

# Washington County Transit Development Plan

January 2021

Washington County, Oregon

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## Transit Development Plan

### Purpose

In 2017, the Oregon state legislature created the Statewide Transportation Improvement Fund (STIF) as part of House Bill 2017 (HB 2017), known as the Keep Oregon Moving Act. The bill established a dedicated source of funding for improving or expanding public transportation services in Oregon through a tenth of one percent statewide employee payroll tax. The legislation designated Washington County as a public transportation provider eligible to receive a portion of the STIF fund commensurate with the tax revenue generated in the area outside TriMet and South Metro Area Regional Transit (SMART) service districts. The legislation designated TriMet as the Qualified Entity (QE) for the three-county area with responsibility for submitting the Plan for approval by the Oregon Transportation Commission and distributing STIF funds to Washington County and other public transportation providers for investments in the three-county area.

The Washington County Transit Development Plan (TDP) **identifies and prioritizes public transportation investments for areas outside of the TriMet and SMART transit districts and for last mile connections to services within these districts.** The regional coordination projects within the TriMet District are funded with STIF revenue approved by TriMet’s HB2017 Transit Advisory Committee. The TDP meets the requirements in STIF administrative rule for public transportation investments to be consistent with adopted policies. Consistent with the STIF legislation, the TDP **prioritizes investments that improve service to low-income communities, reduce service fragmentation between transit providers and serve students.** The TDP prioritizes investments for STIF funding in the next biennium, FY 2021-22 and FY 2022-23 (FY 2022-23), and potential investments for the next five plus years. The TDP will be updated every two years to prioritize projects for funding for the biennial allocation of STIF revenues from the Oregon Transportation Commission.

### Washington County’s Approach as a Public Transportation Provider

#### Washington County Transit Committee (WCTC)

The Washington County Board of Commissioners appointed a Transit Advisory Committee to recommend public transportation project priorities to be funded by STIF outside of SMART and TriMet districts and Regional Coordination projects within the TriMet District.

The Transit Advisory Committee is chaired by a member of the Washington County Board and includes County staff from Division of Veterans and Aging Services, one elected representative each from the cities of Banks, Gaston and North Plains, plus five additional members who represent diverse demographic, geographic and transit perspectives. Three ex-officio members represent SMART, TriMet and Ride Connection. The committee provided input on community needs for transit, assisted with soliciting public input and recommended project priorities to the Washington County Board of Commissioners.

#### Contracted Service Provider

Washington County contracts with Ride Connection, Inc., a private, non-profit organization based in Gresham, Oregon, to provide transit services funded by STIF. Administrative oversight and planning support is provided by the Washington County Department of Land Use & Transportation (LUT). Ride Connection, Inc. has provided public transportation services in Washington County for decades using state and federal funding along with private contributions. Washington County is able to leverage STIF

funds with these other resources in partnership with Ride Connection Inc. for public transportation services.

## Vision

The TDP implements an objective in the Washington County Transportation System Plan to make transit a seamless, integrated, affordable, safe, accessible and viable travel option for all people living, working and visiting Washington County.<sup>1</sup> Making transit a viable transportation option aligns with other objectives in the TSP to reduce automobile trips and congestion, provide travel options for people without vehicles or those who choose not to drive, help curb greenhouse gas and other emissions, and reduce transportation costs for individuals and families. The TDP takes into account identified community needs, planned services and adopted policies in recent transit studies completed by LUT and adopted plans and policies by TriMet, SMART and adjacent counties, including the following:

- Transit Element of the Washington County Transportation System Plan (2019)
- TriMet’s Unified Service Enhancement Plan (2018)
- Coordinated Transportation Plan for Seniors and Persons with Disabilities (2016)
- SMART Transit Master Plan (2017)
- Tillamook County Transit District Intercity Transit Enhancement Plan (2018)
- Yamhill County Transit Area Transit Development Plan (2018)
- Tri-County Public Transportation Improvement Plan (2018)
- Washington County Near-term Transit Study (2019)
- Washington County Strategic Solutions for First Mile/Last Mile Transit Connections Report (2020)
- Washington County Disability, Aging and Veterans Services Area Plan (2017-2020)

## Prioritizing Equity

Washington County is one of the most racially and ethnically diverse counties in Oregon. The TDP strives to advance equitable outcomes by prioritizing opportunities and strategies with the most potential benefit for marginalized groups. In alignment with Washington County’s February 2020 Resolution on Diversity, Equity and Inclusion,<sup>2</sup> the TDP defines *equity* and *marginalized groups* as:

**Equity:** The result of fairness and justice in the creation and delivery of public policy. Equity in Washington County will exist when every county resident participates fully in the region’s economic vitality, has access to the county’s services and other resources, and has the opportunity to reach their full potential.

**Marginalized groups:** LGBTQIA [lesbian, gay, bisexual, transgender, queer or questioning, intersex, and asexual or allied], elder adults, persons with a disability, refugees and immigrants, and any group that is societally, socially or economically disadvantaged and is considered a protected class by federal or state law.

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<sup>1</sup> Washington County Transportation System Plan, objective 8.5

<sup>2</sup> [https://www.co.washington.or.us/CAO/upload/BOC\\_02-25-20\\_5b\\_Equity-Resolution.pdf](https://www.co.washington.or.us/CAO/upload/BOC_02-25-20_5b_Equity-Resolution.pdf)

Importantly, marginalized groups include Black, Indigenous, and People of Color (BIPOC), who, on average, experience higher rates of poverty and unemployment, and have lower median incomes than the county's white, non-Hispanic residents.

# Washington County Transit Characteristics

## Overview

Washington County covers 727 square miles; the vast majority - 605 square miles - are outside the Metro urban growth boundary (UGB), and outside of the TriMet and SMART service districts. It is bordered by Tillamook County to the west, Yamhill County to the south, Columbia County to the north and Multnomah and Clackamas Counties to the east. Hillsboro, the county seat, and Beaverton are the largest cities in the county. There are twelve additional incorporated cities, the majority of which are in the Metro UGB. Banks, Gaston and North Plains are the only incorporated cities outside the Metro UGB. Over half of the rural area is designated as forest land, which includes tourist and recreational destinations such as the Tillamook State Forest, LL Stub Stewart State Park and Hagg Lake in the western part of the county.

The county, particularly in urban areas, is rapidly growing with increasing numbers of employees and residents, heightening the need for improved non-auto transportation options. (See Appendix A for more on Washington County’s transportation context, land use context, and applicable plans and policies). The county is served by interregional and regional public transit services, private services, ridesourcing and car sharing.

## Commute Travel Patterns

Washington County attracts many trips from throughout the Portland metro region and beyond. Figure 1 illustrates the number of Washington County working residents (254,000) who work in the county (54 percent) and who work outside the county (46 percent). The largest portion of Washington County employees who live outside of the county commute from Multnomah County. As growth continues in the coming decades, congestion on key thoroughfares like US 26 and parallel roadways will worsen if current trends continue. Increased availability of transit options presents an opportunity to improve transportation viability and community livability.

## Commute Mode Split

Single occupancy vehicle trips make up the largest portion of commute trips in Washington County regardless of home or work location. Nearly three quarters of Washington County residents drive alone to work, and non-residents commute to

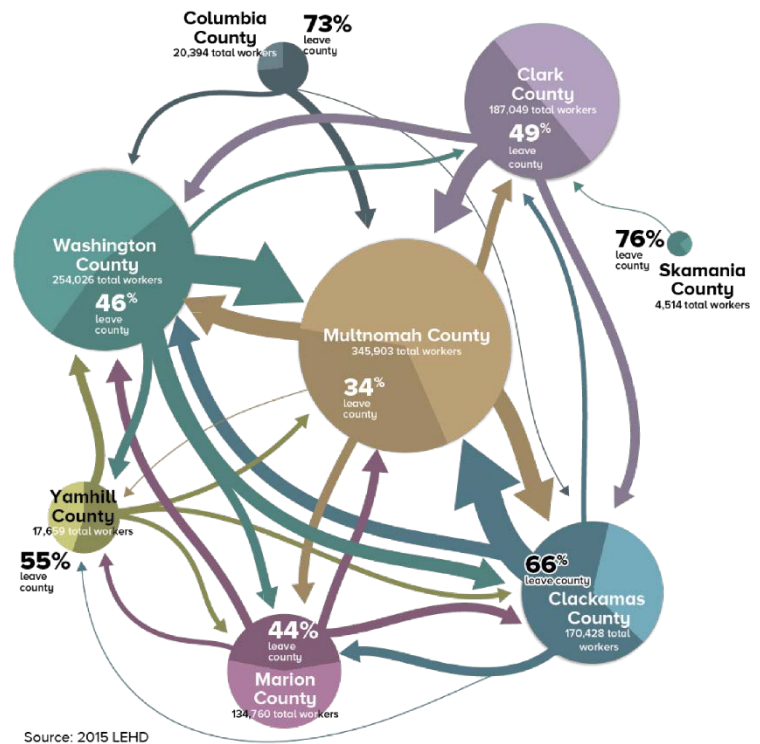


Figure 1: Work Locations of Portland Metropolitan Region Working Residents

Washington County jobs at an even higher rate (83.0 percent). Additionally, roughly 10 percent of people who live or work in Washington County carpool to work. Residents who work outside the county are more likely to commute by transit (13.5 percent) than residents who work in the county (4.0 percent) or people who live elsewhere and work in the county (4.0 percent).

### Interregional and Regional Transit Services

TriMet is the primary transit service provider in Washington County, offering local and regional bus, MAX light rail, and Westside Express Service (WES) commuter rail. The City of Wilsonville provides South Metro Area Regional Transit (SMART) bus service that links to the TriMet system. There are currently eight other routes connecting communities serving Washington County operated by six different transit providers. The following sections summarize the public transit services available within both urban and rural Washington County. Figure 2 shows existing transit service primarily in the urban area.

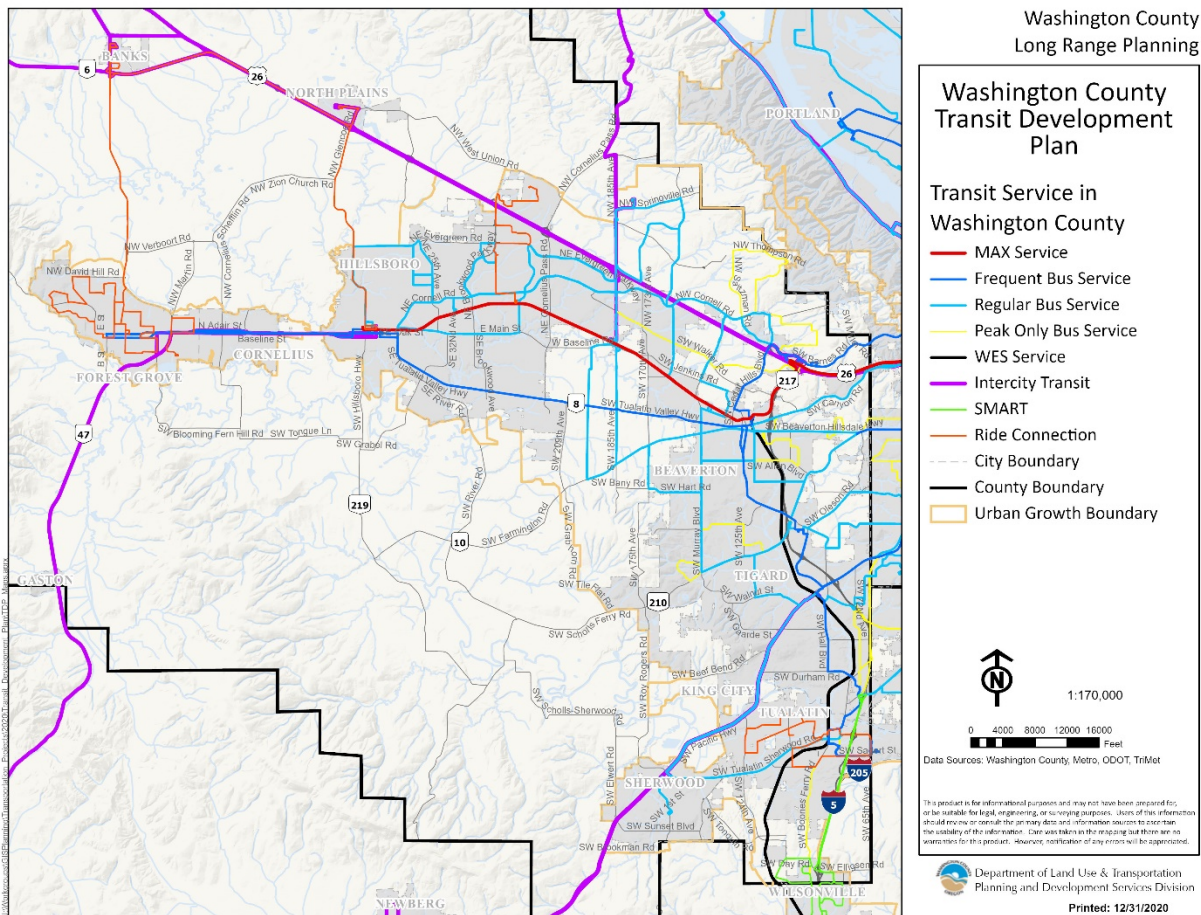


Figure 2: Urban Washington County Transit Service

### TriMet Service

TriMet provides transit service to residents and employees throughout urban Washington County. Services include MAX light rail, WES commuter rail, fixed-route bus and LIFT/paratransit.

- Red and Blue MAX lines serve Washington County. The Blue Line connects Hillsboro with Gresham via downtown Portland. The Red Line connects Beaverton and the Portland International Airport via downtown Portland. The Red Line will extend to Hillsboro Fair Complex in 2024. Together the Red and Blue MAX lines provide the spine for transit mobility, accounting for nearly 40 percent of all weekday ridership in Washington County.<sup>3</sup>
- Westside Express Service (WES), provides weekday peak-only service between Wilsonville and the Beaverton Transit Center. WES ridership is relatively low with approximately 1,600 weekday boardings.<sup>4</sup>
- Thirty local and regional bus routes serve Washington County. Four of these routes—Lines 12, 20, 57, and 76—provide frequent service, which is identified by TriMet as service every 15 minutes or better most of the day, every day. Notable future service enhancements include upgrades to Lines 52 and 54 (entire route to Beaverton TC) to frequent service, extending Line 56 to Progress Ridge and South Cooper Mountain, reroute of Line 47 to South Hillsboro, new line on Main St/Baseline between Hillsboro and Willow Creek TC, and frequency upgrades to Line 48.

### **SMART Transit**

SMART operates seven bus routes throughout Wilsonville and surrounding communities. Wilsonville is in both Washington and Clackamas Counties.

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<sup>3</sup> TriMet Passenger Census Reports, Spring, 2018.

<sup>4</sup> TriMet Passenger Census Reports, Spring, 2018.

## Interregional Services

Tillamook County Transportation District (TCTD), Yamhill County Transit, Columbia County Rider and NW Connector provide services to Washington County communities and to interregional destinations like the Oregon coastal communities and Portland, as shown in Figure 3. Route information is included in Appendix A.

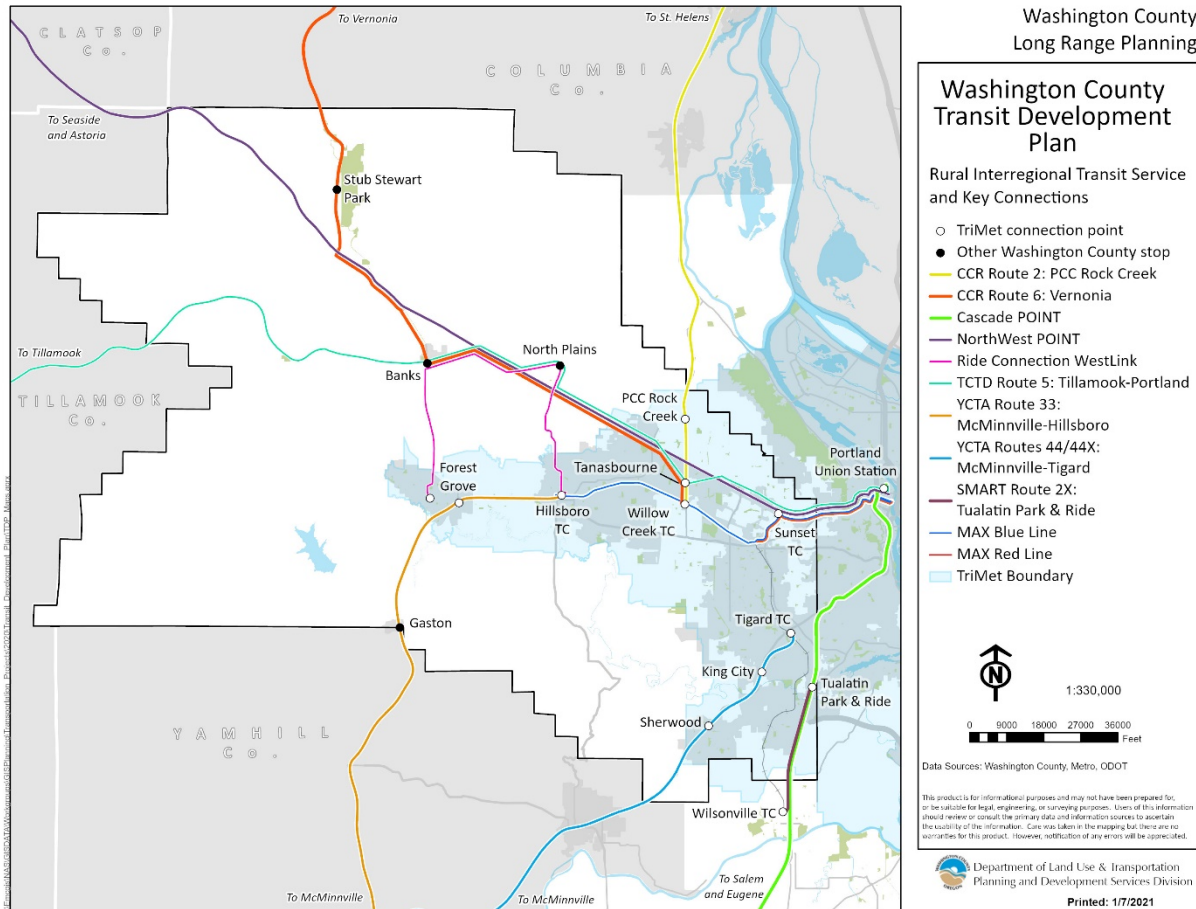


Figure 3: Rural/Interregional Transit Service and Key Connections

## Existing Private Services

In addition to publicly-operated transit service, several Washington County employers provide shuttle service for their employees. Although the shuttles require significant operations and capital investment, employers see them as an important strategy to encouraging their employees to take transit to work and attracting and retaining quality employees.

### Intel Shuttle

Intel provides shuttles between MAX and its three main campuses during peak commute hours (7:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m.). Intel also operates a shuttle from their campuses to the Hillsboro Airport for employees to connect to Intel's headquarters in Santa Clara, California.

### Nike Shuttle

Nike operates five shuttle routes that connect employees internally between campus buildings and externally to nearby MAX stations, such as the Beaverton Creek and Merlo/SW 158th Street stations. Nike supplements the shuttles with a taxi program which provides on-demand transportation service.

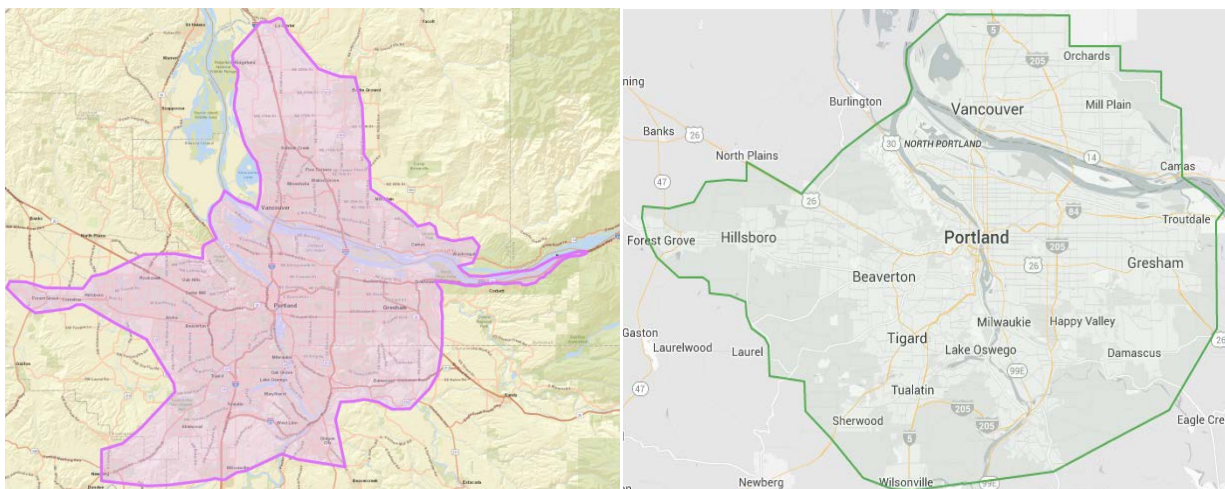
Nike also launched its corporate bike share program in 2014 with over 350 bikes available for employees at MAX stations and on campus.

### Services for Older Adults and Persons with Disabilities

With funding from a variety of state and federal sources, Ride Connection provides services for older adults and persons with disabilities. These include services to senior centers in King City, Tualatin and Beaverton. They also provide services for medical trips and for veterans. In addition, Tri-Met provides door-to-door services for older adults and persons with disabilities within  $\frac{3}{4}$  of a mile of fixed-route services.

### Ridesourcing Companies

Ridesourcing refers to on-demand, point-to-point transportation services that are scheduled and paid for using an online-enabled application or platform, such as smart phone apps. Two ridesourcing companies—Uber and Lyft—operate in Washington County, providing local and regional connections.



As of May 2016, Lyft's service area (left) and Uber's service area (right) of the Portland metro region includes major Washington County cities, such as Beaverton, Hillsboro, and Tigard.

Source: Lyft and Uber

The Portland metro area has seen significant growth in the use of this travel option since the ridesourcing companies began local operations in early 2015. From May through August of 2015, during Portland's Transportation Network Company Pilot Program, Uber and Lyft saw a 125% increase in ridership. Monthly ridership increased from 2,300 in May to more than 8,000 in August.<sup>5</sup> As of October 2018, Uber's service area in the Portland metro region includes the three largest Washington County cities, Beaverton, Hillsboro, and Tigard.

<sup>5</sup> PBOT. Portland's Private for-Hire Transportation Market: Summary Report of the PFHT Innovation Pilot Program. October 2015. Retrieved from <http://media.oregonlive.com/commuting/other/PFHT%20Summary%20Report%2010.19.15.pdf>

## Car Sharing

Car sharing allows for on-demand access to a shared fleet of vehicles on an as-needed basis. Zipcar is currently the only car sharing service available in Washington County. Other services, such as Getaround, are only available for trips originating and ending in Portland, but users can travel outside of Portland (e.g. to Washington County) while using the service.



Zipcars located at transit stations offer a multimodal connection for travelers in Washington County.

Source: TriMet

## Washington County Supported Transit Services

This section describes the transit services funded in part through state and federal funds administered by Washington County. Washington County contracts with Ride Connection to provide these transit services. Additional existing and planned route information can be found in Appendix A-1.

### Fixed-Route Service

The following fixed-route services are provided by Ride Connection with STIF revenue or in partnership with Ride Connection through other funding sources.

**Local deviated fixed routes** provide local circulation within Forest Grove, Hillsboro and Tualatin city limits using STIF funds.

- GroveLink serves the Forest Grove community by helping link residents with downtown and TriMet bus line 57 (Figure 4).

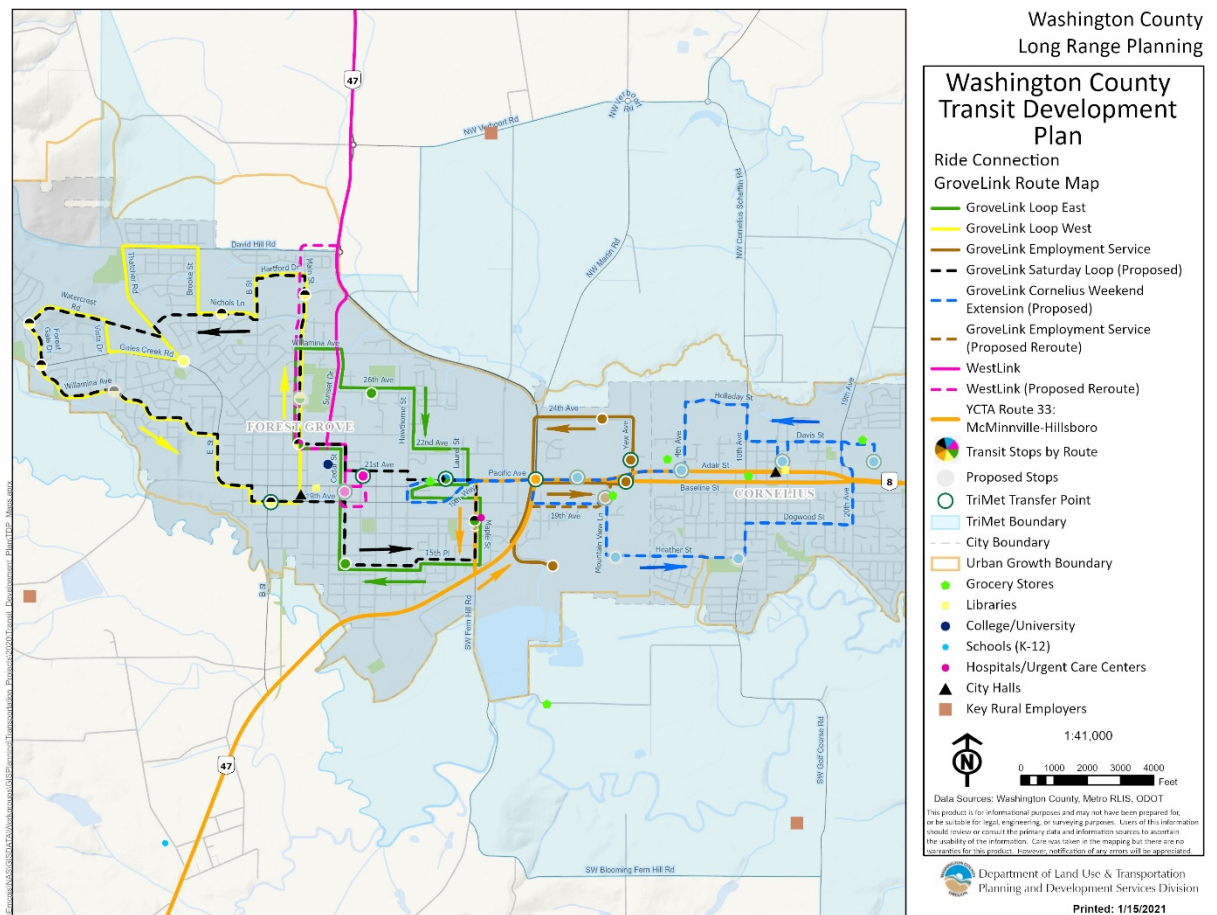


Figure 4: GroveLink Route Map

- North Hillsboro Link serves north Hillsboro industrial area with connections to TriMet MAX at Orenco Station.

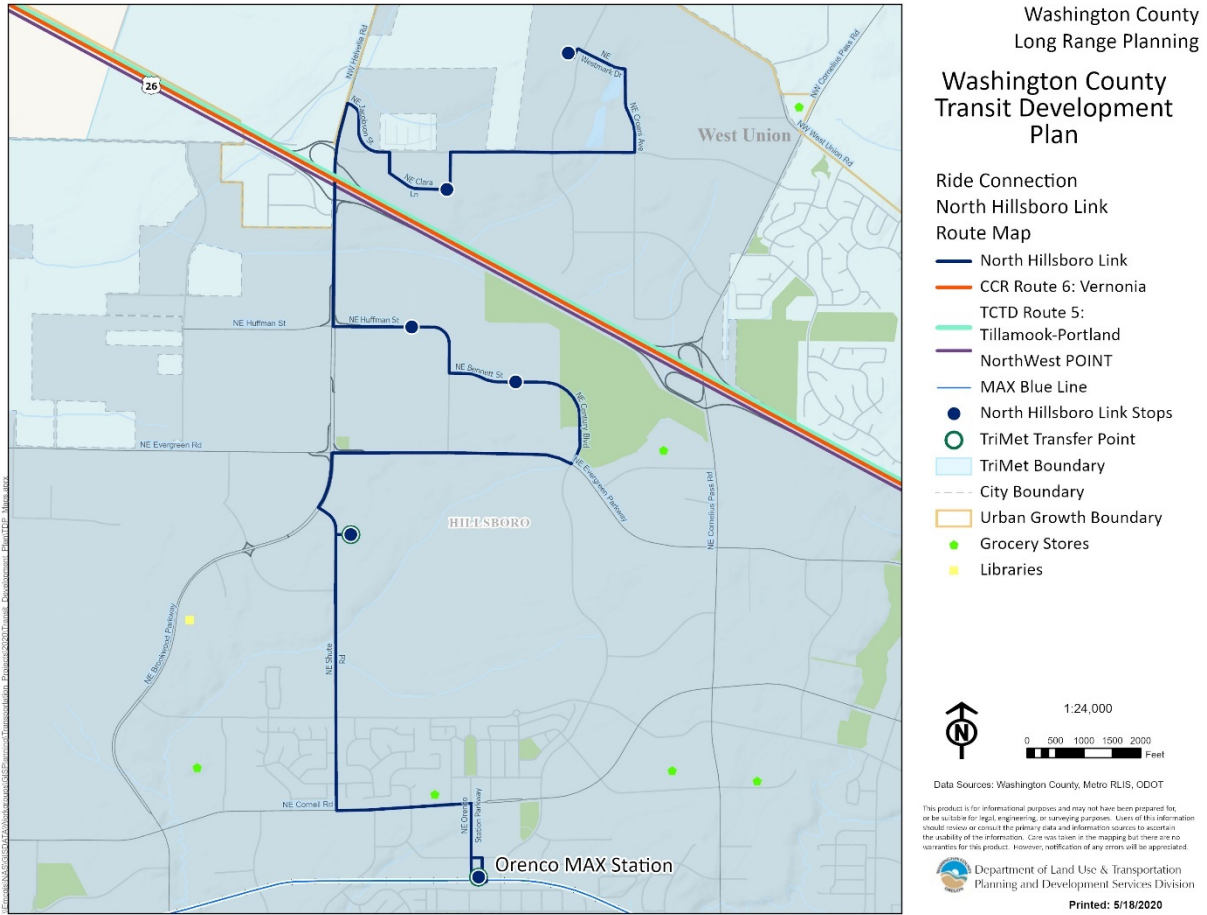


Figure 5: North Hillsboro Link Route Map

- Tualatin Shuttle connects Tualatin employment areas with the Tualatin WES Commuter Rail Station.

### Washington County Transit Development Plan

Ride Connection

Tualatin Shuttle Route Map

- Tualatin Shuttle (Blue)
- Tualatin Shuttle (Red)
- Bridgeport to Stafford Extension (proposed)
- Cascades POINT
- SMART Route 2X:
- Tualatin Park & Ride
- YCTA Route 44:
- McMinnville-Tigard
- Transit Stops by Route
- Proposed Stops
- TriMet Transfer Point
- TriMet Boundary
- City Boundary
- County Boundary
- Urban Growth Boundary
- Grocery Stores
- Libraries
- Schools (K-12)
- Hospitals/Urgent Care Centers
- ▲ City Halls

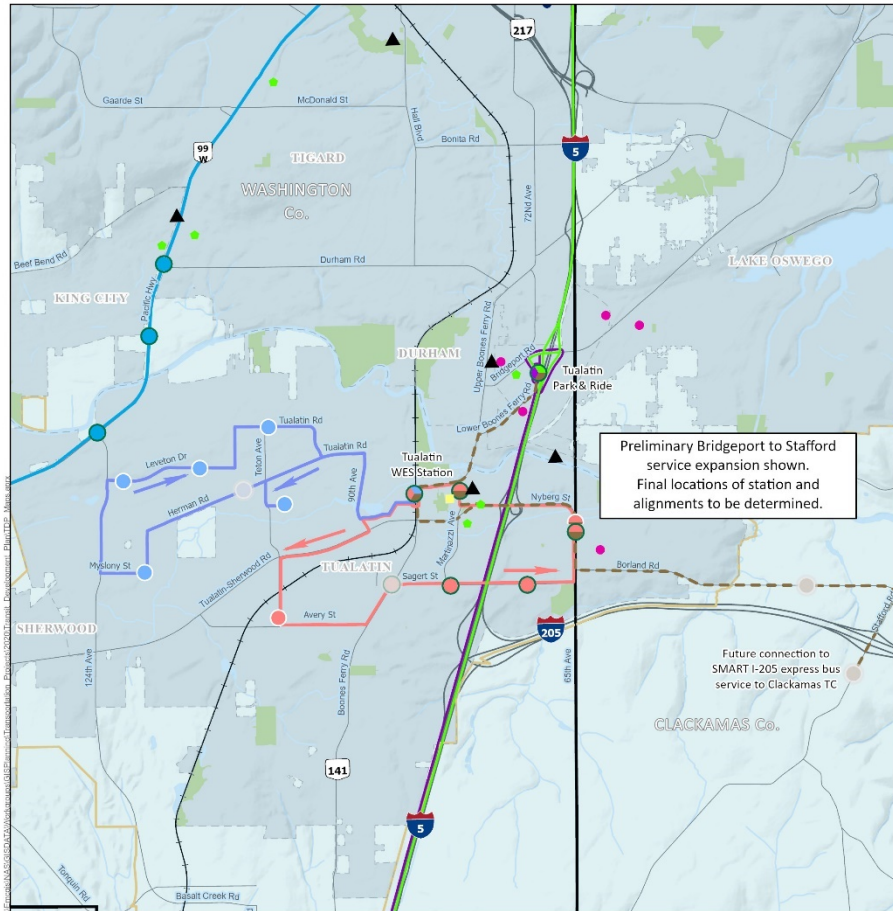


Figure 6: Tualatin Shuttle Route Map

Each of these local routes operates as a deviated fixed route flag system. This means that Ride Connection has designated stop locations, but between stops riders may stand on the curb and flag down the buses or request that the driver let them off at a particular point along the route. Drivers will stop if it is safe to do so.

**Intercity routes** serve longer-distance travel needs between Washington County cities. Ride Connection currently operates the WestLink intercity route connecting Forest Grove, Banks, North Plains and Hillsboro using federal funding.

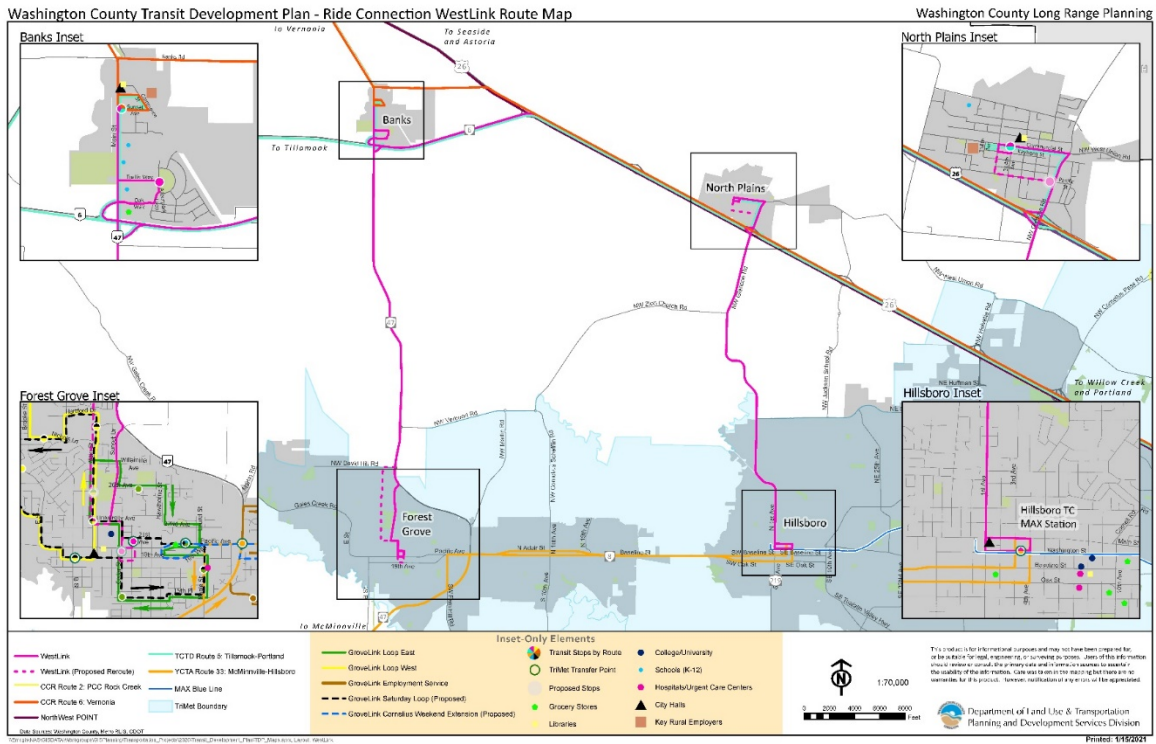


Figure 7: Tualatin Shuttle Route Map

**Interregional routes** serve longer-distance travel needs between Washington County cities and connections outside of the county. Ride Connection currently partners with Tillamook County Transportation District, which provides service between Tillamook and Portland. Fare is free between Banks/North Plains and Portland through a Ride Connection subsidy using federal funding.

Table 1: Route summaries of the five deviated fixed routes operated by Ride Connection in Washington County

Route Name	Type	Headways or Departure Times	Span of Service
WestLink	Intercity	2 round trips on weekdays; Departure Time from Forest Grove Senior Ctr- 6:55 am and 4:35 pm	6:55 AM-8:55 AM, 4:35 PM-6:40 PM, M-F
GroveLink	Local	30-minute headways during AM/PM peak, 60-minute headways during mid-day	6:30 AM-7:00 PM, M-F
North Hillsboro Link	Local	19-30-minute headways during AM/PM peak, 45-60 minutes during off-peak on weekdays 45-60 minute headways on Sat/Sun	5 AM-9:49 PM, M-F; 5:16 AM-12:30, 1:40 PM-9:44 PM, Sat/Sun
Tualatin Shuttle	Local	45-minute headways during AM/PM Peak (changed during Covid 4/6/2020 so that the hours match TriMet WES Commuter train service), no off-peak service	5 AM - 10 AM, 3 PM - 7 PM, M-F
WAVE	Intercity	2 round trips, 7 days a week. Departs Banks/ North Plains for Portland at 9:20 am/9:35 am and 2:00 pm/2:25 pm. Departs Banks/ North Plains to the Coast at 12:05 pm/12:20 pm and 4:30 pm/4:45 pm.	8:10 AM-1:25 PM, 12:50 PM-5:50 PM, 7 days a week

### Demand Responsive Services

The demand-responsive service includes door-to-door paratransit for seniors, people with disabilities and transportation-disadvantaged commuters. A recent assessment by Ride Connection indicates that more than 40 percent of demand response trips are for personal purposes, more than 30 percent are for work/school, and 10 percent for life-sustaining/medical/nutritional purposes. Figure 8 below shows the proportion of trips for each purpose category for trips on the Rural Demand Response Service.

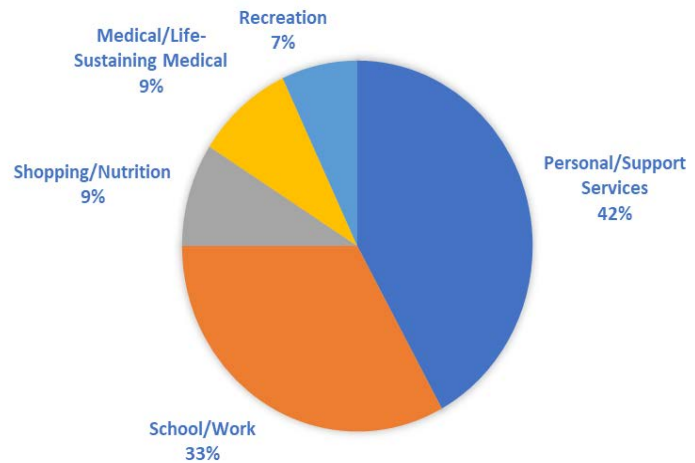


Figure 8: Rural Transit Demand Trip Purposes

DAVS also partners with Ride Connection to provide Veteran to Veteran transportation through their Ride Together program, which recruits veterans to drive other veterans to medical appointments, pick up medications or for trips to the grocery store. Based on rider input, ongoing services are needed to educate and assist veterans, their dependents and other veteran representatives, groups and organizations.

The demand response service is available in Washington County west of 10<sup>th</sup> street in Hillsboro for trips between rural and urban areas. Figure 9 shows pick-up locations for calendar year 2019. Some of the areas and businesses with more frequent pick-ups include the following:

- Forest Grove area: Clearwater Growers, Kenyon Growers
- Gaston area: Powell’s Nursery
- Scholls area: Chehalem Mountain Nursery

There are also some more frequented urban destinations, which include the following:

- Cornelius: Walmart, Fred Meyer, Cornelius Elementary School
- Forest Grove: Safeway on Pacific, First Christian Church, Tom McCall Middle School
- Hillsboro: Goodwill/Cash Co, Shute Park Aquatic and Recreation Center, Central MAX station, Tuality Community Hospital, WinCo Grocery store

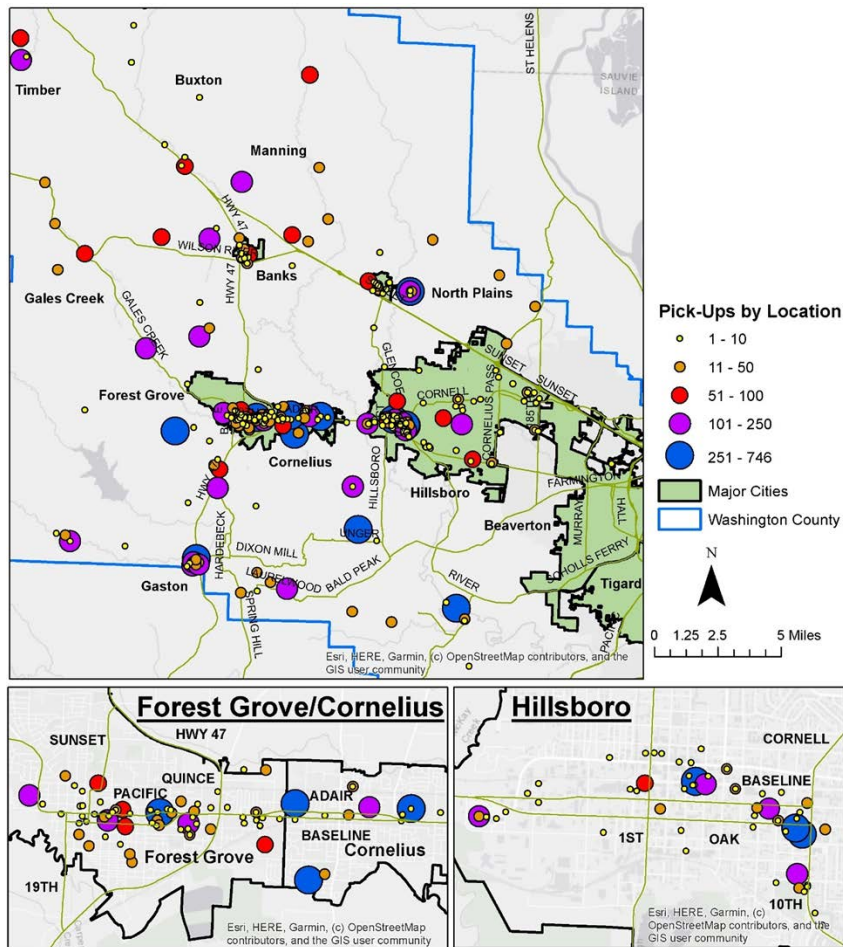


Figure 9: Rural Washington County Demand Response Pick-Ups

## STIF Performance Outcome Measures and System-wide Ridership

This section describes current operational performance outcome measures required for STIF reporting as well as other measures that can inform future needs and service improvements, including:

- Rider characteristics
- Key STIF Performance outcome measures
  - Revenue miles
  - Revenue hours
  - # of students (grades 9-12) served
  - # of people within ½ mile of route
  - # of low-income households served
- Ridership trends
- Service productivity in terms of the number of passenger trips served per vehicle revenue hour of service provided.
- Service efficiency – measures the cost per hour for each mode.
- Cost effectiveness – cost per passenger trip.

### Rider Characteristics

Ride Connection conducted an on-board survey of current riders in 2019. A total of 209 surveys were collected.

On-board survey highlights include:

- Approximately 13% of riders identified as older adults or living with a disability.
- Approximately 34% of riders identified as low-income.
- Most people (estimated at 60%) used Ride Connection for travel to/from work, with other noted purposes being recreation/social, college/school (approximately 28% of riders identified as students), medical, and shopping.
- Approximately 47% of survey respondents connected to/from another Ride Connection route and/or another provider (primarily TriMet) on at least one end of their transit trip.
- More than 50% of respondents indicated they walk to and from the transit stop.
- The vast majority of riders (92%) of the two commuter focused shuttles (North Hillsboro Link and Tualatin Shuttle) use the service three or more days per week. 85% of riders of Grovelink use the service at least once a week.
- Approximately 86% of respondents rate their overall satisfaction with service as a 4 out of 5.

### Key STIF Performance Outcome Measures

This section describes operational performance outcome measures for services in 2019. As shown in

Table 2, services funded in partnership with Ride Connection provided more than 300,000 revenue miles and 18,000 revenue hours. Access was provided to more than 88,000 people within a half mile of the service area, which includes and served an estimated 3,500 students, and more than 13,000 low income households based on GIS calculations of the areas serviced.

Table 2: STIF performance outcome measures reported in 2019.

	Revenue Miles	Revenue Hours	# Students with Access	# of people w/in 1/2 mile	# of Low income households
Local deviated-fixed route	190,990	13,770	1,000	50,670	6,790
Intercity	23,190	935	1,000	11,778	1,729
Demand Response	101,945	4,000	1,500	26,348	4,989
<b>Total</b>	<b>316,125</b>	<b>18,705</b>	<b>3,500</b>	<b>88,796</b>	<b>13,508</b>

## Ridership Trends

Table 3 shows a five-year trend for ridership. Highlights include:

- Local deviated fixed-route ridership increased by approximately 61% in 2016 compared to the previous year due to new service in North Hillsboro. Ridership has steadily increased, except for a small decline in 2018, more than doubling in 5 years. The service in North Hillsboro has the highest productivity (defined as ridership per service hour, see Figure 10) due in part to the connection to TriMet Blue Line and employment growth in the area.
- Ridership is lowest on intercity routes and steadily decreased over the five year span. Service hours on intercity routes is a fraction of the number of hours operated on local service. Intercity routes carry passengers over a long distance, with less trips per day and less hours than local routes, and thus productivity is substantially lower than local routes.
- Demand response ridership has remained relatively steady with a small dip in 2019. Demand response has generally reached its maximum capacity based on fixed resources available. It carries around three rides per revenue hour, which is common for similar demand-response systems.

Table 3: Ridership by Service Type, 2015-2019

Service	Ridership					
	2015	2016	2017	2018	2019	2015-2019
Local deviated-fixed route	54,791	88,475	106,247	103,696	119,836	65,045
	% change	61%	20%	-2%	16%	119%
Intercity	4,643	3,674	2,934	2,621	2,515	-2,128
	% change	-21%	-20%	-11%	-4%	-46%
Demand Response	23,491	23,649	22,998	23,746	21,162	-2,329
	% change	1%	-3%	3%	-11%	-10%

## Service Efficiency

Ride Connection's cost per revenue hour is \$65 (as of 2019), which is lower than the national average of \$74-\$78 for the type of services offered.<sup>6</sup> The Ride Connection cost per revenue hour is fully loaded including vehicle amortization costs.

<sup>6</sup> Federal Transit Administration, National Transit Database – National Transit Summaries and Trends (2019)

### Service effectiveness

Ride Connection provides moderately productive service relative to the amount of service it provides, as shown in Figure 10. Overall, Ride Connection averages 7 passenger trips per vehicle revenue hour of service provided and approaches or exceeds nine trips per revenue hour on its most productive route (GroveLink), which is generally considered an acceptable level for deviated fixed route shuttle services.<sup>7</sup> Many of these programs have very specific requirements (e.g. geographic, disability requirements, etc.) and can sometimes work together, leveraging one program using funds from another.

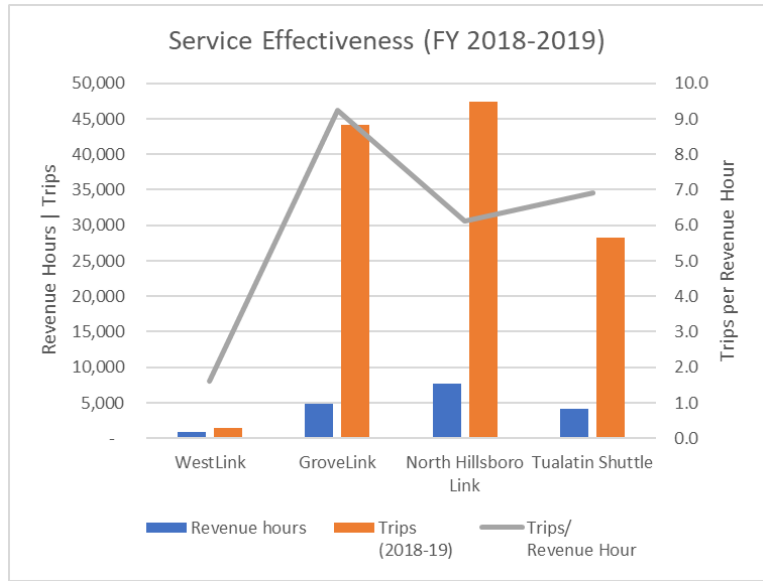


Figure 10: Service Effectiveness for Shuttle Services

### Cost Effectiveness

The cost per passenger trip on the three service types that Ride Connection provides is in-line with national averages. The cost per passenger on Westlink is the highest among the three services, as shown in Table 4. due to the lower ridership and longer trip lengths.

Table 4: Cost per passenger

	Average Cost per Passenger
Local fixed route	\$7.16
Intercity (WestLink only)	\$43.86
Demand Response	\$25.81

### Fleet Asset Management

Washington County STIF funding supports one-time capital expenses as well as on-going maintenance and vehicle replacement. Ride Connection uses 25 vehicles to provide service in Washington County. **Error! Reference source not found.** summarizes Ride Connection’s fleet condition in relation to its useful life benchmarks of average age, average mileage and a combination of age and mileage. Additional detail about fleet life provided in Appendix B. FY 2019-21 STIF funding allowed Ride Connection to purchase four new 14 passenger buses for local services and two new electric sedans for demand response services. Several key takeaways include:

- Many of the vehicles used for demand response are nearing their useful life based on age. However approximately 45 percent of its fleet have remaining useful life based on mileage. With

<sup>7</sup> Federal Transit Administration, National Transit Database – National Transit Summaries and Trends (2019)

the inclusion of the two new sedans recently purchased the sedan fleet moves into acceptable range with a need still noted for a light duty bus based on average age.

- The local service vehicles have useful life remaining based on age and mileage, average 53 percent compared to 42 percent, respectively, including the recent purchase of four new buses. Costs for vehicle replacement is factored into the overhead and included in the cost per revenue hour. Service expansion beyond currently planned levels may require additional vehicle purchases.
- From an efficiency perspective, shuttle bus fuel economy averages eight miles per gallon, however, recently purchased buses are expected to have a higher average.

### Committed Improvements

The Washington County transit projects for FY2019-21 in Tri-Met's three-county Public Transportation Improvement Plan and OTC approved STIF Plan, include funding for the improvements listed in Table 5. Due to Covid-19, some of the improvements have been delayed due to overall reduction in transit use experienced nationwide and the need to implement costly new safety measures, some of which have been reimbursed with federal emergency funds.

Table 5: Washington County FY 2019-21 Public Transportation Improvement Plan (PTIP)

Service/Project	Improvement Task/Description
<b>Local Service:</b> Provides community connections and employment area access with service to MAX, WES and Frequent Bus stops.	Maintain and expand Grovelink, North Hillsboro Link and Tualatin Shuttle as approved by TriMet's HB 2017 Transit Advisory Committee
<b>WestLink:</b> Deviated fixed route operations serving Forest Grove, Hillsboro, Banks and North Plains.	Expansion of WestLink to add 2 additional weekday round-trips
<b>Rural Demand Response:</b> Provides rides for any purpose including medical, meals, shopping, recreation, volunteering or work. Services are provided door to door. In some cases, drivers may be able to offer more assistance and help with bags.	Enhanced services proposal includes: <ul style="list-style-type: none"> <li>• extending the boundary to access medical services and shopping;</li> <li>• add urban to rural connections;</li> <li>• add rural to rural connections;</li> <li>• add trip chaining in urban areas.</li> </ul>
<b>Capital Purchases</b>	<ul style="list-style-type: none"> <li>• Add two electric sedans for demand response services</li> <li>• Four new 14 passenger vans for local services as part of the Regional Coordination Program</li> </ul>
<b>Rural Workforce Shuttle:</b> Public shared-ride or micro transit to serve farm, nursery and other agricultural industry workforce needs.	Provide public shared-ride to serve farm, nursery and other agricultural industry work force needs
<b>Interregional Coordination:</b> Subsidizes services provided by adjacent counties to improve connections and reduce service fragmentation for riders of all counties.	Coordinate with Tillamook WAVE, Yamhill and Columbia County transit providers to add stops and service. Improvement in the frequency and reliability of service between communities.
<b>Administration:</b> Administrative costs to comply with OAR 732-404-0000, including review program records, audit financial records, and monitor operations.	Administration to review program records, audit financial records, and observe operations
<b>Marketing:</b> Develop and implement traditional and digital marketing campaign to promote the existing and expanded service.	Develop and implement traditional and digital marketing campaign to promote the existing and expanded services.
<b>Planning:</b> Planning and public engagement for future transit service improvements.	Develop TDP and inform future transit service improvements throughout Washington County

## Needs Assessment

Needs were identified through consideration of existing and projected transportation needs, land use and employment conditions and community input. Additional details about the analysis can be found in Appendix B.

