	130	+84	+20
I-5 s/o Lower Boones Ferry Rd NB	141	+91	+21
I-5 s/o Lower Boones Ferry Rd SB	10	+21	+26
72nd Avenue s/o Upper Boones Ferry	228	+147	+35
Traffic Circulation			
Local Street Connectivity expressed as Intersection Density (intersections/ sq. mile)	66.2	66.2	66.2
Regional Network Connectivity Added	None	None	2 e/w roads xing RR between Durham & Bonita.
Pedestrian Circulation			
Network Coverage (% of streets with sidewalks)	43.9	43.9	43.9
Opportunities to Improve Arterial Crossings (2)	None	None	None
Relationship to Existing/Planned System	Consistent except for n/s trail w/o RR & complete sidewalks along 72nd, 79th & Carmen.	Consistent except for n/s trail w/o RR & complete sidewalks along 72nd, 79th & Carmen.	Consistent except for n/s trail w/o RR & complete sidewalks along 72nd, 79th & Carmen. Adds sidewalks on 2 new streets between Bonita & Durham.
Bicycle Circulation			
Bicycle Network Coverage (% of streets with bike lanes)	9.4	9.4	9.1
Relationship to Existing/Planned System	Consistent except for n/s trail w/o RR & complete sidewalks along 72nd & Carmen.	Consistent except for n/s trail w/o RR & complete sidewalks along 72nd & Carmen.	Consistent except for n/s trail w/o RR & complete sidewalks along 72nd & Carmen.
Transit Adjacency to:			
Housing	98.5	98.5	99.7
Employment	100.0	100.0	100.0
TSP/RTP Improvement Projects			
TSP Recommended Projects	All impacted critical locations have identified projects except Upper Boones Fy Rd e/o I-5 & I-5 s/o Dartmouth	All impacted critical locations have identified projects except Upper Boones Fy Rd e/o I-5 & I-5 s/o Dartmouth	All impacted critical locations have identified projects except Upper Boones Fy Rd e/o I-5 & I-5 s/o Dartmouth
RTP Recommended Projects (in addition to TSP)	Widen Upper Boones Fy e/o I-5.	Widen Upper Boones Fy e/o I-5.	Widen Upper Boones Fy e/o I-5.
Roads/Intersections may need Project not in TSP/RTP	I-5 s/o Dartmouth	I-5 s/o Dartmouth	I-5 s/o Dartmouth
Roads/Intersections Where Project May Need Enhancement	Bonita/72nd	Bonita/72nd	Bonita/72nd

(1) Values are increases + or decreases () in comparison to PM peak total approach volumes in comparison with base case condition. Trip generation information developed from INDEX tool. Trip distribution assumptions from regional travel demand model (2035 RTP Financially-constrained network).
(2) Focus of development activity could benefit pedestrian connectivity by adding signals or other crossing opportunities along identified arterials.

Fig. 7: City of Tigard - Transportation - 2035 Demand-Capacity Ratio - Preferred