### Transit Demand

This section describes land use context and population and employment data within Washington County. Public transportation service is generally designed to be compatible with the surrounding land use context and development intensity, which are often measured using population and employment densities. There is no universally accepted set of standards for what constitutes transit-supportive densities. However, higher residential densities reflect the presence of greater numbers of potential riders, while activity centers are destinations that people need to get to and from on a regular basis.

### Land Use Context

Land use and development in Washington County is guided by adopted Comprehensive Plans, consistent with the 2040 Growth Concept inside the UGB and implemented by local development codes.

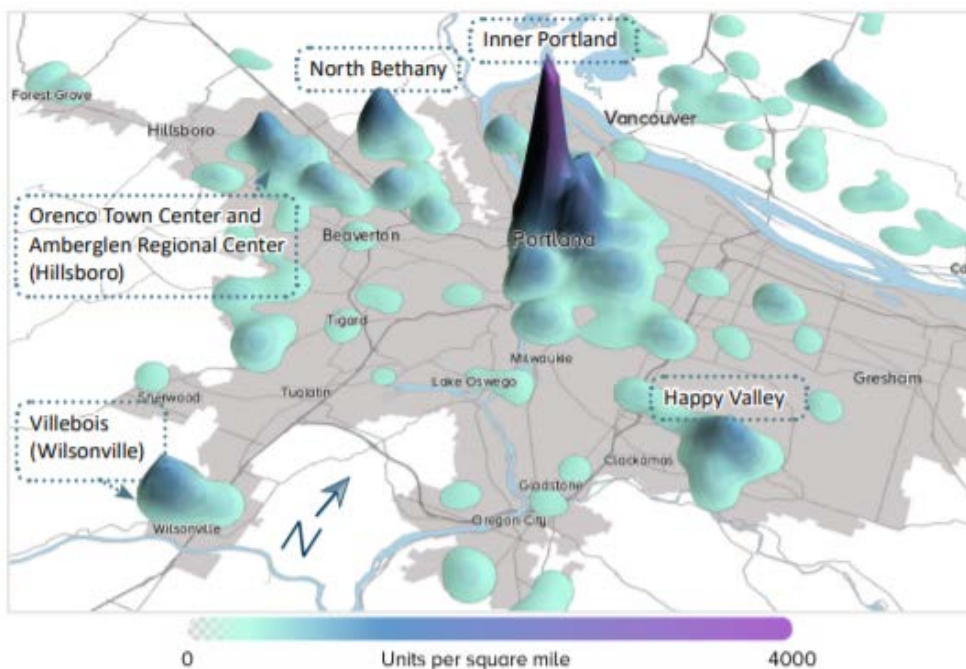


Figure 11: Housing permits in the Portland Metro area, 2009-2017 - units per square mile  
Source: Metro's 2018 Urban Growth Report

### Past and Near-term Development Trends

Figure 11 illustrates housing permits measured in units per square mile in the Portland Metro area, 2009-2017. Since 2009 the region has experienced significant growth. As the graphic illustrates, much of the growth has occurred in mixed-use centers served by transit like inner Portland, Orenco Station and Amberglen. Since 2017 new urban areas in North Bethany, South Cooper Mountain (Beaverton) and River Terrace (Tigard), have also seen substantial growth and are expected to add 8,200 housing units over the next two-five years:

- 3,600 units in North Bethany (approximately 75 percent single-family, 25 percent multi-family)
- 2,800 units in South Cooper Mountain (approximately 70 percent single-family, 30 percent multi-family)
- 1,800 units in River Terrace (approximately 90 percent single-family and 10 percent multi-family).

The county has seen an increase in development of affordable housing since the approval of Metro’s regional affordable housing bond measure in 2019. Within Washington County, affordable housing funds are administered by the County, Beaverton and Hillsboro. In partnership with non-profit organizations, several affordable housing projects have been built. More are expected and these locations are ideal for transit service enhancements.

Near-term growth outside the Metro UGB:

- North Plains, a city of just over 3,200 people, is the one of the fastest growing communities in Washington County. Recent annexations of the City’s Urban Growth Boundary (UGB) areas will result in more than 700 new homes and a new 600-student elementary school in the next 5-10 years.
- Banks has 78 acres within city limits planned for residential (single family and multi-family) development. However, due to a moratorium on development, the City expects little to no development within the next five years (by 2025).
- Gaston has one 34-unit subdivision in the southwest quadrant of the city that was previously approved though development may be extended through February 2021. No other significant development is anticipated in Gaston within the next two to five years.

*Land Use Designations – Future Growth*

Figure 12 illustrates essential destinations including schools, grocery stores, parks, medical, social and human service locations.

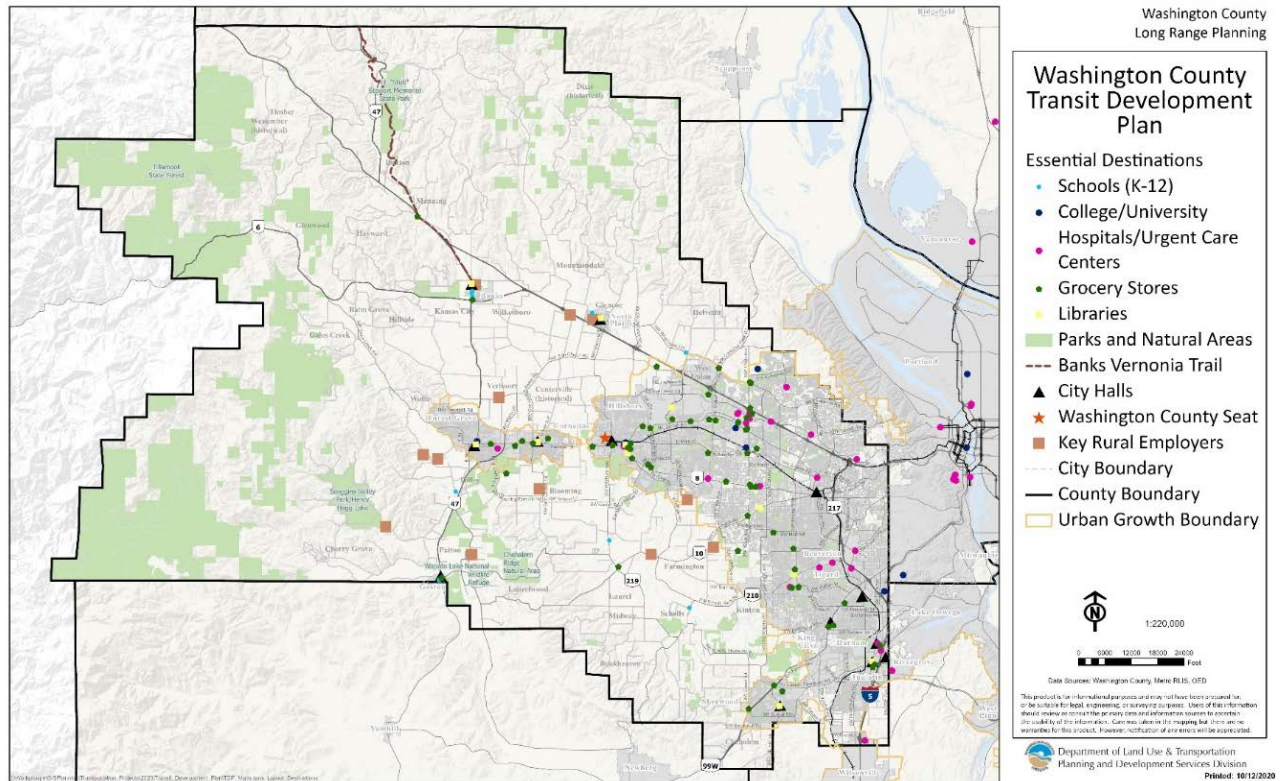


Figure 12: Washington County Essential Destinations

Figure 13 illustrates existing urban incorporated and unincorporated area as well as future urban areas.

- Land use patterns outside UGBs are primarily forestry and agricultural zones with pockets of low density rural residential and employment lands primarily along transportation corridors like Hwy 47, Hwy 219, US 26, Hwy 6 as well as pockets in the Laurel, Scholls and outskirts of Sherwood.
- New urban areas including South Cooper Mountain (Beaverton), River Terrace (Tigard) and South Hillsboro are expected to develop with a mix of residential neighborhoods and commercial nodes.
- North Hillsboro, the Tigard Triangle and the Basalt Creek area (Tualatin and Wilsonville) are planned for an intensification of industrial and other employment land uses.

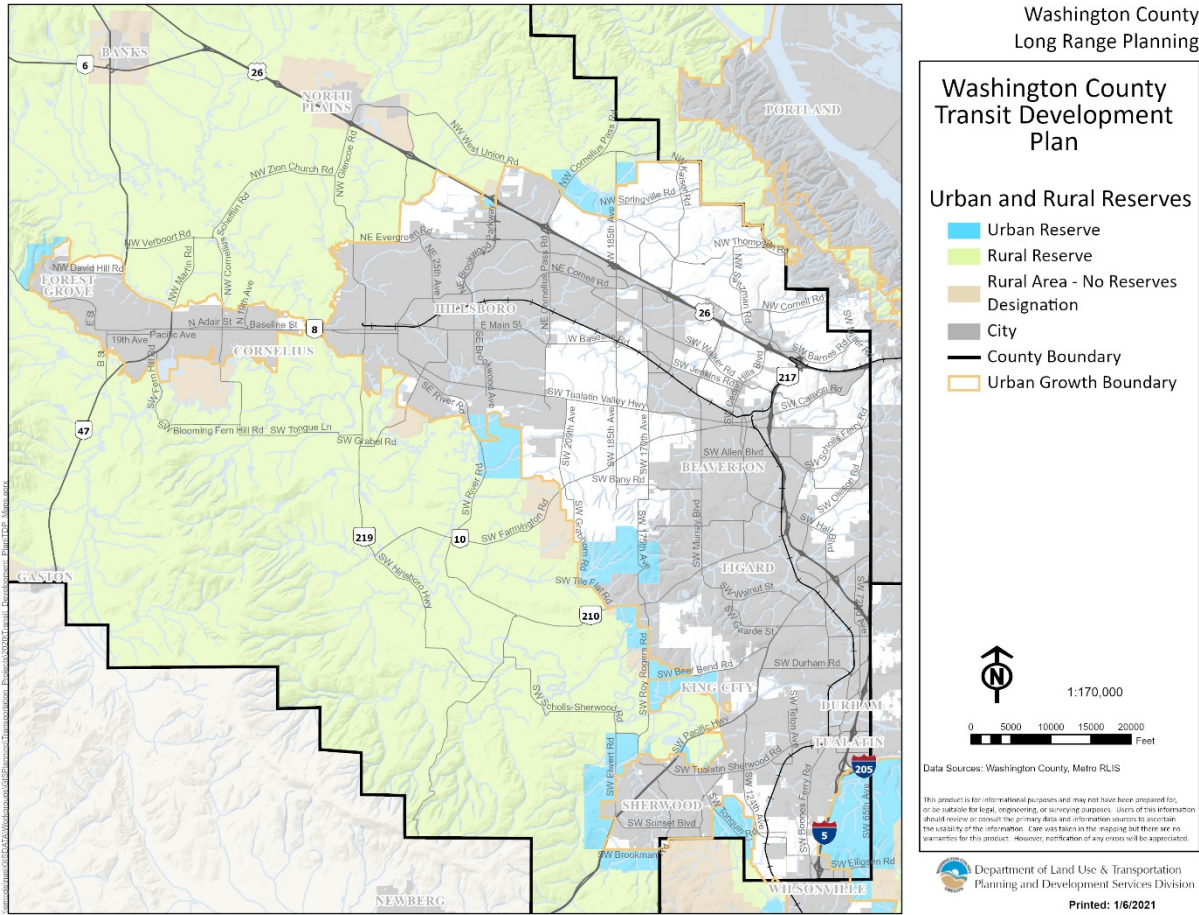


Figure 13: Washington County Rural and Urban Reserves

## Population and Employment Trends

Over the past 40 years, population has grown by 385%, from 158,000 people to 606,000 people and employment by 530%, from 52,000 jobs to 276,000 jobs within Washington County. Current population and employment and future trends in communities across Washington County indicate where the greatest transit demand is likely to be today and in the future. See Appendix A for additional data and analysis.

### *Existing and Future Population*

This section describes existing population and employment characteristics and future trends. Table 6 provides current population (2020) and growth forecasts through 2030 for the cities and urban unincorporated areas in Washington County and the resulting population densities per gross acre.

Several key takeaways include:

- Unincorporated urban Washington County is larger than any of the cities and will contain 45% of the future growth. Over time, much of these growth areas are expected to be annexed by cities.
- Hillsboro and Beaverton, the county’s two most populous cities, contain 33% of the county population; each city is forecasted to gain more than 15,000 new residents over the 10-year period, nearly 34% of the total growth that is forecasted for the County.
- Among smaller cities outside the Metro UGB, North Plains is projected to grow by about 49% and Banks is projected to grow by 8%.

*Table 6: Washington County Existing and Future Population Forecasts, 2019-2030*

Jurisdiction	Population, 2020	Population, 2030	Change in Population, 2020-2030	% Change, 2020-2030	Share of Growth, 2030	Density, 2020 (Pop/Acre)	Density, 2030 (Pop/Acre)
<b>Washington County</b>	<b>622,082</b>	<b>718,412</b>	<b>96,330</b>	<b>15%</b>	<b>100%</b>	<b>1.34</b>	<b>1.54</b>
<b>Within Metro UGB</b>	<b>588,112</b>	<b>682,629</b>	<b>94,517</b>	<b>16%</b>	<b>98%</b>	<b>7.18</b>	<b>8.33</b>
Beaverton	99,490	114,525	15,035	15%	16%	7.90	9.10
Cornelius	12,534	14,606	2,072	17%	2%	8.38	9.77
Durham	1,878	1,859	-19	-1%	0%	7.20	7.12
Forest Grove	26,370	30,702	4,332	16%	4%	6.90	8.04
Hillsboro	105,153	122,598	17,445	17%	18%	6.37	7.43
King City	4,718	6,961	2,243	48%	2%	9.42	13.89
Sherwood	19,747	20,118	371	2%	0%	6.33	6.45
Tigard	54,591	63,813	9,222	17%	10%	6.68	7.80
Tualatin (part)	24,197	24,481	284	1%	0%	5.01	5.07
<b>Unincorporated</b>	<b>234,884</b>	<b>278,416</b>	<b>43,532</b>	<b>19%</b>	<b>45%</b>	<b>7.83</b>	<b>9.28</b>
<b>Outside Metro UGB</b>	<b>35,805</b>	<b>37,871</b>	<b>2,066</b>	<b>6%</b>	<b>2%</b>	<b>0.09</b>	<b>0.10</b>
Banks	1,865	2,022	157	8%	0%	3.91	4.24
Gaston	655	655	0	0%	0%	4.15	4.15
North Plains	3,480	5,194	1,714	49%	2%	4.99	7.44
<b>Unincorporated</b>	<b>30,000</b>	<b>30,000</b>	<b>0</b>	<b>0%</b>	<b>0%</b>	<b>0.08</b>	<b>0.08</b>

**Population Density:** As shown in Figure 14 the highest population densities are in the cities of Beaverton, Hillsboro, and Tigard, and in the unincorporated urban areas of Aloha and Bethany. As shown in Table 6 rural areas outside of the TriMet service area have substantially lower population density of less than one person per acre. Ninety-five percent of the population lives within the Metro urban growth boundary (UGB) today and this share is projected to increase, with 98% of growth projected to occur within the Metro UGB.

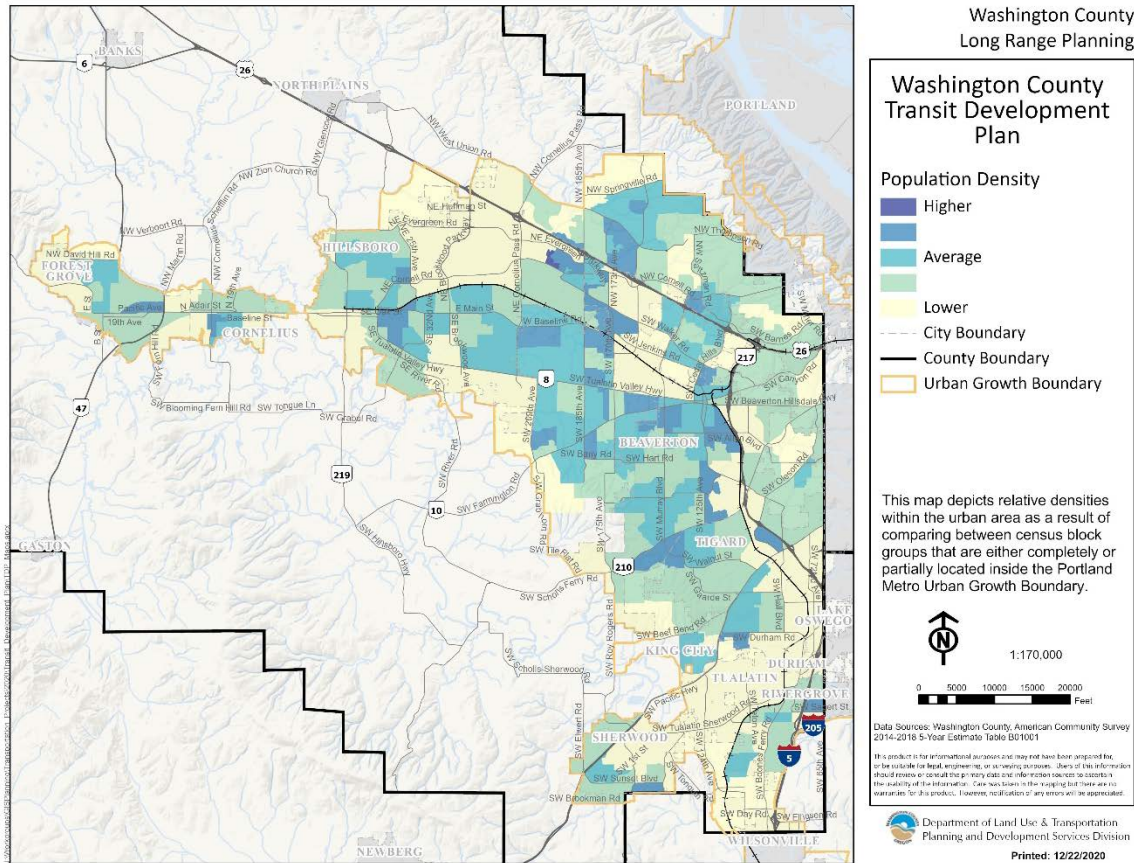


Figure 14: Population Density in Washington County

### Demographics

The analysis presented in this section identifies locations of high concentrations of target populations for transit service needs. The target populations were identified as:

- People of color
- Low-income population (200 percent of poverty)
- Limited English proficiency
- Senior population (65 and over)
- Youth population (17 and below)
- People with disabilities
- Limited vehicle access
- Low and medium wage jobs

Understanding the transit needs of these groups and their locations helps identify where potential transit customers live and better serve population groups that have unique transportation needs. Transportation is often a primary barrier cited by individuals who are unable to access employment, medical services, and educational opportunities (among other key public services). Transit provides people who do not have access to a vehicle or are unable to drive with a crucial lifeline to jobs, services, family and friends, and medical providers.

Figure 15 illustrates a composite of where these demographic groups are located in the Metro urban area. Several key takeaways from the analysis include:

- **Race/Ethnicity and non-English Speakers:** The highest concentrations of people of color and non-English speaking residents are along TV Highway in Forest Grove, Aloha, Beaverton and Hillsboro, Hall Blvd in Tigard and Tualatin-Sherwood Road in Tualatin.
- **Zero-Vehicle Households:** People who do not have access to a vehicle are more likely to utilize transit. The highest densities of zero vehicle households are concentrated in areas with multiple transit services available, such as the intersection of MAX, WES, and frequent bus service in Beaverton, and the intersection of the MAX blue line and frequent bus service in Hillsboro.
- **Low-Income Residents:** Individuals who are identified as low-income (a person whose income totals less than 200% of the poverty level) may be more likely to use transit. The highest concentrations of low-income residents are in Aloha, Beaverton and Hillsboro in proximity to TV Highway, 185<sup>th</sup> Ave, Farmington Road and Hall Blvd. Forest Grove and Tigard also have some areas with a high density of low-income residents.
- **Young Adult Residents:** Recent trends have shown that younger adults (persons between the age of 18 and 29) are less likely to own vehicles and more likely to use travel options, such as taking transit, walking, or biking.<sup>8,9</sup> Young adults make up a large portion of the Washington County population—approximately 16%—making the trends of this age cohort influential on the travel demands of county.<sup>10</sup> Beaverton and Hillsboro have the highest concentrations of residents who are young adults.
- **Older Adult Residents:** Older Adults, people ages 65 and older, make up approximately 13% of Washington County’s population.<sup>11</sup> Studies show that the generation known as the Baby Boomers (generally defined as people born between 1946 and 1964) are aging in place, and will have an

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<sup>8</sup> A study conducted by the American Public Transportation Association (APTA) found that Millennials are multimodal, choosing the best transportation mode based on the trip they’re planning to take. Taking transit and riding a bike were the most preferred modes of transportation, while driving a car was the least preferred mode. This study was conducted in 2013 and retrieved from

<http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>

<sup>9</sup> Pew Research Center. April 2016. Retrieved from <http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/>

<sup>10</sup> Portland State University Certified Population Estimates, 2017.

<sup>11</sup> Ibid.

increased need for travel options as driving becomes less viable with age.<sup>12,13</sup> Areas with the highest density of older adults are located in Beaverton, Hillsboro, Forest Grove, and Tigard.

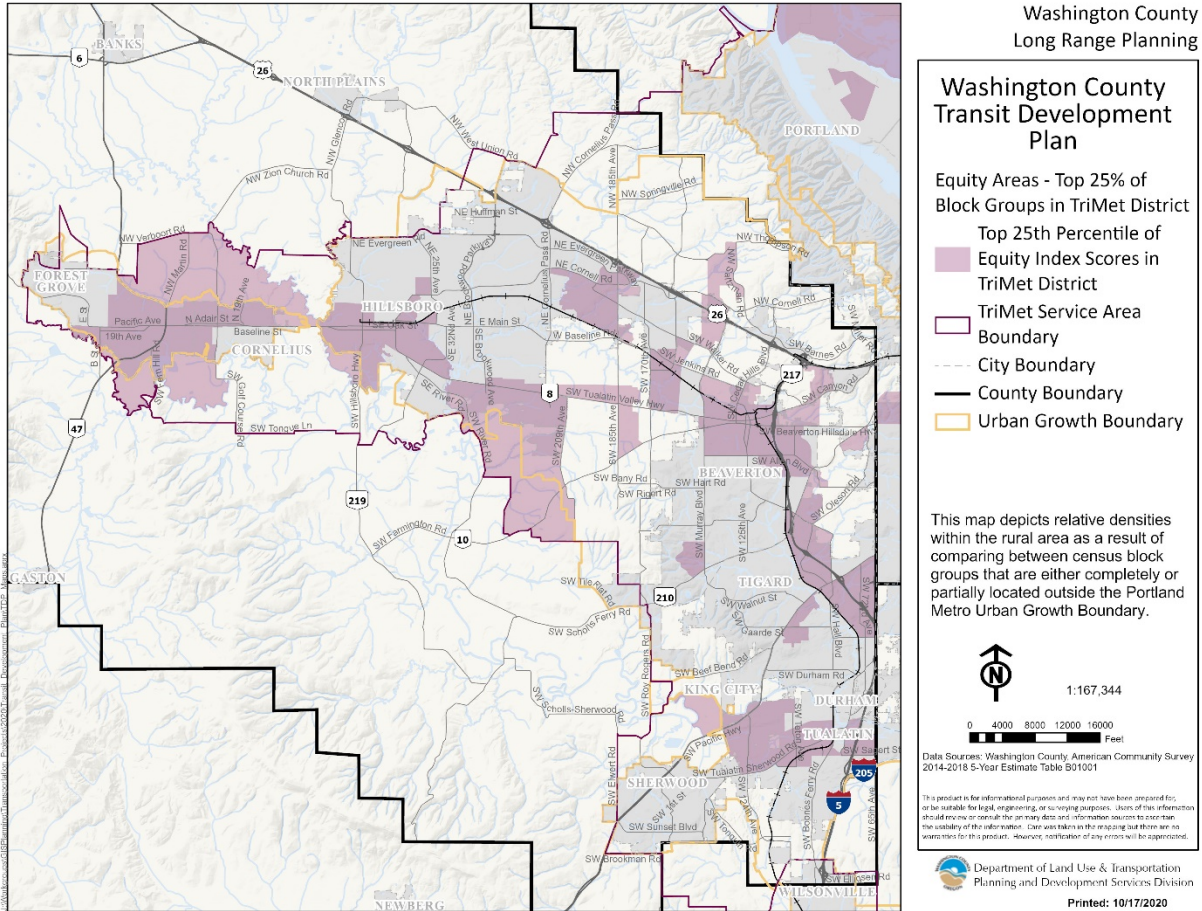


Figure 15: Top 25% of Equity Areas in TriMet District

<sup>12</sup> Pew Research Center. April 2016. Retrieved from <http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/>

<sup>13</sup> AARP recently reported that 87% of adults ages 65 and older want to stay in their current home and community as they age. Similarly, 71% of the preceding age cohort—people ages 50 to 64—want to age in place. This study was conducted in April 2014 and retrieved from <http://www.aarp.org/livable-communities/info-2014/aarp-ppi-survey-what-makes-a-community-livable.html>

As shown in Figure 16, outside the Metro UGB North Plains sees relatively high population density and key demographic characteristics of more transit dependent populations. Banks, Gaston, and the southern portion of the rural area near Scholls and Chehalem also have higher concentrations of transit dependent populations.

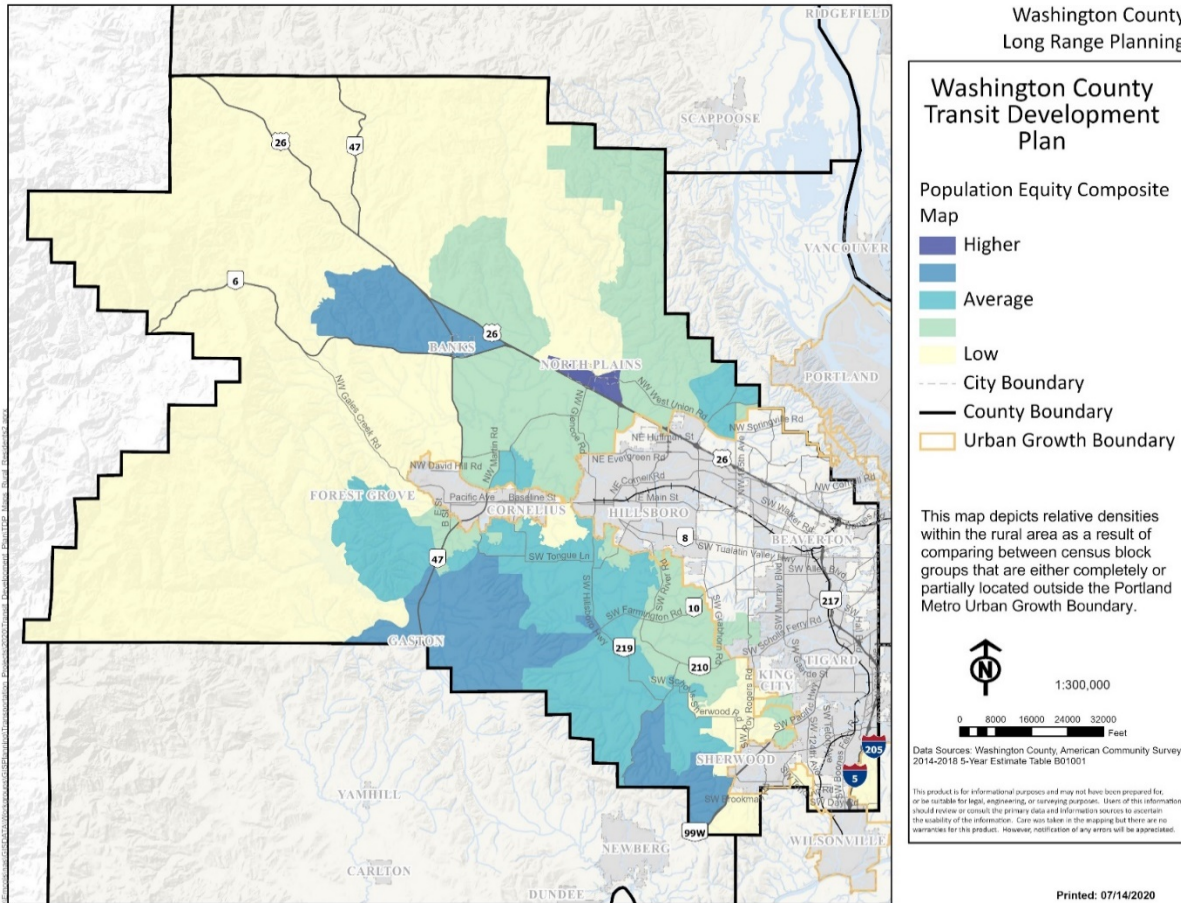


Figure 16: Population Equity Demographic Composite Map, Outside Metro Area

### Existing and Future Employment

Major employment centers represent destinations that people need to get to and from on a regular basis. This section summarizes major employer locations and employment demographic information related to persons who are most likely to ride transit.

**Employers in Washington County:** Washington County has several major employment sites including more than ten major employers with 1,000 or more employees. However, most employers (98%) in the County have less than 100 employees.<sup>14</sup> 26% of Washington County employers are in the Hillsboro area and 23% are in the Beaverton area. Hillsboro has more large employers, while Beaverton has a greater number of smaller employers. Twenty-five percent of employers are in parts of the county outside Beaverton, Hillsboro, Tigard, and Tualatin. The highest concentration of jobs is in major employment centers in Beaverton, Hillsboro, Tigard, and Tualatin.

**Employment Density:** Figure 17 shows the density of employment inside the Metro urban area. Since 2010, the County has added over 70,000 jobs (8,500 jobs per year) and projected to add over 100,000 jobs by 2040. High employment density is concentrated along the Sunset and Highway 217 corridors within Beaverton, Hillsboro, and Tigard. North Hillsboro, Tigard Triangle and Basalt Creek are all anticipated to experience significant job growth. The two largest employers are Nike and Intel. Employment densities are overall significantly lower outside of the Portland metro region, and farms and nurseries are largely prevalent in rural unincorporated areas.

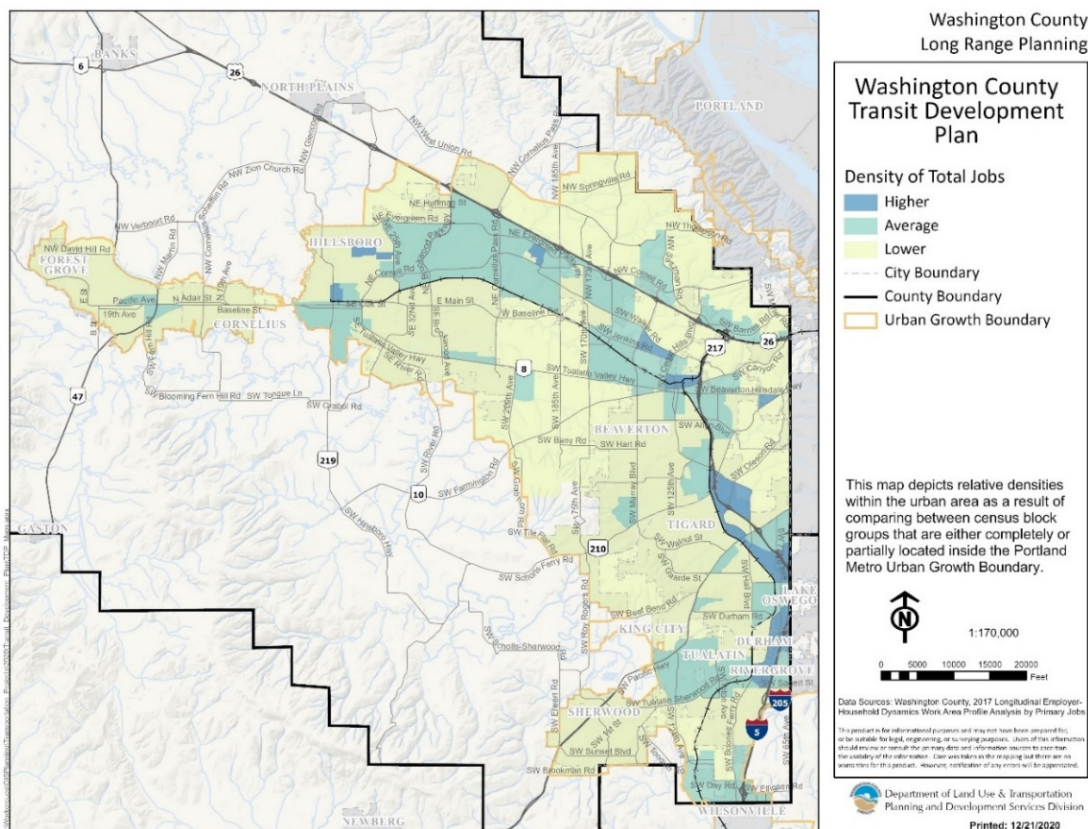


Figure 17: Density of Jobs inside Metro UGB Washington County

<sup>14</sup> Coordinated Transportation Plan – Attachment Table H2.

**Low-Income Employees:** Figure 18 shows the density of low-wage jobs inside the Metro urban area. Low-wage jobs are concentrated along the major transportation corridors in the County: TV Highway, Hwy 26, Hwy 217, Hwy 99W, and Tualatin-Sherwood Rd. Beaverton has the most low-income employees, primarily in the north western portion of the city.

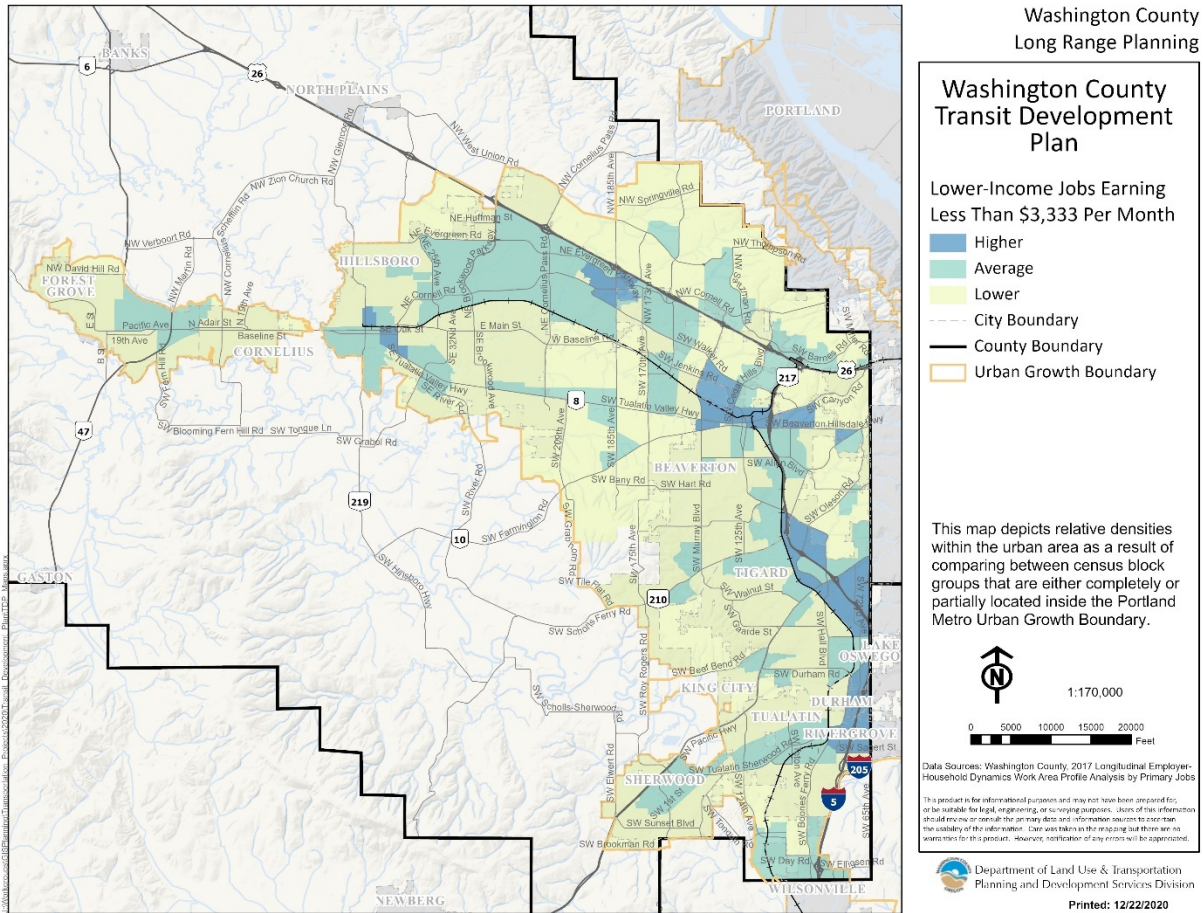


Figure 18: Density of Low-Income Jobs in Washington County

**Rural workers:** Figure 19 shows the density of employment in the area outside of the Metro urban area with concentrations of employment in North Plains, in the South County Industrial area near Tualatin and Sherwood, and south of Forest Grove. There is also relatively high job density observed south of Forest Grove. Approximately 61% are low-wage earners (under \$3,334/month), about 8% are nonwhite, 22% are Latinx and about 49% are either under age 29 or over age 55.

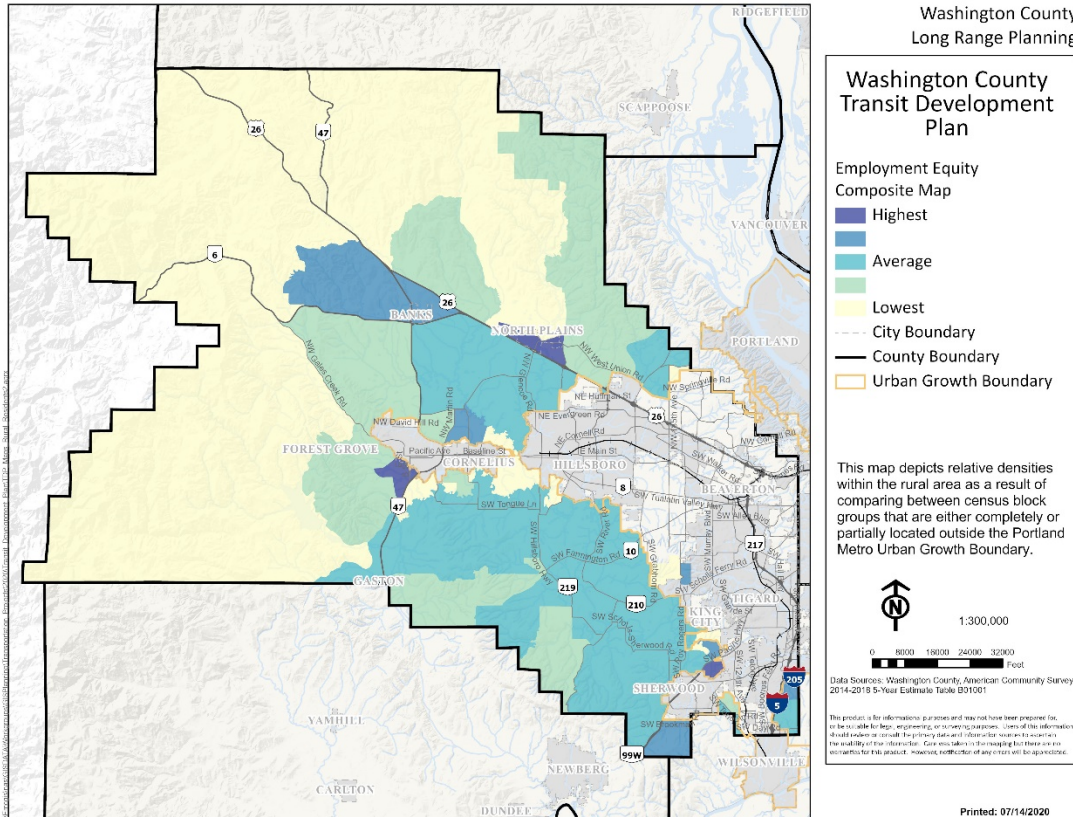


Figure 19: Composite of Job Demographic Characteristics Outside Metro UGB

## Emerging Transit Markets

Washington County has emerging transit markets due to existing and forecasted growth in areas not served by transit. Washington County recently completed the Strategic Solutions for First Mile/Last Mile Transit Connections Report, which developed strategies for improving access to public transportation in the county. The study analyzed areas inside the urban area that are not within typical walking distance to transit service and density of households and jobs to identify several emerging growth areas that warrant further analysis to determine the viability of potential future shuttle service. These community connector opportunity areas shown in Figure 20 are typically located near the edge of the UGB and include:

- Cedar Mill/Bethany/North Bethany
- Jackson East area of Hillsboro
- South Hillsboro
- Aloha/South Beaverton/Cooper Mountain/River Terrace
- Bull Mountain/portions of King City west of OR 99W
- Southview area of Tigard
- Portions of Cornelius north and south of OR 8
- Areas west and south of downtown Sherwood
- Areas south and east of downtown Tualatin
- Basalt Creek Employment area planned for Wilsonville and Tualatin

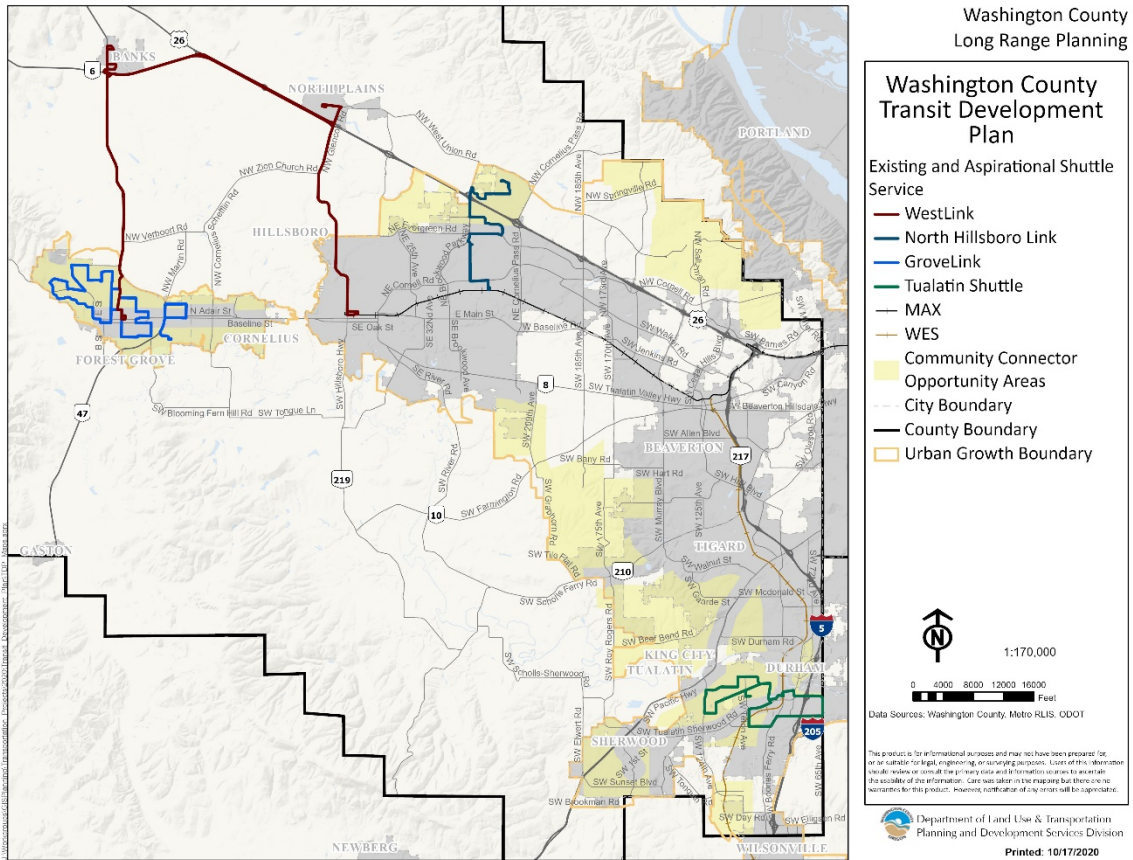


Figure 20: Existing and Aspirational Shuttle Service Areas

An assessment of need and potential demand for transit in the Aloha/South Beaverton/Cooper Mountain/River Terrace area was recently completed. The study assessed need and potential demand based on an analysis of typical transit-dependent populations, focused community outreach, current and forecast travel demand and travel patterns. Several sketch-level service concepts to address need were evaluated for future funding and implementation consideration as opportunities become available. A summary report of the study can be found in Appendix B-5.

### Intercommunity Connection Needs

Based on an analysis of existing and planned transit service gaps several population and employment centers and regional corridors in the county lack transit services and connectivity. The following areas lack transit service or have service fragmentation and can be considered for future service improvements:

- Sherwood to Hillsboro corridor
- Hwy 219 corridor between Newberg and Hillsboro
- Tualatin–West Linn–Oregon City along the I-205 corridor
- Many small rural communities like Scholls, Timber, Verboort, Roy, Manning and Buxton do not have intercommunity transit service.

The analysis further identified the need for better stop coordination between service providers to facilitate transfers. The following are opportunities for stop and route modifications to reduce service fragmentation:

- WestLink is adding a new stop at Glencoe/Pacific. TCTD Route 5 could reroute in North Plains to increase coverage and add a stop at Glencoe/Pacific.
- North Hillsboro Link connection with US 26 services (NorthWest POINT, TCTD Route 5, CCR Route 6) at Brookwood Parkway/Helvetia Road
- Tualatin Shuttle Blue Line connection with YCTA Route 44 and TriMet Line 93/94 at OR 99W/124<sup>th</sup> Ave.
- NorthWest POINT connection with CCR Route 6 and WestLink in North Plains and/or Banks.
- YCTA Route 33 planned new stop in Cornelius at OR 8/4<sup>th</sup> Ave (Wal-Mart), will provide connection to GroveLink and TriMet Line 57
- YCTA Route 44 reroute for improved connection to TriMet Lines 93, 94, 97 in Sherwood at Langer Drive (Six Corners)
- Tanasbourne
  - Difficult connections between TCTD Route 5 and CCR/TriMet services on 185<sup>th</sup> Avenue
  - Relocate TCTD to 185<sup>th</sup> Avenue and Evergreen intersection (and add or relocate CCR stops from 185<sup>th</sup> Avenue and Cornell)

## Summary of Community Input

Public engagement is a critical part of any planning effort and essential to understanding unmet transit needs and how Washington County can help address those needs. The following summarizes the community and targeted engagement that informed Washington County's TDP and STIF priorities. More detailed summaries of the survey findings and service expansion engagement can be found in Appendix B.

### Focused Community Surveys and Targeted Engagement

The following community surveys and more targeted expansion planning for Grovelink, WestLink and Tualatin Shuttle helped inform the development of the TDP.

#### *Washington County TDP Online Survey*

Washington County in partnership with Ride Connection conducted an online survey to help understand travel patterns, transit needs, and likelihood of taking transit among the general public. The survey was available from October 5, 2020 through October 26, 2020. The survey was available online in both English and Spanish. 112 surveys were collected.

#### *Expansion planning for Grovelink, WestLink and Tualatin Shuttle*

In late 2019 and mid-2020, Ride Connection conducted community outreach in Aloha, Beaverton, Forest Grove, Cornelius, Banks, North Plains and Tualatin to inform and guide expansion planning for Grovelink, WestLink and Tualatin Shuttle along with a feasibility study for service in Aloha-Beaverton area. Methods included stakeholder interviews, open houses, focus groups, online and intercept surveying, tabling at community events and public presentations. Outreach successfully engaged youth, Latinx communities, people experiencing homelessness, older adults and people with disabilities and low-income populations.

#### *North Plains and Banks Transit Surveys*

Ride Connection partnered with the cities of North Plains<sup>15</sup> and Banks<sup>16</sup> to conduct Public Transit Surveys in 2018. Results of those surveys are summarized below.

#### *Highlights from the focused community surveys and targeted engagement include:*

- Lack of awareness of services, first/last mile connections, frequency, travel time and abundance of free parking are big barriers to transit use.
- Need for new and better coordination with other transit services
- More comfortable walks to transit stops and improved stop amenities (shelters, lighting, schedule information, benches and bike racks).
- Connecting to other regional transit services as well as major regional, jobs and shopping centers like Portland and Hillsboro followed by coastal communities and recreational opportunities were identified as key destinations. Other noted destinations include Downtown Hillsboro, Tanasbourne, Beaverton, Forest Grove, Portland Community College campuses at Rock Creek and Willow Creek, Banks and North Hillsboro.
- The top service improvement priorities among existing riders include:

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<sup>15</sup> North Plains Public Transit Survey, August, 2018, conducted via Survey Monkey, announced by City website, City Facebook page and electronic newsletter distribution list, 130 responses.

<sup>16</sup> City of Banks Public Transit Survey, June 21, 2018, conducted via Survey Monkey, 137 responses.

- Service expansion on weekdays (43%)
- Service expansion on weekends (32%)
- Service area expansion (12%) - 30% of riders of Grovelink expressed a desire to see expanded or changed route.
- Improvements that may encourage more ridership:
  - Earlier/later service
  - More frequent service

## Other Related Public Input

### *Strategic Solutions for First Mile/Last Mile Transit Connections*

Washington County conducted an online survey for its Strategic Solutions for First Mile/Last Mile Transit Connections Study in fall, 2019 with over 320 participants. Key findings from the survey are summarized below.

- Transit riders are nearly twice as likely to say that safer streets would encourage more transit use.
- High level of interest in shuttles as a viable option in areas not currently served by transit.
- Non-riders were twice as likely to say that information about time and cost savings would encourage them to use transit.

### *Washington County Disability, Aging and Veteran Services Needs Assessment*

Washington County Disability, Aging and Veteran Services (DAVS) completed a needs assessment survey among their target populations in August 2020 with over 700 participants. Two questions related to Disabilities and Accessible Transportation revealed the following:

- At least 55% of all respondents reported living with at least one disability (ambulatory/cognitive/hearing/independent living/self-care/vision or other difficulty)
- Accessible transportation ranked as the second most cited need.
- At least 30% of all respondents expressed some level of interest in receiving more information and assistance with accessible transportation.

## Stop Infrastructure and Access Needs

Many of the stops served by Ride Connection lack adequate signage, which can make it difficult for riders to know where to access the service. Ride Connection conducted a bus stop inventory to identify needs for infrastructure and amenity improvements on its local and intercity services. Table 7 illustrates the identified bus stop and access needs.

*Table 7: Stop and Access Infrastructure Needs*

Service	Bus Stop Name	Infrastructure Needs	Access Needs
<b>GroveLink - Cornelius Weekend Ext (Proposed for FY2020-21)</b>	Harleman Park	Bus stop pole/sign, bus zone	Sidewalk infill on Heather; bicycle facilities on 10th and Heather
	Rose Grove	Bus stop sign, pole/bench already in place at existing TriMet stop	Enhanced crossing at stop; sidewalk infill on OR 8; difficult connection with YCTA (currently M-F only)
	Cornelius City Library	Bus stop sign	Crossing enhancement at Adair/13th; bicycle facilities and sidewalk infill on 14 <sup>th</sup>

Service	Bus Stop Name	Infrastructure Needs	Access Needs
	WalMart	Bus stop sign (affixed to existing TriMet stop pole)	Sidewalk infill on N Adair St and N 4 <sup>th</sup> Ave; bicycle facilities on N 4 <sup>th</sup> Ave
<b>GroveLink - Employment Loop</b>	Yew and Pacific	Bus stop sign	Enhanced crossings at Adair/Yew and Pacific/Yew; sidewalk infill on Yew St and Pacific/Adair Ave; bicycle lanes on Yew St; missed connection with YCTA on OR 8
	Yew and Adair	Simme Seat or bench	Enhanced crossings at Adair/Yew and Pacific/Yew; sidewalk infill on Yew St and Pacific/Adair Ave; bicycle lanes on Yew St
<b>N. Hillsboro Link</b>	Orenco Station	Bus stop sign	Bicycle facilities on Orenco Station Parkway and Cherry Drive
	Huffman Street	Bus stop sign, pole, landing pad, bench/Simme seat, shelter	Enhanced crossing at stop
<b>Tualatin Shuttle</b>	Tualatin WES Station	Seat (bench or Simme seat)	Sidewalk infill on Boones Ferry Rd; bicycle facilities on Tualatin-Sherwood Rd
	Tualatin Library	Bus stop sign	None
	Meridian Park	Landing pad	Enhanced crossing at stop; bicycle lanes on SW 65th
<b>WestLink</b>	Forest Grove Senior Ctr	Bus stop sign, pole, bus zone	Crossing improvements at Pacific and 19 <sup>th</sup> Aves; improve connections with other services: TriMet, YCTA, GroveLink
	Hillsboro Transit Center	Bus stop sign, pole, need a bus bay	Mostly internal access improvements within transit center; bicycle access lacking in downtown Hillsboro
	North Plains: Commercial/ 314th	Bus stop sign	Complete street on NW Commercial; crossing improvements at NW 314 <sup>th</sup>
	Banks: Log Cabin Park	Bus zone	Crossing improvements at OR 47/Sunset; bike lanes on OR 47
	North Plains: Pacific St/ Glencoe Rd (proposed)	Bus stop sign, pole, landing pad, bus zone	Crossing improvements at NW Glencoe/Pacific; sidewalk infill and bicycle lanes on NW Pacific
	Banks: Greenville City Park	Bus zone	Crossing improvements at NW Arbor Park/Trellis

**Summary of Issues and Opportunities**

Table 8 below lists key issues and opportunities identified from both community input and analysis of existing conditions.

*Table 8: Issues and Opportunities*

Issue / Topic	Description/Comments	Opportunities
<b>Awareness and importance of transit in the community</b>		
Awareness of service	<ul style="list-style-type: none"> <li>The general public are not aware of current services.</li> </ul>	<ul style="list-style-type: none"> <li>Better marketing materials translated in other languages</li> <li>Bus stop signs and shelters</li> </ul>

Issue / Topic	Description/Comments	Opportunities
Importance of transit in the community	<ul style="list-style-type: none"> <li>Transit is important to improving mobility especially for older adults, students and people living with disabilities who can't drive</li> </ul>	<ul style="list-style-type: none"> <li>Addresses equity issues and helps strengthen connections between communities</li> </ul>
<b>How to better serve current and new markets</b>		
Rural Workers	<ul style="list-style-type: none"> <li>Agricultural work starts early in the morning</li> </ul>	<ul style="list-style-type: none"> <li>New partnership to serve the reverse commute – from urban areas to employment sites in rural area</li> </ul>
Special Events	<ul style="list-style-type: none"> <li>Transit could improve access and reduce congestion during special events</li> </ul>	<ul style="list-style-type: none"> <li>Events like North Plains Garlic Festival, vineyard tours, local sporting events (weekends)</li> </ul>
Students	<ul style="list-style-type: none"> <li>Parents want transportation options for their children, especially for after school activities</li> <li>Safety on transit is a primary concern</li> </ul>	<ul style="list-style-type: none"> <li>Earlier and later local and intercity service to accommodate student activities</li> </ul>
Homeless	<ul style="list-style-type: none"> <li>Numerous perceived barriers to transit.</li> <li>TriMet is costly, and many feel low-income fare is inaccessible</li> </ul>	<ul style="list-style-type: none"> <li>Better marketing services as free.</li> <li>Driver sensitively training to work with those experiencing homelessness</li> <li>Better coordination on low-income fare program</li> </ul>
<b>Barriers to using existing services</b>		
Lack of signage and fixed stops	<ul style="list-style-type: none"> <li>Stops should have signs (or at minimum, some sort of painted marking), benches, and shelters</li> <li>Flag stops not ideal, but should be better advertised</li> </ul>	<ul style="list-style-type: none"> <li>Improve stops that have high ridership and/or transfers and where the need is highest based on equity and age of riders.</li> <li>Graphical communication of how to use flag stops</li> <li>Improve legibility of readerboards for visually-impaired people, especially at stops served by multiple routes</li> </ul>
Safety of stops and ability to access to destinations	<ul style="list-style-type: none"> <li>Lack of sidewalks and bike lanes on streets access transit stops</li> <li>Major roadways and crossings are challenging for kids, older adults and people with disabilities</li> <li>Long distances to access transit and destinations</li> <li>Perceived safety concerns along TV Highway</li> </ul>	<ul style="list-style-type: none"> <li>Expanded GroveLink service (e.g. weekend service, earlier weekday service, access to shopping in Cornelius)</li> <li>Improve access to aquatic center, libraries, area parks, clinics and major shopping centers in Aloha, Beaverton, Cornelius, Hillsboro and Tualatin</li> </ul>
Demand response	<ul style="list-style-type: none"> <li>Limited awareness of service</li> <li>Inconvenient – need to reserve in advance – but is appealing to some people –get picked up closer to home than fixed-route service</li> </ul>	<ul style="list-style-type: none"> <li>Seek alternative service models, e.g., feeder service to fixed-routes, central connection points, point deviation, shopper shuttles, deviated fixed-routes, etc.</li> </ul>
Information	<ul style="list-style-type: none"> <li>Difficult to obtain printed materials</li> <li>An online trip planner would be useful – website</li> <li>The many community organizations in the county can help raise awareness of transit</li> </ul>	<ul style="list-style-type: none"> <li>Place printed materials at key locations in the community</li> <li>Ride Connection technology grant will help enhance capabilities</li> <li>Various groups, including community-based organizations and Aging and Disability</li> </ul>

Issue / Topic	Description/Comments	Opportunities
		Services present opportunities for improved coordination
<b>How to attract more riders and improve services?</b>		
Service Hours (“Span”)	<ul style="list-style-type: none"> <li>• Earlier and later hours are needed for work and school, as early as 5:30 AM</li> </ul>	<ul style="list-style-type: none"> <li>• Consider alternative models for early and late night service; partner with employers</li> <li>• Seasonal hours (e.g., agricultural workers) – see rural workers</li> </ul>
Frequency	<ul style="list-style-type: none"> <li>• Mixed opinions on importance of convenience (more stops and shorter walk) and faster travel times/more direct service</li> <li>• Improved frequency on weekdays was highest priority among existing riders.</li> </ul>	<ul style="list-style-type: none"> <li>• Additional weekday runs on all local and intercity services</li> </ul>
Expanded service	<ul style="list-style-type: none"> <li>• Improve connections between communities</li> <li>• Service to Portland, Hillsboro and other regional centers, jobs and shopping followed by recreational opportunities and access to coastal communities were identified as key destinations</li> <li>• Adding weekend service was second highest priority amongst existing riders</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate with and connect to SMART’s pilot service connecting Wilsonville and Clackamas Town Center along I-205</li> <li>• Priority destinations include Downtown Hillsboro, Tanasbourne, Beaverton, Forest Grove, Portland Community College campuses at Rock Creek and Willow Creek, Banks, North Hillsboro</li> <li>• Better stop coordination and well-timed transfers between local and intercity services</li> </ul>

## Assessment of Opportunities

Table 9 categorizes opportunities as potential improvements and summarizes how they meet priority criteria, as defined in the STIF rules (OAR 732-042-0020) as well as provides a sketch-level qualitative assessment to address needs based on equity, input from community and the transit advisory committee, potential ridership and cost effectiveness.

### STIF Formula fund project evaluation criteria

Whether the improvement will:

- (A) Increase the frequency of bus service in communities with a high percentage of low-income households.
- (B) Expand bus routes and bus services to reach communities with a high percentage of low-income households.
- (C) Implement programs to reduce fares for public transportation in communities with a high percentage of low-income households.
- (D) Procure buses that are powered by natural gas, electricity or other low or no-emission propulsion for use in areas with populations of 200,000 or more.
- (E) Improve the frequency and reliability of service connections between communities inside and outside of the Qualified Entity's service area.
- (F) Foster coordination between Public Transportation Service Providers to reduce fragmentation in the provision of transportation services.
- (G) Provide student transit services for students in grades 9 through 12.
- (H) Maintain and expand the existing system.

Table 9 shows the applicable criteria as A, B, E, F and G for services funded by STIF in Washington County. All Washington County services funded by STIF are free to the public, so criteria C is met. Criteria D is applicable for fleet purchases, which are not identified as a need in the near term and are always a future option. The description of the potential improvement indicates whether maintaining or expanding the existing service, so H is not shown. Service improvements that address and/or meet the intent of the criteria are shown with a check-mark (✓). Where more information and/or analysis is needed (U) is shown.

The assessment also considers other factors as described below:

- Diversity and Transit Equity – considers benefits to targeted populations as described in the needs assessment. (x) indicates a benefit to targeted populations.
- Public and Committee Priority - (x) indicates whether the opportunity was identified as a high priority by public and/or committee.
- Overall demand - projected ridership based on combined population/jobs density. (x) suggests the potential for increased ridership sufficient enough to warrant service.
- Cost – considers the overall cost of service (revenue hours, miles). (x) suggests lower and/or more cost effective.

Table 9: Evaluation of Potential Improvements Opportunities

		Improve Frequency/Reliability Between Communities	Reduce Fragmentation in Services	Increase Service Frequency to Low Income Communities	Expand Service to Reach Low Income Communities	Student Transportation	Diversity and Transit Equity	Public and Committee Priority	Overall Demand	Cost
<b>1</b>	<b>Intercity Services</b>									
1A	Maintain existing westLink midday service (initiated in FY 2021)						X	X	X	X
1B	Add westLink weekend service		✓	✓		✓	X	X		X
1C	More frequent westLink weekday service	✓		✓		✓	X	X	X	X
1D	Add earlier and/or later westLink service		✓	✓	✓	✓	X	X	X	X
1E	Expand westLink service or routes to improve access to jobs, shopping and regional connections reduce service fragmentation		✓		✓	✓	X			X
1F	Better information and marketing of westLink service and coordination with adjacent county service providers including stops/transfers		✓				X	X	X	X
1G	Improved stops with signage, shelters, lighting, schedule information, bus		✓				X	X	X	X

		Improve Frequency/Reliability Between Communities	Reduce Fragmentation in Services	Increase Service Frequency to Low Income Communities	Expand Service to Reach Low Income Communities	Student Transportation		Diversity and Transit Equity	Public and Committee Priority	Overall Demand	Cost
	zones, benches and bike racks										
1H	Assess the need and feasibility of service connecting Sherwood to Hillsboro	U	U	U	U	U	U	U	U	U	U
1I	Weekend service from North Plains to Sunset Transit Center/Portland	U	U	U	U	U	U	U	U	U	U
1J	Assess the need and feasibility of service connecting to small rural communities like Scholls, Timber, Verboort, Roy, Manning and Buxton	U	U	U	U	U	U	U	U	U	U
1K	Assess the need and feasibility of service Hwy 219 between Newberg and Hillsboro	U	U	U	U	U		U	U	U	U
1L	Assess the need and feasibility of service connecting Tualatin–West Linn–Oregon City in coordination with SMART and Clackamas County (related to 2P)	✓	✓		✓				X		X
2	<b>Local Shuttle Services</b>										

		Improve Frequency/Reliability Between Communities	Reduce Fragmentation in Services	Increase Service Frequency to Low Income Communities	Expand Service to Reach Low Income Communities	Student Transportation	Diversity and Transit Equity	Public and Committee Priority	Overall Demand	Cost
2A	Maintain existing GroveLink, North Hillsboro Link and Tualatin Shuttle services (initiated in FY 2019-21)	✓	✓	✓		✓	x	x	x	x
2B	Add weekend service		✓	✓		✓	x	x		x
2C	More frequent weekday service		✓	✓		✓	x	x	x	x
2D	Expand or modify existing services or routes to improve access to aquatic center, libraries, area parks, clinics and major shopping centers	✓	✓		✓	✓	x	x		x
2E	Better information and marketing of services		✓				x	x	x	x
2F	Improved stops with signage, shelters, lighting, schedule information, bus zones, benches and bike racks		✓				x	x	x	x
2G	New commuter shuttle connecting Aloha, South Beaverton, Cooper Mountain, and Progress Ridge to MAX		✓		✓		x			
2H	New mid-day service connecting Aloha, South Beaverton, Cooper				✓	✓	x	x	x	

		Improve Frequency/Reliability Between Communities	Reduce Fragmentation in Services	Increase Service Frequency to Low Income Communities	Expand Service to Reach Low Income Communities	Student Transportation	Diversity and Transit Equity	Public and Committee Priority	Overall Demand	Cost
	Mountain, and Progress Ridge									
2I	Assess the need and feasibility of service in South Hillsboro service	U	U	U	U	U	x	U	U	U
2J	Assess the need and feasibility of service in Basalt Creek	U	U	U	U	U		U	U	U
2K	Assess the need and feasibility of service in Bull Mountain/portions of King City west of OR 99W	U	U	U	U	U	x	U	U	U
2L	Assess the need and feasibility of service in Portions of Cornelius north and south of OR8	U	U	U	U	U	x	U	U	U
2M	Assess the need and feasibility of service in Areas west and south of downtown Sherwood	U	U	U	U	U		U	U	U
2N	Assess the need and feasibility of service south Tigard/Durham	U	U	U	U	U	x	U	U	U
2O	Assess the need and feasibility of service in Cedar Mill/Bethany/North Bethany	U	U	U	U	U	x	U	U	U
2P	Tualatin shuttle expansion – Bridgeport Village	✓	✓		✓	✓	x	U	U	U

		Improve Frequency/Reliability Between Communities	Reduce Fragmentation in Services	Increase Service Frequency to Low Income Communities	Expand Service to Reach Low Income Communities	Student Transportation		Diversity and Transit Equity	Public and Committee Priority	Overall Demand	Cost
	to Stafford Rd/I205 Interchange (related to 1L)										
<b>3</b>	<b>Rural Demand Response</b>										
3A	Maintain services in expanded service area (initiated in FY 2021)	✓	✓			✓		x	x	x	x
3B	Seek alternative service models, e.g., feeder service to fixed-routes, central connection points, point deviation, shopper shuttles, deviated fixed-routes, etc.	✓	✓	✓		✓		x	x	x	x
3C	Improve access and convenience of general public rural demand response service (trip planning, reservation)		✓					x	x	x	x
3D	Better marketing services as free to general public		✓					x	x	x	x
3E	Electric charging stations for new sedans							x			
<b>4</b>	<b>New and Emerging Markets</b>										
4A	Maintain rural work force vanpool service (initiated in FY 2021)		✓			✓			x		
4B	Expand rural work force vanpool service in Gaston,		✓			✓			x	U	U

		Improve Frequency/Reliability Between Communities	Reduce Fragmentation in Services	Increase Service Frequency to Low Income Communities	Expand Service to Reach Low Income Communities	Student Transportation		Diversity and Transit Equity	Public and Committee Priority	Overall Demand	Cost
	south of Forest Grove/Hillsboro										
4C	Expand rural work force vanpool service to the weekends		✓		✓			x	U	U	
4D	Serve parks and recreation areas	U	U	U	U	U	U	U	U	U	
4E	Special events and agritourism connections	U	U	U	U	U	U	U	U	U	

## Financial Plan

This section provides operating cost and funding assumptions for transit services over the next 5 years and beyond. It describes:

- Transit operating and capital cost assumptions
- Revenue forecasts and assumptions

### Operating Costs Assumptions

Ride Connection's average cost per revenue hour is \$65 (as of 2019), which is lower than the national average of \$74-\$78 for the type of services offered.<sup>21</sup> This is a fully loaded cost and includes the amortized costs for vehicle replacement. The financial plan assumes annual inflation of 3.1% based on a three year running average of the US Bureau of Economic Analysis Consumer Price Index for state and local consumption expenditures. The financial plan assumes that Ride Connection will continue to receive federal and state funding to support a share of the costs for WestLink and the Rural Demand Response service.

### Funding Assumptions

The financial plan assumes that revenue and operating expense trends will continue and that there will be no major changes in local, state, and federal transit grant programs. Starting with the fiscal year 2022 budget, revenues and expenses were projected using the assumptions described below.

Washington County is eligible to receive STIF funds, which generally fall into two categories: formula-based or discretionary, as explained below.

#### Formula funds

##### State Transportation Improvement Fund (STIF)

STIF formula fund revenue is estimated to be approximately \$282,000 in FY 2022, and \$309,000 in FY 2023 based on forecasts for revenue generated in areas outside TriMet and SMART districts. Actual STIF revenues may be higher or lower than projected. This assumes the reallocation of a portion of the STIF funds to support the Special Transportation Fund (STF) for older adults and persons with disabilities as directed by state legislation. With the approval of TriMet, Washington County will also receive STIF funding for Regional Coordination for the local shuttle services in Forest Grove, Hillsboro and Tualatin. Due to COVID and the start-up time required to establish and expand services an estimated \$797,600 from the FY 19-21 STIF will be carried forward into the next biennium.

Table 10 summarizes overall funding for Washington County's Rural and Regional Coordination programs for the full FY 2022- 23 Biennium. Including \$797,600 in additional revenue carried forward and not expended in the FY 2019-21 STIF, Washington County is expected to have approximately \$3.8 million in funding available for the biennium.

Table 10: Projected HB 2017 Funding – Washington County (FY 2022-23 Biennium)

Revenue Source	FY 2022	FY 2023	Total Biennium (FY 2022-23)
Rural Adjusted	\$282,400	\$308,900	\$591,300
Regional Coordination	\$1,207,294	\$1,207,294	\$2,414,600
Additional (carry forward + overage)	\$797,600*	\$0	\$797,600
Total	\$2,287,294	\$1,516,194	\$3,803,488

\* Includes \$797,600 in carry forward funds and additional revenue not expended from the FY 2019-21 STIF due to COVID and the start-up time required to establish and expand services.

### Discretionary Funds

The FTA and ODOT offer discretionary funding programs (grants) on varying schedules. Discretionary transit funding programs typically fund capital investments such as vehicles, equipment, and bus stops. These funds may also support pilot projects, such as alternative fuel vehicles and new service models, and major capital projects (e.g., transit center construction or expansion). Some of these programs are specific to public transportation, while others fund transportation improvements statewide and have more limited project eligibility requirements.

- FTA Section 5339 Bus and Bus Facilities. This program is used to replace, rehabilitate and purchase buses, equipment and bus-related facilities. Vehicle replacements must meet age and mile requirements. The local match rate is 20%.
- Oregon State Transportation Improvement Program (STIP) – Non-Highway. ODOT’s statewide program to fund transportation projects that enhance, expand, or improve the transportation system. The local match rate is 20%. The program is updated every two years. The program’s public transportation funding is typically limited to vehicles and equipment supporting services that improve the state transportation system. However, for the 2024-2027 period the OTC approved
  - \$50 million in funding - an increase of one-third over past levels - for transit service benefitting seniors and individuals with disabilities. This federal funding in the STIP supplements other federal and state funds.
  - \$7.5 million for Transportation Options programs focused on reducing single occupancy vehicle trips by managing demand across the transportation system.
- ODOT State Transportation Improvement Fund (STIF) Discretionary. The STIF program allocates a total of 9% of available funds for two discretionary funding programs. The Discretionary Fund can be used for all types of projects except ongoing operations. The Intercommunity Discretionary Fund is targeted to improving connections between communities and other key destinations, emphasizing statewide transit network connectivity. Eligible projects include capital (vehicles, facilities, equipment and technology), mobility management, planning, research and operations; however, ongoing operations projects are not guaranteed funding in future grant solicitations. The local match is generally 20% of the total cost but may be reduced

to 10% for projects that predominantly serve or provide access to rural communities (50,000 population or less and outside of urban areas). Washington County, on behalf of Ride Connection, was awarded a STIF Discretionary grant of \$324,768 in 2019 to upgrade technology on its local and intercity shuttle services.

## Service and Improvement Plan Overview

This section provides an implementation plan for near and longer-term priorities. Table 11 summarizes the near-term (FY 2022-23), mid-term (FY 2024-25) and long-term (FY 2026+) transit priorities that were identified with input from the Transit Committee.

Table 11: Recommended Service and Improvement Plan

		Near-term	Mid-Term	Long-term
<b>1</b>	<b>Intercity Services</b>			
1A	Maintain existing westLink midday service (initiated in FY 2021)	X		
1B	Add westLink weekend service	X		
1C	More frequent westLink weekday service		X	
1D	Add earlier and/or later westLink service	X		
1E	Expand westLink service or routes to improve access to jobs, shopping and regional connections reduce service fragmentation			X
1F	Better information and marketing of westLink service and coordination with adjacent county service providers including stops/transfers	X		
1G	Improved stops with signage, shelters, lighting, schedule information, bus zones, benches and bike racks	X		
1H	Assess the need and feasibility of service connecting Sherwood to Hillsboro			X
1I	Weekend service from North Plains to Sunset Transit Center/PDX			X
1J	Assess the need and feasibility of service connecting to small rural communities like Scholls, Timber, Verboort, Roy, Manning and Buxton			X
1K	Assess the need and feasibility of service Hwy 219 between Newberg and Hillsboro			X
1L	Assess the need and feasibility of service connecting Tualatin–West Linn–Oregon City	X		
<b>2</b>	<b>Local Shuttle Services</b>			
2A	Maintain existing GroveLink, North Hillsboro Link and Tualatin Shuttle services (initiated in FY 2019-21)	X		
2B	Add weekend service		X	
2C	More frequent weekday service	X		
2D	Expand or modify existing services or routes to improve access to aquatic center, libraries, area parks, clinics and major shopping centers	X		
2E	Better information and marketing of services	X		
2F	Improved stops with signage, shelters, lighting, schedule information, bus zones, benches and bike racks	X		
2G	New commuter shuttle connecting Aloha, South Beaverton, Cooper Mountain, and Progress Ridge to MAX			X
2H	New mid-day service connecting Aloha, South Beaverton, Cooper Mountain, and Progress Ridge		X	
2I	Assess the need and feasibility of service in South Hillsboro service			X

		Near-term	Mid-Term	Long-term
2J	Assess the need and feasibility of service in Basalt Creek		X	
2K	Assess the need and feasibility of service in Bull Mountain/portions of King City west of OR 99W		X	
2L	Assess the need and feasibility of service in portions of Cornelius north and south of OR8	X		
2M	Assess the need and feasibility of service in areas west and south of downtown Sherwood			X
2N	Assess the need and feasibility of service in south Tigard/Durham	X		
2O	Assess the need and feasibility of service in Cedar Mill/Bethany/North Bethany	X		
2P	Tualatin shuttle expansion – Bridgeport Village to Stafford Rd/I205 Interchange		X	
<b>3</b>	<b>Rural Demand Response</b>			
3A	Maintain services in expanded service area (initiated in FY 2021)	X		
3B	Seek alternative service models, e.g., feeder service to fixed-routes, central connection points, point deviation, shopper shuttles, deviated fixed-routes, etc.	X		
3C	Improve access and convenience of general public rural demand response service	X		
3D	Better marketing services as free to general public	X		
3E	Electric charging stations for new sedans	X		
<b>4</b>	<b>New and Emerging Markets</b>			
4A	Maintain rural work force vanpool service (initiated in FY 2021)	X		
4B	Expand rural work force vanpool service in Gaston, south of Forest Grove/Hillsboro	X		
4C	Expand rural work force vanpool service to the weekends		X	
4D	Serve parks and recreation areas			X
4E	Special events and agritourism connections			X

## Near-term Improvement Priorities

Table 12 summarizes the near-term (FY 2022-23) transit priorities that were identified with input from the Transit Committee. The near-term priorities can be funded by projected revenue but also allow for scaling back if that funding does not become available. Maintaining existing service is the highest priority and service expansion and capital investment could be delayed if necessary due to lack of revenue. These priorities are included in Tri-Met's Public Transportation Improvement Plan for the three-county area with support from the Washington County Board of Commissioners.

Table 12: Near-Term Transit Priorities (FY 2022-23)

Project description	Priority improvement
<b>WestLink</b>	<ul style="list-style-type: none"> <li>• Maintain existing midday service (initiated in FY 2021)<sup>17</sup></li> <li>• Add weekend service</li> <li>• Add earlier and/or later service</li> </ul>
<b>Local Service</b>	<ul style="list-style-type: none"> <li>• Maintain existing services on GroveLink, Tualatin Shuttle and North Hillsboro Shuttle</li> <li>• Expand to meet increased demand; weekend and midday service</li> </ul>
<b>Rural Demand Response</b>	<ul style="list-style-type: none"> <li>• Maintain services in expanded service area (initiated in FY 2021)<sup>18</sup></li> <li>• Pilot new service structure to add flexibility</li> <li>• Add efficiency/technology improvements to achieve cost savings and improved customer service</li> </ul>
<b>Interregional Coordination</b>	<ul style="list-style-type: none"> <li>• Continue coordination with Yamhill, Columbia and Tillamook Counties to improve services connections<sup>19</sup></li> <li>• Add and/or improve service and stop coordination</li> </ul>
<b>Rural Workforce Shuttle</b>	<ul style="list-style-type: none"> <li>• Maintain shuttle service initiated in FY 2021</li> <li>• Expand/adjust based on demand</li> </ul>
<b>Marketing</b>	<ul style="list-style-type: none"> <li>• Increase awareness and ease of use of services</li> </ul>
<b>Administration</b>	<ul style="list-style-type: none"> <li>• Manage STIF program and comply with Agreed Upon Procedures (AUP) as required by TriMet and ODOT.</li> </ul>
<b>Capital</b>	<ul style="list-style-type: none"> <li>• Improve technology, bus stops, fleet, charging stations</li> </ul>
<b>Planning</b>	<ul style="list-style-type: none"> <li>• Conduct planning work including evaluating transit priorities and update Transit Development Plan for FY 2024-25</li> </ul>

<sup>17</sup> STIF funding supplements services provided by Ride Connection using Federal funds.

<sup>18</sup> STIF funding supplements Demand Response services provided by Ride Connection using other funding sources.

<sup>19</sup> STIF funding supplements coordination subsidies provided by Ride Connection using other funding sources.

## Implementation and Monitoring

Implementation of projects identified in the TDP will include public outreach to obtain input on routing and schedule details. Minor adjustments will be made periodically based on input from the public and staff as well as performance to ensure that routes are running as expected. System goals, objectives, performance measures, public input, and actual operation of service are all part of an ongoing process to continually evaluate and improve service (see Figure 21). Washington County and Ride Connection will regularly monitor and evaluate services in a meaningful way. Changes will be scheduled to avoid confusion for riders and all major and minor service changes will be clearly communicated to riders.

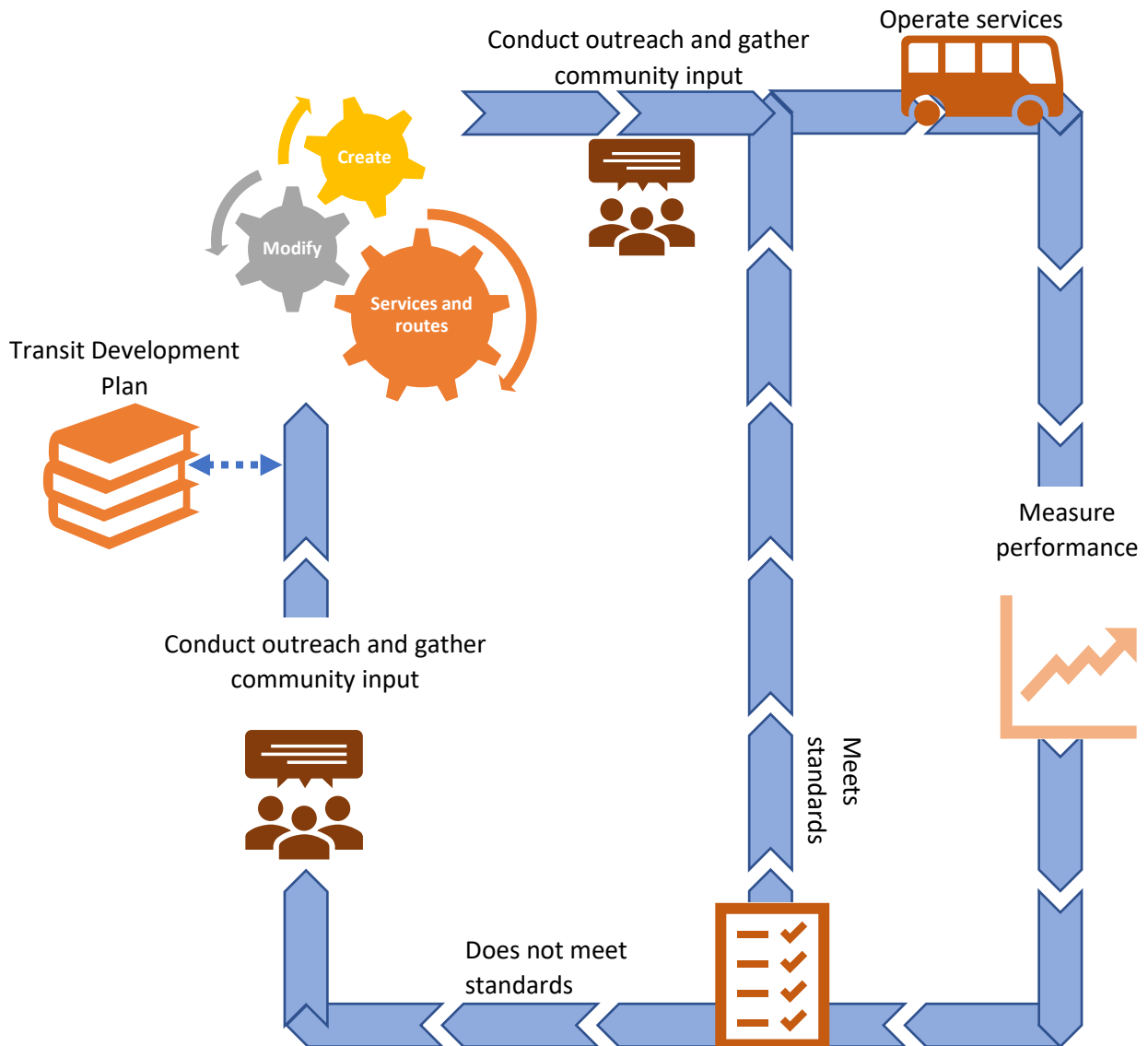


Figure 21: Process for Ongoing Monitoring

# Appendix

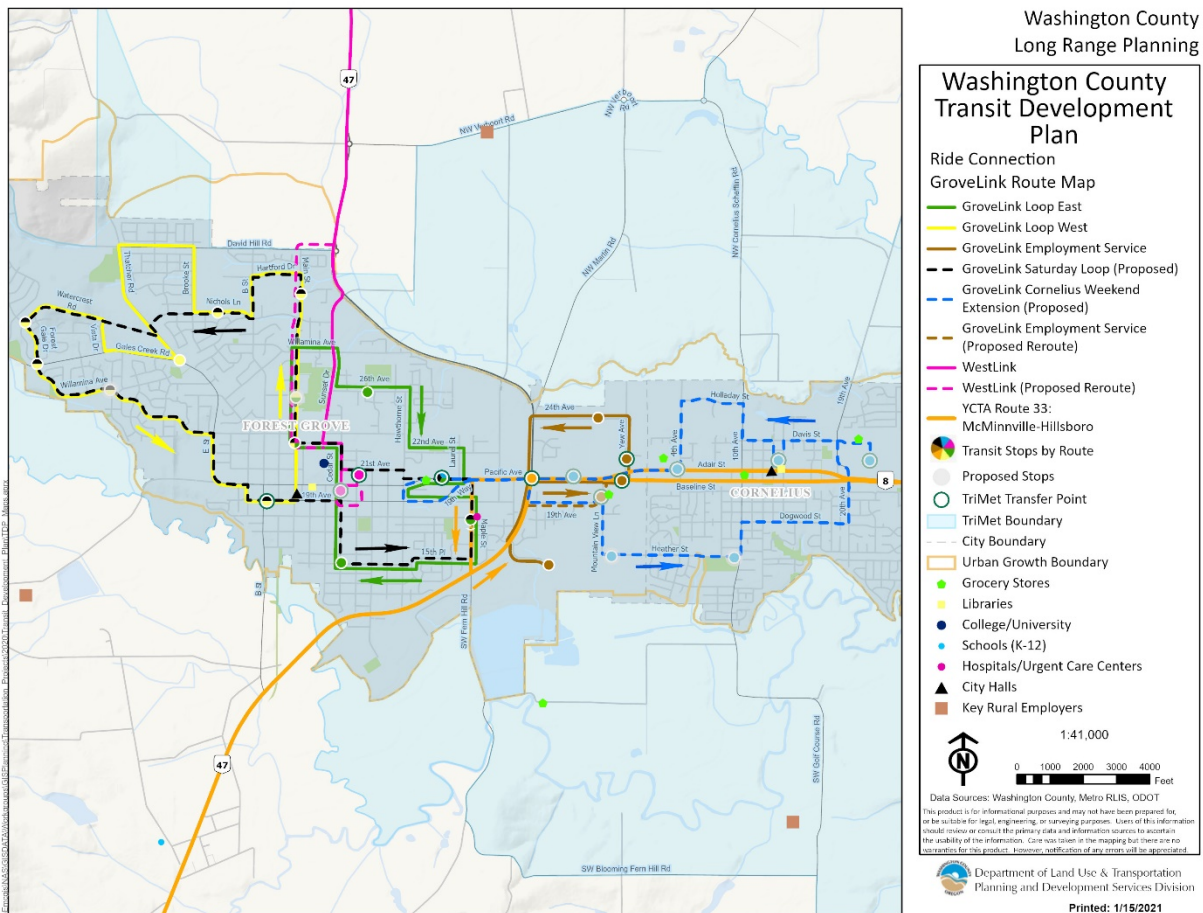
Appendix A	Existing Conditions and Background Documents
Appendix A-1.	Transit Provider Plans, Routes and Website Links: Service Resources
Appendix A-2.	First and Last Mile Transit Access Strategies Background and Policy Report
Appendix A-3.	Rural Household and Demographic Data
Appendix B	Needs Identification
Appendix B-1.	Committed Improvements to Address Needs
Appendix B-2.	Transit Development Plan Online Survey Results Summary
Appendix B-3.	Rider Surveys
Appendix B-4.	Shuttle Outreach Efforts Summaries
Appendix B-5.	Aloha and South Beaverton Area Transit Needs Analysis Summary
Appendix B-6.	Ride Connection Fleet Data
Appendix B-7.	Bus Stop Needs Inventory
Appendix B-8.	Forecasting Need for Rural Area (TCRP 161)

# Appendix A-1: Applicable Transit Provider Plans, Route Info and Website Links

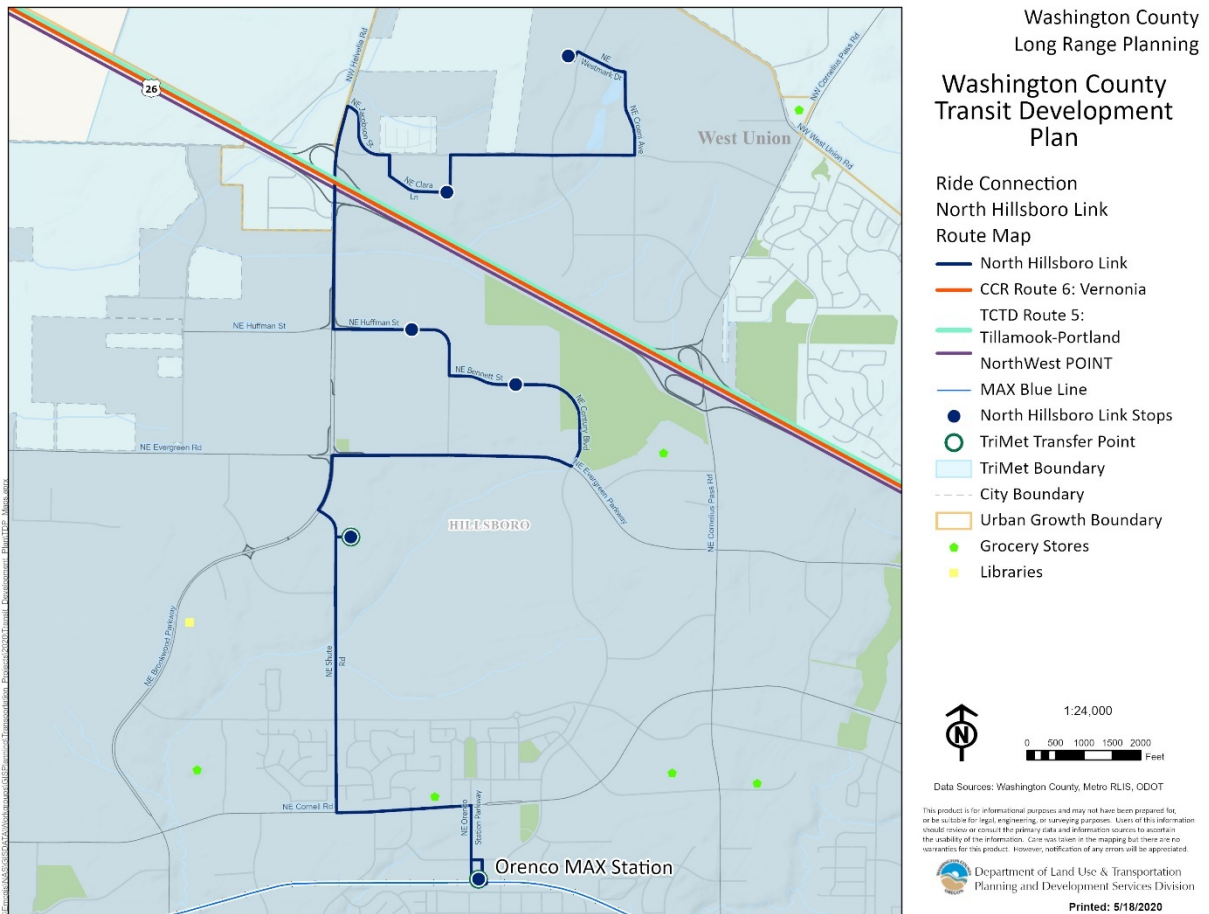
Ride Connection: <https://rideconnection.org/services>

The following fixed-route services are provided by Ride Connection with STIF revenue. Each of these local routes operates as a deviated fixed route flag system. This means that Ride Connection has designated stop locations, but between stops riders may stand on the curb and flag down the buses or request that the driver let them off at a particular point along the route. Drivers will stop if it is safe to do so.

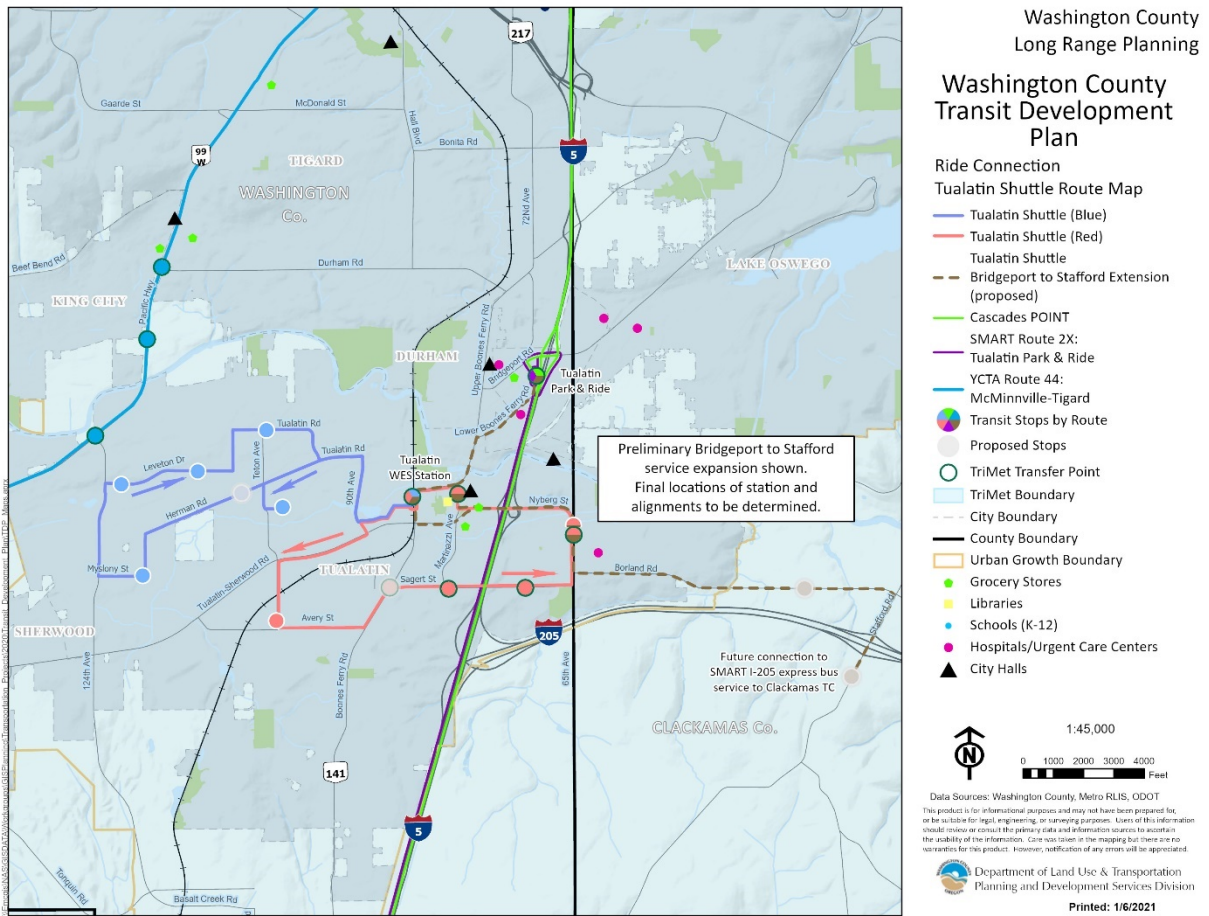
- GroveLink serves the Forest Grove community by helping link residents with downtown and TriMet bus line 57. [https://rideconnection.org/assets/pdf/GroveLink\\_Brochure.pdf?c=](https://rideconnection.org/assets/pdf/GroveLink_Brochure.pdf?c=)



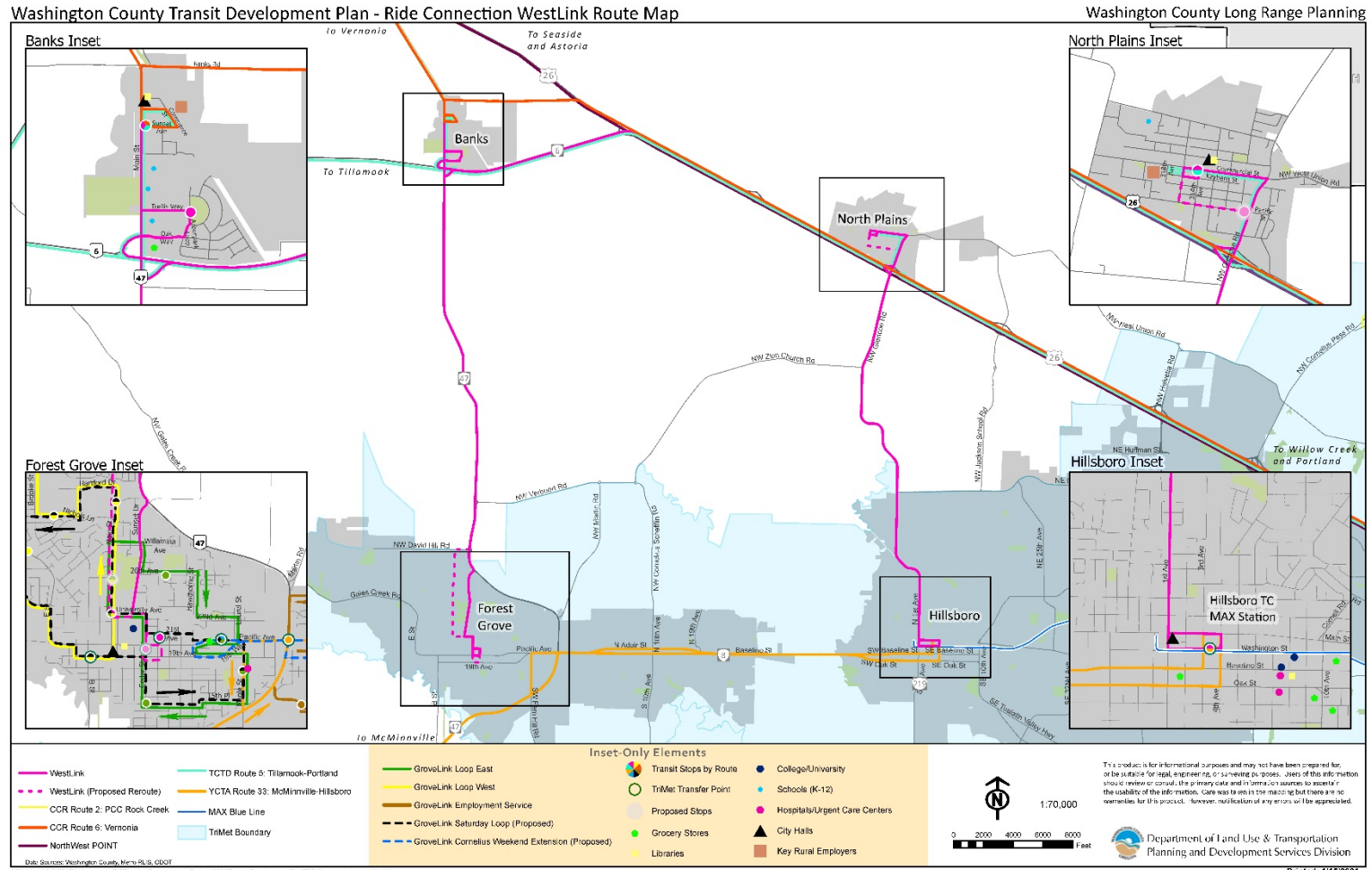
- North Hillsboro Link serves north Hillsboro industrial area with connections to TriMet MAX at Orenco Station. <https://rideconnection.org/assets/pdf/N-Hillsboro-Link.pdf?c=>



- Tualatin Shuttle connects Tualatin employment areas with the Tualatin WES Commuter Rail Station. [https://rideconnection.org/assets/pdf/Tualatin\\_Shuttle\\_Brochure.pdf?c=](https://rideconnection.org/assets/pdf/Tualatin_Shuttle_Brochure.pdf?c=)



- WestLink: <https://rideconnection.org/assets/pdf/WestLink.pdf?c=>





Cascades POINT: <https://www.oregon-point.com/route-landing/?route=cascades-route>

Columbia County Rider (CCR): <https://www.nworegontransit.org/agencies/columbia-county-rider/>

- PCC Rock Creek route was taken offline (on hiatus Fall 2020)
- CCR Line 6: <https://www.nworegontransit.org/routes/vernonia/>

NorthWest POINT: <https://www.oregon-point.com/route-landing/?route=northwest>

Tillamook County Transit District (TCTD): <https://www.nworegontransit.org/agencies/tillamook-county-transportation-district/>

- TCTD Line 5: <https://www.nworegontransit.org/routes/tillamook-portland/>

Yamhill County Transit Authority (YCTA): <https://ycbus.org/>

- YCTA Transit Development Plan: <https://ycbus.org/2018-transit-development-plan/>
- YCTA Route 33: <https://ycbus.org/wp-content/uploads/2020/04/YCT20-0403-Web-COVID-MapRev33.pdf>

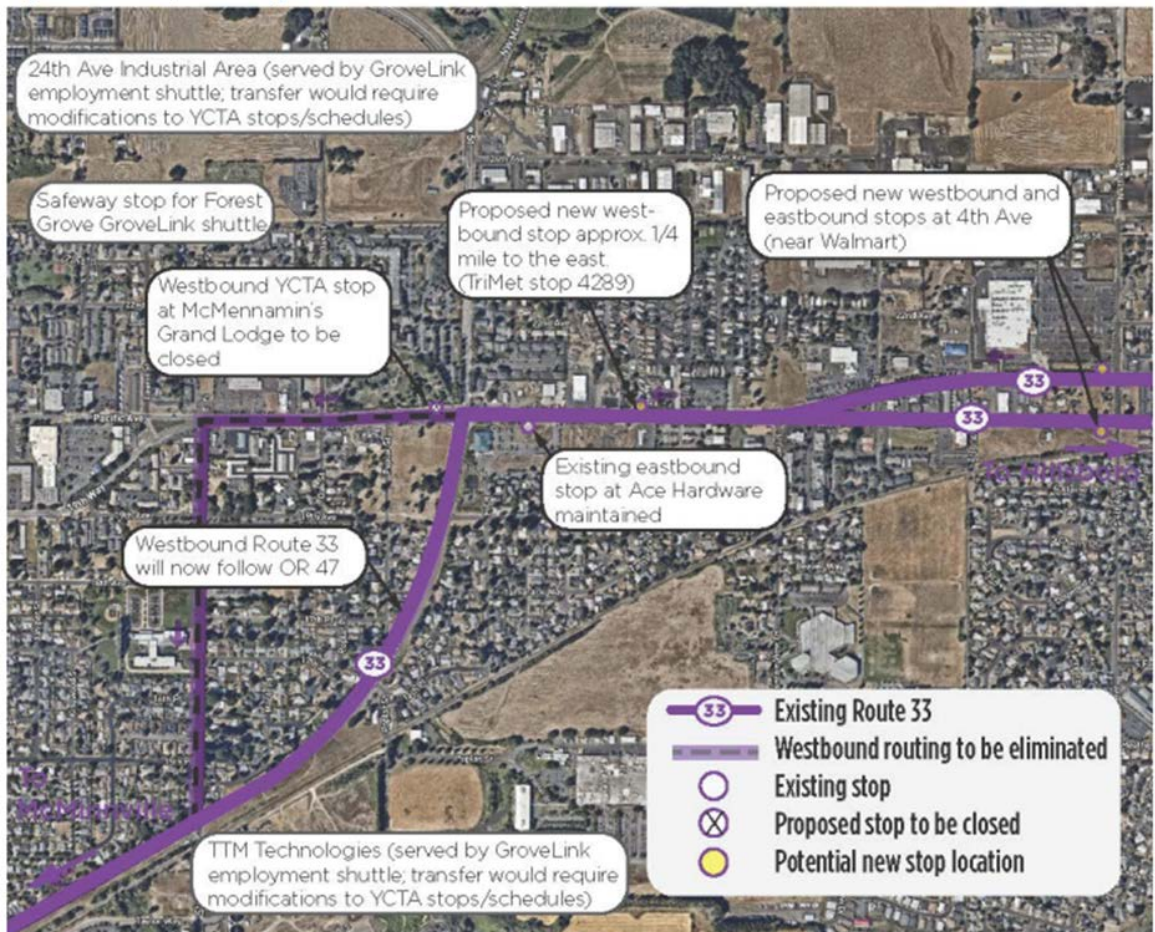


Figure 1: YCTA TDP Proposed Changes in Forest Grove and Cornelius

- YCTA Route 44/44x: <https://ycbus.org/wp-content/uploads/2019/10/Yamhill-County-Transit-Routes-44-and-44X.pdf>

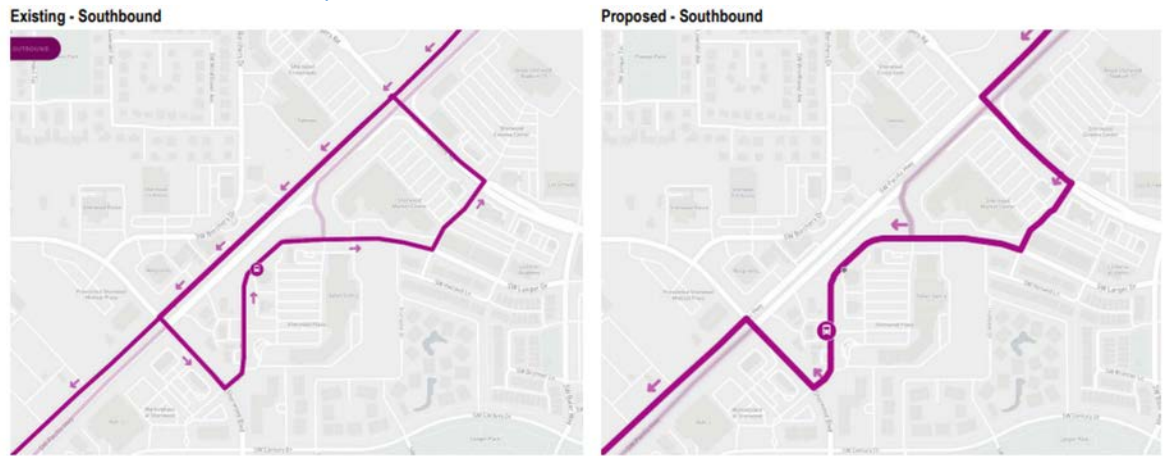


Figure 2: Yamhill County Transit Authority (YCTA) Reroute Proposal in Sherwood

SMART Transit

South Metro Area Regional Transit (SMART) operates seven bus routes throughout Wilsonville and surrounding communities. Wilsonville is in both Washington and Clackamas Counties.

South Metro Area Regional Transit (SMART): <https://www.ridesmart.com/transit>

- SMART 2X: <https://www.ridesmart.com/transit/page/2x-tualatin-park-ride>

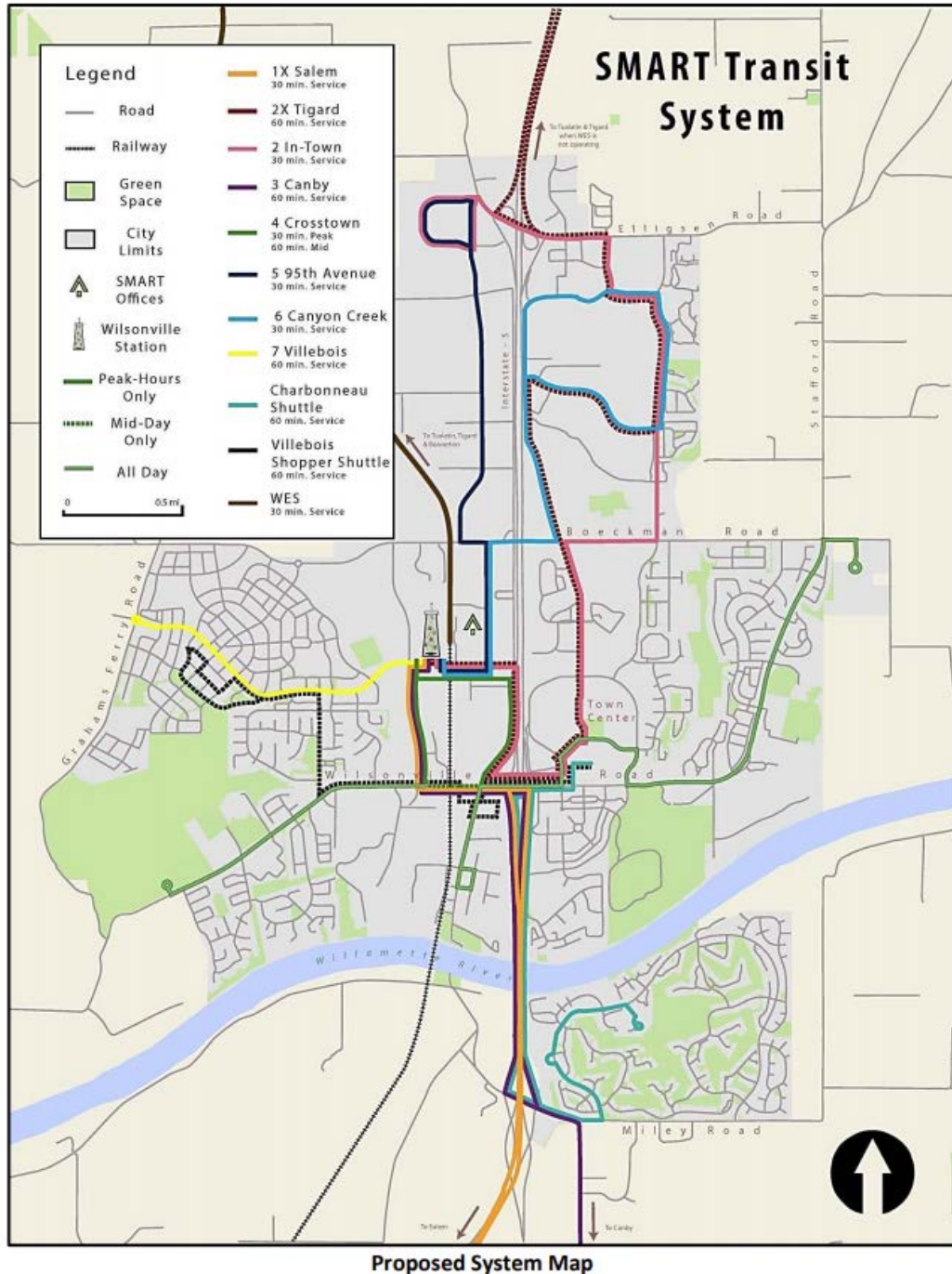


Figure 3: SMART Master Plan

### *TriMet Service*

TriMet provides transit service to residents and employees throughout urban Washington County. Services include MAX light rail, WES commuter rail, fixed-route bus and LIFT/paratransit.

- Red and Blue MAX lines serve Washington County. The Blue Line connects Hillsboro with Gresham via downtown Portland. The Red Line connects Beaverton and the Portland International Airport via downtown Portland. The Red Line will extend to Hillsboro Fair Complex in 2024. Together the Red and Blue MAX lines provide the spine for transit mobility, accounting for nearly 40 percent of all weekday ridership in Washington County.<sup>1</sup>
- Westside Express Service (WES), provides weekday peak-only service between Wilsonville and the Beaverton Transit Center. WES ridership is relatively low with approximately 1,600 weekday boardings.<sup>2</sup>
- Thirty local and regional bus routes serve Washington County. Four of these routes—Lines 12, 20, 57, and 76—provide frequent service, which is identified by TriMet as service every 15 minutes or better most of the day, every day. Notable future service enhancements include upgrades to Lines 52 and 54 (entire route to Beaverton TC) to frequent service, extending Line 56 to Progress Ridge and South Cooper Mountain, reroute of Line 47 to South Hillsboro, new line on Main St/Baseline between Hillsboro and Willow Creek TC, and frequency upgrades to Line 48.
- Unified Service Enhancement Plan: <https://trimet.org/future/pdf/unified-service-enhancement-plan.pdf>
- Public Transportation Improvement Plan: <https://trimet.org/betterbus/ptip.htm>

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<sup>1</sup> TriMet Passenger Census Reports, Spring, 2018.

<sup>2</sup> TriMet Passenger Census Reports, Spring, 2018.

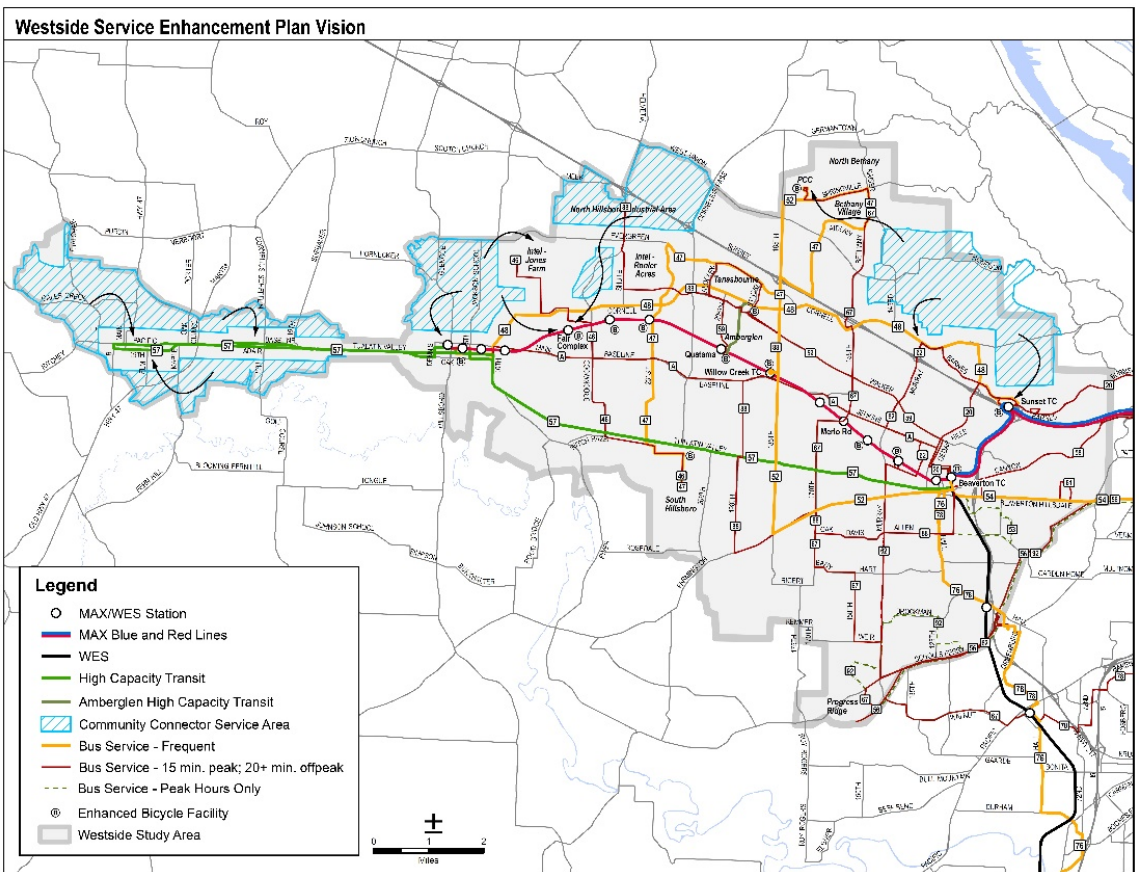


Figure 4: Westside Service Enhancement Plan

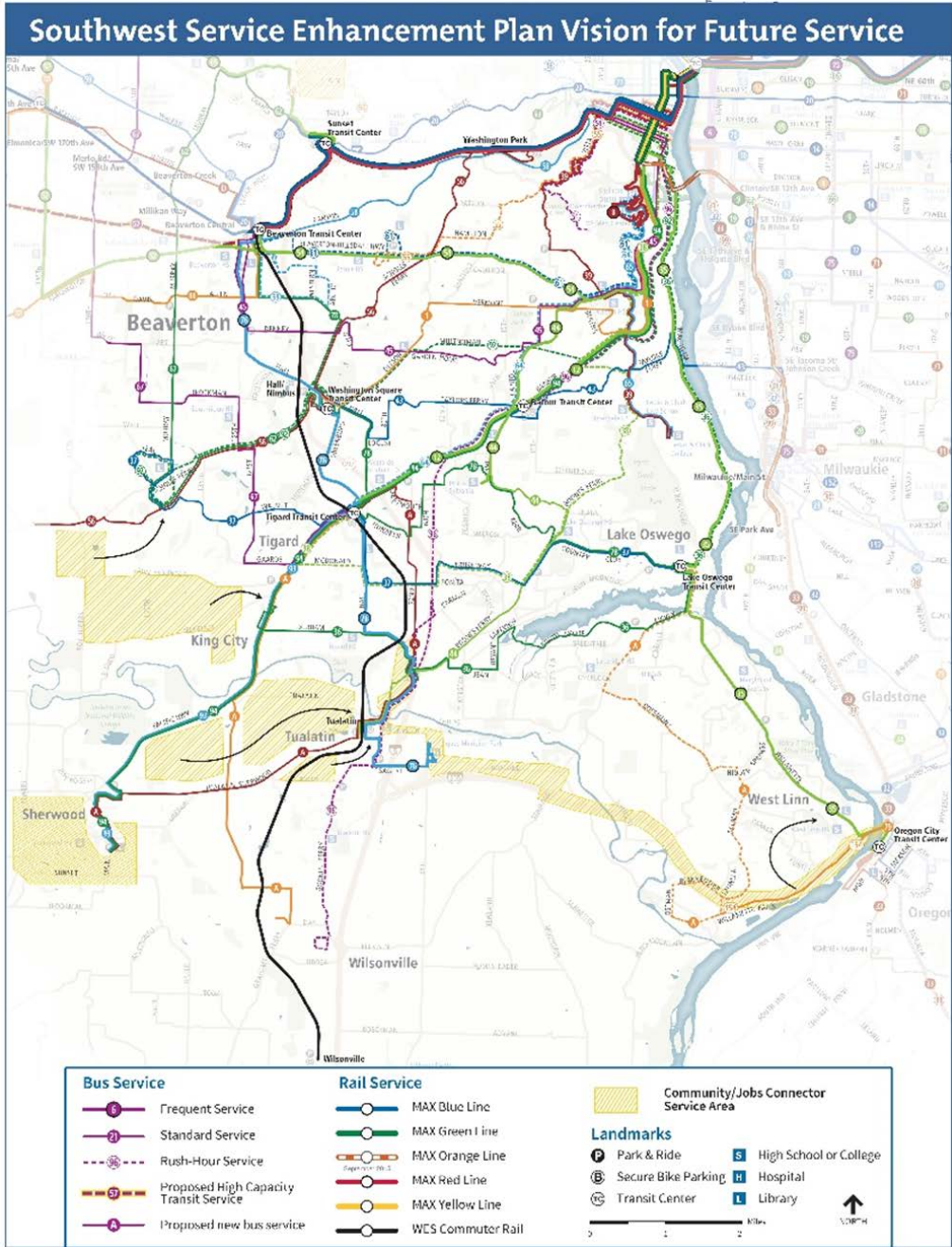


Figure 5: Southwest Service Enhancement Plan

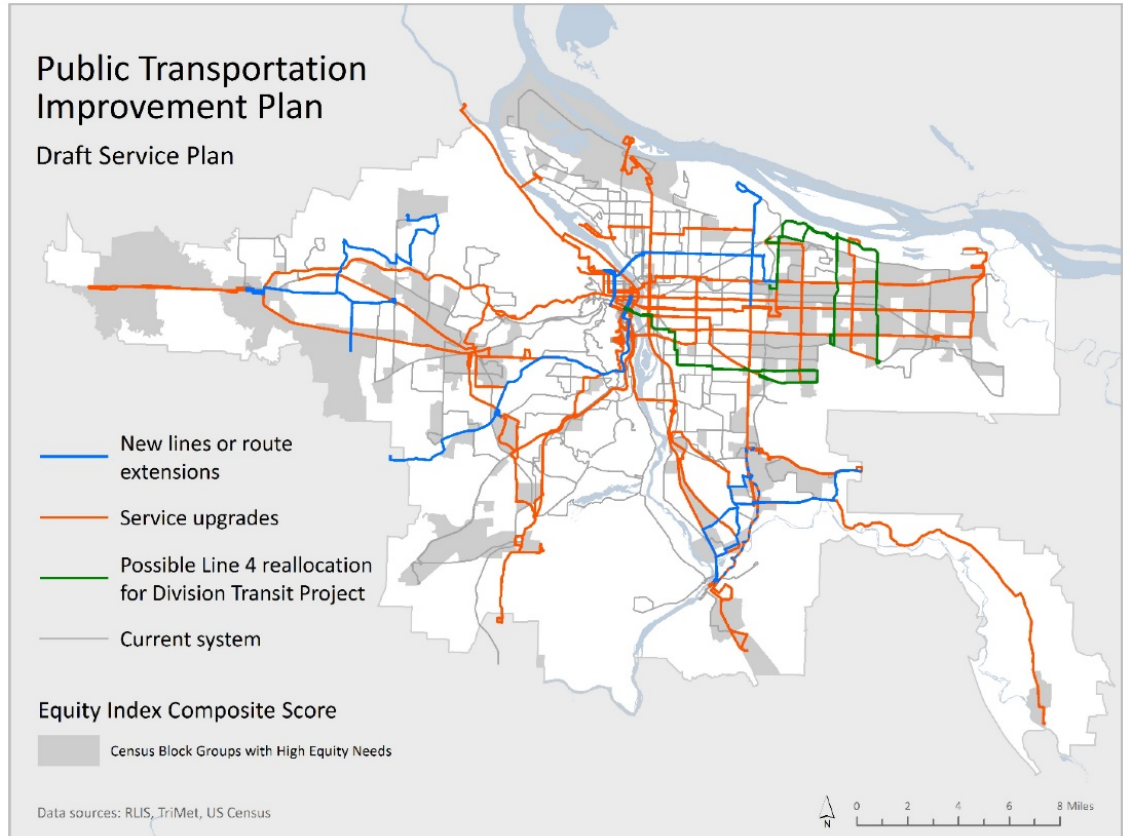


Figure 6: Tri-County Public Transportation Improvement Plan

Appendix A-2: First and Last Mile Transit Access Strategies Background Report



## Background and Policy Summary Report

## **1.0 Purpose and Background**

This report summarizes the relevant baseline information needed to develop first and last mile strategies in Washington County. Information included in this report includes plans, studies, technical reports, applicable policy guidance and other evaluations related to travel options, active transportation (including trails), transit, technology, population demographics and land use.

### **1.1 Project Purpose and Objectives**

This project will result in recommendations for implementing 1) infrastructure investments to provide safer, faster, and more comfortable access to transit; and 2) opportunities to support and integrate innovative mobility options that are coordinated, flexible, and responsive to the land use and transportation context. Specifically this project advances Washington County's Transportation System Plan (TSP) objectives, which seek to improve access to and encourage the enhancement of transit service in Washington County. This will be accomplished by the following tasks and activities:

- Understanding the implications (costs/risks and benefits/opportunities) of new mobility technology;
- Recommending amendments to the TSP, Road Design Standards and other policy documents for the County to consider (e.g. major transit stop, curb space treatments, parking and loading, etc.).
- Identifying priority locations to implement first and last mile transit access projects, programs and partnerships, including:
  - Bicycle and pedestrian improvements;
  - On demand mobility solutions such as shuttle services, microtransit, ridesharing, carsharing, bikesharing (including electric bikes and scooters), ridesourcing, and mobility hubs;
  - Inter-regional and rural transit connectivity.
- Identifying priority projects and position Washington County for future funding opportunities.

### **1.2 Background**

While Washington County enjoys a relatively robust transit system compared to other suburban/rural counties, plenty of transit service, access and amenity needs remain. Transit agencies continue to identify future network extensions and service enhancements, but utilization remains relatively low. In order to achieve regional long-term climate and transportation goals, a tripling in transit utilization is necessary over the next twenty years. The

easier it is to access the system, the more likely people are to use it. Many locations in Washington County have significant barriers to accessing transit such as disconnected sidewalks, bike facilities that are either substandard or don't provide the level of comfort to attract a wide range of users, long distances between signalized crossings, limited illumination and a lack of other modern mobility options (car-sharing, bike-sharing, on-demand shuttle, etc.). Furthermore, many of the major employment centers are large campus-style developments with plentiful parking and more than an easy walk from a transit station. Addressing these challenges is critical to improving transit ridership.

Transit is a critical component of Washington County's transportation system, reducing automobile trips and congestion, providing travel options for people without vehicles or those who choose not to drive, curbing greenhouse gas and other emissions, and reducing transportation costs for individuals and families. The American Public Transportation Association reports that residents of the Portland region save an average of \$867 per month if they use transit instead of owning and driving a car.

### **1.3 Population and Employment**

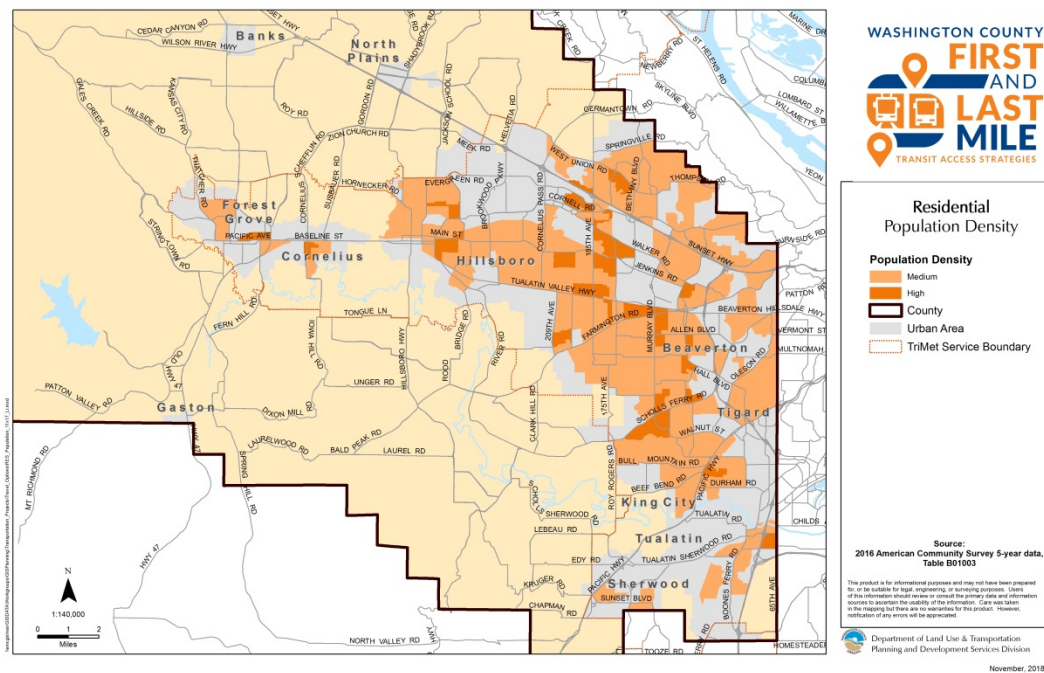
Home to nearly 300,000 jobs and over 600,000 residents, Washington County is expected to experience significant growth over the next 20 years, as it is among the fastest growing regions in the state, adding an average of just over one resident and 1.3 jobs per hour in 2017. Washington County has seen increases in ethnic and cultural diversity and shifts in age distribution. Within the urban area, the Washington County has become more diverse and increasingly dense. Outside the urban area, the residential population is slightly older than the countywide average, with lower concentration of people of color and low-income households. This section highlights the population, demographic and employment densities throughout the county. Knowing where the highest population densities are in Washington County is relevant to determine accessibility to transportation services and infrastructure, and to inform priorities and partner outreach.

- **Figure 1-1 Population Density:** The highest population densities are in areas directly adjacent to transit service in the cities of Beaverton, Hillsboro, and Tigard. Rural areas outside of the TriMet service area have a lower population density of four people or less per acre.
- **Figure 1-2 Overlapping Demographics above Regional Rates (Race/Ethnicity and non-English Speakers):** Washington County has grown much more diverse – most diverse in the region – with over 32% non-white residents.
- **Figure 1-3 Employment Density:** Since 2010, the County has added over 70,000 jobs (8,500 jobs per year). High employment density is concentrated along the Sunset and

Highway 217 corridors within Beaverton, Hillsboro, and Tigard. The two largest employers are Nike and Intel.

- **Figure 1-4 Employers in Washington County:** Coinciding with the employment density trends, Beaverton and Hillsboro areas have the highest number of employees. A total of 26% of Washington County employees work in Hillsboro area and 23% work in Beaverton area. Twenty-five percent work in parts of the county outside Beaverton, Hillsboro, Tigard, and Tualatin.

**Figure 1-1 Washington County Population Density**



**Figure 1-2 Overlapping Demographics above Regional Rates (Race/Ethnicity and non-English Speakers)**

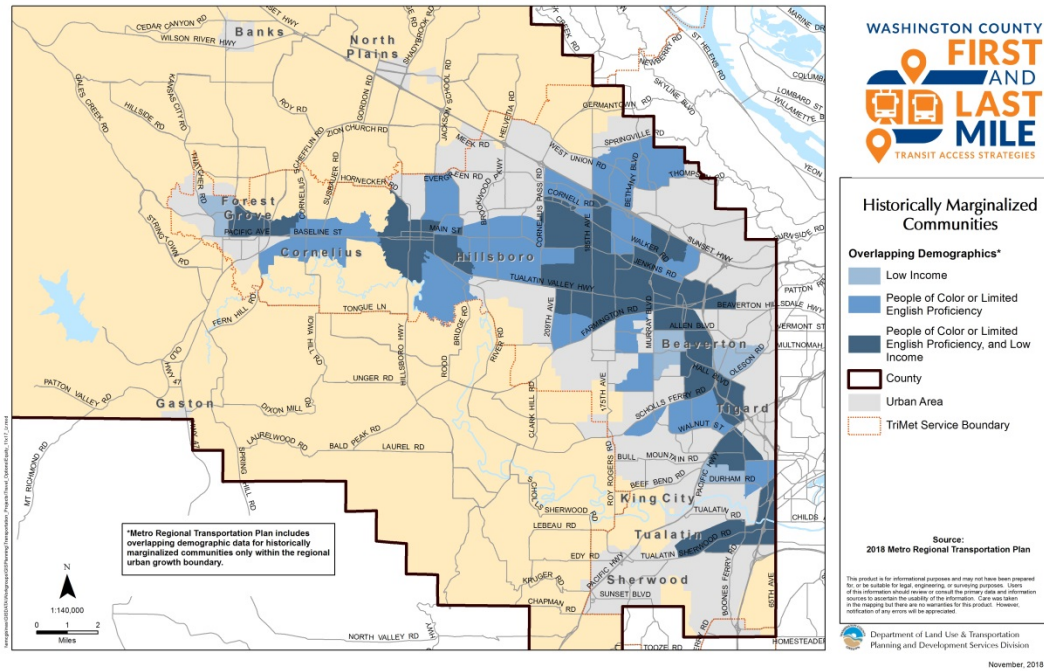
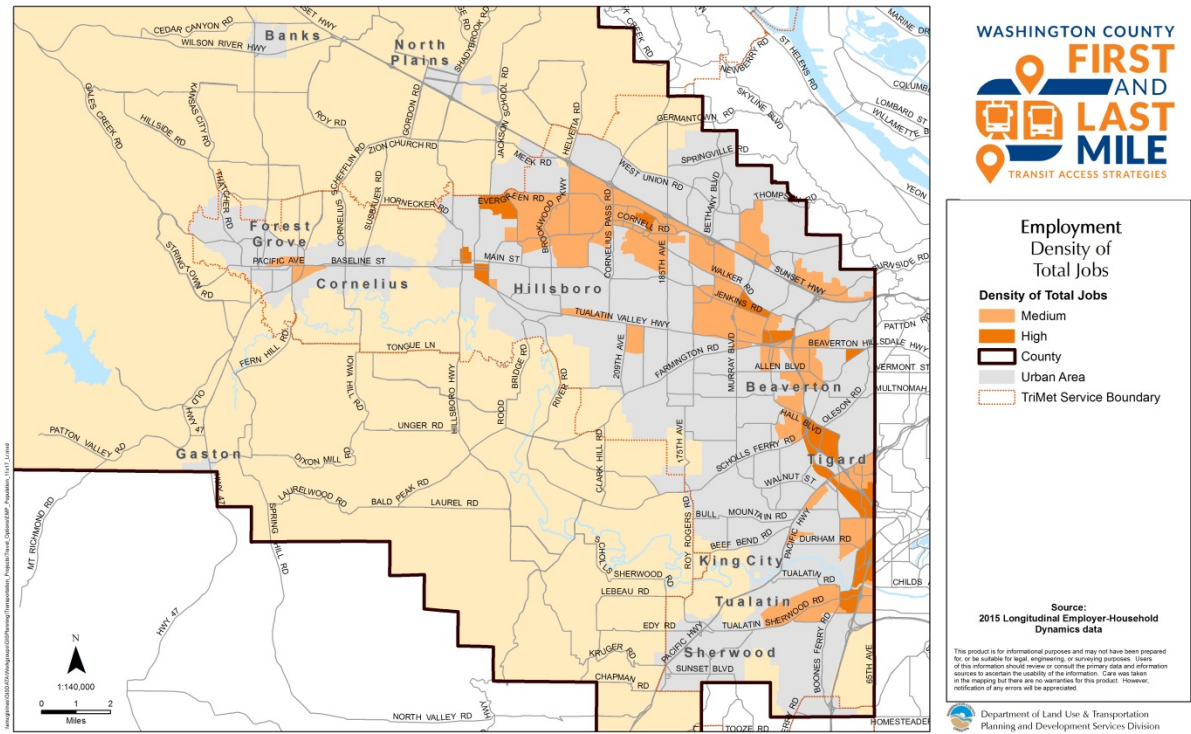


Figure 1-3 Washington County Employment Density



**Figure 1-4 Number of Employers in Washington County by Location and Size**

Employer Size	All of Washington County	Beaverton area	Hillsboro area	Tigard area	Tualatin area	All Other Parts of Washington County
2,000 employees or more	4	0	2	0	0	2
1,000 – 1,999 employees	7	1	3	1	1	1
500 – 999 employees	25	2	7	2	3	11
100 – 499 employees	375	91	96	73	36	79
Less than 100 employees	19,533	4,342	3,301	3,091	1,457	7,342
<b>Total # of Employers</b>	<b>19,944</b>	<b>4,436</b>	<b>3,409</b>	<b>3,167</b>	<b>1,497</b>	<b>7,435</b>

Source: Oregon Employment Department 2015 Quarterly Census of Employment and Wages

## 1.4 Population and Employment Growth and Trends

Over the past 40 years, population has grown by 385%, from 158,000 people to 606,000 people and employment by 530%, from 52,000 jobs to 276,000 jobs. This dramatic growth is expected to slow down but continue above the national average.<sup>1</sup>

Washington County’s population and employment are expected to grow significantly by 2035:

- Population is projected to increase to 758,500 people.
- Employment is projected to increase to 382,000 jobs.<sup>2</sup>

This growth is expected to have significant impacts on Washington County’s transportation system. The number of trips is expected to increase 43% by 2035, with transit, bicycling and pedestrian travel increasing the most (increases of 90%, 54% and 52%, respectively).<sup>3</sup>

<sup>1</sup> Washington County Transportation System Plan User’s Guide. November 2015. Retrieved from <https://s3.amazonaws.com/washcomultimedia/CMSBigFiles/TransportationPlanUsersGuideFinal.pdf>

<sup>2</sup> Ibid.

<sup>3</sup> Washington County Transportation System Plan User’s Guide. November 2015. Retrieved from <https://s3.amazonaws.com/washcomultimedia/CMSBigFiles/TransportationPlanUsersGuideFinal.pdf>

## 2.0 Transportation context

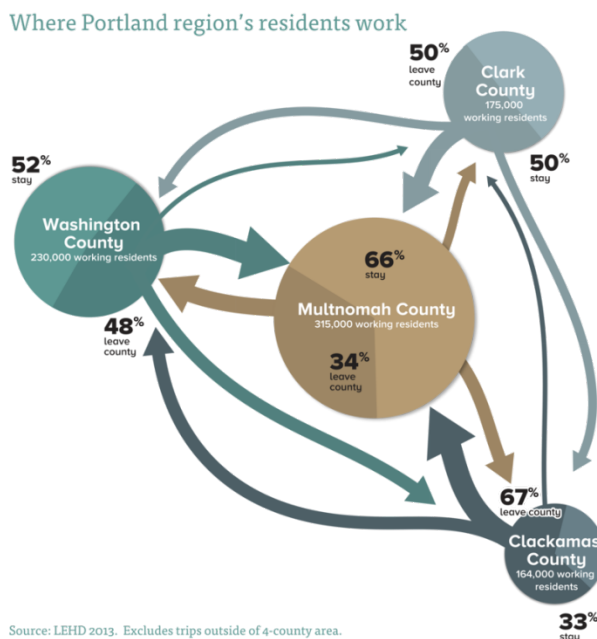
Washington County is home to a variety of transportation services in the Portland metro region. Many of the more urban areas of the county are well connected by a variety of travel options, but the vast majority of commuters and residents drive alone to work. The county—particularly the urban areas—are rapidly growing with increasing numbers of employees and residents, heightening the need for transportation options. This section details commute travel patterns, followed by a summary of existing travel options—transit, biking, walking, and other services—available in Washington County.

### 2.1 Commute Travel Patterns

Washington County is a critical economic generator for the state of Oregon. Home to over 600,000 people and nearly 300,000 jobs, the county attracts a large number of trips from throughout the Portland metropolitan region and beyond. To date, driving alone has been the primary mode of travel for the majority of residents and employees in the county. As growth proceeds in the coming decades, congestion on key thoroughfares like US 26 will worsen if current trends continue, presenting an opportunity for increasing transit ridership.

Figure 2-1 illustrates the work locations for residents who work in Washington, Multnomah, Clackamas, and Clark Counties. Metro recently conducted a regional snapshot of transportation, which revealed that the number of Washington County working residents (230,000) who work in the county (52%) and who work outside the county (48%) is almost evenly split. The largest portion of Washington County employees who live outside of the county commute from Multnomah County.

**Figure 2-1 Work Locations of Portland Metro Region Working Residents**



As shown in Figure 2-2, most employees who commute into Washington County for work primarily live in Multnomah and Clackamas Counties.

**Figure 2-2 Commute Flow of Washington County Employees, by County**

	# of Jobs	% of Jobs
Total Jobs in Washington County	284,238	100%
Live and Work in Washington County	146,369	51.5%
In-Commuters	137,869	48.5%
<i>Multnomah County, OR</i>	<i>52,489</i>	<i>18.5%</i>
<i>Clackamas County, OR</i>	<i>30,844</i>	<i>10.9%</i>
<i>Marion County, OR</i>	<i>10,124</i>	<i>3.6%</i>
<i>Clark County, WA</i>	<i>9,820</i>	<i>3.5%</i>
<i>Yamhill County, OR</i>	<i>8,554</i>	<i>3.0%</i>
<i>Columbia County, OR</i>	<i>3,766</i>	<i>1.3%</i>
<i>Lane County, OR</i>	<i>3,286</i>	<i>1.2%</i>
<i>Polk County, OR</i>	<i>2,072</i>	<i>0.7%</i>
<i>Deschutes County, OR</i>	<i>2,008</i>	<i>0.7%</i>
<i>All Other Locations</i>	<i>14,906</i>	<i>5.2%</i>

Source: U.S. Census LEHD OnTheMap "Inflow/Outflow Analysis for All Jobs", 2015.

## 2.2 Commute Mode Split

To analyze how Washington County employees get to work, Figure 2-3 compares commute mode shares for employees who:

- Live and work in Washington County
- Live in Washington County and work outside of the county
- Live outside Washington County and work in Washington County
- Live outside Washington County and work outside Washington County

Single-occupancy vehicle (SOV) makes up the largest portion of mode share regardless of home or work location. Washington County employees are more likely to take transit to work if they live outside the county (4.4%) rather than employees who live and work in the county (3.3%). The highest percentage of people who walk to work live and work within Washington County (3.9%). Ten percent of both Washington County employees who live in the county and live outside of the county carpool to work. Similarly, approximately 10% of Washington County

residents who work outside the county carpool to work. Bicycling makes up the smallest percentage of the commute mode split.

**Figure 2-3 Commute Mode Share Patterns in Washington County**

Home Location	Work Location	Mode Share					
		Drive Alone	Transit	Carpool	Bicycle	Walk	Other <sup>2</sup>
<b>Washington County</b>	Washington County	72.9%	3.3%	10.0%	1.3%	3.9%	8.7%
	Outside Washington County <sup>1</sup>	76.1%	12.1%	10.1%	0.3%	0.4%	0.9%
<b>Outside Washington County</b>	Washington County	83.4%	4.4%	10.0%	1.1%	0.4%	0.7%
	Outside Washington County	68.8%	7.3%	9.6%	2.7%	3.7%	7.9%

Notes: (1) The regions in “Outside Washington County” include Multnomah, Clackamas and Clark Counties. (2) Other modes include motorcycle, working from home, taxis, and other.

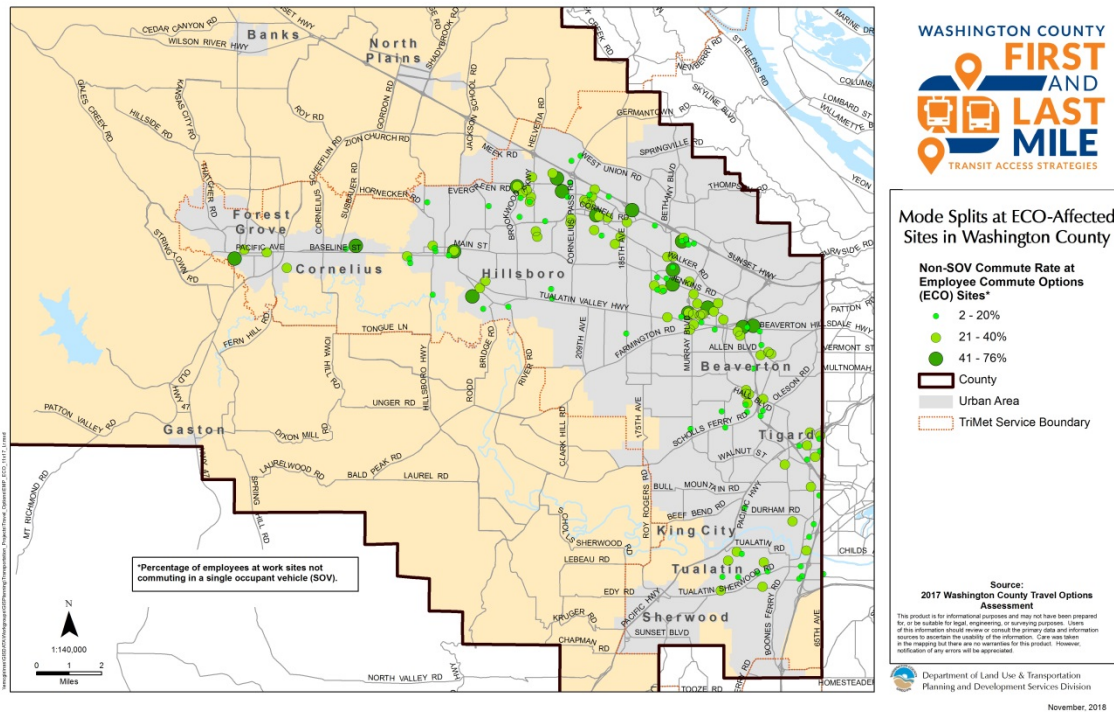
Source: Census Transportation Planning Products, 2006-2010

Oregon law requires all employers in the Portland metro area<sup>4</sup> with more than 100 employees at a work site to develop a transportation demand management program to reduce single-occupancy vehicle trips to work by 10% within three years. The purpose of this program is to comply with federal regulations to reduce smog levels in the Portland area. These employment sites, known as Employer Commute Options (ECO) sites, are shown in Figure 2-4. Each site is classified by the percent of employees who do not drive alone to work—non-SOV mode share. Non-SOV includes taking transit, ridesharing, biking, walking, and telecommuting.

A large number of the ECO sites in the Beaverton and Hillsboro area report a relatively high percentage (over 40%) of employees who do not drive alone to work. Additionally, some ECO sites along frequent bus service routes have a high concentration of non-SOV commuters.

<sup>4</sup> The law only applies to employers within the Portland Air Quality Maintenance Area.

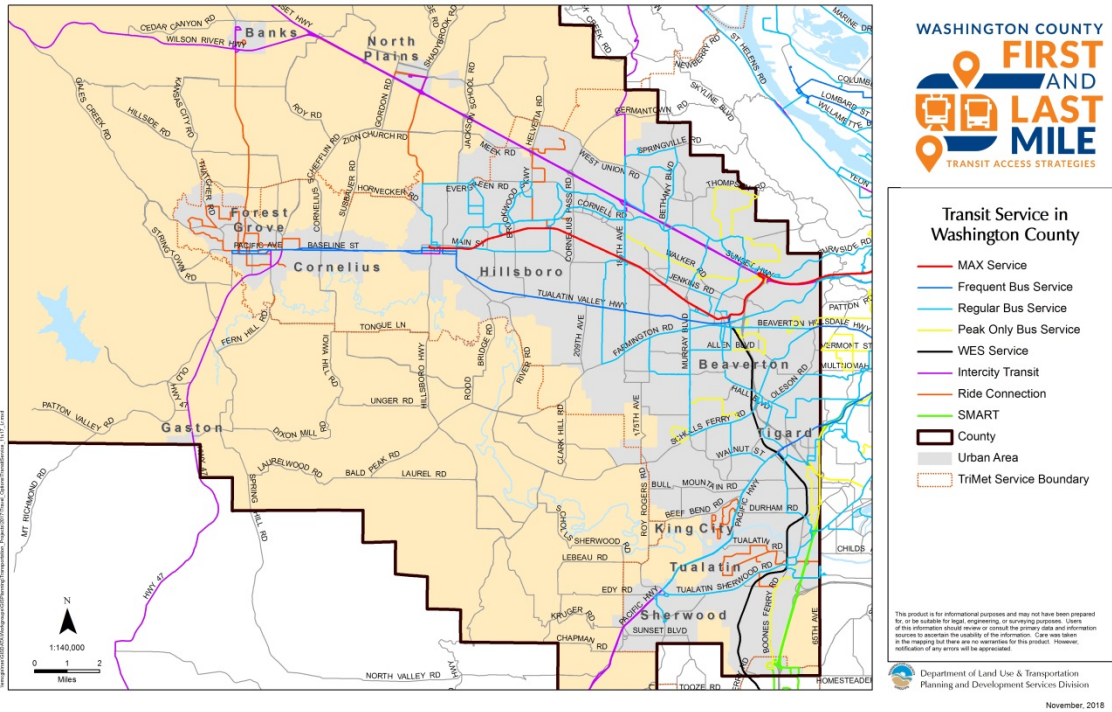
Figure 2-4 Mode Splits at ECO-affected Site in Washington County



### 2.3 Existing and Planned Future Transit

TriMet is the primary transit service provider in Washington County, offering local and regional bus, MAX light rail, and Westside Express Service (WES) commuter rail. The City of Wilsonville provides South Metro Area Regional Transit (SMART) bus service that links to the TriMet system. Non-profit organizations (e.g. Ride Connection) and other regional transit service providers (e.g. Yamhill County Transit Area) also provide public transportation services, including last mile shuttles and intercity service. The following sections summarize the public transit services available within Washington County, which are also illustrated in Figure 2-5. Section 2.3.4 summarizes applicable future transit plans.

Figure 2-5 Washington County Transit Service



### 2.3.1 TriMet Service

TriMet provides transit service to residents and employees throughout Washington County. Services include MAX light rail, WES commuter rail, and fixed-route bus, and LIFT/paratransit.

#### MAX

TriMet’s Red and Blue MAX lines serve Washington County. The Blue Line connects Hillsboro with Gresham via downtown Portland. The Red Line connects Beaverton and the Airport via downtown Portland. The Red Line will extend to Hillsboro Fair Complex in 2024. These lines will share the same route between Fair Complex and I-205 in East Portland and both make connections to other MAX lines, including the Yellow, Green, and Orange lines. Together the Red and Blue MAX lines provide the spine for transit mobility, accounting for nearly 40 percent of all weekday ridership in Washington County.<sup>5</sup>



The Beaverton Transit Center is a key transfer point between MAX, WES, and bus lines.

Source: Washington County Travel Options Assessment

<sup>5</sup> TriMet Passenger Census Reports Spring 2018

## WES

TriMet's commuter rail line, known as the Westside Express Service (WES), provides weekday peak-only service between Wilsonville and the Beaverton Transit Center. The service began in 2009 with the purpose of connecting communities and employment sites along the corridor as well as to MAX. Major Washington County employment centers along the route include Central Beaverton, Washington Square, Tigard Triangle, and Tualatin Town Center. WES benefits both Washington County residents—who commute to and from work in other parts of the County or to Portland—and Washington County employees—who commute to and from work in Washington County. WES ridership has remained relatively low with approximately 1,600 weekday boardings and is the most expensive service TriMet operates at \$21.12 per ride.<sup>6</sup>



WES commuter rail provides weekday peak-only service between Beaverton and Wilsonville.

Source: TriMet Flickr

<sup>6</sup> TriMet Passenger Census Reports Spring 2018

## Fixed-Route Bus Service

Thirty-one local and regional bus routes serve Washington County. Two of these routes—Lines 12 and 57—provide frequent service, which is identified by TriMet as service every 15 minutes or better most of the day, every day. Line 12 connects Tigard with Downtown and Northeast Portland, and Line 57 provides service between Forest Grove and Beaverton. Frequent service is also available between Raleigh Hills, Hillsdale, and Portland where Lines 54 and 56 combined provide frequent service. As noted below under section 2.3.4 TriMet has committed to improving fixed-route bus service over the next five years funded in part by a new statewide employee payroll tax passed as part of House Bill 2017 (HB2017). Notable service enhancements include upgrades to Lines 20, 54 and 76 to frequent service, extending Line 56 to Progress Ridge and South Cooper Mountain, reroute of Line 47 to South Hillsboro, new line on Main St/Baseline between Hillsboro and Willow Creek TC, and frequency upgrades to Line 48.

The bus networks provide important connections for people who do not live or work in close proximity to a MAX or WES station and provide access to key destinations.



Bus passengers can make connections between various fixed route bus lines at the Tigard Transit Center.

Source: Steve Morgan, Wikimedia Common

### 2.3.2 SMART Transit

South Metro Area Regional Transit (SMART) operates nine bus routes throughout Wilsonville and surrounding communities.

Most routes operate Monday through Friday from 5:30 a.m. to 8:30 p.m. Routes 4 and 2X also operate on Saturdays from 8:30 a.m. to 5:30 p.m. All routes pass through Wilsonville Station, also known as “SMART Central,” where transit users can connect to the WES Commuter Rail. Connections are also available to TriMet MAX, TriMet bus, Cherriots (Salem-Keizer Area Public Transit), and Canby Area Transit.

A Farmer’s Market Trolley operates on Thursdays, May through September, and the Villebois Circulator Shopping Shuttle—a 2016 pilot project—provides access to grocery stores from residential areas.

### 2.3.3 Intercity Services

Washington County employees depend on intercity transit service from outlying communities. Columbia County Transit, also known as CC Rider, Line 2 connects the St. Helens Transit Center in Columbia County with the Portland Community College Rock Creek Campus in Washington County and the Willow Creek Transit Center in Hillsboro. The service operates Monday through Friday between 6:30 a.m. and 7:00 p.m. with three AM routes and three PM routes in each direction.

The Tillamook County Transportation District, also known as The WAVE, Route 5 provides intercity transit service along Highway 6 between Downtown Portland, Sunset Transit Center, North Plains, Banks, and Tillamook. The service operates seven days a week with two trips in each direction.



All SMART bus routes travel to and from Wilsonville Station, also known as “SMART Central”.

Source: SMART

Intercity service between Washington County and McMinnville is also provided by two Yamhill County Transit Area routes. Route 33 connects McMinnville, Forest Grove, and Hillsboro Transit Center. Buses operate Monday through Friday between 6:00 a.m. and 7:30 p.m. with a frequency ranging from two and four-and-a-half hours. Route 44 runs along Highway 99W, connecting McMinnville and the Tigard Transit Center. Buses operate Monday through Friday between 5:00 a.m. and 9:00 p.m., with a frequency of one to three hours. On Saturday, buses operate from 8:00 a.m. to 7:30 p.m., with four trips each way.



Columbia County Transit, CC Rider, stops at the Willow Creek Transit Center, connecting with other TriMet bus routes and the MAX Blue line.

Source: Steve Morgan, Wikimedia Commons

### 2.3.4 Transit Plans

Recent comprehensive service planning efforts outline a future transit vision in Washington County. These efforts are summarized below:

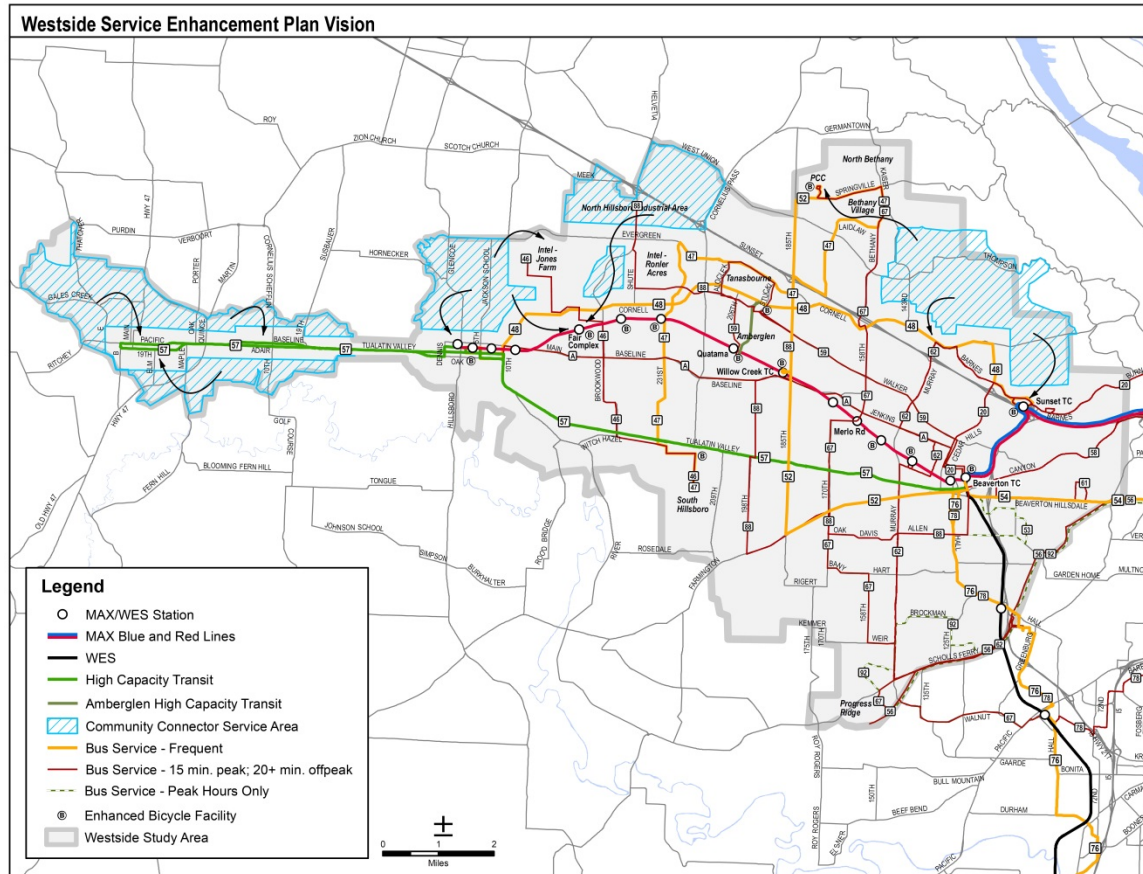
- **Westside Service Enhancement Plan (2013)** is part of TriMet’s future transit vision for Hillsboro, Beaverton, Forest Grove, Cornelius and unincorporated Washington County north of Scholls Ferry Road. The major themes of the WSEP were to improve transit access and mobility by expanding north-south service to complete the grid of transit routes in Washington County, upgrading several existing high-utilization lines to Frequent Service (15 minute service or better, all day, 7 days a week), increasing local bus frequencies to 15 minute during peak and 30 minutes at minimum during off-peak,

and implementing transit priority treatments to reduce rider delays. Figure 2-6 illustrates the WSEP.

- **Southwest Service Enhancement Plan (2015)** followed the WSEP and established a comprehensive service vision to areas of Washington County roughly south and east of Scholls Ferry Road, including the cities of Tigard, Tualatin, and Sherwood. The major themes of the SWSEP were to improve transit connections between suburban residential communities and employment centers, expand the Frequent Service bus network and increase frequency on local routes, and implement transit priority treatments. Figure 2-7 illustrates the SWSEP.
- **Coordinated Transportation Plan for Seniors and Persons with Disabilities (2016)** identifies the transportation needs of individuals with disabilities, older adults, and people with low incomes, provides strategies for meeting those local needs, and prioritizes transportation services for funding and implementation. In Washington County, the CTP specifically mentions Bethany, Aloha, and River Terrace as areas in need of additional service, with express bus service between Wilsonville and downtown Portland along I-5 and service between Tualatin/Wilsonville, Oregon City and Clackamas Town Center along I-205 as examples of needed intercity connections.
- **Tri-County Public Transportation Improvement Plan (2018)** is TriMet’s qualifying plan to receive and distribute employee payroll tax revenues, as part of HB 2017, for the expansion of public transportation services in Clackamas, Multnomah and Washington counties. The PTIP provides a 5-year roadmap for the roll-out of possible future services and programs to improve service in low-income communities using the service proposals in the SEPs as a blueprint, as well as planned revenue and service improvements and programs within the next 2 ½-years. Within the TriMet service district, the PTIP allocates nearly \$49 million in on-going, annual investments, including about \$3 million annually in the Regional Coordination Program and approximately \$50 million in onetime investments such as transit priority treatments, accessibility improvements, and electric bus program development. In the portion of Washington County outside the TriMet service district, the PTIP includes approximately \$1.2 million for service investments, with half designated for transit services in the rural area and half allocated to City of Wilsonville (served by South Metro Area Regional Transit). Figure 2-8 illustrates the PTIP for the urban area.
- The rural service improvements include:
  - Expanding service hours for the West Link route serving North Plains and Banks (formerly the Washington County Community Bus), and exploring potential route modifications to better serve the North Hillsboro employment center
  - Additional funding for demand response service by purchasing additional vehicles to expand the current fleet capacity better accommodate demand

- Explore the feasibility of developing a rural workforce shuttle in coordination with organizations that server and/or work with the employees of agricultural and other rural economic sectors
- Expanding inter-regional service coordination with transit service providers in Columbia, Yamhill, Tillamook counties which connect to TriMet’s service district in Washington County.
- **SMART Transit Master Plan (2017)** is part of SMART’s future transit vision for the City of Wilsonville and unincorporated Washington County in the Coffee Creek area. Figure 2-9 illustrates the SMART’s Transit Master Plan.
- Washington County Service Needs Assessment was completed as part of Washington County Transportation System Plan update in 2014. Transit service areas, classified by frequency level of service, are overlaid with households and jobs per acre. Transit-supportive densities are compared to transit service to determine whether an area is not served, underserved, appropriately served, or well served by transit. The analysis was updated in 2018. These conditions are illustrated in Figure 2-9.

**Figure 2-6 Westside Service Enhancement Plan**



**Figure 2-7 Southwest Service Enhancement Plan**

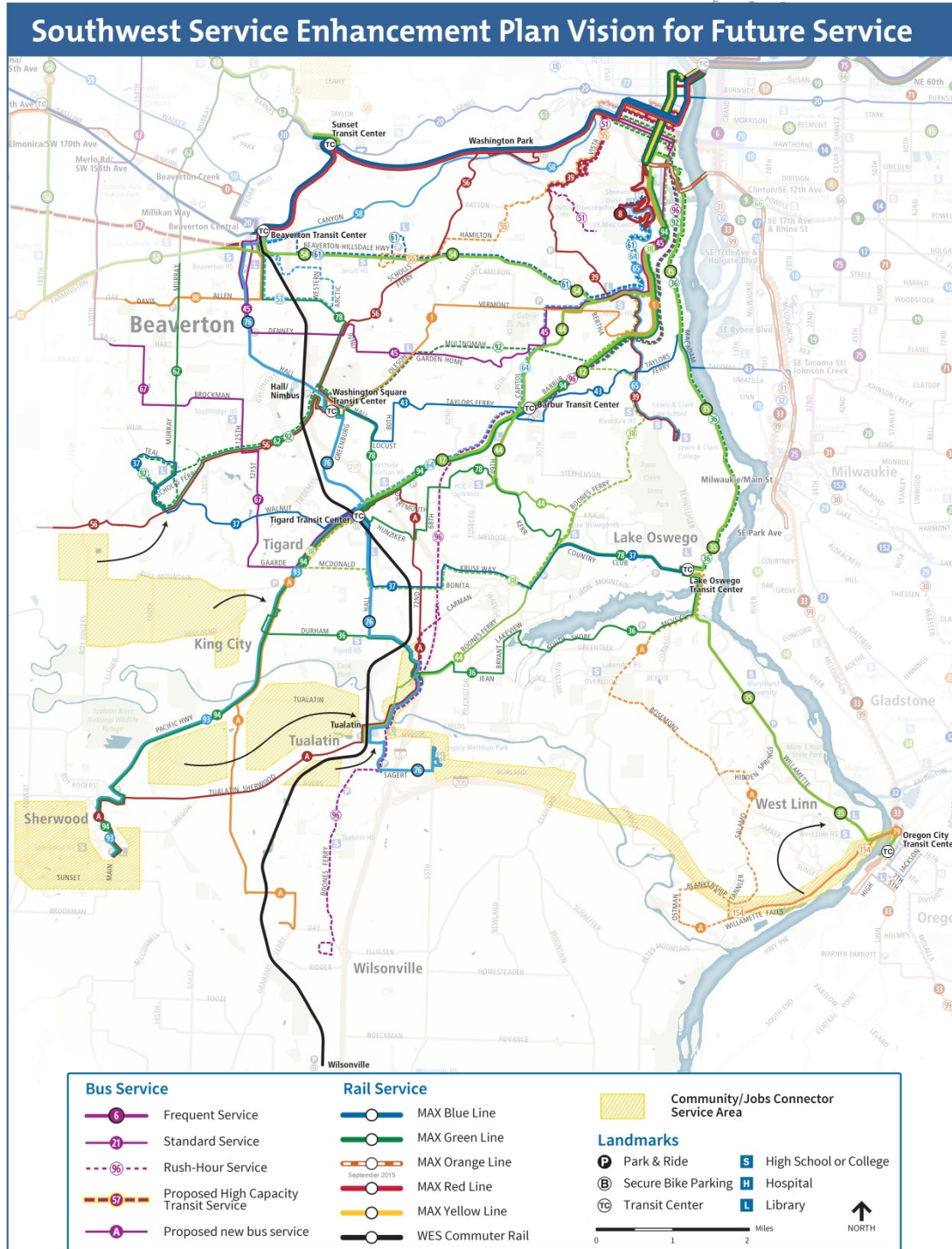


Figure 2-8 Tri-County Public Transportation Improvement Plan

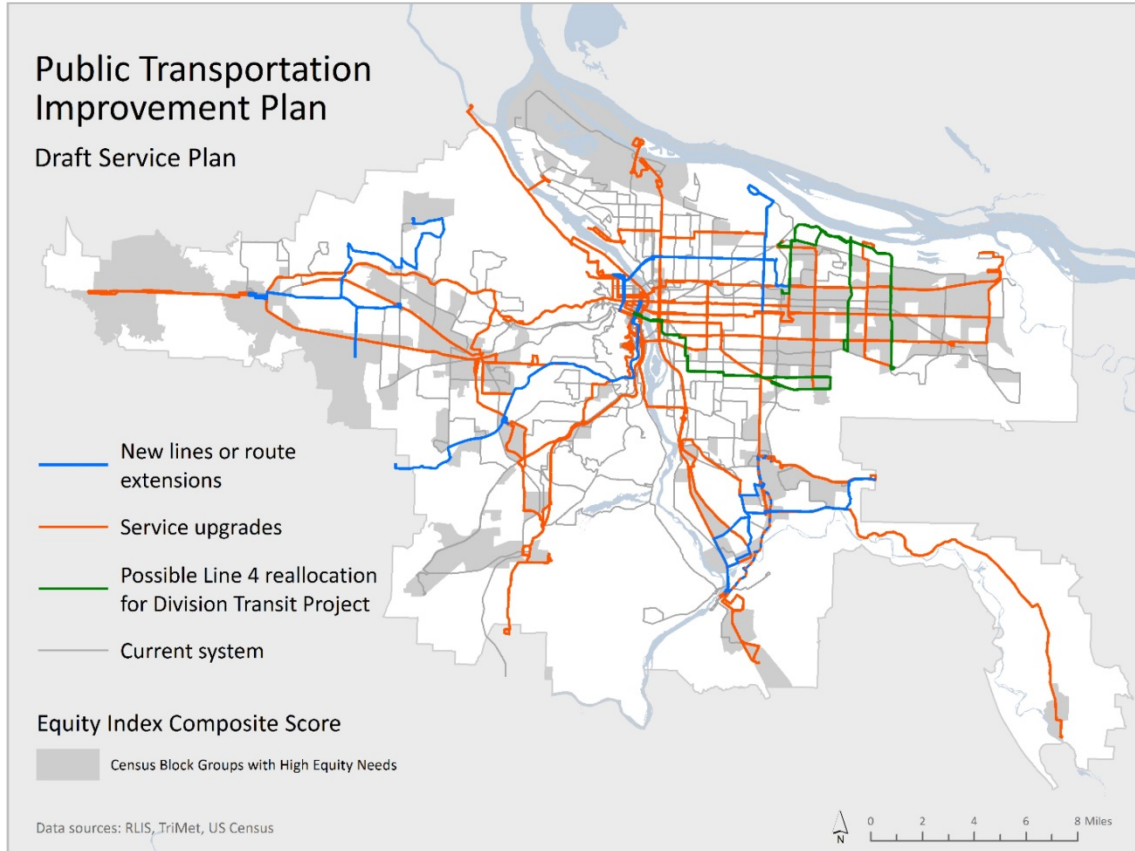
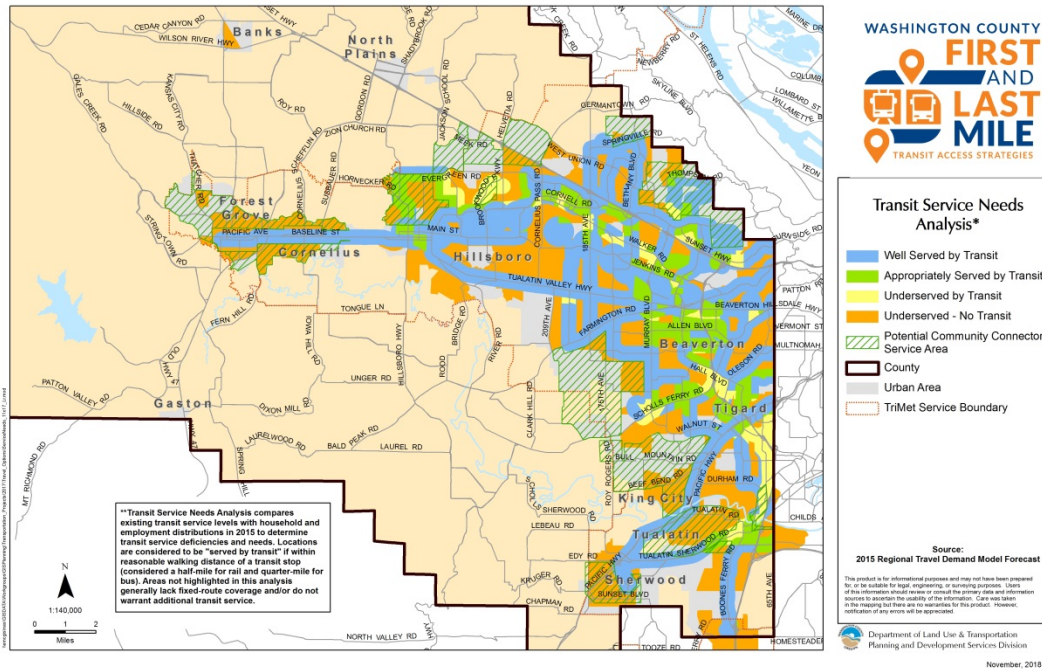


Figure 2-9 Washington County Service Needs Assessment



## 2.4 First and Last Mile Services

While local bus networks, such as TriMet and SMART, serve as an extension of regional services, many transit users need a first or last mile connection to complete their trip. Transportation services such as shuttles, ridesourcing companies, or car sharing can serve as a solution and are available in Washington County.

### 2.4.1 Publicly Operated Shuttle Service

There are several publicly operated shuttles in Washington County that provide local service within the community as well as important last mile connections between MAX and WES stations and major employment areas. These shuttles will be funded in part by Statewide Transportation Improvement Fund (HB 2017) along with other state, federal and local funding and contributions.

#### GroveLink

GroveLink is a shuttle service that operates three routes within Forest Grove, Monday through Friday. The East and West loop routes provide critical connections for employees and students, connecting central Forest Grove and Pacific University with other parts of the city, including Forest Grove High School. These two loops operate every 30 minutes during the peak hours (6:30 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.) and every 60 minutes between 9:00 a.m. and 4:00 p.m. The Employment Service route offers only AM service between 6:00 a.m. and 6:40 a.m. and PM service between 2:45 p.m. and 3:10 p.m. It provides access to an industrial area along 24th Ave and to the Via Systems building on Poplar Lane. Connections to TriMet’s Line 57 are available along all three routes. In addition to the designated bus stops, flag stops are also permitted on residential streets on the route as well as route deviations, which must be requested at least one day in advance. Dedicated funding will improve this service with weekend service by 2021.

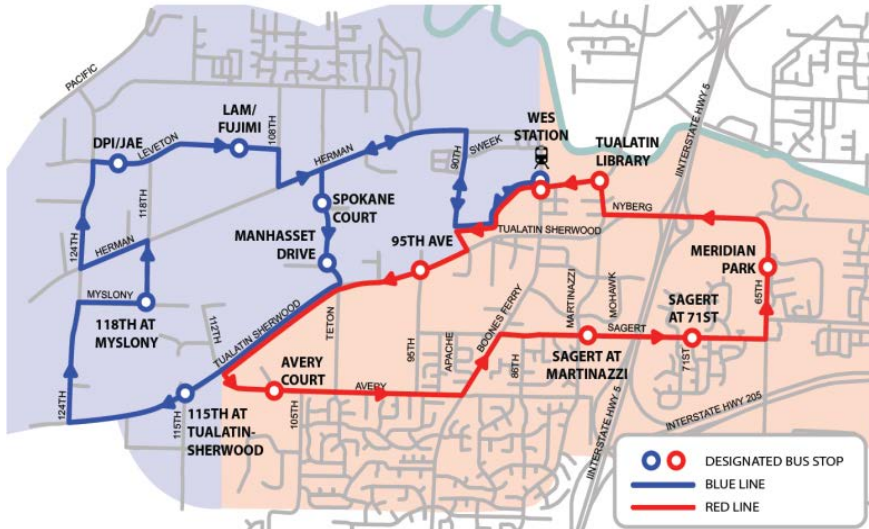


GroveLink provides service throughout Forest Grove and connects to TriMet’s Line 57.

Source: Ride Connection

## **Tualatin Shuttle**

The Tualatin Shuttle is a deviated-fixed route service that provides access to Tualatin WES station and industrial/employment zones in the surrounding area. This free service operates two routes—Red Line and Blue Line—Monday through Friday in coordination with the WES schedule. Between 5:00 a.m. and 10:00 a.m., shuttles arrive at the station shortly after the arrival of the southbound WES train. Between 3:00 p.m. and 7:00 p.m., shuttles arrive at the station a few minutes before the arrival of the northbound WES. Route deviations are available up to a half mile off the route to pick up or drop off passengers, though only one scheduled deviation is allowed per trip. Flag stops are also available along the route. Dedicated funding will improve this service with additional weekday trips by 2021.



The Tualatin Shuttle route (left) connects WES to employers in the surrounding areas.



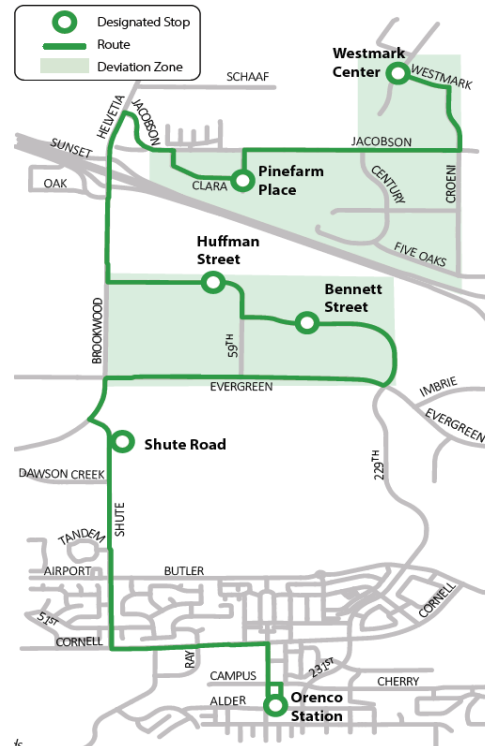
The Community Bus route (right) connects Banks and North Plains to Forest Grove and Hillsboro. Source: Ride Connection

### Westlink Community Bus

The Westlink Community Bus (also referred to as the Washington County Bus Service) is a fare-free rural transit service, connecting the Hillsboro Transit Center, North Plains, Banks, and Forest Grove along Glencoe Road, Sunset Highway, and Nehalem Highway. The service operates two trips in each direction on Monday through Friday from 7:00 am to 9:00 am and 4:30 p.m. to 7:00 p.m. There are five designated stops: one in Forest Grove, North Plains, and Hillsboro, and two in Banks. Dedicated funding will improve this service with additional weekday trips by 2021.

### North Hillsboro Link

The North Hillsboro Link is a deviated fixed-route service launched in 2015 that connects the Orenco MAX Station with suburban employment destinations throughout the North Hillsboro area. The shuttle was motivated by the business community who identified last mile needs for their employees traveling from Orenco Station. Many major employers are served by this route including Amazon, Intel, Radisys, and FEI and Reser’s Fine Foods. As of October 2018 the free service is available seven days a week in the morning between 5:30 a.m. and 1:30 p.m. and in the afternoon/evening between 1:30 p.m. and 9:30 p.m. Route deviations are available ([see the shaded areas of the service area map](#)), although only one scheduled deviation is allowed per trip. Flag stops are also available along the route.



fs. North Hillsboro Link provides connections between employment areas and MAX and bus routes at the Orenco Max Station.

Source: Ride Connection

### King City and Beaverton RideAbout

The RideAbout shuttles provides fareless service between residential areas and grocery stores. Operated by RideConnection, the service primarily targets older adult communities but is open to the general public. Each of the three routes operates as a flag stop system—allowing riders to hop on the shuttle anywhere along the route by waving down the driver—Wednesday through Friday from 9:00 a.m. to 3:00 p.m. with a frequency of every two hours.

### 2.4.2 Privately Operated Shuttle Service

In addition to publicly-operated transit service, several Washington County employers provide shuttle service for their employees. Although the shuttles require significant operations and capital investment, employers see them as an important strategy to encouraging their employees to take transit to work, and attracting and retaining quality employees.

#### Intel Shuttle

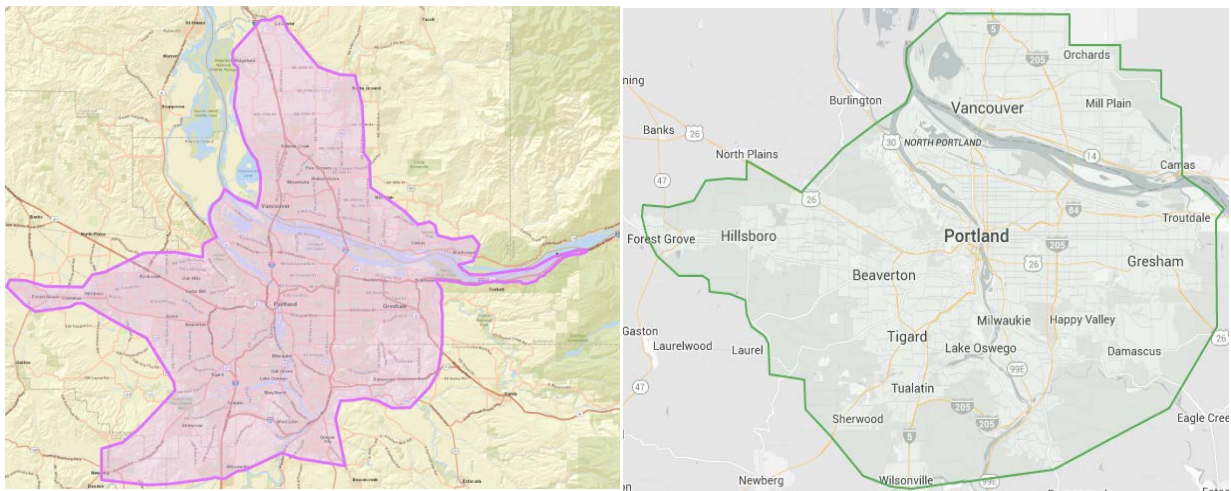
Intel provides shuttles between MAX and its three main campuses during peak commute hours (7:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m.). Shuttles operate every 10–20 minutes carrying 133,520 passengers in 2014, or approximately 532 people per day. Intel also operates a shuttle from their campuses to the Hillsboro Airport for employees to connect to Intel’s headquarters in Santa Clara, California.

## Nike Shuttle

Nike operates five shuttle routes that connect employees internally between campus buildings and externally to nearby MAX stations, such as the Beaverton Creek and Merlo/SW 158<sup>th</sup> Street stations. Shuttle service is available every 20 minutes between 6:00 a.m. and 7:00 p.m. Nike supplements the shuttles with a taxi program which provides on-demand transportation service.

Nike also launched its corporate bike share program in 2014 with over 350 bikes available for employees at MAX stations and on campus.

### 2.4.3 Ridesourcing Companies



As of May 2016, Lyft's service area (left) and Uber's service area (right) of the Portland metro region includes major Washington County cities, such as Beaverton, Hillsboro, and Tigard.

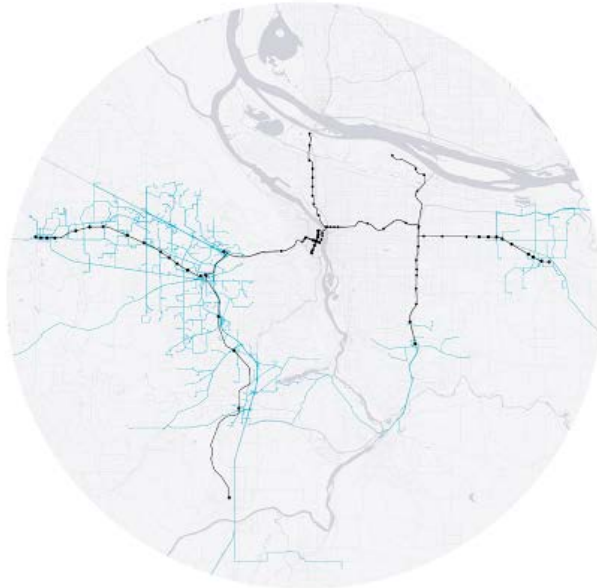
Source: Lyft and Uber

Ridesourcing refers to on-demand, point-to-point transportation services that are scheduled and paid for using an online-enabled application or platform, such as smart phone apps. Two ridesourcing companies—Uber and Lyft—operate in Washington County, providing local and regional connections.

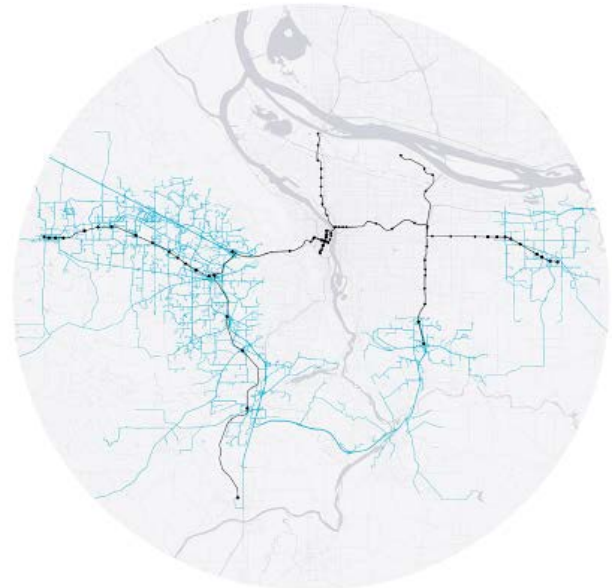
The Portland metro area has seen significant growth in the use of this travel option since the ridesourcing companies came to Portland in early 2015. From May through August of 2015 during Portland's Transportation Network Company Pilot Program, Uber and Lyft saw a 125% increase in ridership. Monthly ridership increased from 2,300 in May to over 8,000 in August.<sup>7</sup> As of October 2018, Uber's service area in the Portland metro region includes major Washington County cities, such as Beaverton, Hillsboro, and Tigard.

<sup>7</sup> PBOT. Portland's Private for-Hire Transportation Market: Summary Report of the PFHT Innovation Pilot Program. October 2015. Retrieved from <http://media.oregonlive.com/commuting/other/PFHT%20Summary%20Report%2010.19.15.pdf>

FEBRUARY 2015



AUGUST 2015



Uber trips (shown in blue) were highly concentrated around transit (shown in black) in both February and August 2015. Uber trips were concentrated in Washington County along the MAX blue and red lines as well as the WES.

Source: Uber

The emergence of ridesourcing companies provides another alternative travel option that can be particularly useful for first and last mile connections. According to Uber, one-quarter of Uber trips made during the first six months of operation (February to September 2015) started or ended within a quarter mile of a MAX or WES station outside of Portland. As shown in the photo on page 30, many of these trips originated or ended in Washington County.<sup>8</sup> Lyft and Uber have also developed carpool services—known as “Lyft Line” and “Uber Pool”—that offer users the option to share their ride with other users traveling in the same the direction at a much lower cost than using the service individually. Although these services are not yet available in the Portland metro region, they may be available as a future option for Washington County residents and commuters.

#### **2.4.4 Car Sharing**

Car sharing allows for on-demand access to a shared fleet of vehicles on an as-needed basis. Three car sharing services are available in Washington County: Zipcar, ReachNow and Turo. Other services, such as Car2go and Getaround, are only available for trips originating and ending

<sup>8</sup> Uber + TriMet: Moving Portland Together. September 2015. Retrieved from <https://newsroom.uber.com/us-oregon/ubertrimet/>

in Portland, but users can travel outside of Portland (e.g. to Washington County) while using the service.

### Zipcar

Zipcar is a standard car share model that allows users to access a shared vehicle that is picked up and dropped off at a single location. To use the service, users must be Zipcar members, which requires a valid driver’s license and an annual member fee. Usage fees are at an hourly or daily rate. An additional mileage rate is also included for long distance trips. Users can reserve vehicles ahead of time on line or through a smart phone application. Zipcars are available at the following locations in Beaverton, Forest Grove, and Hillsboro:



Zipcars located at transit stations offer a multimodal connection for travelers in Washington County.

Source: TriMet

- **Beaverton:** Beaverton Transit Center (3 vehicles) and SW 141st Pl/Millikan Way (2 vehicles)
- **Forest Grove:** Pacific University (2 vehicles)
- **Hillsboro:** Quatama/NW 205th Ave Park & Ride (2 vehicles), Willow Creek/SW 185th Ave Transit Center Park & Ride (1 vehicle), and Tessera/NW 231st and Cherry Drive (2 vehicles)

Locating Zipcars at transit stations offers a last mile solution that is most cost effective for a shorter duration trip such as a shopping trip or medical appointment rather than a full work day.

### ReachNow

ReachNow is a car share model that allows users to access a shared vehicle that is picked up and dropped off anywhere within a defined service boundary. To use the service, users input a valid driver’s license and credit card through a smart phone application. Usage fees are by the minute, hour or day. ReachNow service areas in Washington County are at the following locations in Beaverton and Hillsboro:

- **Beaverton:** Tektronix campus
- **Hillsboro:** Orenco Station and Intel campuses

Locating ReachNow cars at transit stations offers a last mile solution for only sites within the defined service area.

## Turo

Turo is another car sharing service in Washington County that allows users to share their personal vehicle with others. Unlike Zipcar where vehicles are made available by the car share company, Turo serves as the platform for car sharing but relies on people to offer their own vehicles. To use the service, users must be Turo members, be at least 21 years of age, and possess a valid driver's license. Hosts (people sharing their vehicle with others) must also have their vehicle insured. In most cases, renters must schedule a meeting time with the car owner for vehicle pick-up and drop-off while other car owners offer delivery and will bring the car directly to the renter. Usage fees are at an hourly or daily rate and car owners receive up to 85% of the total trip price. Renters can reserve vehicles ahead of time online or through a smart phone application. Turo is available in the following Washington County cities: Beaverton, Hillsboro, Cornelius, North Plains, Sherwood, Tualatin, and Wilsonville.

## 2.5 Active Transportation

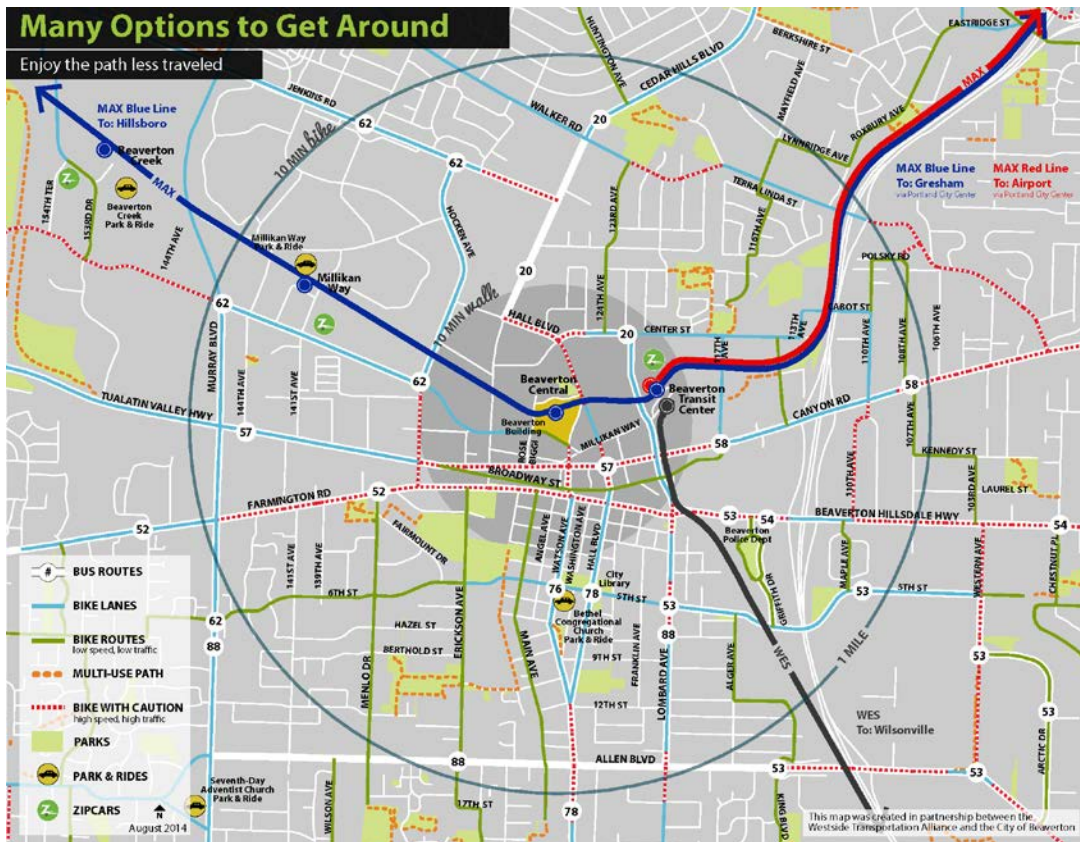
Both county and local efforts are underway to improve active transportation (biking and walking) conditions and encourage the use of active transportation. Recent efforts to promote walking and biking in Washington County include:

- [Washington County Bicycle Facility Design Toolkit \(2012\)](#). This document supplements County Road Design Standards and provides engineers and planners with a toolkit of options for addressing safety concerns and accommodating a wider range of bicyclists.
- [Washington County Bicycle and Pedestrian Improvement Project \(2013\)](#). This project created a comprehensive inventory of existing deficiencies of the biking and walking network on urban arterial and collector roadways. A list of 30 future bicycle and pedestrian projects was developed and prioritized. As part of the evaluation framework, a series of measures were identified and spatially mapped using available Geographic Information System (GIS) datasets, such as travel volumes and speeds, road network density and connectivity, and crash locations.
- [Washington County Neighborhood Bikeway Plan \(2014\)](#). This Plan serves as a toolkit for identifying, implementing, and marketing neighborhood bikeways.
- [Washington County School Access Improvement Study \(2016\)](#). This study documented traffic infrastructure barriers, such as walkway and bikeway gaps or lack of safe crossings that prevent or limit students' ability to walk and bike to school safely in the urban unincorporated area. A list of access and safety infrastructure projects with planning-level cost estimates were developed that focused on addressing "hazard" areas within 1 to 1.5 mile distance of schools that would eliminate the need for districts to provide busing, increasing walking and biking connectivity in the walk areas, to reduce traffic congestion around schools and increase access, and improving safety at intersections, crossings, and access points.

- [Beaverton Active Transportation Plan \(2017\)](#). This plan establishes Beaverton’s vision of pedestrian and bicycle routes and their functional classifications within and through the City.
- [TriMet’s Pedestrian Network Analysis Report \(2011\)](#) assessed the availability of pedestrian amenities, such as sidewalks and crosswalks, near high-ridership transit stops throughout the region. Locations with a significant concentration of high-ridership transit stops, a relatively high density and mix of land uses, and an observed deficiency of pedestrian facilities, were advanced as “focus areas” for further site study and consideration of solutions. Washington County contains four focus areas: 1) at the intersection of Farmington Road and Murray Blvd in Beaverton, 2) Tanasbourne Town Center in Hillsboro, 3) Tigard Transit Center in Tigard, and 4) Beaverton-Hillsdale Highway and Oleson Road/Scholls Ferry Road in unincorporated Washington County.
- [TriMet’s Bike Plan \(2016\)](#) developed a blueprint for greater integration between bicycles and transit in the Portland metro region, including the use of bicycles to support increased access to transit. Among other elements, the plan identified policies, strategies, and projects to meet this goal, including priority locations for bicycle facility improvements that facilitate first-mile/last-mile connections to transit, bicycle parking and “end of trip” facilities at stops/stations to reduce the need to bring bicycles on board transit vehicles, greater accommodations of bikes on-board buses and trains while considering the needs of other riders, and improve bike and bus interactions along transit corridors. Priority bicycle access projects were identified in several Washington County locations, including downtown Beaverton, Washington Square, downtown Hillsboro, Aloha, the Merlo MAX station area, and downtown Tigard. In Aloha, the plan identified the importance of the planned rebuilds of SW 198<sup>th</sup> and 209<sup>th</sup> avenues south of TV Highway to provide bicycle facilities and improve access to Line 57 service. The plan also identified focus areas for improved bicycle parking in Washington County, including secure bike parking at the Fair Complex MAX station, covered bike parking oasis with electronic-access bike lockers at Merlo Road MAX station, and basic bike racks at bus stops along TV Highway in Aloha and Hillsboro.

Baseline Road and Jenkins Road serves as a regional bikeway connection for cyclists traveling across the county. Tualatin Valley Highway is also a major cycling route in Washington County. This roadway connects Beaverton, Aloha-Reedville, Hillsboro, Cornelius, and Forest Grove. Bike lanes are available along some portions of the highway but many roadway users still feel unsafe biking along this corridor.

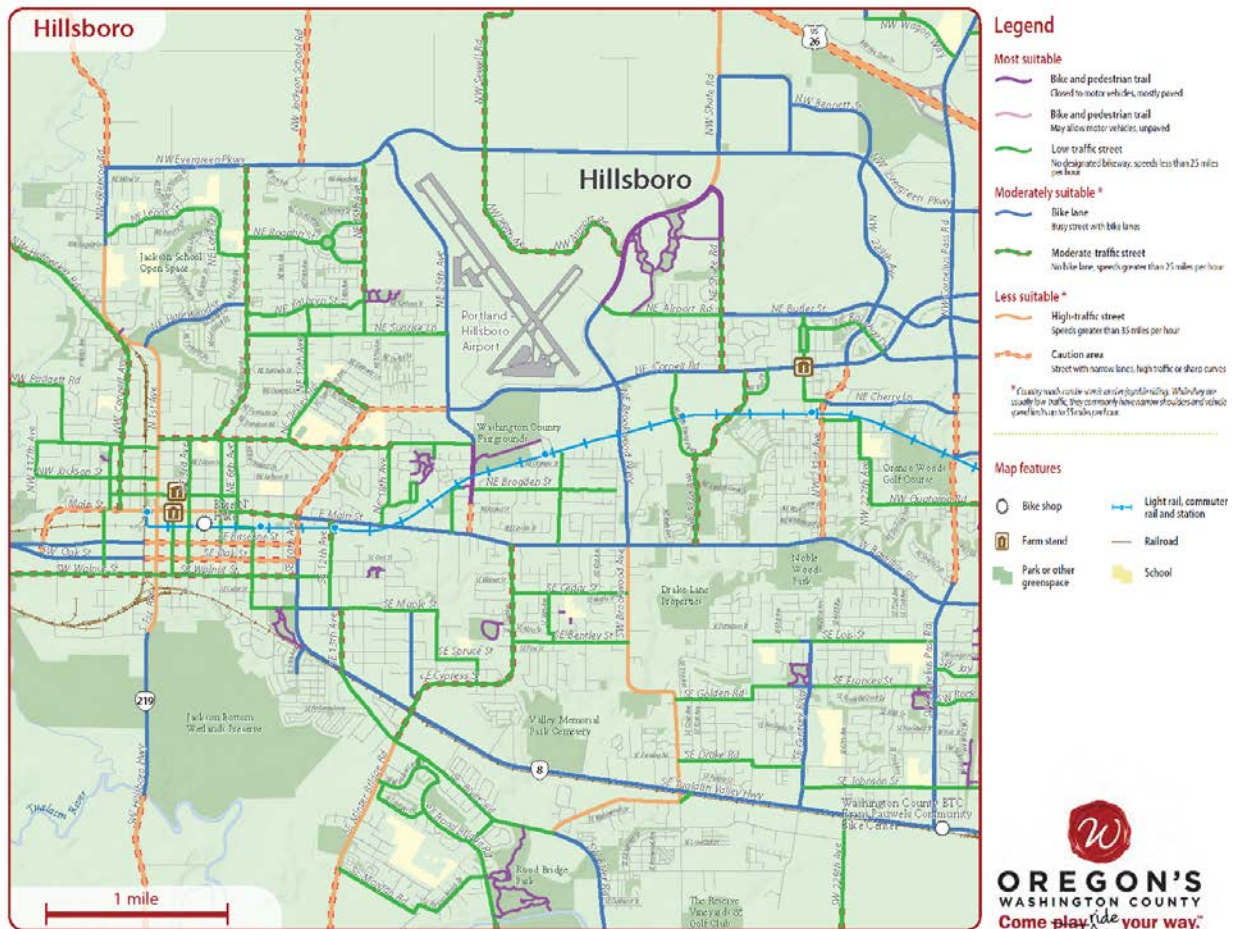
More recreational opportunities for cycling include the [Westside Trail](#)—a six-mile trail extending from Tigard to [Tualatin Hills Nature Park](#) and the Merlo Rd/SW 158th Ave MAX station in Beaverton—and the Fanno Creek Trail—an eight mile trail through Beaverton and Tigard. Metro has plans to extend both of these trails in the future to connect the Tualatin River in Tualatin to the Willamette River in Portland.



Beaverton’s Green Travel Map highlights bicycle connections to TriMet bus routes, MAX, WES, park-and-ride lots, and Zipcars.

Source: City of Beaverton

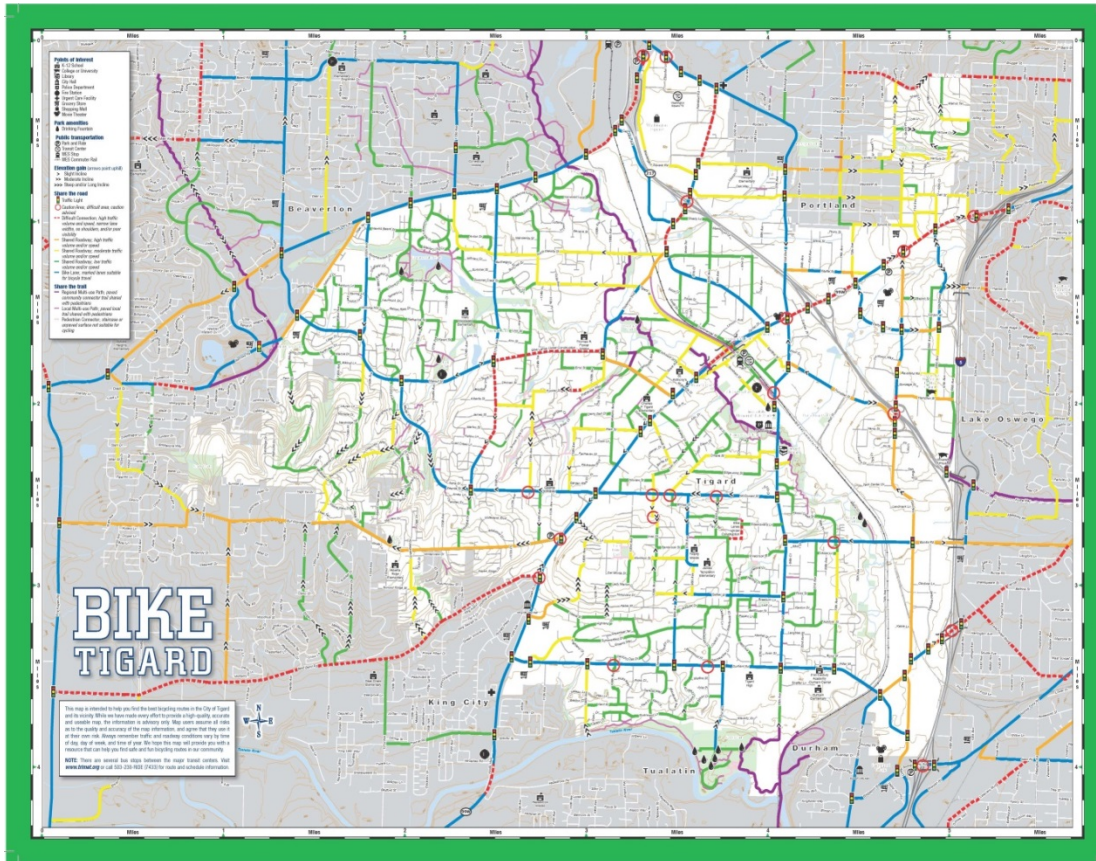
To develop a complete bicycle and pedestrian network, these regional efforts are complemented by local infrastructure. Beaverton has developed a Green Travel Map which highlights the bicycle connections to TriMet bus routes, MAX, WES, park-and-ride lots, and Zipcars. A variety of short-term and long-term bike parking is also available at the transit center, further supporting biking as a viable travel option to connect to transit.



Hillsboro bike map illustrates bike infrastructure by suitability.

Source: Washington County Visitor's Association

The Hillsboro bike map illustrates bike infrastructure by suitability and also shows connections to the MAX Blue Line. Most stations are accommodated by low traffic streets or streets with a bike lane. Tigard's bike map designates cycling suitability for roadways and trails. Connections to the city's major transit centers primarily include shared roadways along with a multi-use path that runs along the west side of the WES.



Tigard’s bike map designates cycling suitability for roadways and trails.

Source: City of Tigard

TriMet has also installed Bike & Rides at the Beaverton Transit Center and Sunset Transit Center, encouraging Washington County residents to bike to the station and leave their bike behind to transfer to transit. Future Bike & Ride locations at Beaverton Creek and Goose Hollow will further support multimodal trips for Washington County residents and employees. The installment of these new locations was funded by Connect Oregon and Washington County’s Major Streets Transportation Improvement Program Opportunity Fund.



A TriMet Bike & Ride is available at the Beaverton Transit Center, allowing Washington County residents to bike to the station and leave their bike behind to hop on MAX or WES.

Source: TriMet

### 3.0 Travel Options Propensity

Washington County's Travel Options Assessment considered the following as key indicators for employees and residents propensity to use travel options, which may be transferable to first and last mile strategies. This analysis highlights where these groups live and work and may help determine suitable locations for first and last mile projects, programs and targeted outreach to partners. The selected target populations include four primary characteristics that influence a person's propensity to use travel options:

- **Income.** Individuals who are identified as low-income (a person whose income totals less than 150% of the poverty level) may be more likely to use travel options rather than driving alone.
- **Access to a vehicle.** People who do not have access to a vehicle are more likely to utilize travel options. Note that this data is only available by household and is therefore not included in the employee transit propensity.
- **Young Adults.** Recent trends have shown that younger adults (a person between the age of 18 and 29) are less likely to own vehicles and more likely to use travel options,

- such as taking transit, walking, or biking.<sup>9,10</sup> Young adults make up a large portion of the Washington County population—approximately 16%—making the trends of this age cohort influential on the travel demands of county.<sup>11</sup>
- **Older Adults.** Older Adults, people ages 65 and older, make up a significant portion of the population—approximately 13% of the Washington County.<sup>12</sup> Studies show that Baby Boomers (a person born between 1946 and 1964) are wanting to age in place, which will enhance their need for travel options as driving becomes less viable with age.<sup>13,14</sup>

### 3.1 First Mile Travel Options Propensity

The following four key factors were considered in determining residential travel options propensity: access to a vehicle, income, young adults, and older adults. Examining where these groups live may help determine suitable locations for first mile projects, programs and outreach to partners. Data for these maps was taken from the U.S. Census American Community Survey (ACS). The following maps show the home location of Washington County residents, by density, who are considered a zero-vehicle household, low-income, a millennial, and an older adult followed by the residential travel options propensity map.

- **Figure 3-1 Zero-Vehicle Households:** The highest densities of zero vehicle households are concentrated in areas with multiple transit services available, such as the intersection of MAX, WES, and frequent bus service in Beaverton, and the intersection of the MAX blue line and frequent bus service in Hillsboro. Many areas of the scattered throughout the county have no zero vehicle households.
- **Figure 3-2 Low-Income Residents:** The highest concentrations of low-income residents are in Beaverton and Hillsboro. Forest Grove and Tigard also have some areas with a high density of low-income residents.

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<sup>9</sup> A study conducted by the American Public Transportation Association (APTA) found that Millennials are multimodal, choosing the best transportation mode based on the trip they're planning to take. Taking transit and riding a bike were the most preferred modes of transportation, while driving a car was the least preferred mode. This study was conducted in 2013 and retrieved from <http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>

<sup>10</sup> Pew Research Center. April 2016. Retrieved from <http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/>

<sup>11</sup> Portland State University Certified Population Estimates, 2017.

<sup>12</sup> Ibid.

<sup>13</sup> Pew Research Center. April 2016. Retrieved from <http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/>

<sup>14</sup> AARP recently reported that 87% of adults ages 65 and older want to stay in their current home and community as they age. Similarly, 71% of the preceding age cohort—people ages 50 to 64—want to age in place. This study was conducted in April 2014 and retrieved from <http://www.aarp.org/livable-communities/info-2014/aarp-ppi-survey-what-makes-a-community-livable.html>

- **Figure 3-3 Young Adult Residents:** Beaverton and Hillsboro have the highest concentrations of residents who are young adults.
- **Figure 3-4 Older Adult Residents:** Areas with the highest density of older adults are located in Beaverton, Hillsboro, Forest Grove, and Tigard.
- **Figure 3-5 Resident Travel Option Propensity:** The areas with the highest propensity for travel options are located at the intersection of major transit routes. With a variety of frequent transit options available in Washington County, many residential areas are within one mile of frequent transit service. The highest number of residents within one mile of frequent transit service are located in Beaverton, Hillsboro, and Forest Grove. However, some areas directly adjacent to existing transit have an extremely low travel options propensity. In addition, this map illustrates Forest Grove with areas of high travel options propensity.

**Figure 3-1 Zero Vehicle Households in Washington County – Residents**

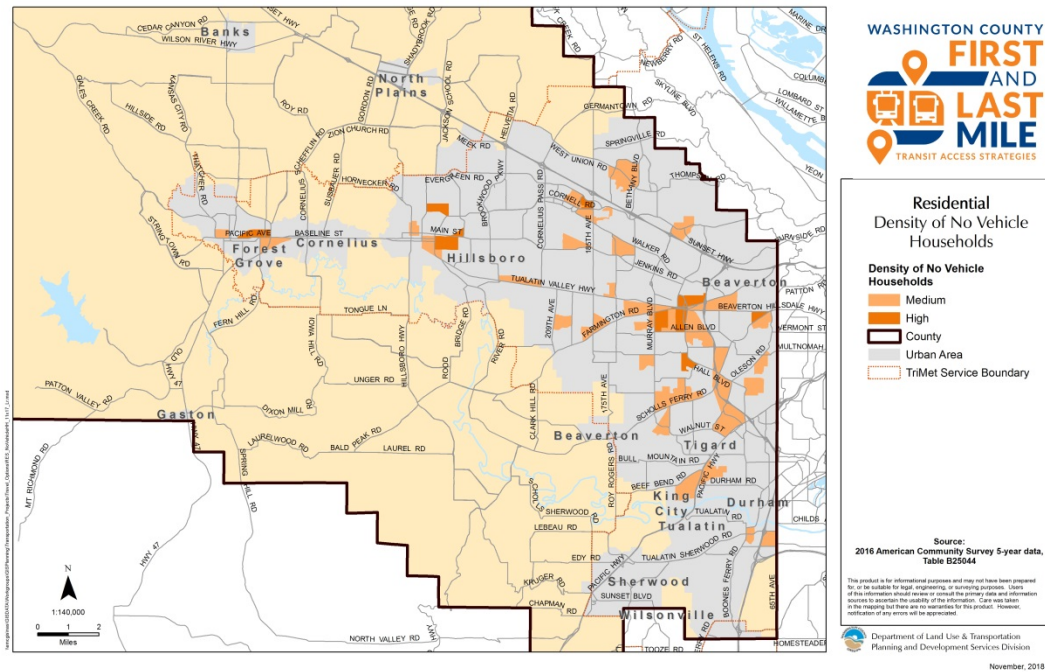


Figure 3-2 Low-Income Individuals in Washington County – Residents

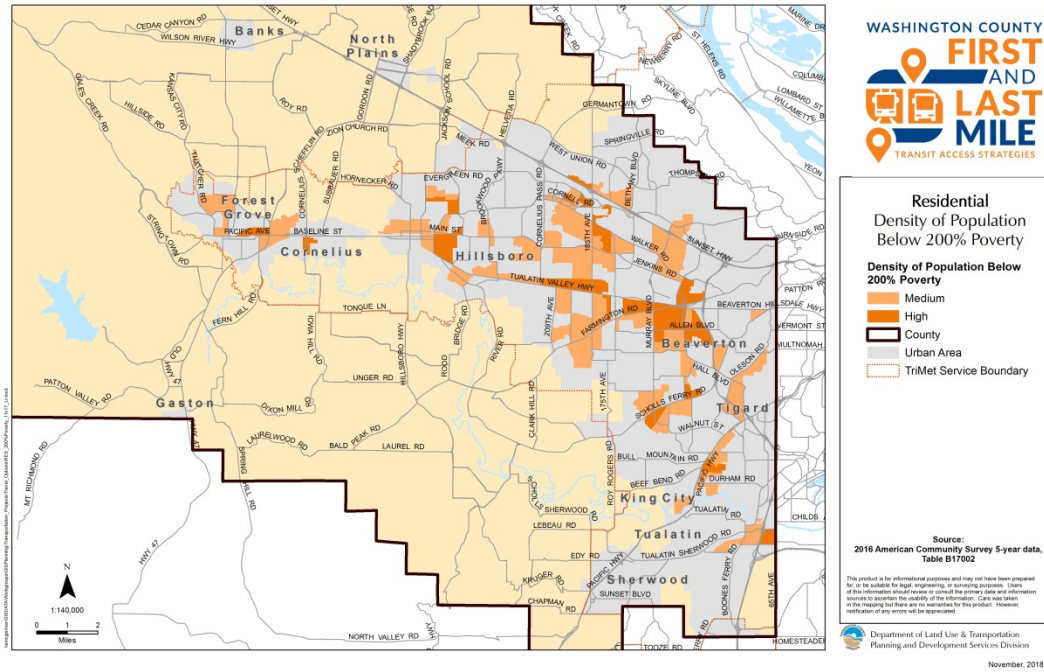


Figure 3-3 Young adults in Washington County – Residents

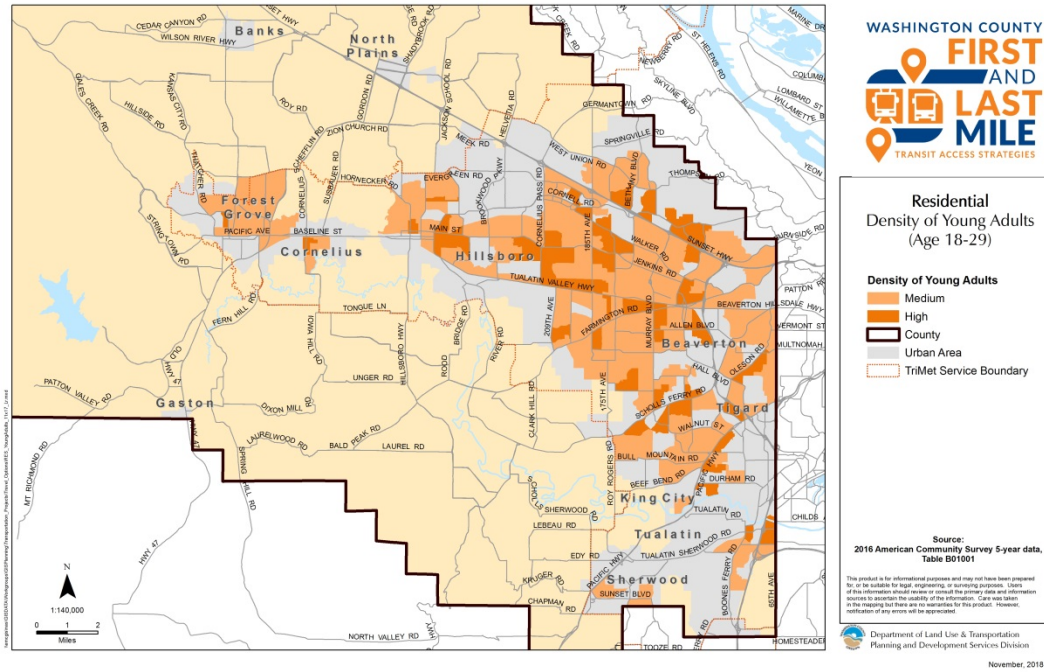


Figure 3-4 Older Adults in Washington County – Residents

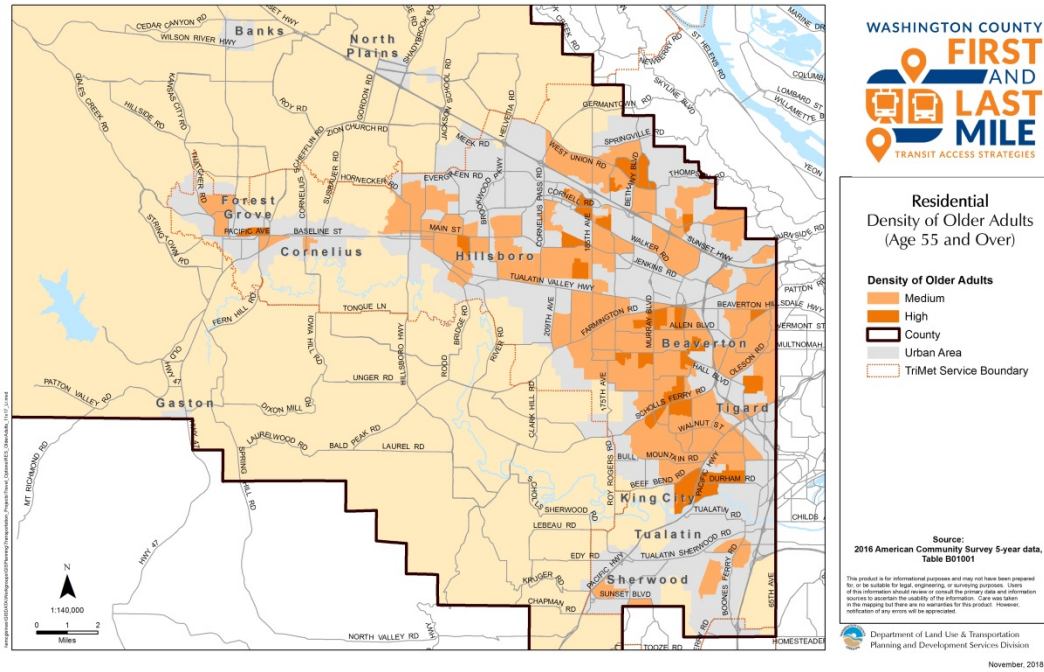
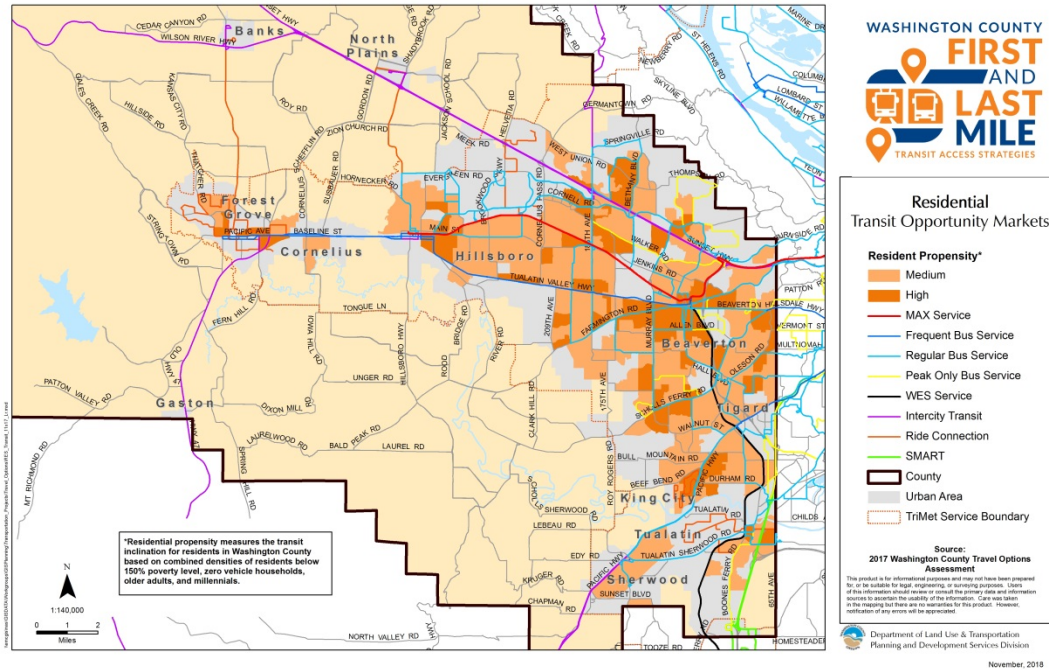


Figure 3-5 Travel Options Propensity Index - Residents



### 3.2.2 Last Mile Travel Options Propensity

Three factors were considered for the employee last mile travel options propensity: low wage jobs and age of employees (young adults and older adults). Examining where these groups work may help determine suitable locations for last mile projects, programs and outreach to partners. Data for these maps was taken from the Census Transportation Planning Products (CTPP), a data source for transportation compiled by American Association of State Highway and Transportation Officials (AASHTO). The following maps show the work location of Washington County employees, by density, who are considered low-income, followed by the employee travel options propensity map and employment access to transit:

- **Figure 3-6 Low-Income Employees:** Low-income employees are concentrated in the cities with the most employees, Beaverton, Hillsboro, Tigard, and Tualatin. Beaverton has the most low-income employees, primarily in the north western portion of the city.
- **Figure 3-7 Employee Travel Options Propensity:** With a variety of frequent transit options available in Washington County, many employment sites are within one mile of frequent transit service. Travel options propensity for employees is concentrated along existing transit routes, including WES, MAX, and frequent and local bus service. The highest number of employment sites within one mile of frequent transit service are located in Hillsboro near the MAX Blue Line. The cities of Beaverton, Hillsboro, and Tigard have the highest propensity for last mile travel options.

**Figure 3-6 Low-Income Individuals in Washington County – Employees**

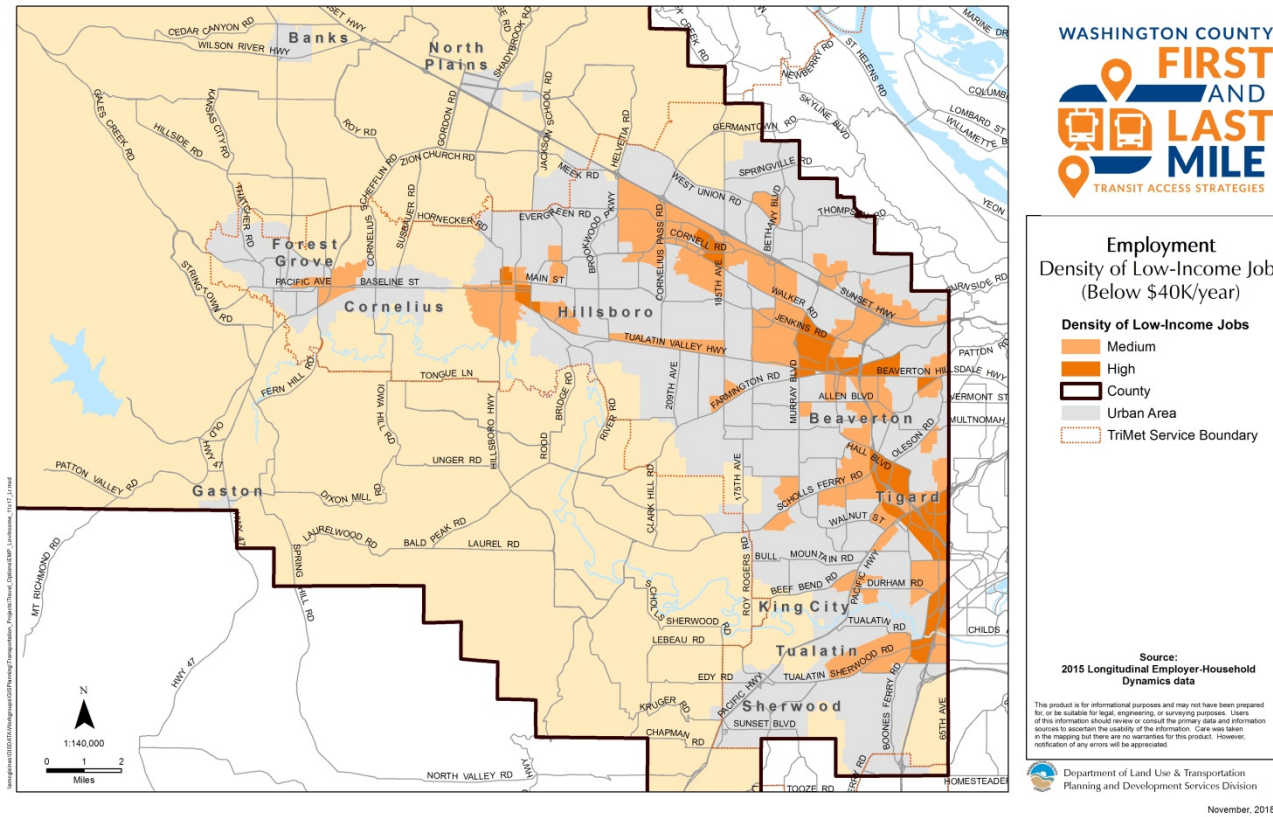
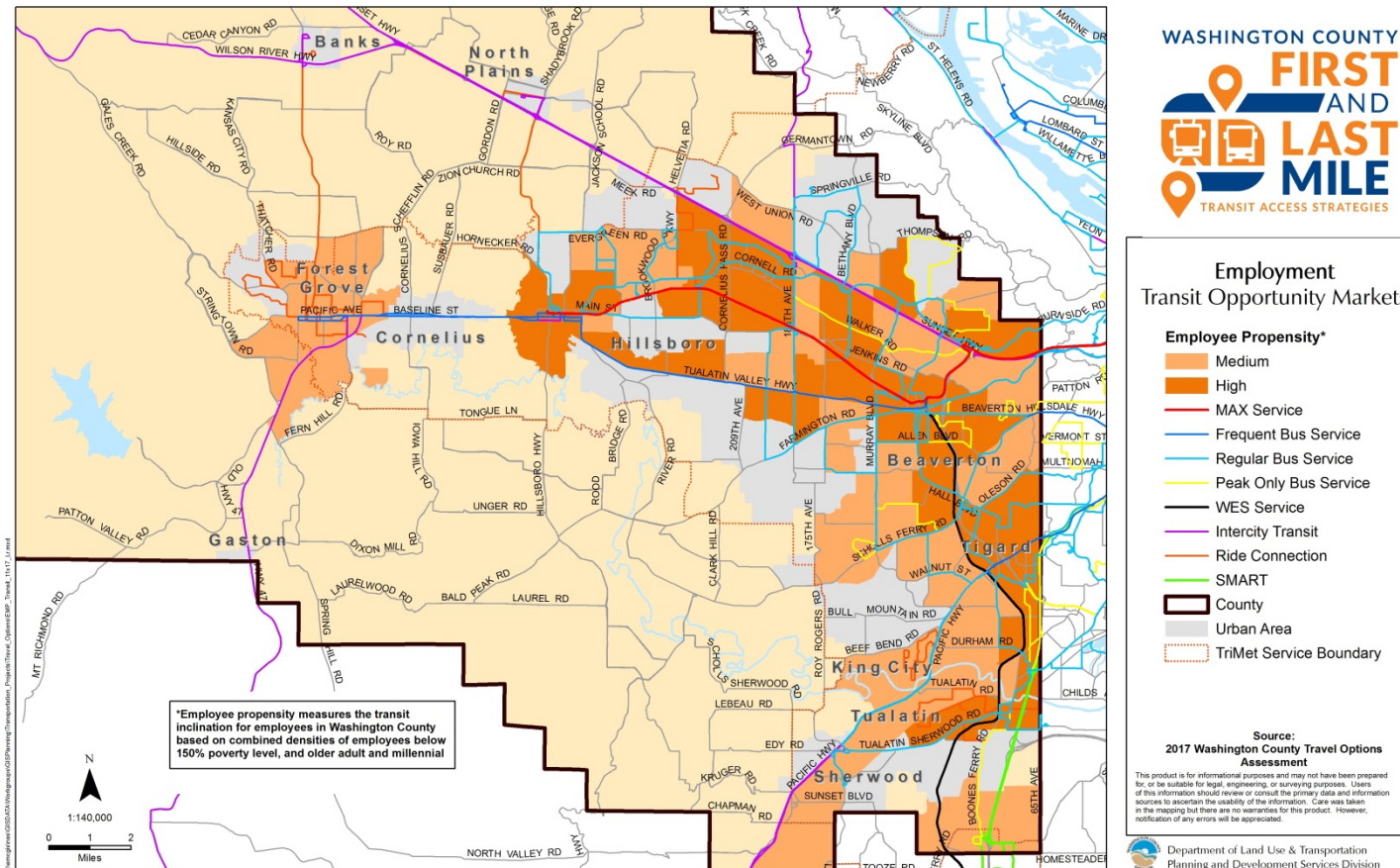


Figure 3-7 Travel Options Propensity Index – Employees



## 4.0 Land Use Context

In 1995, Metro adopted the 2040 Growth Concept, the long-range plan for managing regional growth. The Growth Concept states the preferred form of regional growth and development and includes the Growth Concept map. Consistent with this concept, Washington County and its cities began to plan for areas of more intense activity by defining and planning for city and community centers, nodes along corridors, employment areas, and higher density residential communities consisting of smaller single family lots and multi-family housing options.

Adoption of the 2040 Growth Concept established a new direction for planning in the region by directly linking urban form to transportation decisions. Development of Orenco Station in Hillsboro, which began in 1997, is a well-known example of a new growth area guided by the 2040 Growth Concept. Land use patterns, guided by the 2040 Growth Concept, are changing throughout Washington County, which can influence the demand for and viability of travel options. The following maps show the current and future land uses in Washington County. Descriptions for each classification are included in the Appendix.

- **Figure 4-1 Housing permits in the Portland Metro area, 2009-2017 – units per square mile:** Since 2009 the region has experienced significant growth in housing choices. Much of the growth has occurred in transit rich mixed-use centers like Inner Portland, Orenco Station and Amberglen. However, new urban areas, like North Bethany, South Cooper Mountain (Beaverton) and River Terrace (Tigard), have seen substantial growth and currently have minimal or no transit service.
- **Figure 4-2 Washington County Existing Zoning:** Major transit corridors are primarily developed as commercial, industrial, and multi-use residential uses. Multi-use residential uses are closer in proximity to a variety of travel options—high frequency transit, local bus services, car-sharing—than single family residential uses. These lower density land uses that do not have convenient access to frequent transit service may be more likely to utilize other travel options, such as biking or walking, community shuttles, carpooling or vanpooling, micro transit or ridesourcing.
- **Figure 4-3 Washington County Future Land Use:** By the year 2040, targeted development is expected to occur in North Hillsboro, along the 217 corridor, Tigard Triangle, and the Basalt Creek employment area. These targeted areas of development are expected to have the most employment growth in the future. Urban Transit Corridors and Regional Corridors, primarily located along high frequency transit, such as the MAX and WES, are planned to continue to provide future opportunities to offer additional housing, commercial, and employment choices. New urban areas including South Cooper Mountain (Beaverton), River Terrace (Tigard), South Hillsboro, AmberGlen (Hillsboro), West Sherwood are expected to develop as mixed-use centers with residential neighborhoods, commercial nodes, and employment districts.

**Figure4-1 Housing permits in the Portland Metro area, 2009-2017 – units per square mile**

Source: Metro's Draft 2018 Urban Growth Report

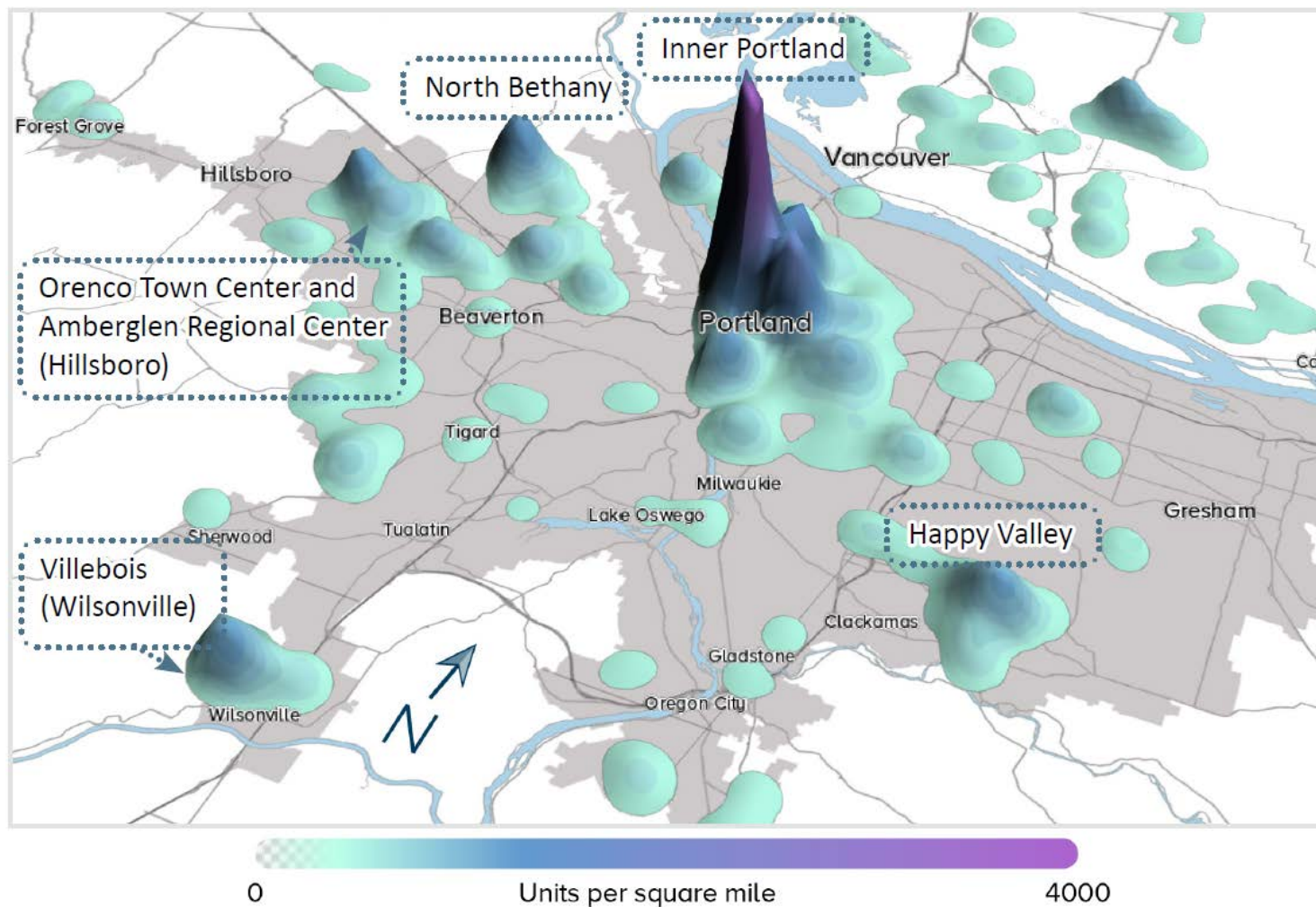


Figure4-2 Washington County Land Use and Transportation

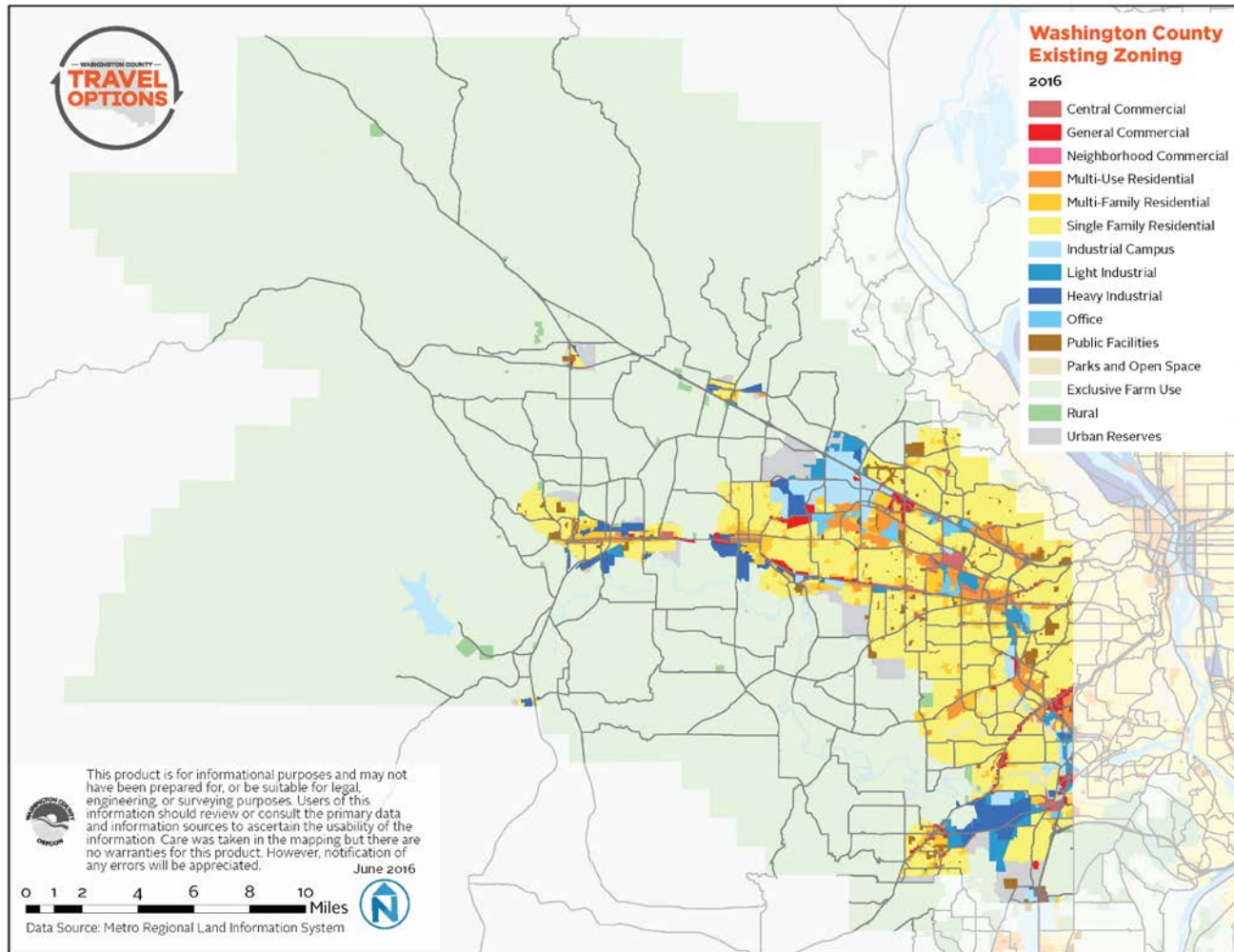
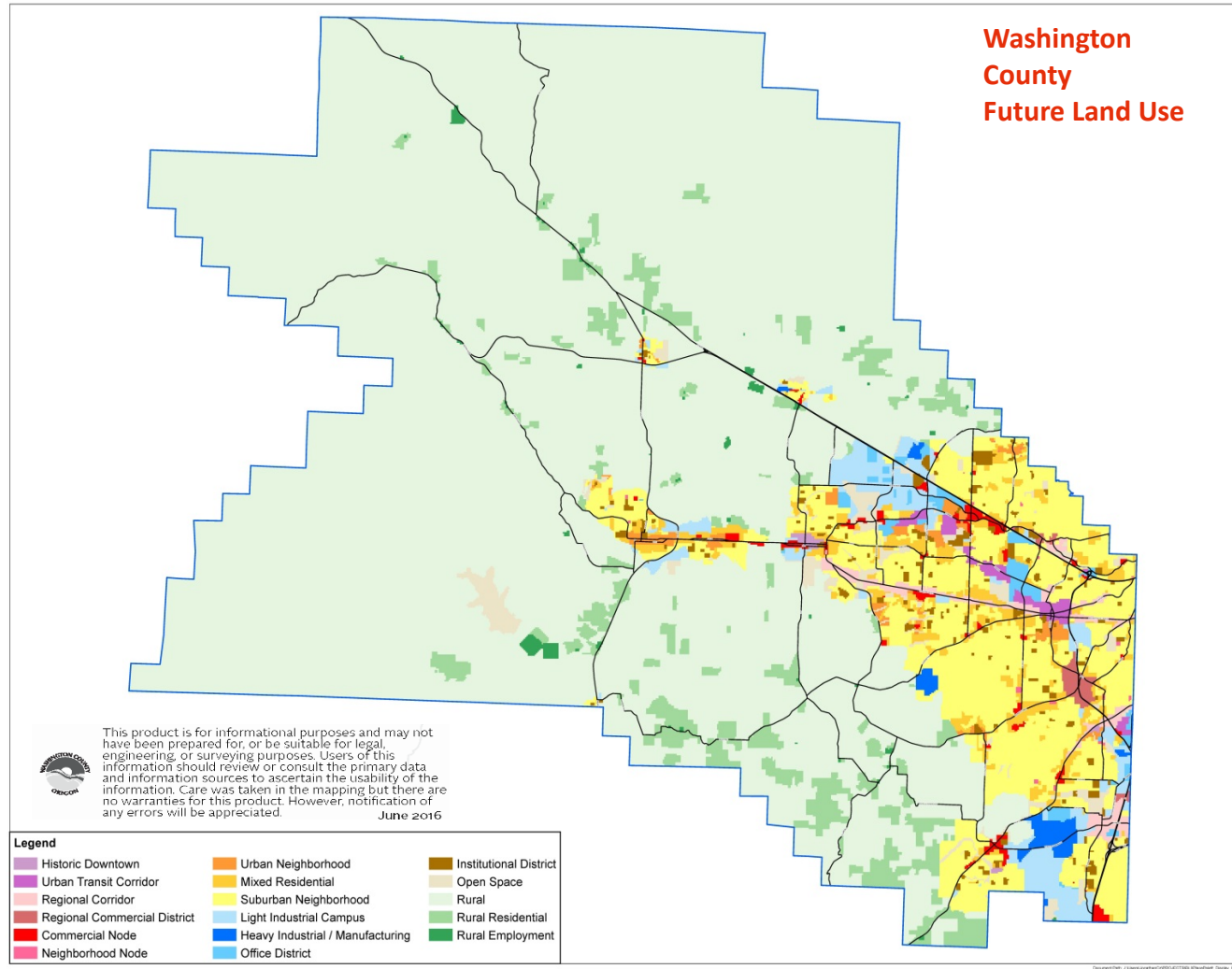


Figure 4-3 Washington County Future Land Use Map



## **5.0 Applicable Plans and Policies**

Policies applicable to Washington County's First and Last Mile Strategies include state, county, regional, and local plans. All of these regulatory bodies have developed policies and strategies to support the expanded use of travel options other than driving alone. For the purpose of this project, relevant policies are primarily focused on access to transit, active transportation, technology, parking codes and local approaches to parking management practices, travel options programs, and references to inclusion of travel options/TDM in the development process. Table 5-1 provides a summary of relevant plans and policies applicable to transit and transit access in Washington County.

**Table 5-1 Summary of Relevant Plans and Policies**

Type	Plan	Plan Author	Relevant Policies and Strategies
State	Oregon Public Transportation Plan (2018)	ODOT	<p>Policy 1.1: Provide consistent and reliable public transportation services that people can count on to meet their travel needs.</p> <p>Policy 2.1: Enhance existing and identify new public transportation connections and services.</p> <p>Policy 2.2: Improve access to and ease of use for public transportation by connecting routes and services, including linking stops and stations to bicycle and pedestrian facilities.</p> <p>Policy 2.4: Encourage employers, educational institutions, and others to provide opportunities for employees’ and clients’ use of public transportation, carpool, vanpool, shuttles, and other shared rides</p> <p>Policy 3.1: Enhance access to education and employment via public transportation.</p> <p>Policy 3.3: Promote the use of public transportation to foster greater community livability.</p> <p>Policy 4.4: Address the disparities, barriers, and needs that impact people’s ability to access and use public transportation.</p> <p>Policy 5.1: Provide access to healthy lifestyle options by supporting the ability of people to reach goods and services such as groceries, recreation, health care, and social opportunities via public transportation.</p> <p>Policy 5.3: Connect public transportation riders to health and social services.</p> <p>Policy 9.1: Invest strategically in maintenance, planning, transit service, and capital improvements to preserve and enhance public transportation.</p> <p>Policy 9.2: Foster creative investments and partnerships among public agencies and private organizations to improve the efficiency and effectiveness of public transportation services.</p> <p>Policy 10.1: Coordinate communication and marketing to promote knowledge and understanding of available public transportation services.</p> <p>Policy 10.4: Collaborate with various agencies, jurisdictions, and transportation providers in support of effective public transportation that is reliable and easy to use and helps meet state, regional, and community goals.</p> <p>Policy 10.5: Collaborate among agencies, jurisdictions, and providers to ensure the public transportation system is integrated as a component of the broader multimodal transportation system in Oregon. Provide leadership for public transportation activities and build upon efforts to coordinate public transportation services, especially statewide services.</p>

Type	Plan	Plan Author	Relevant Policies and Strategies
	Oregon Transportation Options Plan (2015)	ODOT	Establishes a statewide vision and provides policy guidance that integrates transportation options in local, regional, and state transportation planning, programming, and investment. Policies and strategies were developed around 10 goals including safety, funding, accessibility, mobility and system efficiency, economy, health and environment, land use and transportation, coordination, equity, and knowledge and information.
	Task Force on Autonomous Vehicles (2018)	ODOT	Proposes a permitting process for autonomous vehicle testing in Oregon based on national and state guidance. This process will collect certain information about vehicles and drivers involved in testing, set minimum insurance coverage requirements for entities testing autonomous vehicles, require certain safety assurances regarding autonomous driving systems, and direct testing entities to engage with law enforcement and first responders to promote safe testing
<b>Regional</b>	Regional Transit Strategy (2018 – draft)	Metro	<ul style="list-style-type: none"> <li>▪ Policy 1: Provide a seamless, integrated, affordable, safe and accessible transit network that serves people equitably, particularly communities of color and other historically marginalized communities, and people who depend on transit or lack travel options.</li> <li>▪ Policy 6: Make transit more accessible by improving pedestrian and bicycle access to and bicycle parking at transit stops and stations using new mobility services to improve connections to high-frequency transit when walking, bicycling or local bus service is not an option               <ul style="list-style-type: none"> <li>○ Improve pedestrian and bicycle access to and bicycle parking at transit stops and stations</li> <li>○ Explore new ways to improve connections to high frequency transit</li> </ul> </li> <li>▪ Policy 7: Use emerging technologies to provide better, more efficient transit service, including focusing on meeting the needs of people for whom conventional transit is not an option</li> </ul>
	Regional Emerging Technology Strategy (2018 – draft)	Metro	<p>Identifies a blueprint moving forward for regional partners utilizing new and maturing transportation technologies to help achieve regional goals for a safer, more equitable transportation system. Includes the following policies:</p> <ul style="list-style-type: none"> <li>▪ Policy 1: Make emerging technology accessible, available and affordable to all, and use technology to create more equitable communities.</li> <li>▪ Policy 2: Use emerging technology to improve transit service, provide shared travel options throughout the region and support transit, bicycling and walking.</li> <li>▪ Policy 3: Use the best data available to empower people to make travel choices and to plan and manage the transportation system</li> <li>▪ Policy 4: Advance the public interest by anticipating, learning from and adapting to new developments in technology.</li> </ul>

Type	Plan	Plan Author	Relevant Policies and Strategies
	Metro Regional Travel Options Strategic Plan (2018)	Metro	<p>The RTO Strategic Plan strives to support a regional travel options program that helps to achieve regional air quality, transportation, and livability goals, such as:</p> <ul style="list-style-type: none"> <li>▪ Enable local partners to reach out to employers and residents to help make non-SOV travel choices</li> <li>▪ Integrate TDM into regional planning and growth management processes</li> <li>▪ Provide regional policy support and program development to support existing transportation systems</li> </ul>
	Regional Transportation System Management and Operations (TSMO)	Metro	<ul style="list-style-type: none"> <li>• Policy 3: Provide comprehensive, integrated, universally accessible and real-time travel information to people and business</li> <li>• Policy 4: Expand commuter programs, individualized marketing efforts and other tools throughout the region to increase awareness and use of travel options</li> <li>• Policy 6: Build public, non-profit and private sector capacity throughout the region to promote travel options</li> </ul>
County	Washington County Community Development Code (2016)	Washington County	<p>Parking and loading development standards include:</p> <ul style="list-style-type: none"> <li>▪ Reduce minimum off-street parking requirements based upon the availability of transit</li> <li>▪ When a development provides a transit amenity associated with a bus stop parking spaces may be reduced</li> <li>▪ Preferential parking for vanpool/carpool shall be provided for all institutional, office, and industrial uses having fifty (50) or more parking spaces</li> </ul> <p>Total minimum automobile parking may be reduced and replaced by mixed use development, TDM strategies and amenities to support bicycling.</p>
	Washington County Transportation System Plan 2035 (2014)	Washington County	<p>Identifies desired biking, walking and transit network with associated functional classifications and supports the development and improvement of pedestrian and bicycle facilities countywide, including specific strategies under Goal 8 (Active Transportation) to improve first- and last-mile access to transit.</p> <p>Identifies TDM as an important factor in improving the performance of existing transportation infrastructure through marketing, employer, and rideshare services. Documents the Westside Transportation Alliance as an entity in the County helping employers develop auto trip reduction plans and satisfy ECO rule mandates.</p>
TriMet	TriMet Southwest Service Enhancement Plan (2015)	TriMet	<p>Identifies improvements needed to meet growing demand for the region, such as: improve transit connections for suburban residential communities and suburban employment centers; expand frequent bus service; pass through federal funds to communities where fixed-route service is lacking (e.g. Tualatin, Tigard, Sherwood); and partner with local cities, counties and ODOT to improve pedestrian environments.</p>

Type	Plan	Plan Author	Relevant Policies and Strategies
	TriMet Westside Service Enhancement Plan (2013)	TriMet	Proposes improvements to transit services on the Westside, including increased frequencies, innovative transit services, and improved facilities for pedestrians. Identifies a variety of last mile solutions to improve transit access on the Westside to jobs that are close to transit but beyond a comfortable daily walking distance. These solutions include access to transportation information, increased frequencies on routes that connect with MAX stations, private employee shuttles between employers and transit stations, new and improved bikeways, trails and bicycle parking, and bike/car-sharing.
City	Banks Transportation System Plan (2010)	City of Banks	Opportunities identified in the Banks Transportation System include: <ul style="list-style-type: none"> <li>Construct one or more pedestrian and bicycle overcrossings to ensure connectivity</li> <li>Establish a north south bike route</li> <li>All new roadways should include bicycle and pedestrian accommodations</li> <li>Regularly monitor TCTD bus service in Banks to identify any transit capacity improvements needed</li> </ul>
	Beaverton Comprehensive Plan (Transportation Element) (2010)	City of Beaverton	Indicates effective TDM strategies “should go beyond the low-cost, uncontroversial measures commonly used.” Strategies include parking, improved services for non-auto modes, and market-based measures.
	Cornelius Transportation System Plan (2005)	City of Cornelius	Goals identified in the Cornelius Transportation System Plan include: <ul style="list-style-type: none"> <li>Develop a safe, complete and efficient transportation system that provides multimodal access</li> <li>Continue to explore mechanism to enhance the multi-modal access and circulation throughout the community</li> <li>Coordinate with Tri-Met to continue enhancements at bus stops to provide a more attractive environment for transit users</li> </ul>
	Forest Grove Local Service Study (2013)	City of Forest Grove	Evaluates the need for enhanced transit service within Forest Grove and improved access to regional destinations. Helped Forest Grove decide to invest in a local circulator for the community (GroveLink). This decision was based on several factors, including the size and density of the community, and that the route could be “personalized” for the community’s needs. GroveLink serves employment areas in Forest Grove.
	Forest Grove Transportation System Plan (2014)	City of Forest Grove	Encourages employers to install bike racks, place carpool parking close to building entrances, provide commute options information to employers, support telecommuting and flexible work hours, provide incentives to take transit, and schedule deliveries outside peak travel times.

Type	Plan	Plan Author	Relevant Policies and Strategies
	Hillsboro Transportation System Plan Update (2004)	City of Hillsboro	Cites the following as strategies for TDM: telecommuting, compressed work weeks, transit subsidy, employee parking cash out, reduced cost for HOV parking, bicycle programs, on-site rideshare matching for HOVs, vanpools, walking program, guaranteed ride home program, and time off with pay for alternative mode use.
	Sherwood Transportation System Plan (2014)	City of Sherwood	Encourages the development of high speed communication to decrease reliance on the transportation system for conducting business and encourage development that mixes land uses to reduce vehicle trips.
	Tigard Transportation System Plan (2010)	City of Tigard	Lists two TDM strategies that are implemented primarily by employers: parking cash out and subsidized transit passes. Other strategies which have a secondary and support role by employers are public parking management, flexible parking requirements, pedestrian facilities, and car sharing program support. The TSP indicates that the City of Tigard does not have a dedicated TDM program, but that the WTA assists local employers with TDM strategies.
	Tualatin Transportation System Plan (2013)	City of Tualatin	Lists the following TDM policies: <ul style="list-style-type: none"> <li>▪ Support demand reduction strategies (ride sharing, preferential parking, flextime programs)</li> <li>▪ Partner with area agencies and employers to implement TDM programs</li> <li>▪ Explore use of new TDM strategies to make the transportation system more efficient</li> <li>▪ Support regional TDM programs and policies to reduce SOV trips</li> <li>▪ Promote use and expansion of the Tualatin Shuttle program</li> </ul> Lists employee shuttle services, employee pass programs, and car sharing and rental services as key strategies.
	Wilsonville Transit Master Plan (2017)	City of Wilsonville	Update of the 2008 plan accounts for new development trends (rapid population growth, aging population, greater movement of people to jobs throughout the city and region) while advancing the City's Climate Smart Goals, which include strategies for promoting transit use, active transportation, and employer-based commuter programs.
	Wilsonville Transportation System Plan (2013)	City of Wilsonville	References Wilsonville's transportation options program, SMART Options, which provides assistance to businesses to set up transportation programs and organize vanpools.
	Wilsonville Bicycle and Pedestrian Master Plan (2008)	City of Wilsonville	Promotes non-motorized travel to provide a safe, interconnected system of pedestrian and bicycle facilities.

Type	Plan	Plan Author	Relevant Policies and Strategies
Other	<a href="#">City of Portland's Growing Transit Communities Plan (2017)</a>	City of Portland	Developed a package of multimodal transportation investments to facilitate safe access to transit along three bus corridors in NE Portland where future planned land use patterns are envisioned for higher-density, mixed-use development.
	Last Mile On-Demand Rideshare Feasibility Study (2014)	Westside Transportation Alliance	Identified a significant market of employees in need of last mile connections, evaluated the feasibility of on-demand rideshare, on-demand shuttle, and ridesourcing companies, and recommended on-demand shuttles to help more employees take transit to work. WTA is working with the Washington County business community, local jurisdictions, and the County to identify partnerships, funding sources, and potential pilot areas for the on-demand shuttle.

## Appendix A-3: Rural Household and Demographic Data

The following table summarizes household demographic information related to typical transit riders.<sup>1</sup>

Category	Population/Households (Estimated*)	Percentage
<b>Rural Total Population</b>	<b>27,068</b>	<b>100%</b>
<b>Age</b>		
Youth (Age 0-17)	5,612	21%
Older Adults (Age 65+)	4,625	17%
<b>Nonwhite</b>		
Nonwhite	4,056	15%
<b>Poverty</b>		
Rural Total where Poverty is Determined	26,947	100%
Income within 200% of Poverty Limit	4,604	17%
<b>Rural Total Households</b>	<b>9,642</b>	<b>100%</b>
<b>Limited English Proficiency</b>		
Limited English-Speaking Households	84	1%
<b>No Vehicle Households</b>		
No Vehicle Households	225	2%
<b>Rural Total Civilian Population (18 and over)</b>	<b>21,614</b>	<b>100%</b>
Civilian Population 18 and over with a Disability	2,883	13%
Civilian Population 18 and over with Veteran status	2,105	10%

\*Rural population density in mixed urban/rural census block groups based on average density in 100% rural census block groups, excluding blocks groups that include the cities of Banks and North Plains.

The data presented in this section Figure 1<sup>[OBJ]</sup> **Error! Reference source not found.**<sup>[OBJ]</sup><sup>[OBJ]</sup>, with the current Portland Metro UGB shown as reference. The individual population equity demographic maps that comprise the composite map can be found in the Appendix and include the following:

- Low-income population (within 200 percent of the poverty line)
- Nonwhite population (including Latinx)
- Households with no vehicles available
- Limited English proficiency
- Youth population (Age 17 or younger)
- Elderly population (Age 65 or over)
- Disability statusVeteran status

<sup>1</sup> Data has been estimated by census block groups for all Washington County rural areas outside the Portland Metro Urban Growth Boundary, based on the pre-2018 boundary. Rural densities for census block groups containing only rural unincorporated area (except for Gaston, which has relatively average density for the rural area) were used to derive the representative density for the portion of mixed urban/rural census block groups that are outside of the Metro UGB.

<sup>2</sup> 2014-18 American Community Survey data.

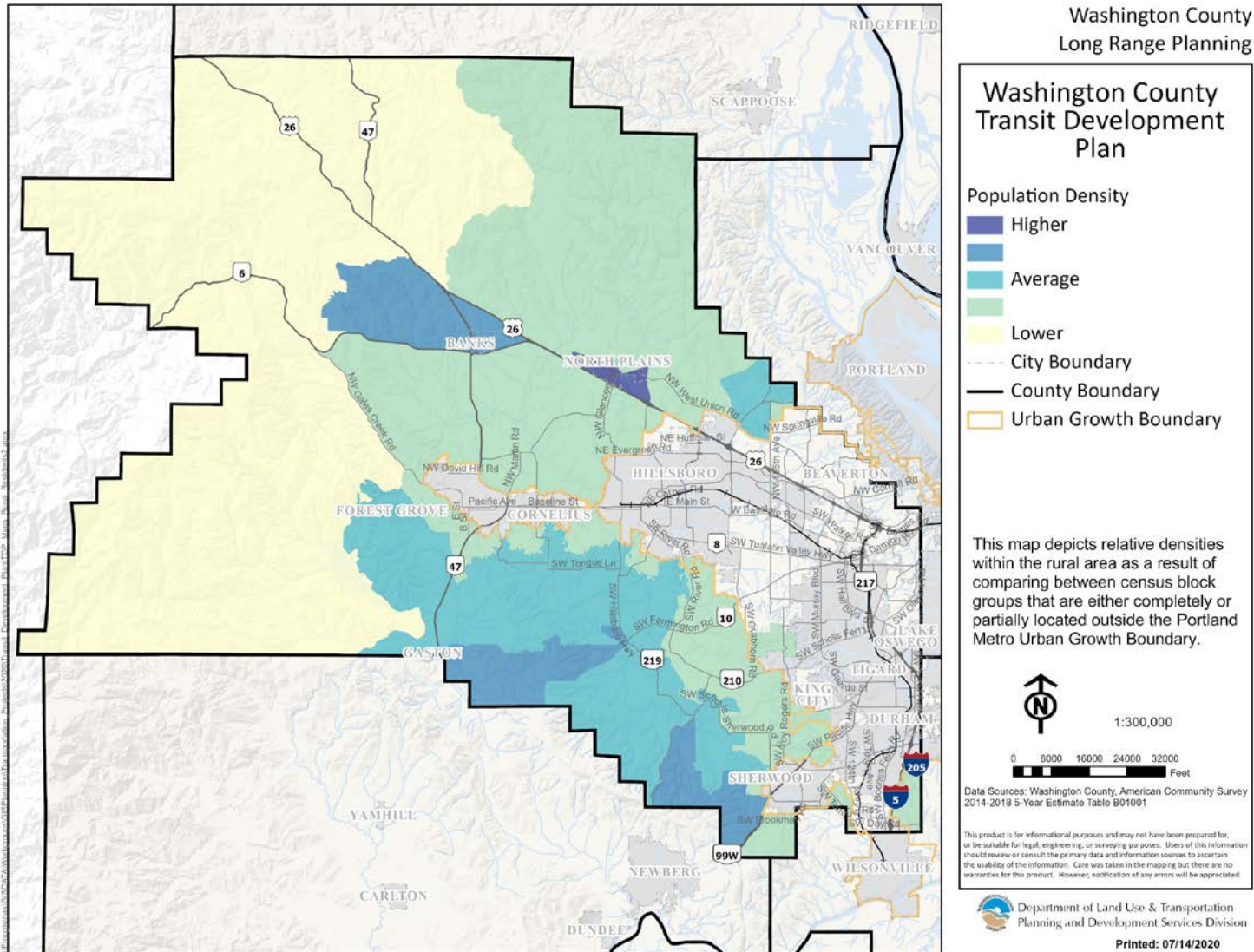
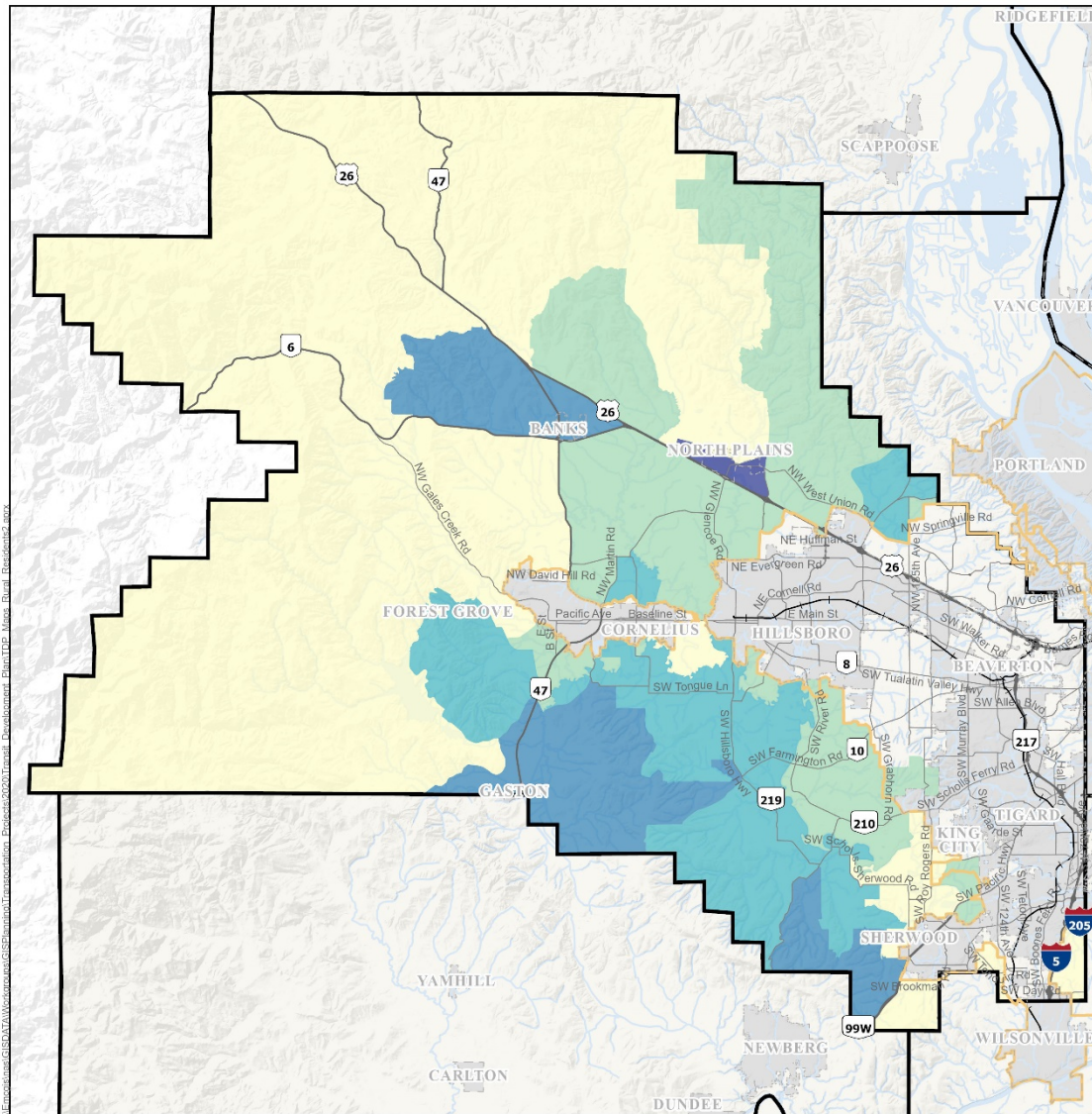


Figure 1: Rural Population Density (American Community Survey 2014-18)



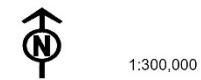
Washington County  
Long Range Planning

Washington County  
Transit Development  
Plan

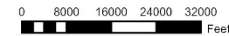
Population Equity Composite  
Map

- Higher
- Average
- Low
- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



1:300,000

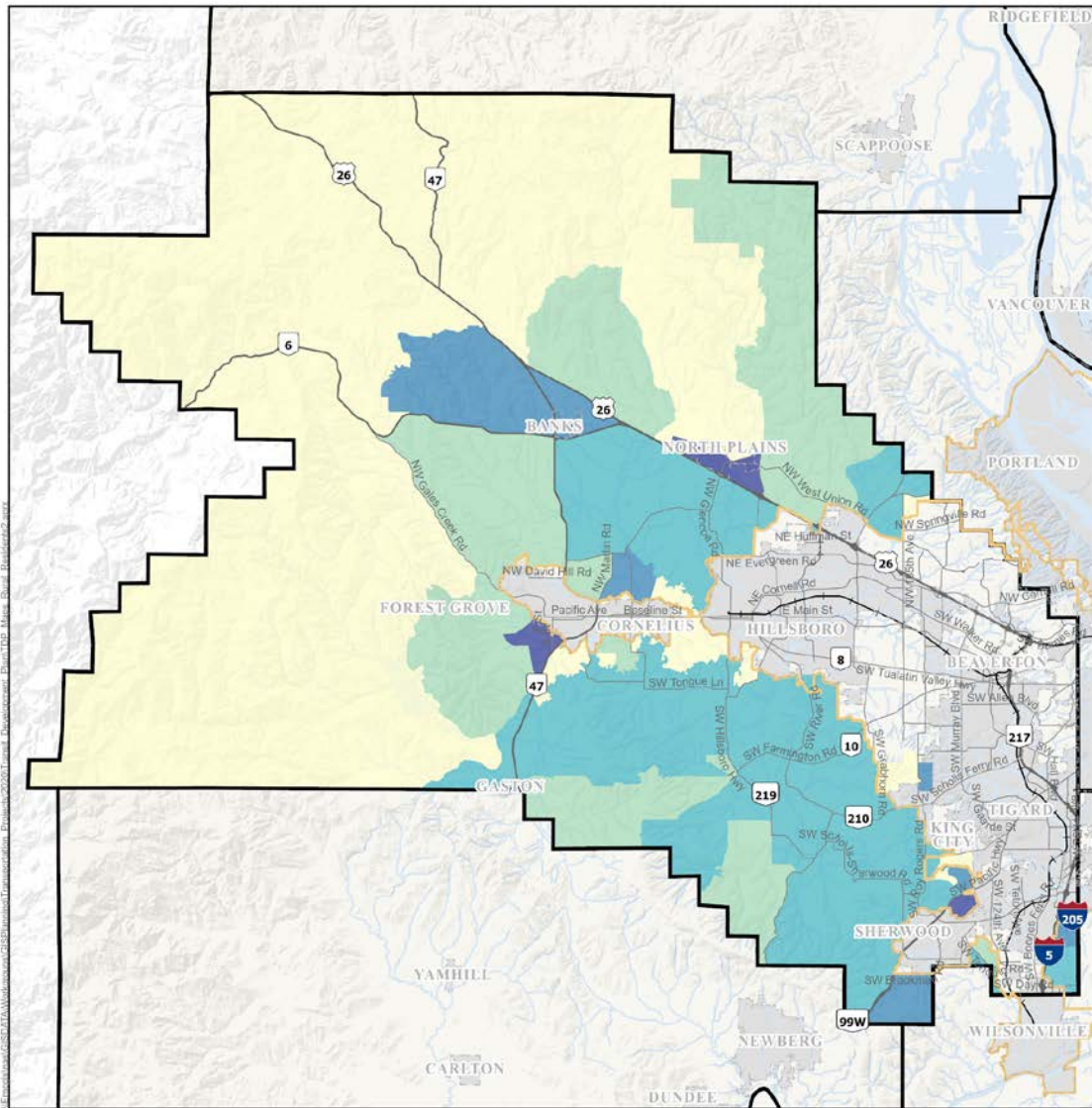


Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B01001

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Figure 2: Population Equity Demographic Composite Map



Washington County  
Long Range Planning

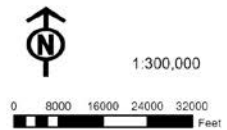
Washington County  
Transit Development  
Plan

Employment Equity  
Composite Map

- Highest
- Average
- Lowest

- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.

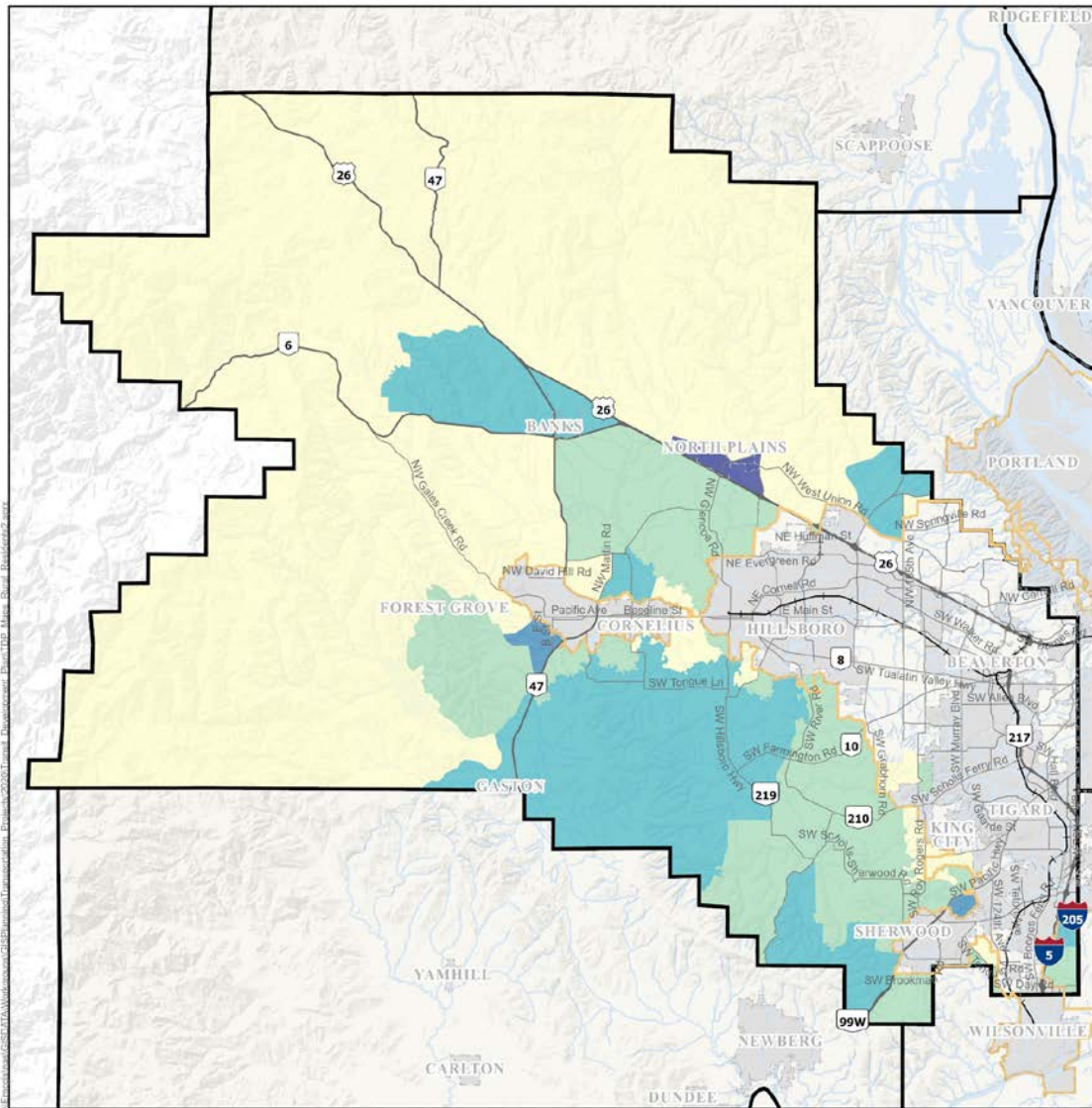


Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B01001

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Figure 3: Employment Equity Demographic Composite Map



Washington County  
Long Range Planning

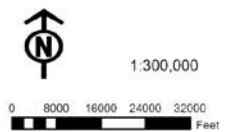
Washington County  
Transit Development  
Plan

Combined Population and  
Employment Equity  
Composite Map

- Higher
- Average
- Lower

- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B01001

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Figure 4: Combined Population and Employment Equity Demographic Composite Map

## Rural Resident and Employee Commute Patterns

The following graphics summarize where rural employees live and where rural residents work.<sup>3</sup> Figure 5 shows how many people travel from outside rural Washington County (e.g. urban Washington County, other counties) to work (6,301), how many live and work in rural Washington County (1,174) and how many travel from rural Washington County to other places (e.g. urban Washington County, other counties) to work (14,252).

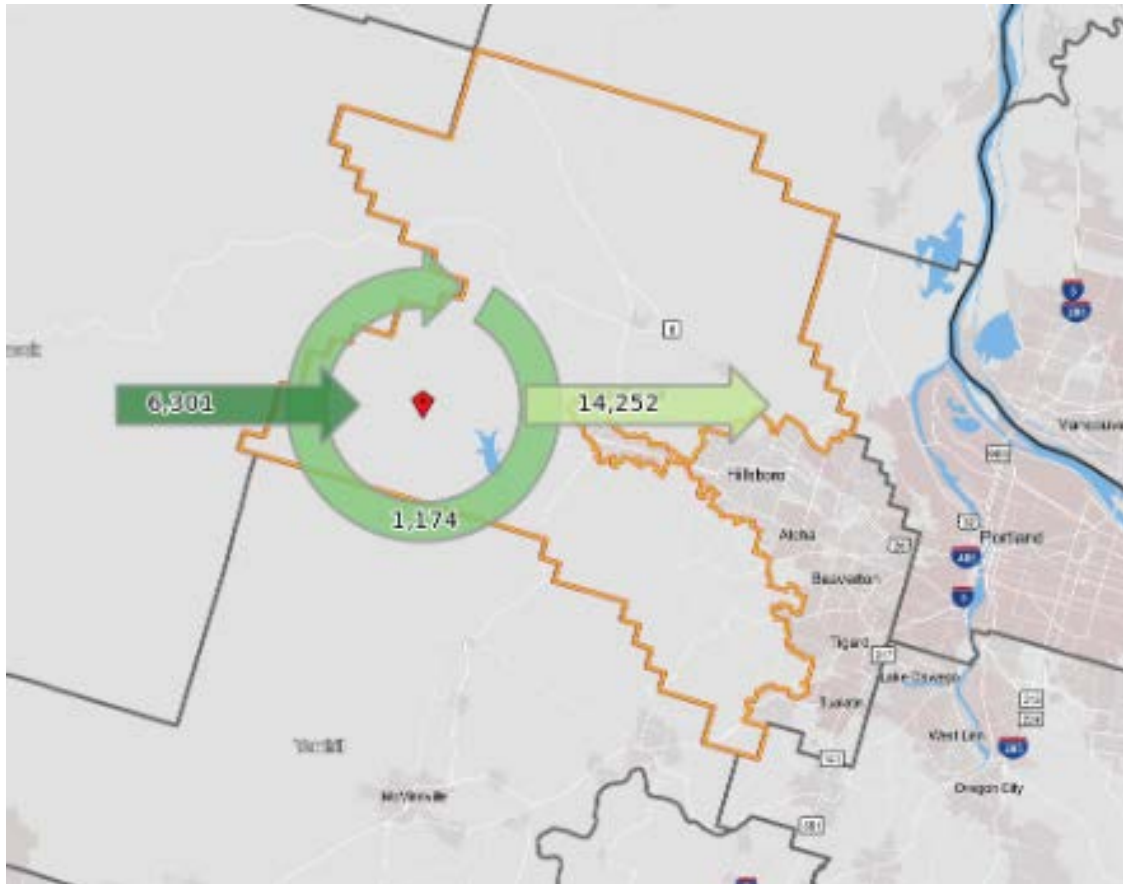


Figure 5: Rural Washington County Commute Patterns

Employment among rural residents who also work in the rural area is generally scattered across the rural area, with the highest job density found in Banks. Rural residents working in urban areas were most likely to work in nearby cities such as Forest Grove, Cornelius and Hillsboro, although there is significant employment density in other urban jurisdictions including Beaverton, Tigard and downtown Portland. As shown in Table 1, over 80 percent of rural residents travel less than 24 miles to work. Some rural employees live in rural communities such as Banks or North Plains, but many who work in the rural area live in the western cities of Washington County, including Forest Grove, Cornelius and Hillsboro, as well as Aloha and Sherwood. About 80 percent of those working in rural areas travel less than 24 miles to work.

<sup>3</sup> The LEHD program is part of the Center for Economic Studies at the U.S. Census Bureau. It collects and distributes data related to employee commute patterns. 2017 data.

Table 1: Rural Commute Travel Distances

Distance Travelled to/from Work	Rural Residents		Rural Employees	
	Count	Share	Count	Share
< 10 miles	5,602	36%	3,801	51%
10-24 miles	7,252	47%	2,271	30%
25-50 miles	1,709	11%	831	11%
> 50 miles	863	6%	572	8%
<b>Total</b>	<b>15,426</b>	<b>100%</b>	<b>7,475</b>	<b>100%</b>

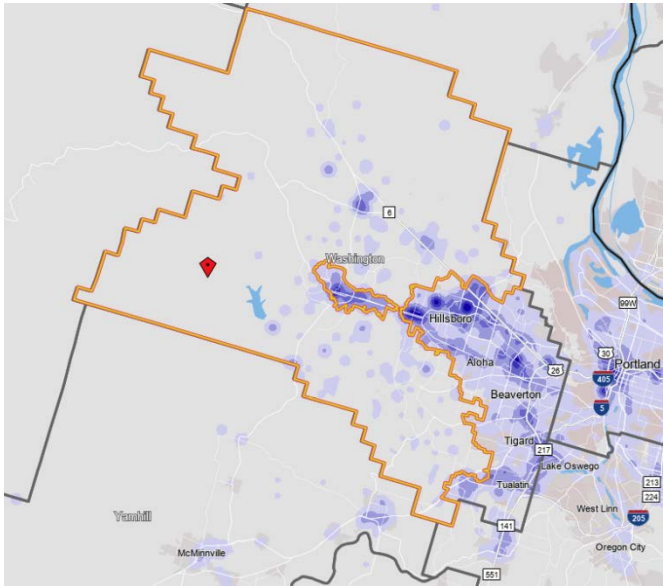


Figure 7: Where Rural Residents Work

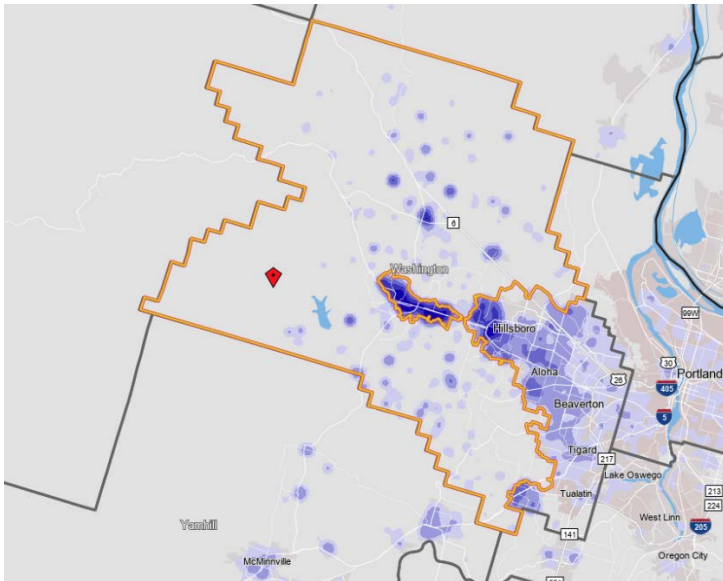
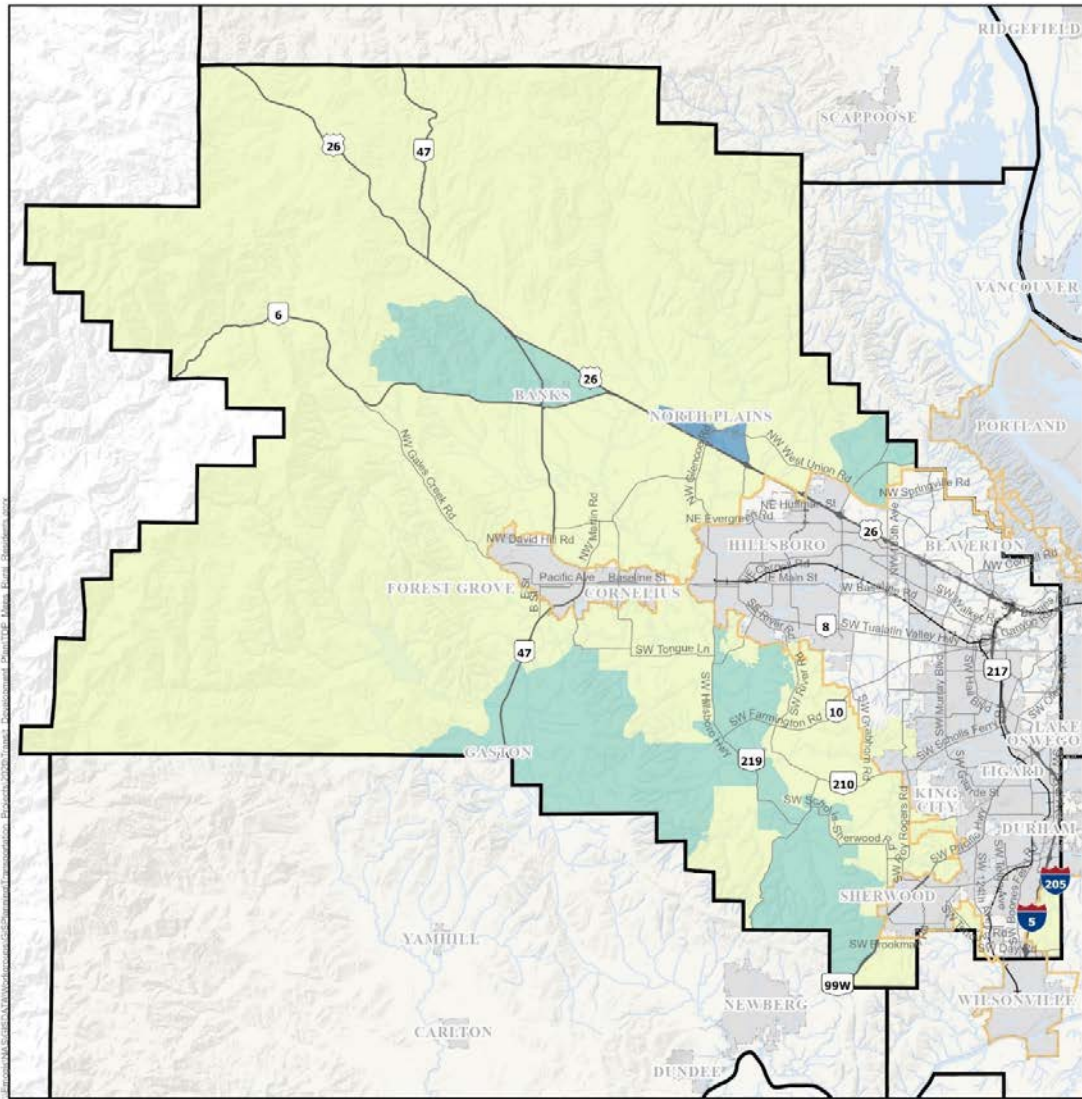


Figure 6: Where Rural Employees Live



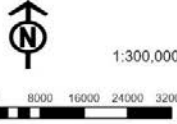
Washington County  
Long Range Planning

Washington County  
Transit Development  
Plan

Population Density

- Higher
- Average
- Lower
- City Boundary
- County Boundary
- ▭ Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B01001

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Planning and Development Services Division

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Figure 8: Rural Population Density (American Community Survey 2014-18)

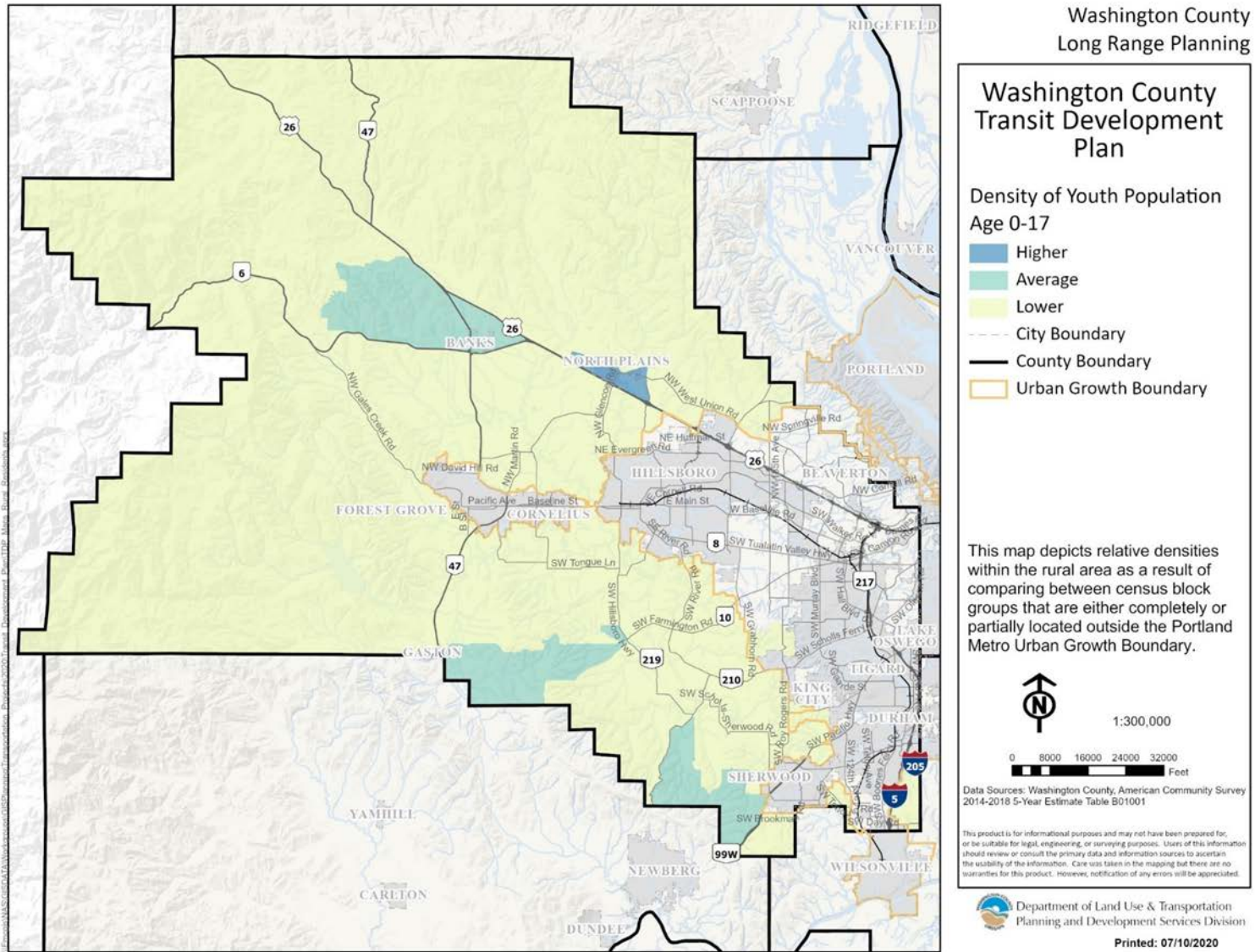
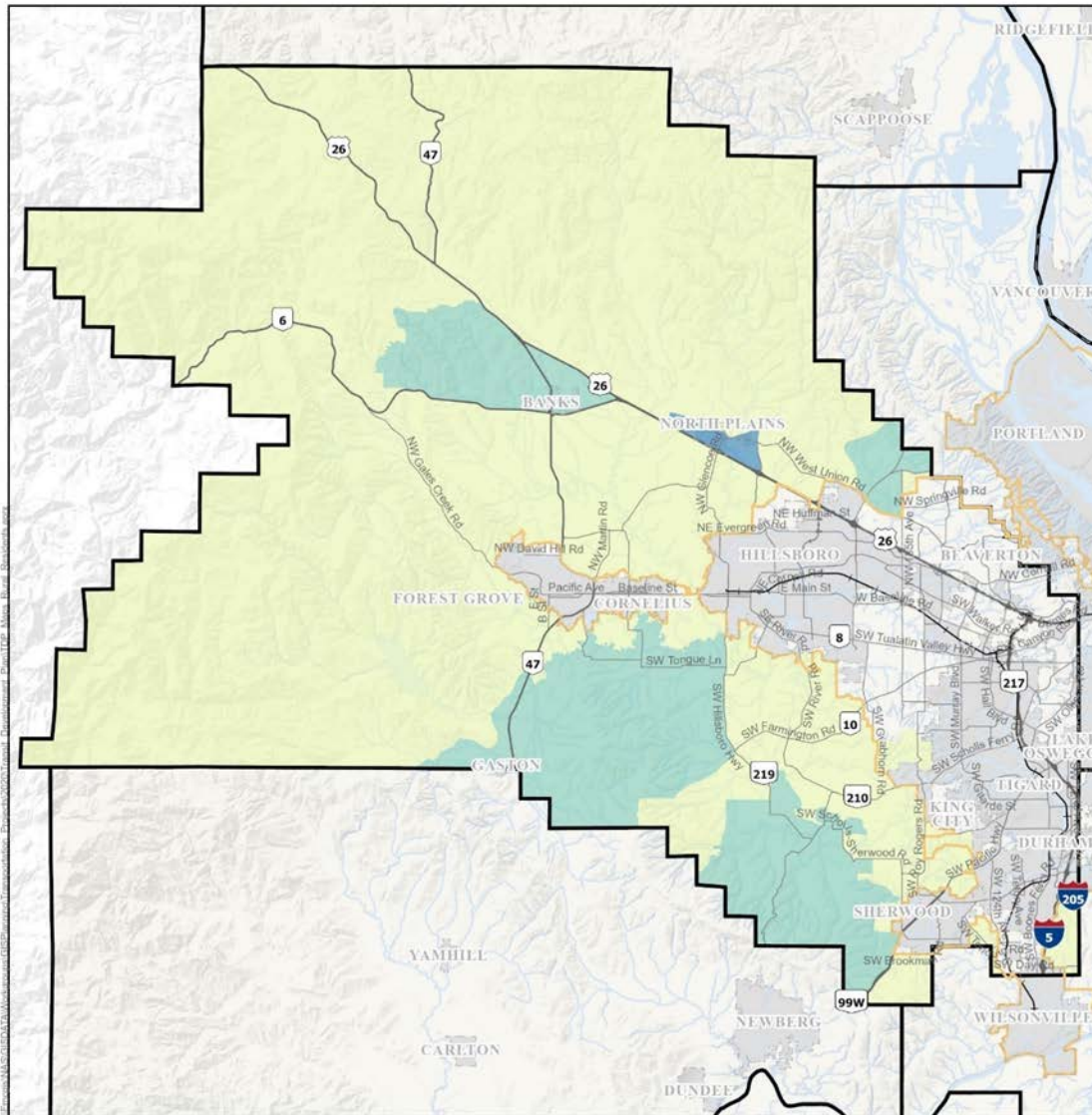


Figure 9: Density of Rural Youth (Age 0-17) Population



Washington County  
Long Range Planning

Washington County  
Transit Development  
Plan

Density of Older Adult  
Population Age 65+

- Higher
- Average
- Lower
- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



1:300,000



Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B01001

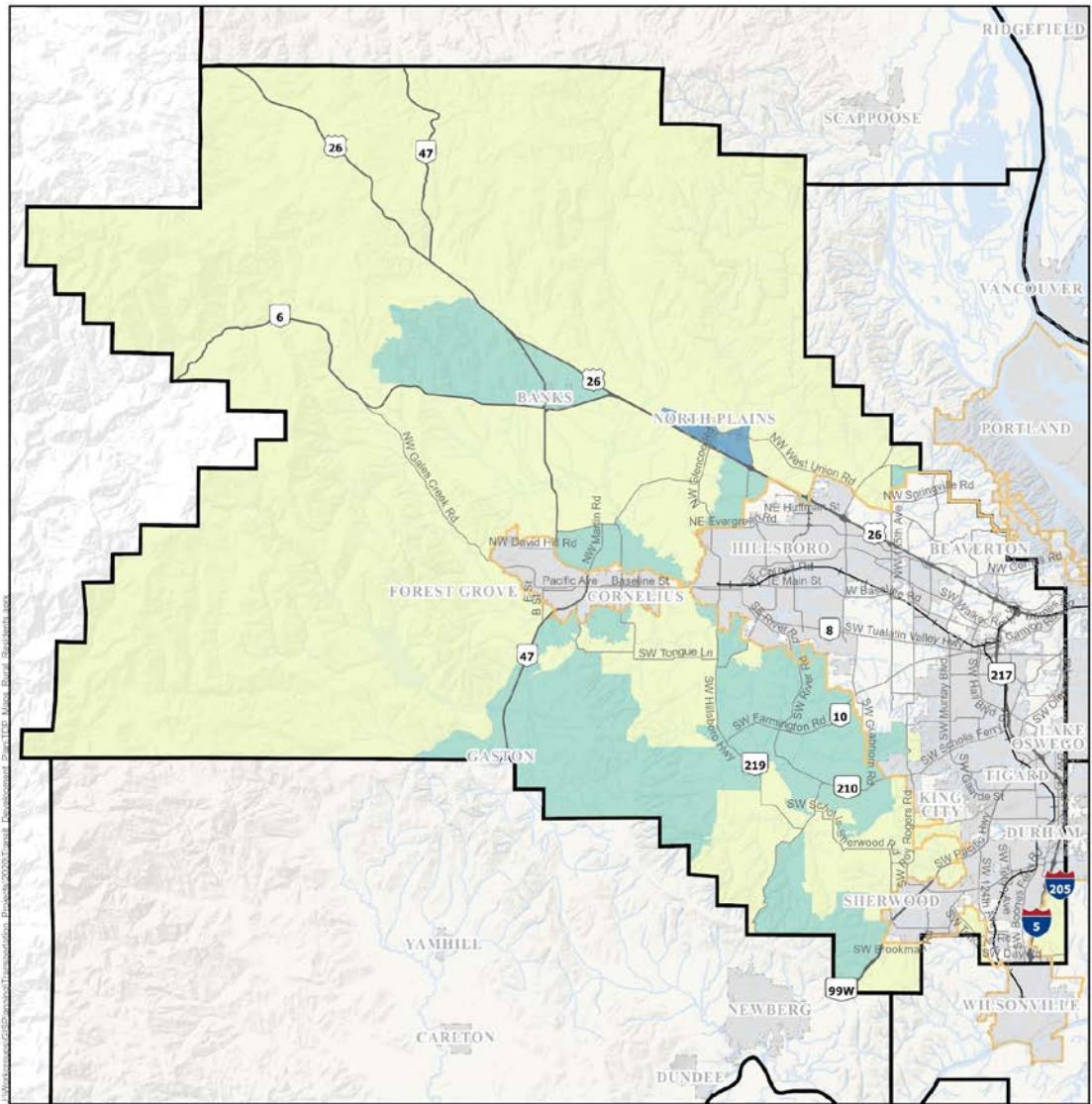
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Figure 10: Density of Rural Adult (Age 65+) Population



Washington County  
Long Range Planning

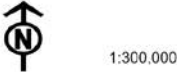
Washington County  
Transit Development  
Plan

Density of People of Color  
(excluding White, Non-Latinx  
Population)

- Higher
- Average
- Lower

- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B03002

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Planning and Development Services Division

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Figure 11: Density of Rural People of Color

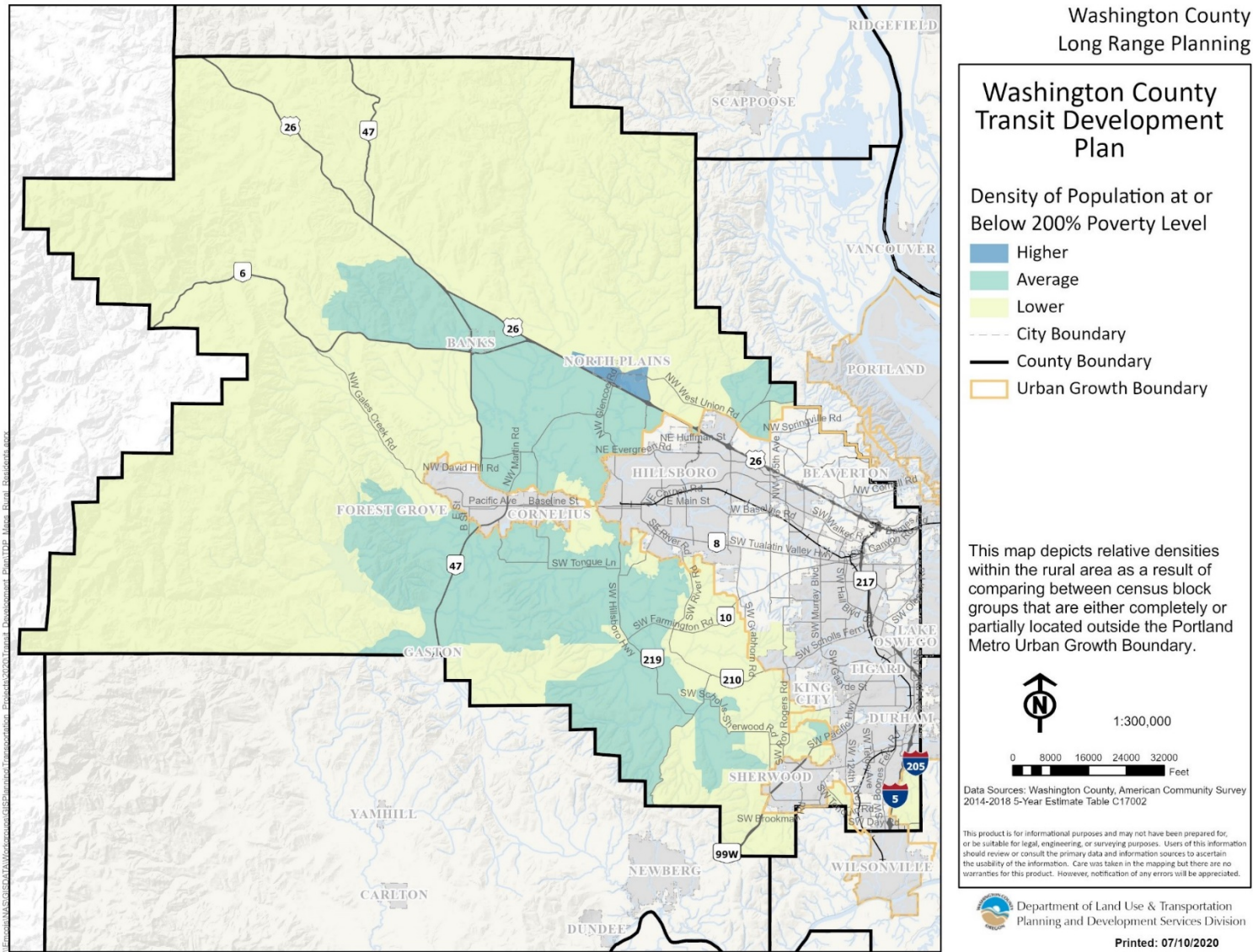


Figure 12: Density of Rural Population in Poverty (<200% of Poverty Level)

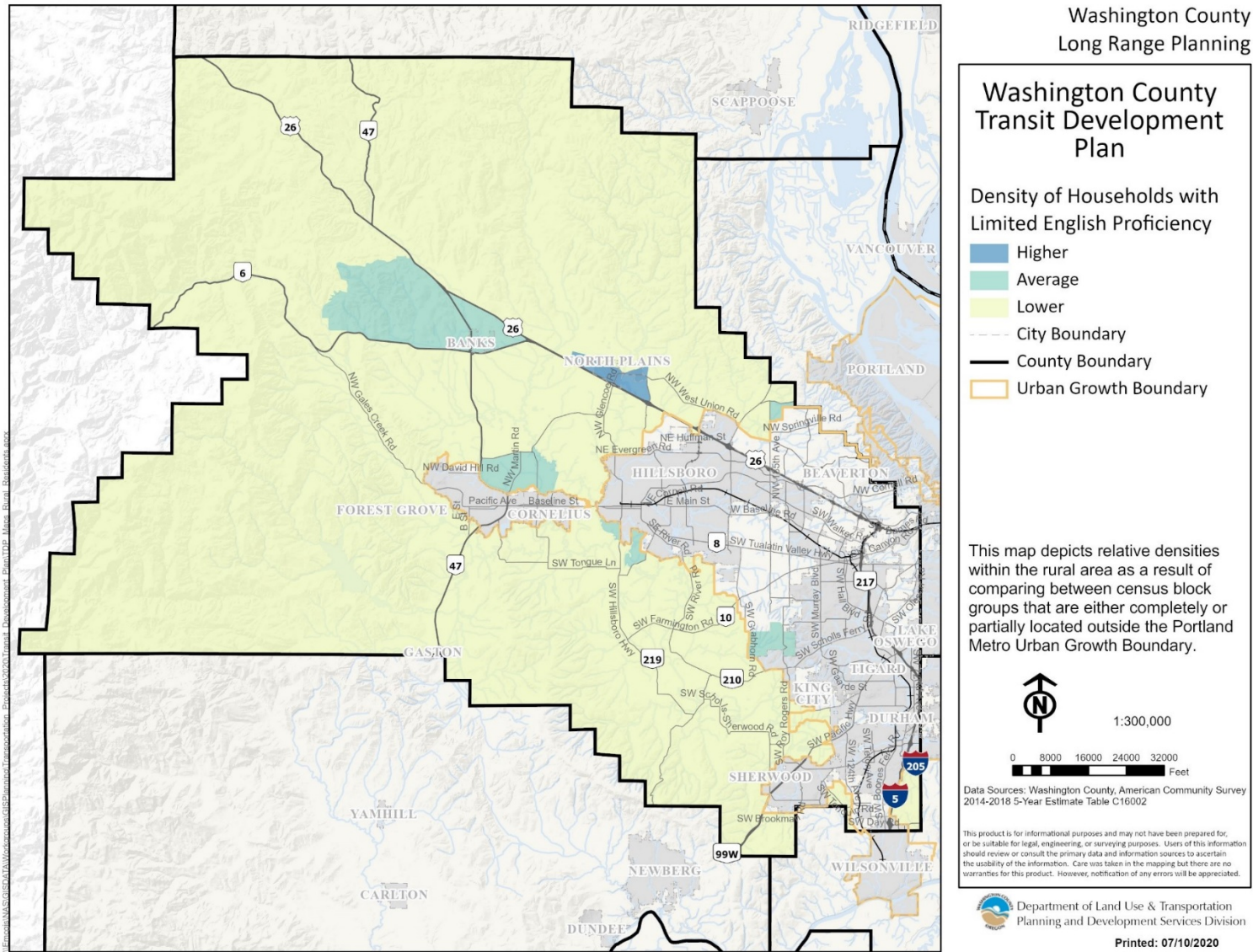


Figure 13: Density of Rural Limited English Proficiency Population

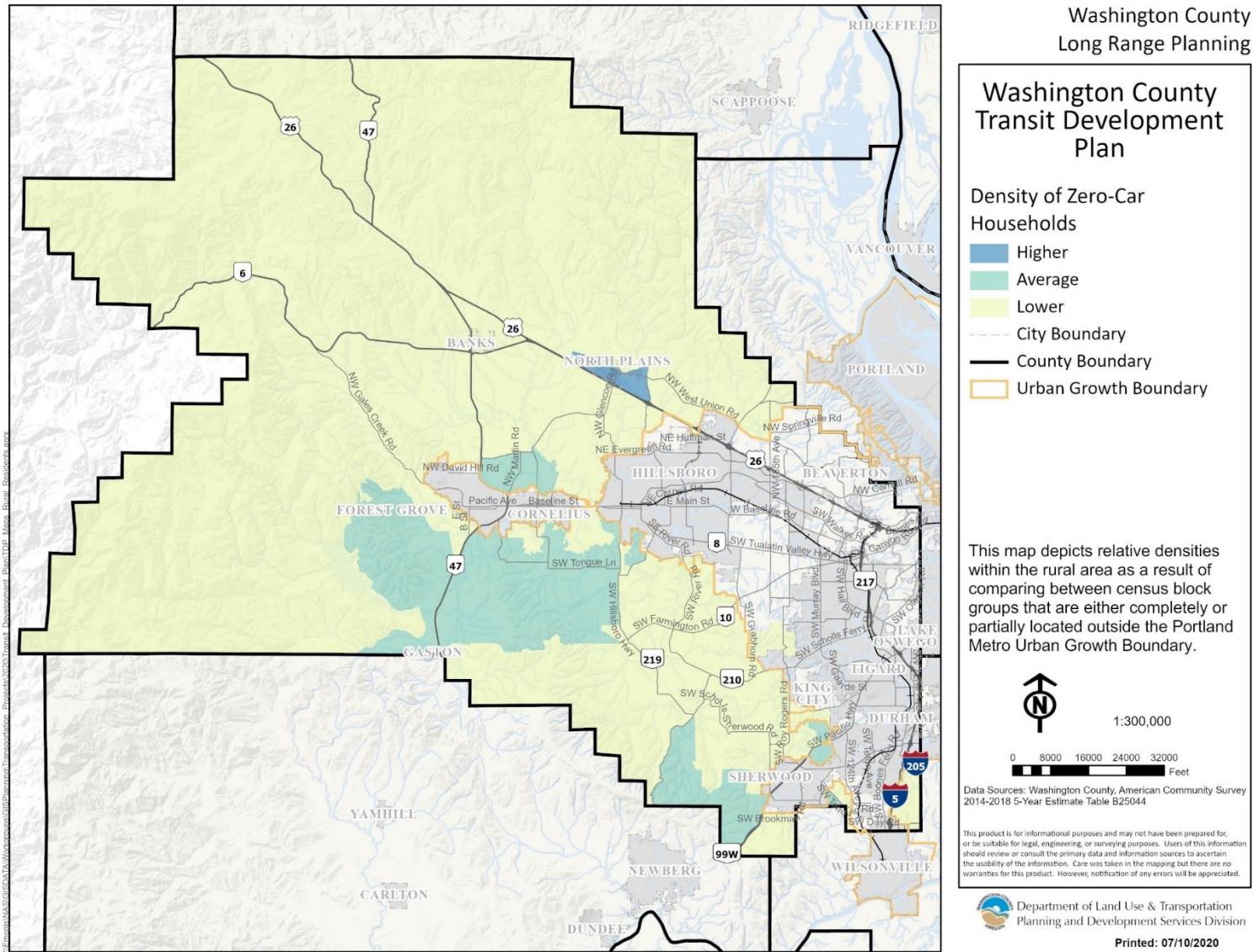
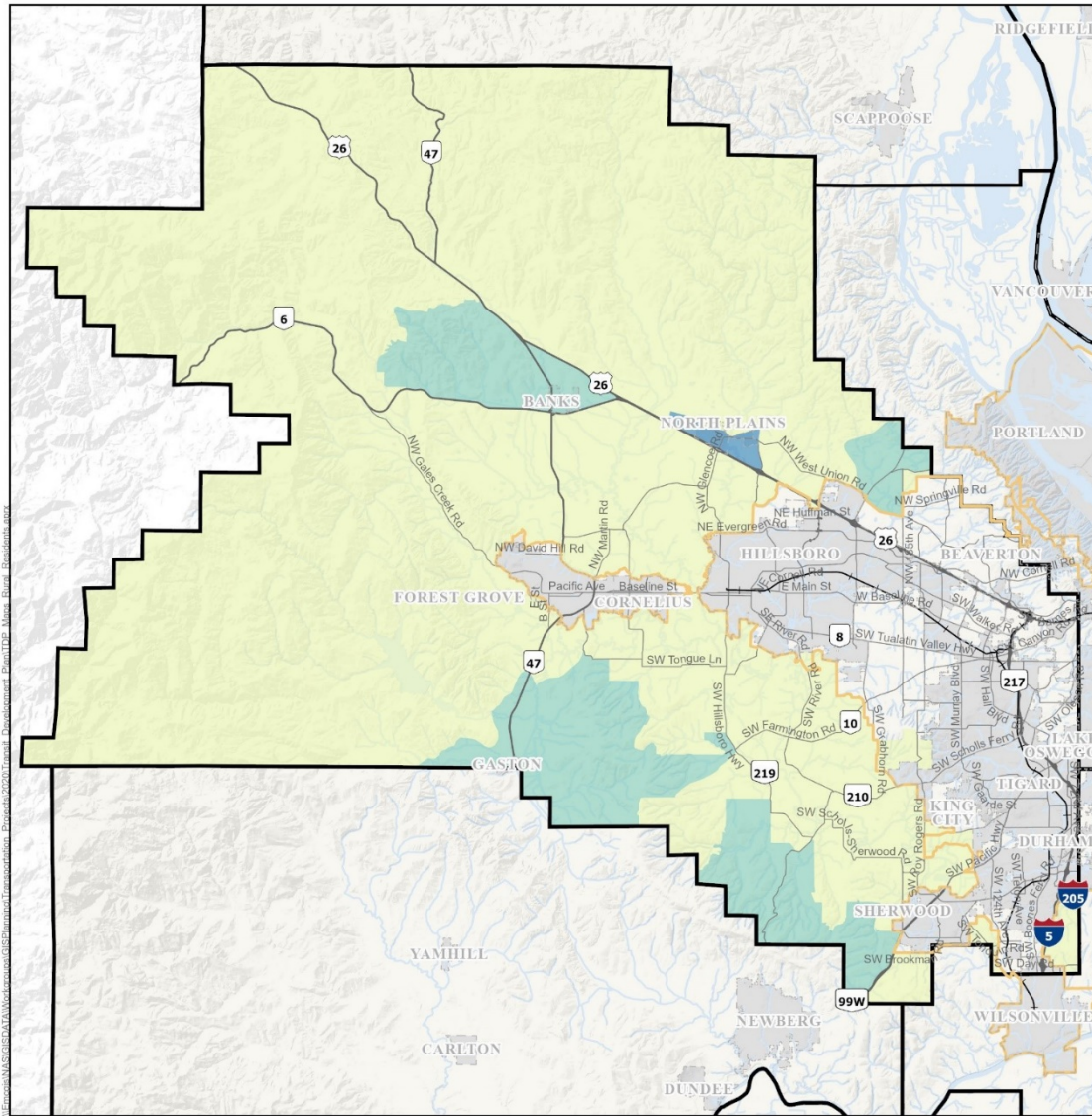


Figure 14: Density of Rural Households without Car



Washington County  
Long Range Planning

Washington County  
Transit Development  
Plan

Density of Population Age 18+  
with a Disability

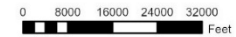
- Higher
- Average
- Lower

- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



1:300,000



Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table C21007

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Figure 15: Density of Rural Adults with Disability

### Washington County Transit Development Plan

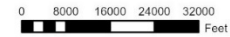
#### Density of Veteran Population

- Higher
- Average
- Lower
- City Boundary
- County Boundary
- Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



1:300,000



Data Sources: Washington County, American Community Survey 2014-2018 5-Year Estimate Table B21001

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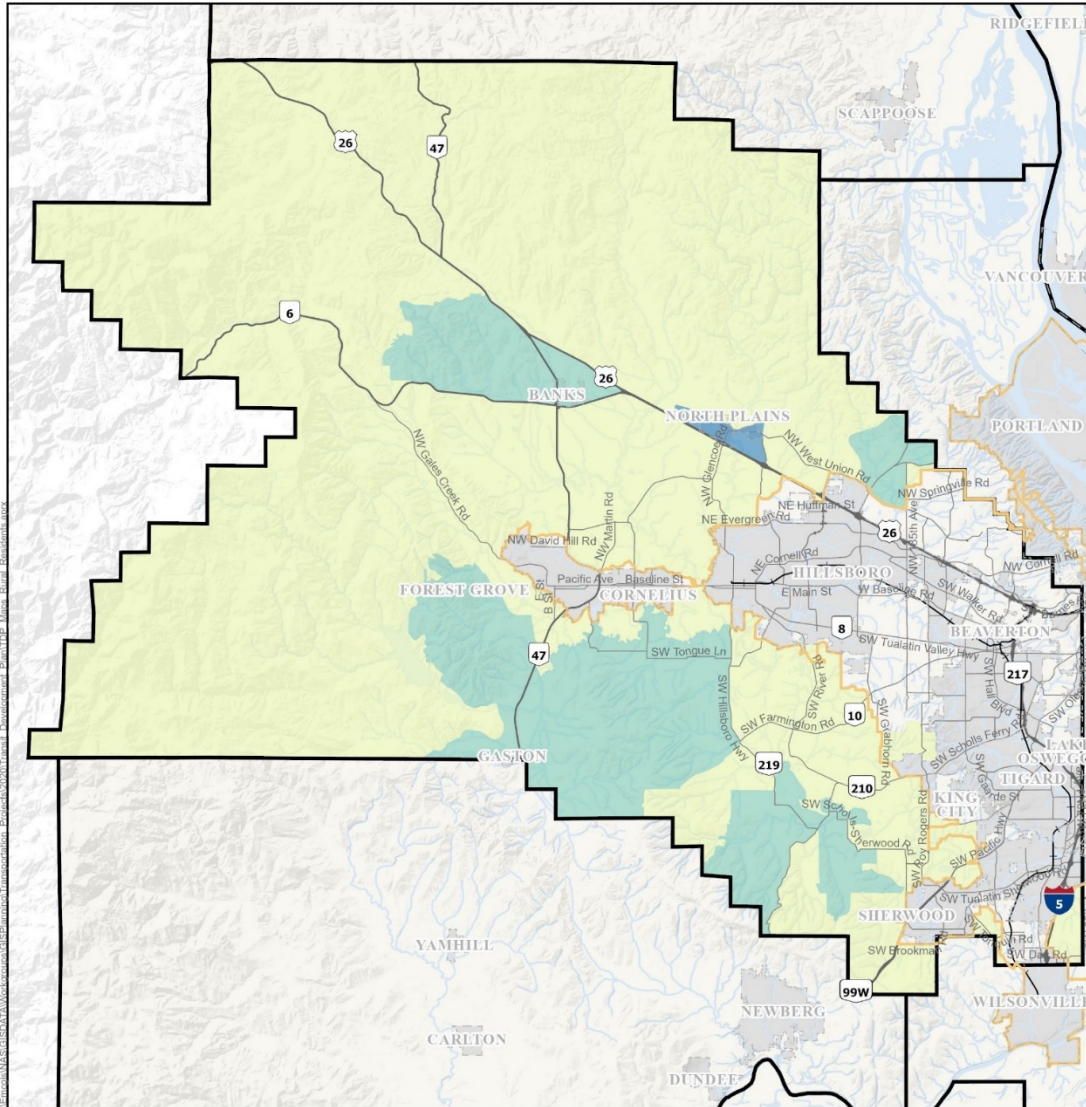
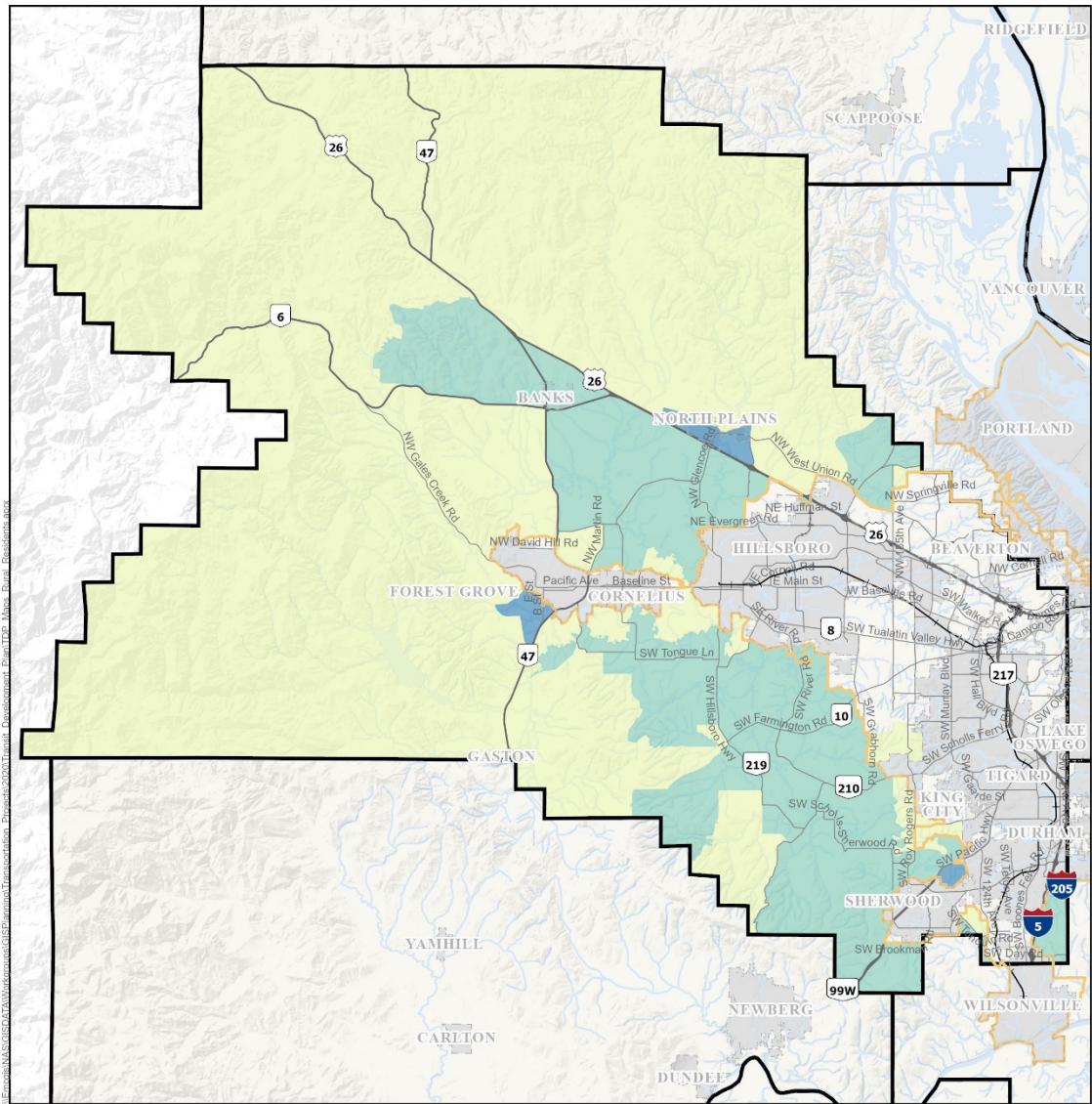


Figure 16: Density of Rural Veteran Population



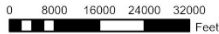
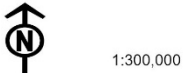
Washington County  
Long Range Planning

Washington County  
Transit Development  
Plan

Lower-Income Jobs Earning  
Less Than \$3,333 Per Month

- Higher
- Average
- Lower
- City Boundary
- County Boundary
- ▭ Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



Data Sources: Washington County, 2017 Longitudinal Employer-Household Dynamics Work Area Profile Analysis by Primary Jobs

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Figure 17: Density of Rural Lower-Income Jobs (<\$3,333/Month)

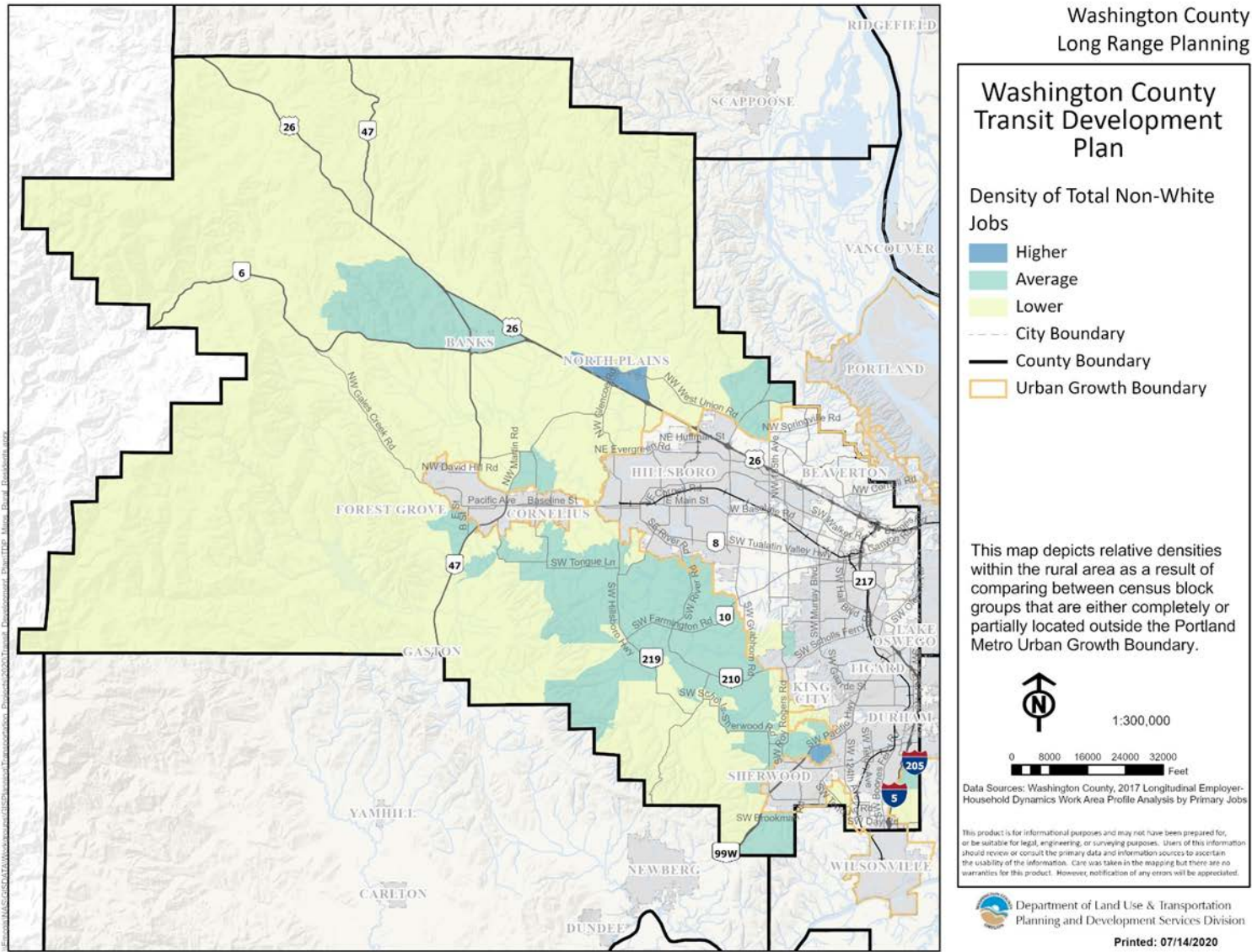


Figure 18: Density of Rural Non-White Jobs

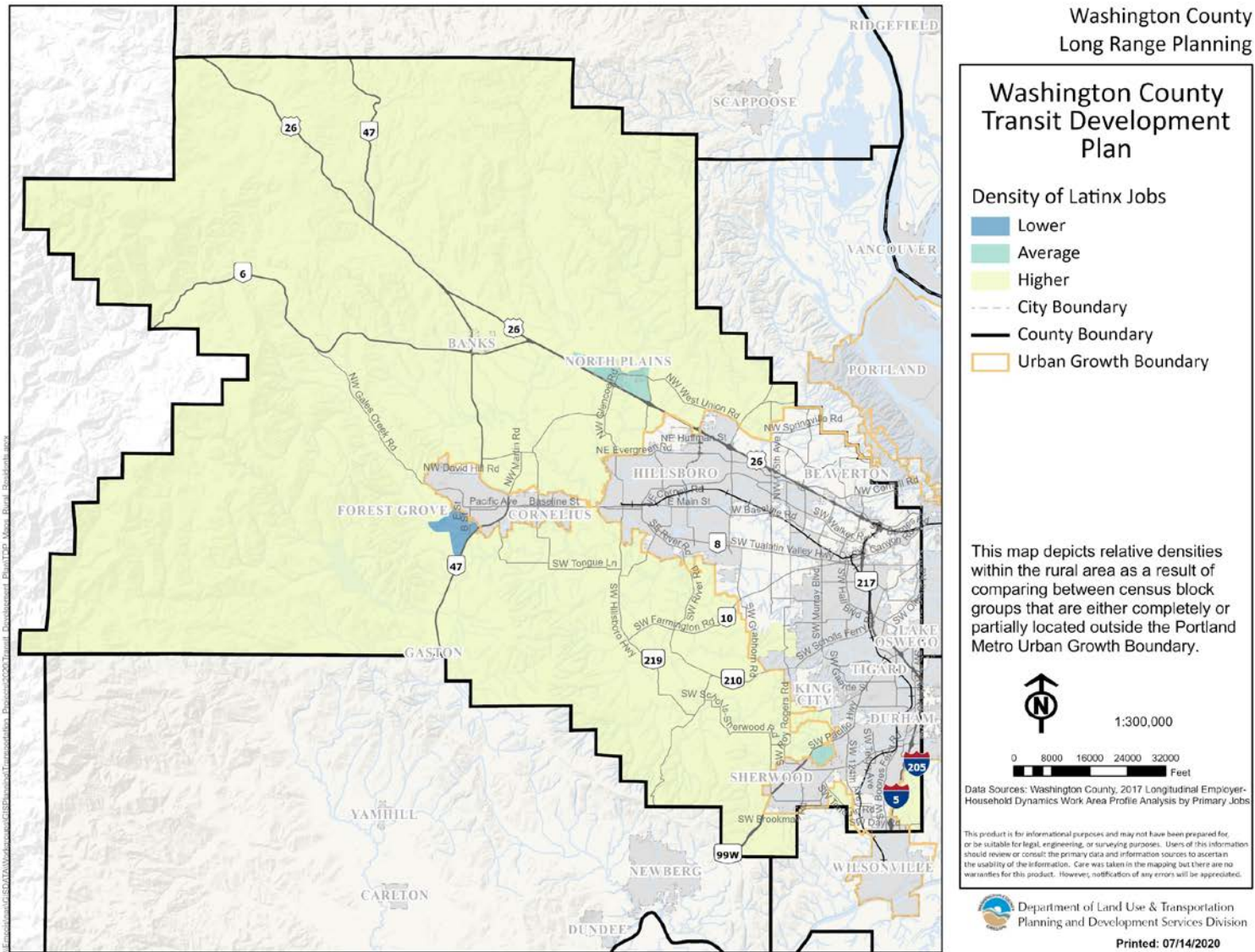
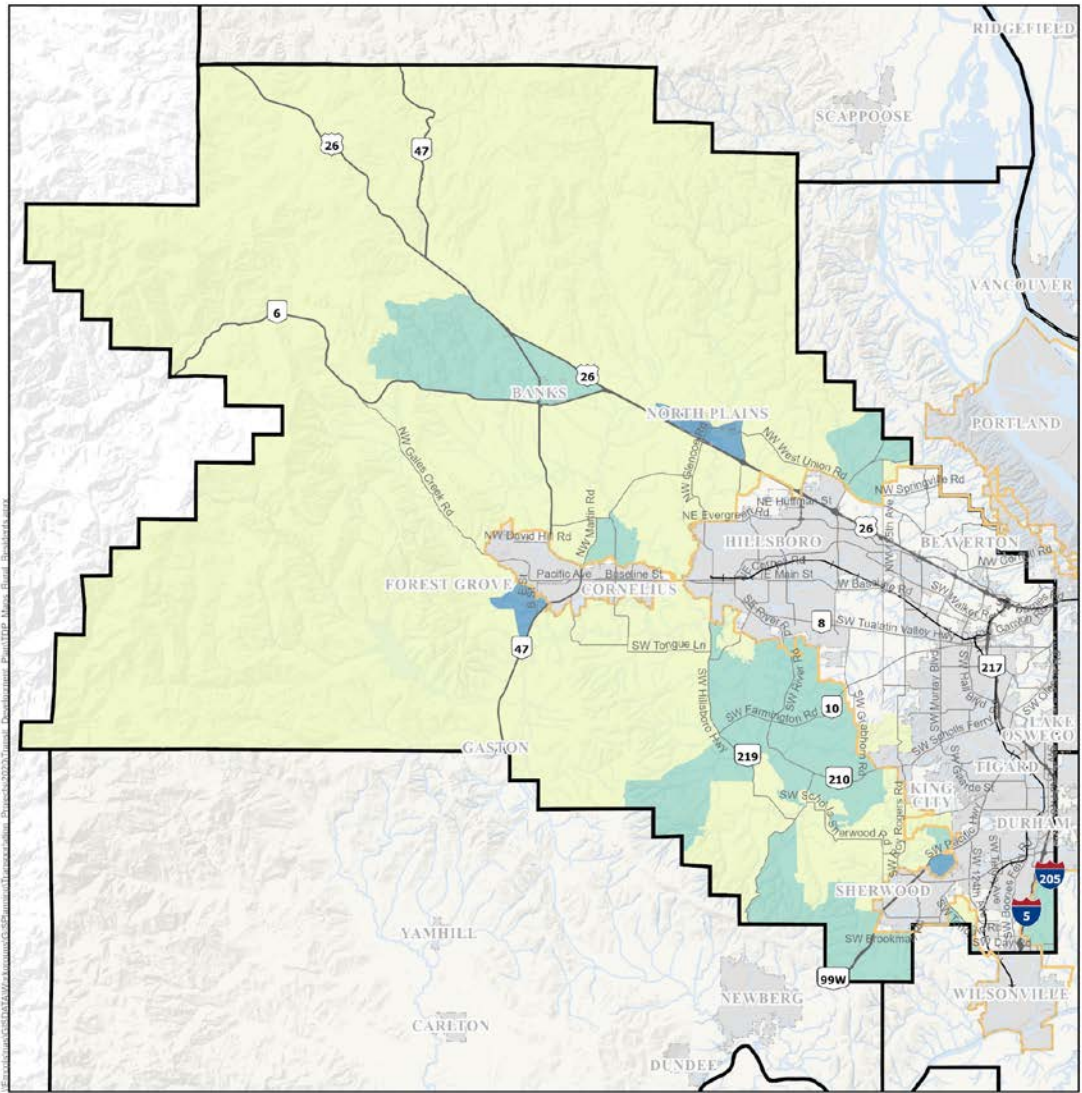


Figure 19: Density of Rural Hispanic or Latino Jobs



Washington County  
Long Range Planning

Washington County  
Transit Development  
Plan

Density of Older Employees  
Age 55+

- Higher
- Average
- Lower
- City Boundary
- County Boundary
- ▭ Urban Growth Boundary

This map depicts relative densities within the rural area as a result of comparing between census block groups that are either completely or partially located outside the Portland Metro Urban Growth Boundary.



1:300,000



Data Sources: Washington County, 2017 Longitudinal Employer-Household Dynamics Work Area Profile Analysis by Primary Jobs

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Figure 20: Density of Rural Older Employees (Age 55+)

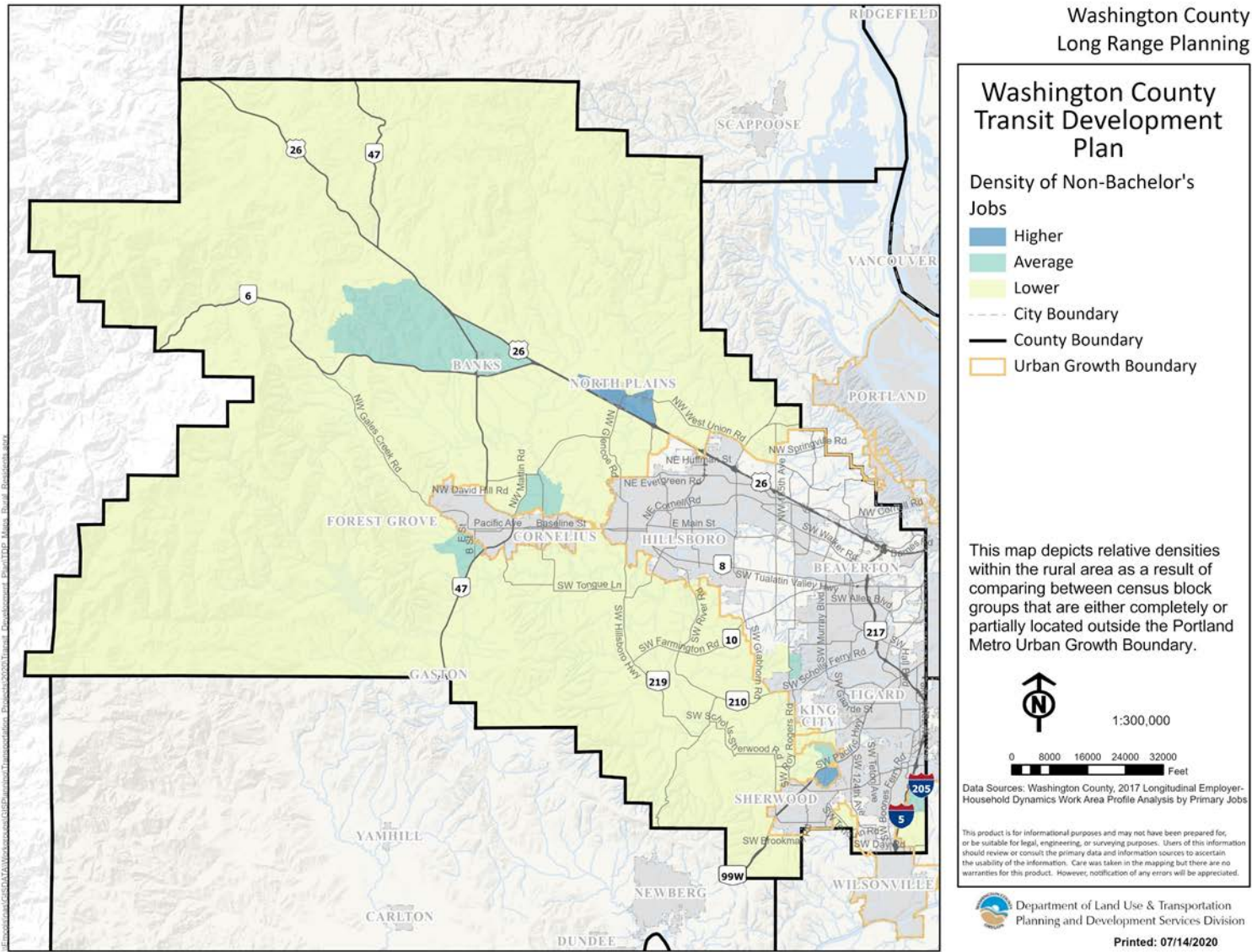


Figure 21: Density of Rural Non-Bachelor's Jobs

## Appendix B-1: Committed Improvements to Address Needs

As part of TriMet's 2019 PTIP, reflecting plans for FY19-FY21, Washington County proposed service enhancements for both Regional Coordination within TriMet's Service District as well in the rural area. In addition, additional funds have been committed for capital purchases, planning and marketing. However, due to Covid-19, some of the improvements have been delayed due to overall reduction in transit use nationwide. These committed improvements, and their current status, are described in the following sections:

### **Regional coordination enhancements (FY 19 – FY 21)**

In mid-January 2018, TriMet's HB 2017 Transit Advisory Committee approved \$3 million, annually, in STIF funding for the Regional Coordination Program (RCP) for last mile shuttles within the TriMet District and/or services that help reduce fragmentation between TriMet and communities outside TriMet's service district, but inside Clackamas, Multnomah and Washington Counties.

#### *Current Status (through December, 2020):*

- GroveLink will add additional service (up to 10 service hours per weekend day, midday service, route expansion linking to TriMet route 57) and is planned to commence in January or February, 2021
- North Hillsboro Link added additional service, including five additional operational hours weekdays, plus new service on weekends (15 operational hours per weekend day), October, 2018
- Tualatin Shuttle is seeking a discretionary grant for expansion to connect with a new service SMART is planning that connects Wilsonville with Clackamas Town Center. If that grant is successful, the originally planned additional weekday operations will likely be pushed to the next biennium (FY 22 – FY 23).
- Planning work has been completed for a potential South Beaverton shuttle. This work will serve as a template for needs analysis for potential future shuttle routes. This analysis is described later in this document and opportunities to implement a pilot program will be sought going forward.

### **Rural Transit Enhancements (FY 19 – FY 21)**

As described previously, rural Washington County is currently served by five transit providers:

- Columbia County operates a system of shuttle buses collectively called the "CC Rider," including two routes that extend southward into Washington County. The Nehalem Valley Route provides service between Vernonia, Stub Stewart State Park, Staley's Junction, and TriMet's Willow Creek Transit Center, generally following Highway 47, Highway 26, and 185<sup>th</sup> Avenue. The Saint Helens/Scappoose to Hillsboro/Beaverton route connects Saint Helens and Scappoose in Columbia County with destinations in central Washington County, including the Portland Community College Rock Creek Campus, the Tanasbourne Regional Center, and Willow Creek Transit Center.
- Northwest POINT (Public Oregon Intercity Transit) is one of three inter-city shuttle bus routes in Oregon operated by the private sector OC&W Coachways, with supplemental funding from ODOT. This particular route provides twice-daily round trips between Portland Union Station, Cannon Beach, and Astoria. The service includes a "flag stop" in Manning along Highway 26 in

western Washington County

- Tillamook County Transportation District, Tillamook County’s bus service, known as “The Wave,” includes a route from Tillamook to the Portland metro area. Route 5 Tillamook-Portland provides two round trips per day, seven days a week, with stops at the Tillamook Forest Center, Banks, North Plains, Tanasbourne, and the Sunset Transit Center. The route continues to Union Station in downtown Portland.
- Ride Connection provides demand-responsive and a fixed-route transit service in rural Washington County. Ride Connection also offers a number of educational programs intended for older adults and people with disabilities, including one-on-one travel training and group travel training. Ride Connection is funded through an agreement with TriMet, and with grants from federal, state, foundation, corporate and individual entities.
  - The demand-responsive service includes door-to-door paratransit for seniors, people with disabilities and transportation-disadvantaged commuters. Trip purposes for Rural Demand Response vary, but a recent assessment suggests that over 40 percent are for personal purposes, over 30 percent are for work/school, and 10 percent for life-sustaining/medical/nutritional. Expansion of Demand Response service may entail connecting to areas where there is a concentration of medical services; allowing for rural to rural rides; allowing urban to rural; and allowing for trip chaining when a rural ride comes into the TriMet district. Any expansion in service will leverage existing federal 5311 funds.
  - The deviated fixed-route transit service, called WestLink, connects Forest Grove, North Plains, Banks and Hillsboro.
- The Yamhill County Transit area (YCTA) provides a hub-and-spoke network of bus routes centered in McMinnville. Two YCTA routes extend into Washington County. Route 33 connects McMinnville, Carlton, Yamhill, Gaston, Forest Grove, and Hillsboro. The 99W Link consists of three related bus routes that connect McMinnville, Lafayette, Dayton, Dundee, Newberg, Sherwood, and Tigard. The 99W Link service terminates at Tigard Transit Center, providing connections to TriMet’s WES and bus #12-Barbur/Sandy.

Rural transit service enhancements shown below build upon and leverage existing services and funding programs. In order to ensure the level of service matches the community’s needs, further planning and public outreach was conducted by Ride Connection in FY 20 and FY 21.

#### *Current Status*

Due to Covid-19, planned expansions have been delayed as follows:

- WestLink – additional weekday runs planned to commence in January or February, 2021
- Demand response – boundary will expand from as far east as approximately 10<sup>th</sup> Street in Hillsboro to as far east as the 185<sup>th</sup> Avenue/175<sup>th</sup> Avenue/Roy Rogers Road corridor for all trips and as far as the Willamette River for medical-related trips starting in January or February, 2021. Planned expansion of Demand Response service will serve areas with a concentration of medical services and allow for a greater range of trip destinations including rural to rural rides, urban to rural rides and trip chaining when a rural ride comes into the TriMet district. The expanded demand response service is available for use by the general public.

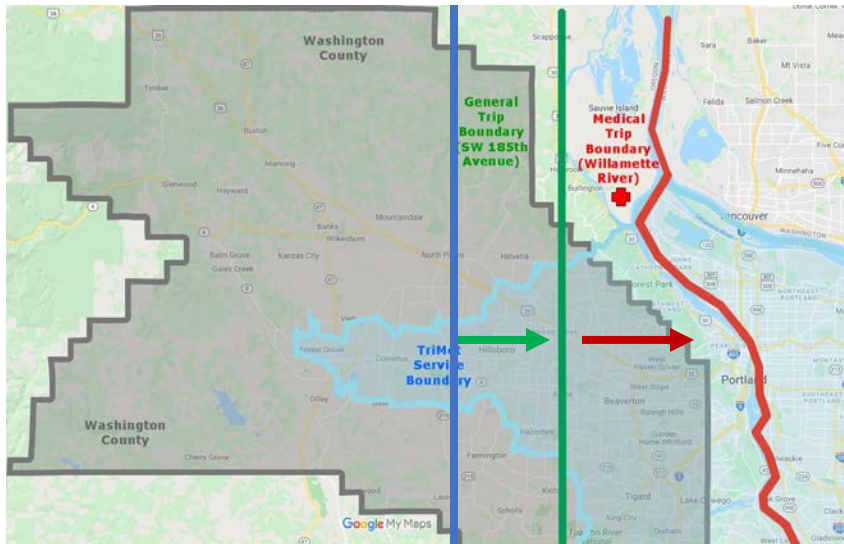


Figure 1. Rural Demand Response Expansion of Service Area

- Expand interregional services – initial coordination discussions have begun and will continue throughout FY 21. TTCD “The Wave” is expected to add a mid-day run in the near-term and the intent is to hopefully coordinate stops in Banks and North Plains along with the additional WestLink run with that expansion.

### Other Improvements (FY 19 – FY 21)

In addition to the service enhancements described in the previous sections, the following items were programmed and are either ongoing or have been purchased, as shown.

#### Current Status

- Rural planning – ongoing (Transit Development Plan)
- Demand response vehicle purchase – two electric vehicles purchased
- Administration and Marketing – ongoing technology and marketing efforts
- Shuttle vehicle purchase – four shuttle vehicles to be purchased in FY 21

## Appendix B-2: Transit Development Plan Online Open House Results Summary

### Survey Purpose

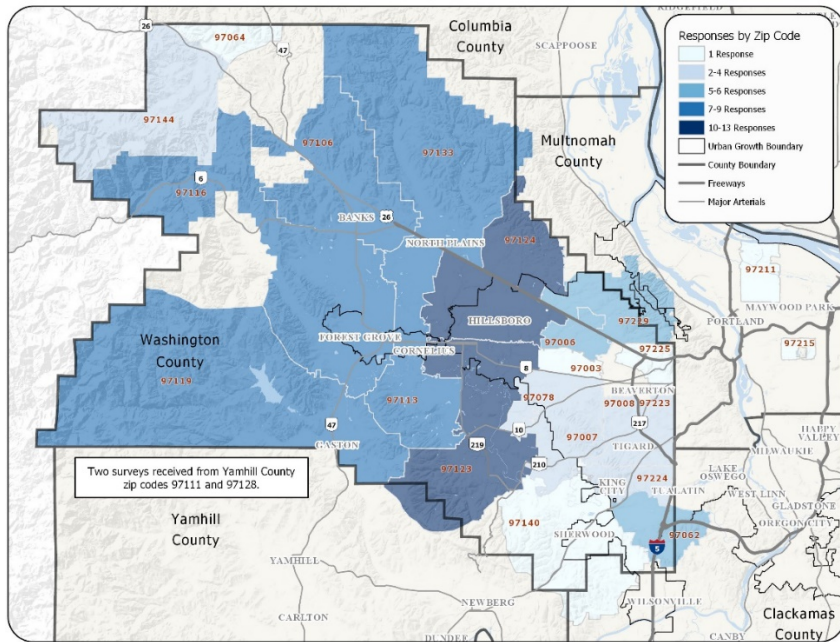
In order to inform the Transit Development Plan and generate awareness of available transit options, Washington County in partnership with Ride Connection conducted an online open house in October 2020. The intent of the survey was to help solicit input on existing transit needs and potential service and capital improvements in rural and new growth areas (where community connectors provide first- and last-mile access in the TriMet district). The results from the survey combined with other outreach efforts helped the County identify transit priorities for the near-term (two-year) and longer-term (five year) timeframe.

### Outreach

The survey link was distributed through social and traditional media (both English and Spanish), interested parties lists and newsletters maintained by the County, Ride Connection and other partners; Community Participation Organizations and other community newsletters; as well as business recovery centers. Transit committee members were also asked to share the survey with their networks.

A total of 112 people participated in the survey, including 6 respondents who took the survey in Spanish. The online open house was completed by residents across the County and also included participants residing in City of Portland, Yamhill County and potentially Columbia County. Figure 1 shows the level of survey response by zip code. The majority of respondents (65 percent) identified themselves as White, 13 percent of respondents identified as Hispanic or Latinx, and 5 percent identified as Asian. Three-quarters of respondents were between the ages of 35 and 74, with highest level of response from the 65-74 age range. Almost half of open house participants reported an income above \$100,000 annually, with less than a quarter reporting \$50,000 or less in annual income.

Figure 1: Survey Responses by Zip code



## Survey Analysis Methodology

While the overall number of responses to the online open house were relatively low, staff analyzed the results of the survey based on several factors including geography, income and disability status to assess if there were any key themes discernible relating to transit system needs and desired improvements among participants.

In order to evaluate responses based on geography, participants' residential zip codes were grouped into four sub-regions. A number of single zip codes encompassed large sections of both urban and rural areas; therefore, it was not possible to divide the county into rural and urban areas. Figure 2 shows the location of the four geographic sub-regions. Table 1 lists the distribution of online open house participants by geographic subregion.

Figure 2: Respondent Zip Codes Grouped by Geographic Region

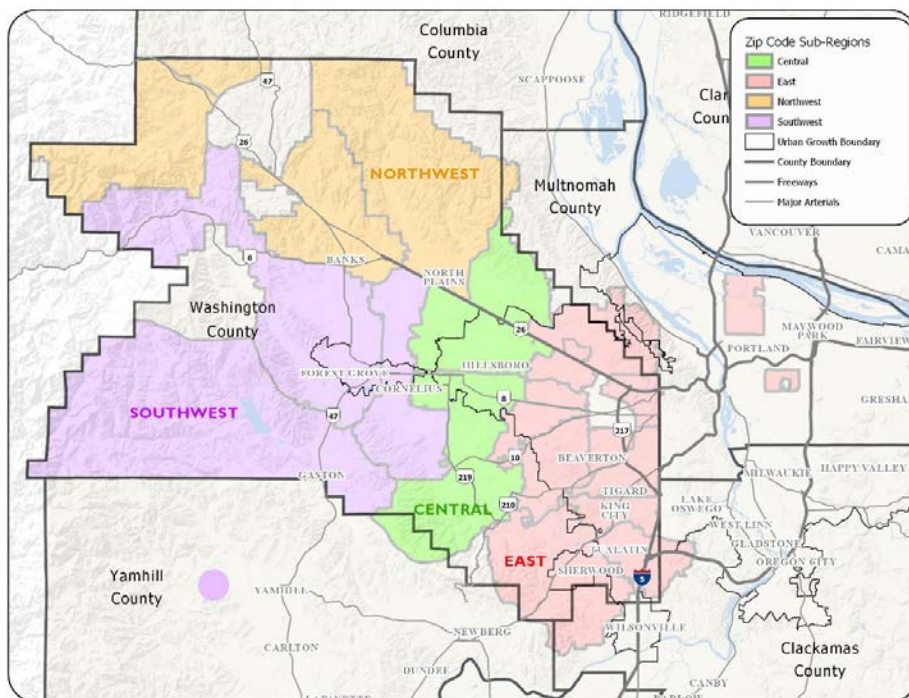


Table 1: Responses Received by Zip Code and Geographic Subregion

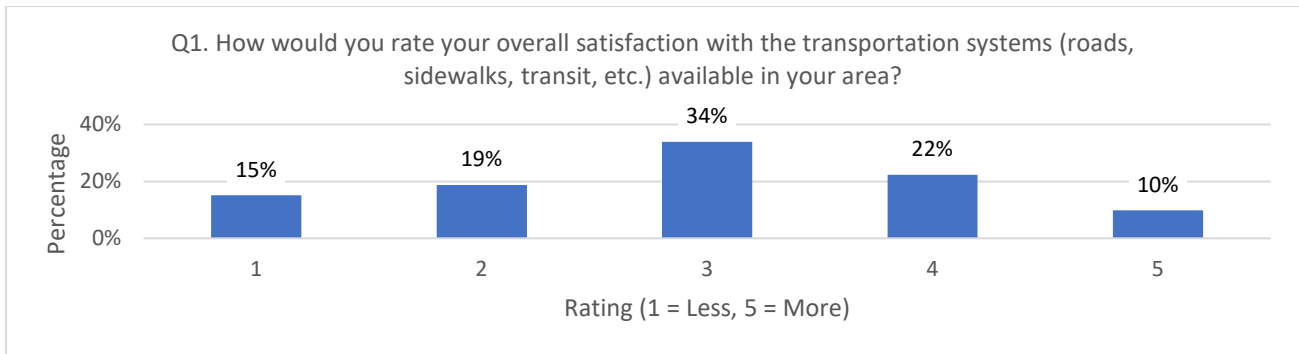
East (39)	Central (26)	Northwest (21)	Southwest (25)
• 97062 (6)	• 97123 (13)	• 97133 (9)	• 97113 (8)
• 97229 (6)	• 97124 (13)	• 97106 (8)	• 97116 (8)
• 97006 (5)		• 97144 (3)	• 97119 (7)
• 97224 (4)		• 97064 (1)*	• 97111 (1)
• 97007 (4)			• 97128 (1)
• 97008 (3)			
• 97223 (3)			
• 97078 (3)			
• 97215 (1)			
• 97140 (1)			
• 97211 (1)			
• 97225 (1)			
• 97003 (1)			

## Results

This portion of the report summarizes responses to each of the online open house questions.

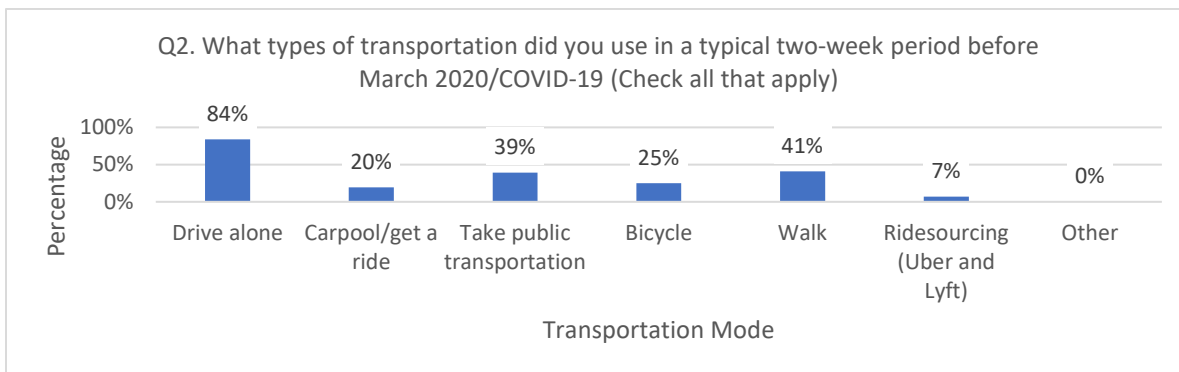
1. *How would you rate your overall satisfaction with the transportation systems (roads, sidewalks, transit, etc.) available in your area? 1=Lowest; 5=Highest*

A plurality of respondents gave a neutral rating, and a relatively even number of respondents indicated higher or lower levels of satisfaction.



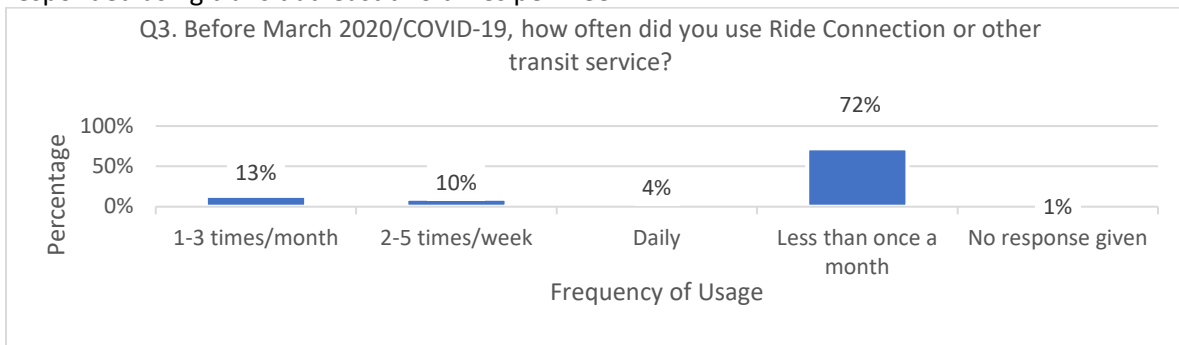
2. *What types of transportation did you use in a typical two-week period before March 2020/COVID-19 (Check all that apply)*

Almost 85 percent of respondents reported driving a single-occupant vehicle at least some of the time, with 40 percent having walked or taken public transportation during that timeframe.



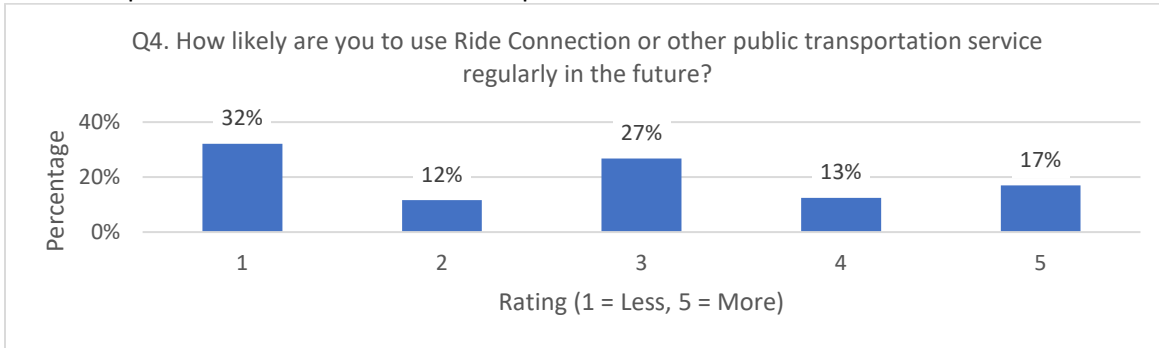
3. *Before March 2020/COVID-19, how often did you use Ride Connection or other transit service?*

More than 70 percent reported having used transit less than once per month, while almost 15 percent responded using transit at least two times per week.



4. *How likely are you to use Ride Connection or other public transportation service regularly in the future?  
1=Unlikely; 5=Very likely*

Forty-four percent of respondents indicated that they were unlikely or very unlikely to use transit regularly while 30 percent responded that they were likely or very likely to use transit. However, it is not clear if the ongoing COVID-19 pandemic factored into these responses.



5. *What would encourage you to use transit more frequently? (Select all that apply)*

- *More comfortable walks to transit stops (better lighting, continuous sidewalks, etc.)*
- *More comfortable bike rides to transit stops (Bike lanes are wider, protected, etc.)*
- *Cheaper Fares*
- *More direct or express service*
- *More frequent service*
- *Expanded service area*
- *Make transit available earlier and/or later in the day to meet work shift changes*
- *Better and more park-and-ride facilities*
- *Mobile application for ease of planning trips on transit*
- *Improved transit stops (Benches, shelters, bike racks, lighting, etc.)*

The most popular responses were service improvements, such as greater frequency, expanded coverage and quicker journeys, which were selected by around 40 percent of respondents. Nearly a third supported pedestrian access to transit enhancements, followed by investment in park-and-ride facilities and stop amenity improvements.

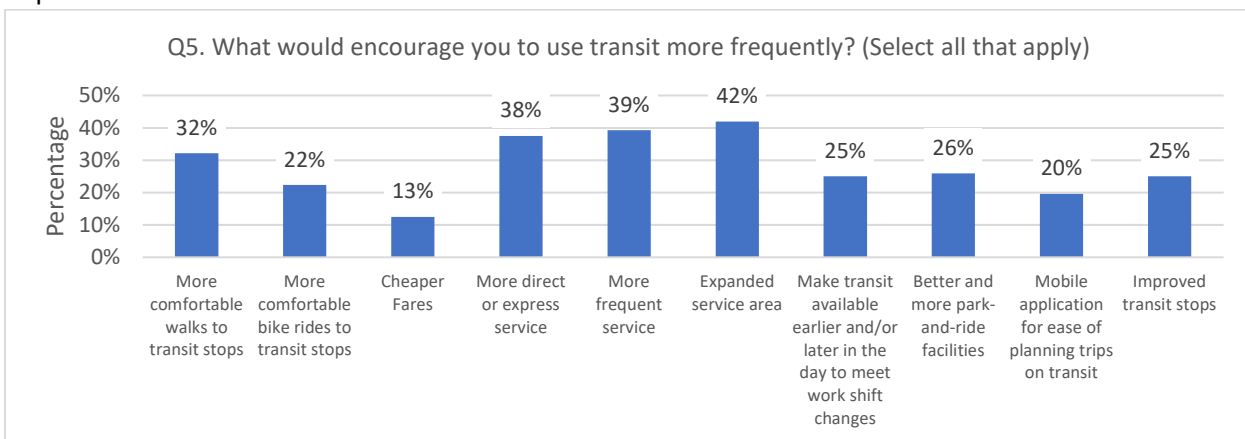
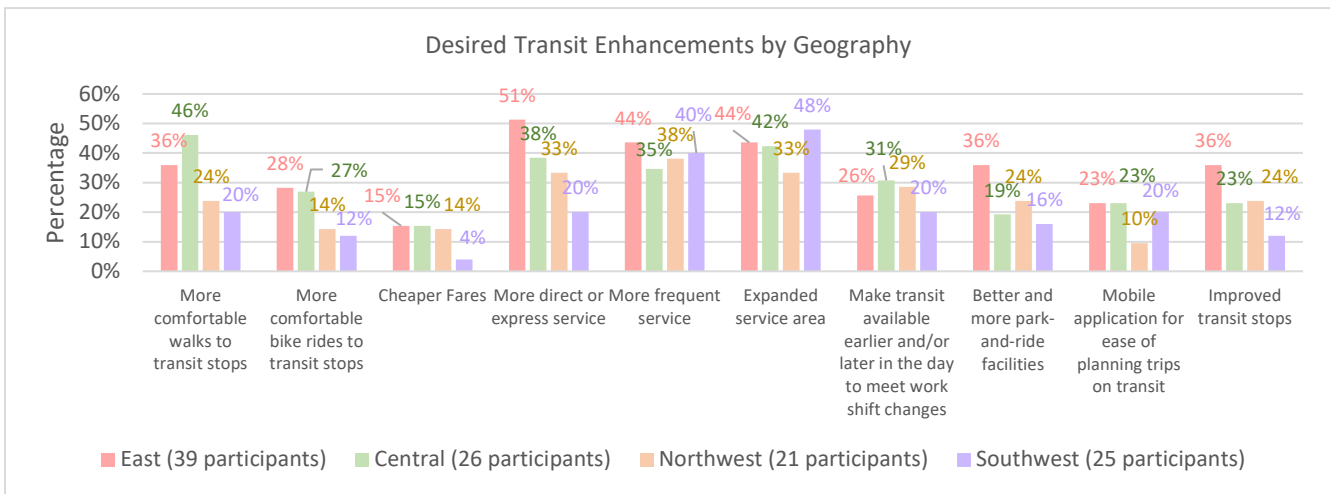


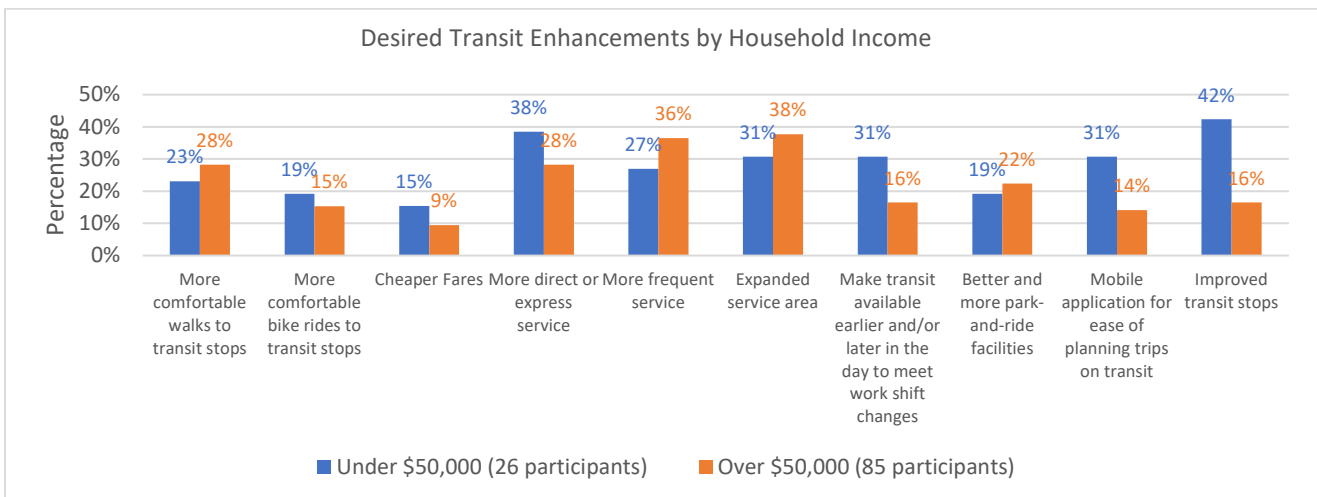
Figure 3 below shows the distribution of desired transit enhancements by geography with the number listed on top of each bar in the chart representing the percent of times it was selected by survey participants within each geography (number of participants per group shown in the legend). Overall, the results were generally consistent across the county regardless of where participants lived (as analyzed by zone), with service investments being the most universally desired improvement. However, there were some slight differences between each of the sub-regions. In the East sub-region, more direct or express service received the most support, whereas participants in the Southwest sub-region gave expanded service area the slight plurality. Improving pedestrian access to transit was top priority for the Central sub-region, and the Northwest sub-region gave a slight edge to more frequent service.

Figure 3: Desired Transit Enhancements by Geography



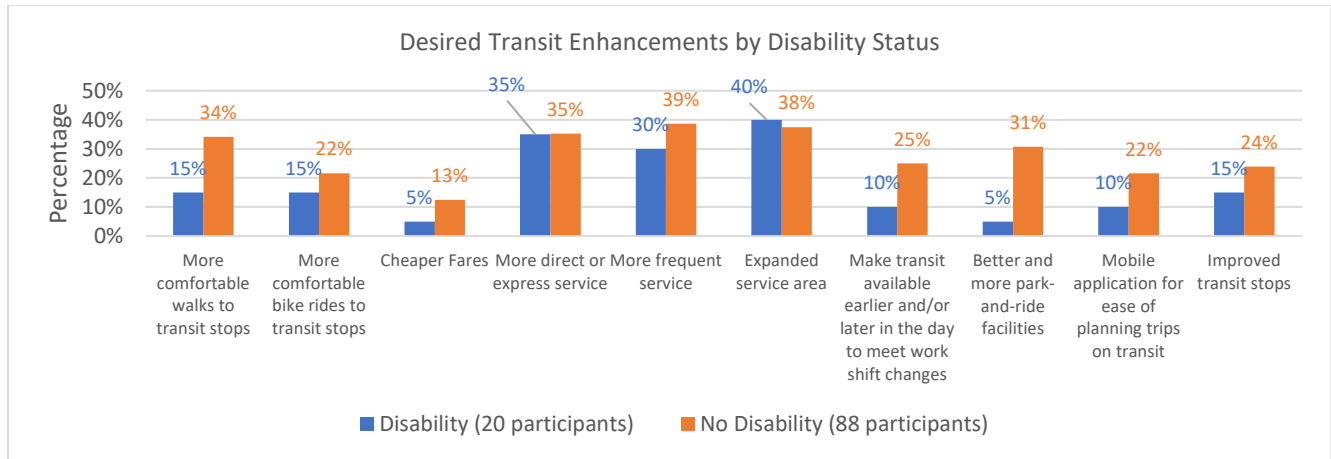
Low-income respondents (those with a household income of \$50,000 or below) provided highest priority to improved transit stops and more direct or express service, followed by technology upgrades to allow for easier trip planning, expanded service coverage, and span improvements. Respondents that reported higher household income showed preference to service frequency and coverage investments, followed by more direct or express service and improved walking access to stops. Figure 4 shows the responses grouped by income.

Figure 4: Desired Transit Enhancements by Household Income



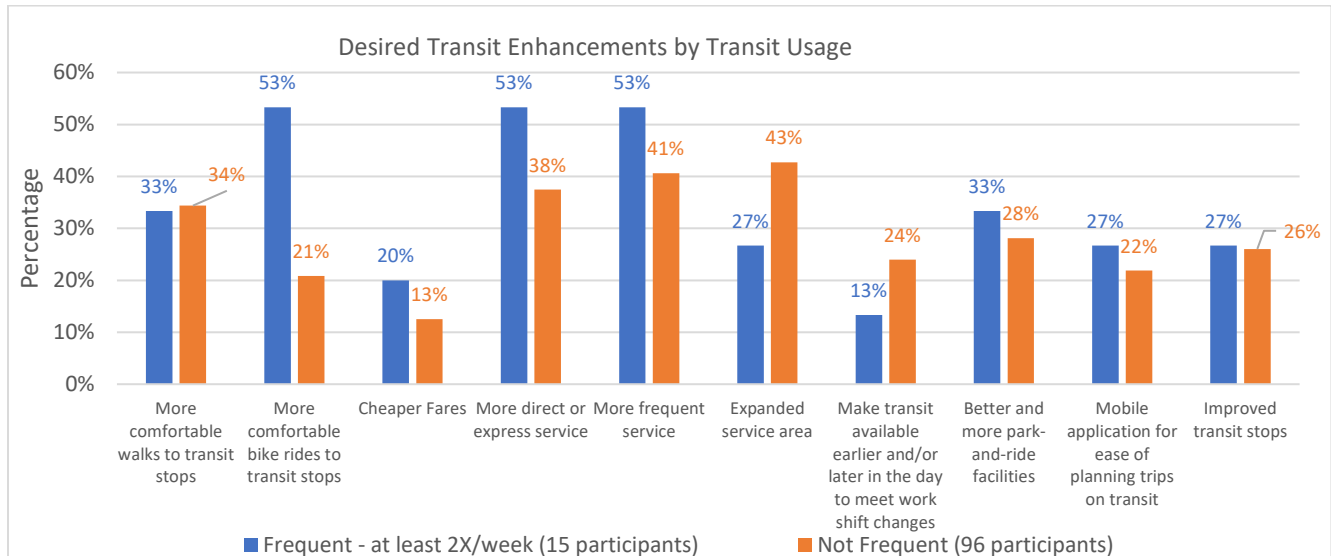
Respondents who reported a disability (including hearing, vision, ambulatory and/or independent living) gave highest preference for service-based improvements, while stop and access improvements were a lower priority. This was largely in line with the preferences of respondents who did not report a disability. Figure 6 shows the responses grouped by disability status.

Figure 5: Desired Transit Enhancements by Disability Status



Participants were also asked how often they used transit prior to the COVID-19 pandemic (see Figure 6). Among those who reported using transit at least twice a week, more frequent service, more direct or express service and bicycle access to transit improvements received the highest level of support. However, the highest priority for non-frequent transit users was expanded service coverage, and the top three priorities for this group were all related to service investments (coverage, frequency and more direct).

Figure 6: Desired Transit Enhancements by Transit Usage



6. To which of the following locations would you like to travel using public transportation? (Select three)

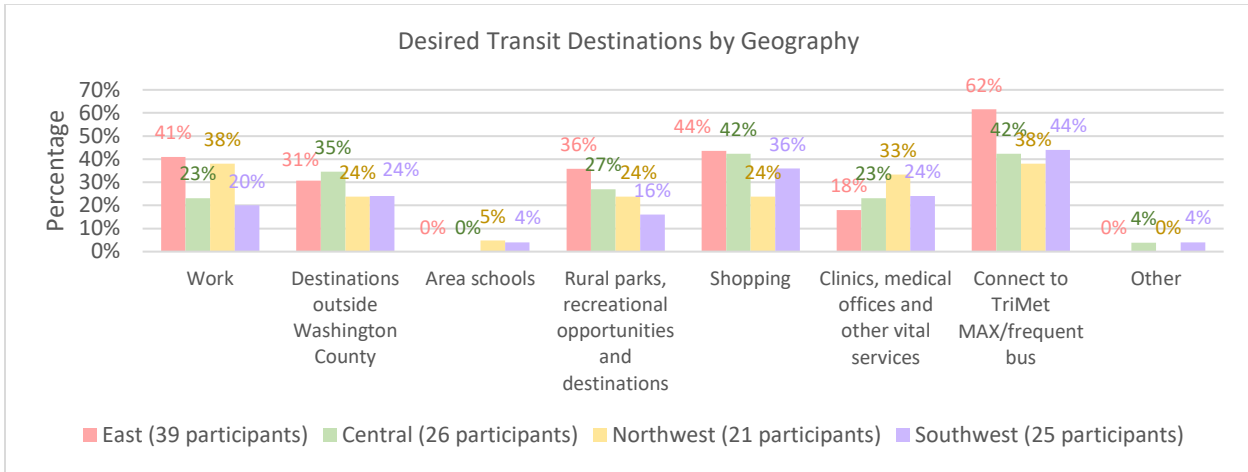
- Work
- Destinations outside Washington County
- Area schools
- Rural parks, recreational opportunities and destinations
- Shopping
- Clinics, medical offices and other vital services
- Connect to TriMet MAX/frequent bus
- Other

Over a quarter wanted to use transit (such as Ride Connection) to connect to TriMet MAX light rail and frequent bus service. The next most popular response was shopping destinations, followed by destinations outside of Washington County. When asked to elaborate on those locations outside of the county, participants listed Portland (including specific attractions such as OMSI and Oregon Zoo) most often, followed by the Oregon Coast and other destinations in Oregon. There was also a desire to get to rural recreation sites and other attractions, including wineries and casinos.

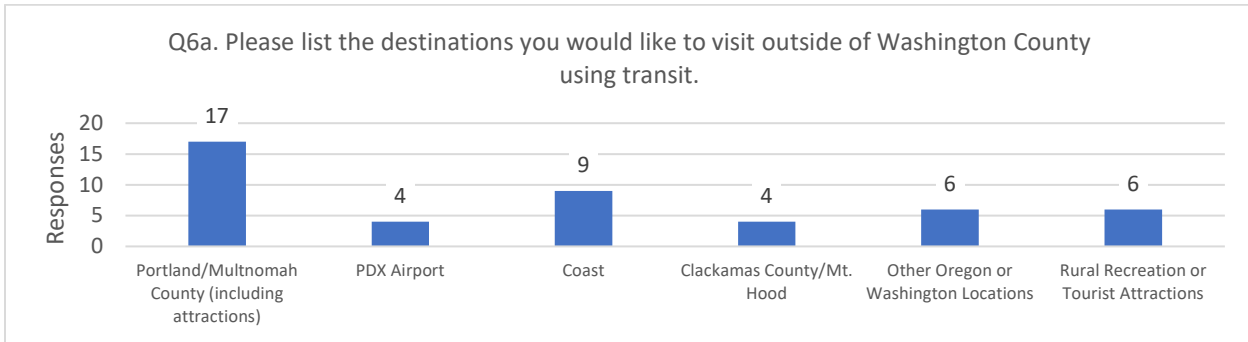


Figure 7 shows the distribution of desired transit destinations by geography with the number listed on top of each bar in the chart representing the percent of times it was selected by survey participants within each geography (number of participants per group shown in the legend). All sub-regions responded that they would most like to connect to the TriMet MAX and frequent bus network. Participants in the Central sub-region also felt it was important to reach shopping destinations, and those in the Northwest sub-region gave equal preference to reaching employment via transit.

Figure 7: Desired Transit Destinations by Geography



6a. Please list the destinations you would like to visit outside of Washington County using transit.



## Demographics

The online open house asked participants to provide voluntary demographic information. Below is a summary of their responses, as well as a statistical comparison to Washington County as a whole using demographic data from the 2014- 18 American Community Survey 5-year estimate (except where noted).

### 7. What is your residential ZIP Code?

The online open house was completed by residents across the County and also included participants residing in City of Portland, Yamhill County and potentially Columbia County. The highest level of response was observed in Hillsboro, North Plains, and surrounding unincorporated communities including Scholls, Farmington and Helvetia. Table 1 includes the distribution of responses by zip code.

Table 2: Responses Received by Zip Code and Postal Address

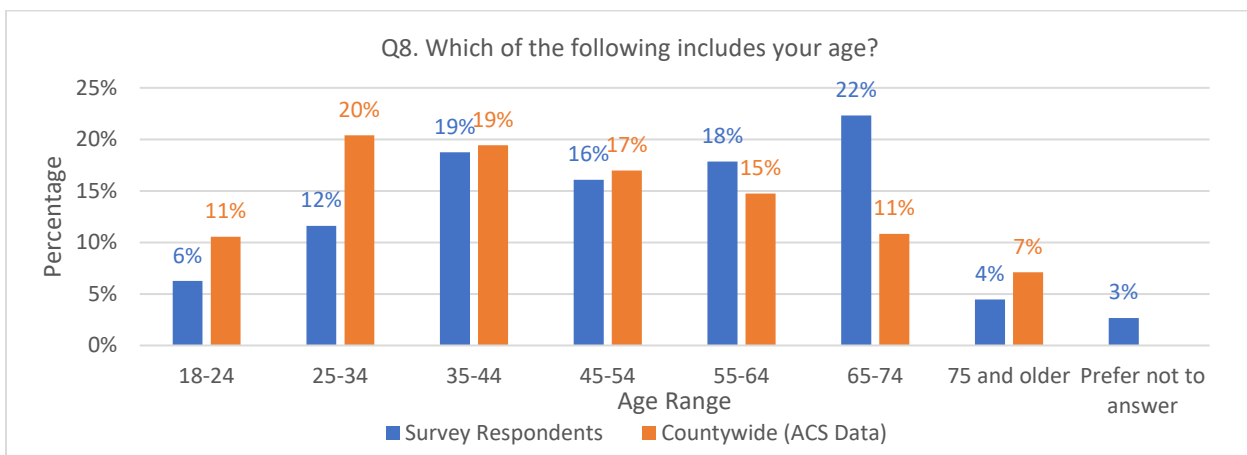
- 97123 – Hillsboro (13)
- 97124 - Hillsboro (13)
- 97133 – North Plains (9)
- 97106 - Banks (8)
- 97113 – Cornelius (8)
- 97116 – Forest Grove (8)
- 97119 – Gaston (7)
- 97062 - Tualatin (6)
- 97229 – Portland (6)
- 97006 - Beaverton (5)
- 97224 - Tigard (4)
- 97007 - Beaverton (4)
- 97008 – Beaverton (3)
- 97223 – Portland (3)
- 97078 – Beaverton (3)
- 97144 - Timber (3)
- 97215 - Portland (1)
- 97140 - Sherwood (1)
- 97211 - Portland (1)
- 97225 – Portland (1)
- 97003 - Beaverton (1)
- 97111 - Carlton (1) \*
- 97128 - McMinnville (1) \*
- 97064 – Vernonia (1) \*\*

\* Zip codes 97111 and 97128 are located in Yamhill County and are not mapped in Figure 1

\*\* Zip code 97064 extends into Columbia County

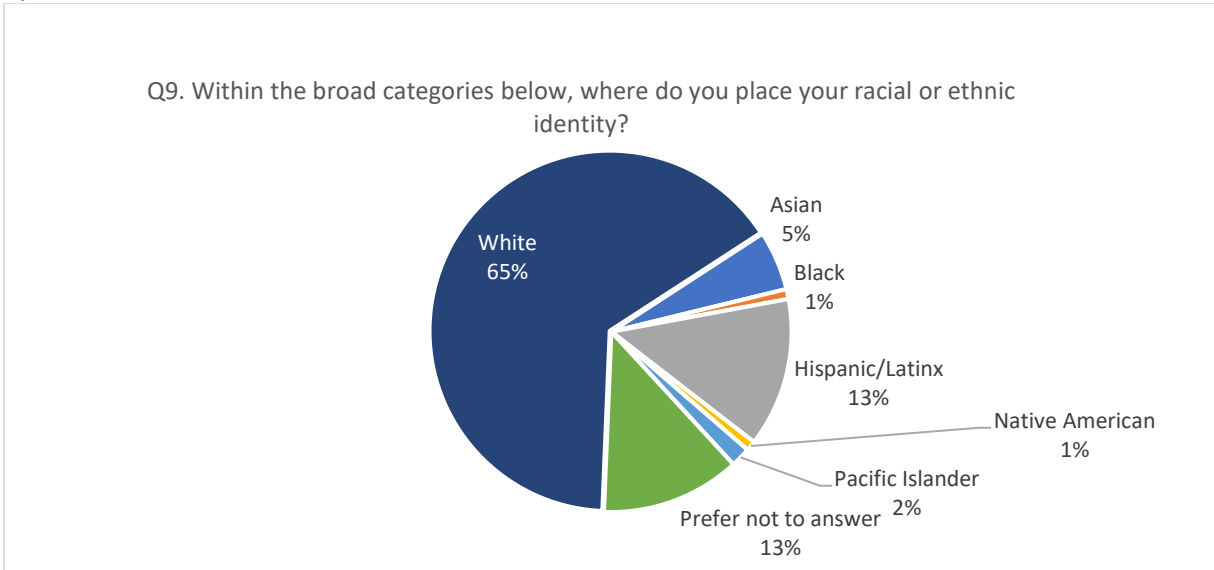
### 8. Which of the following includes your age?

The open house received the highest level of response from the 65-74 age range, which was overrepresented compared to the proportion this age group in Washington County based on ACS estimates (8 percent vs 22 percent). Overall, three-quarters of respondents were between the ages of 35 and 74, compared to roughly half (48 percent) as a proportion of the general population.



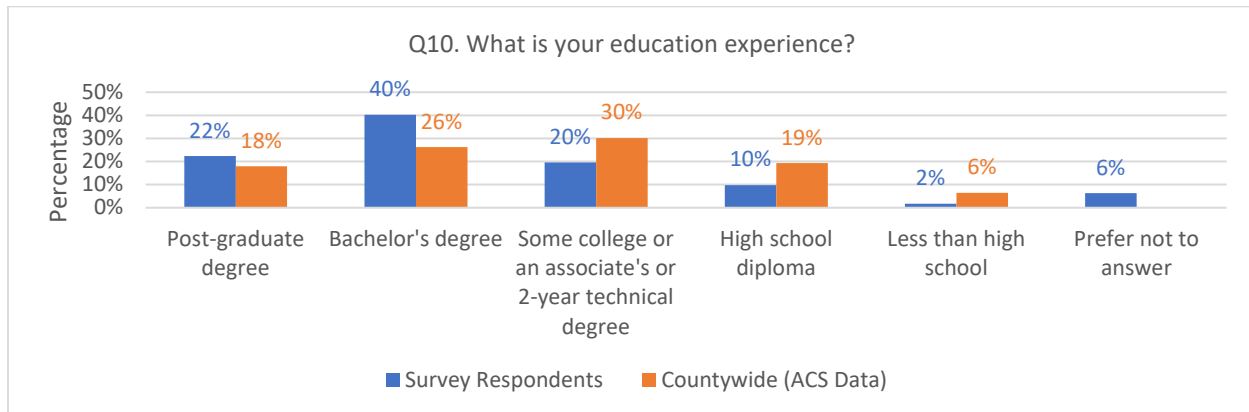
**9. Within the broad categories below, where do you place your racial or ethnic identity?**

While the ACS separates race and Hispanic/Latinx origin, the survey only allowed participants to select one of the options. The majority of respondents (65 percent) identified themselves as White, which is very similar to the share of White/Non-Hispanic population compared to the county as a whole using ACS estimates (66 percent). In addition, 13 percent of respondents identified as Hispanic or Latinx, which is slightly lower than their share of the overall county population (17 percent), and 5 percent identified as Asian (compared to 10 percent of the population). As a comparison, the percentage of Washington County residents that are not white and non-Hispanic/Latinx is 35 percent. However, fourteen respondents chose not to disclose their racial or ethnic identity.



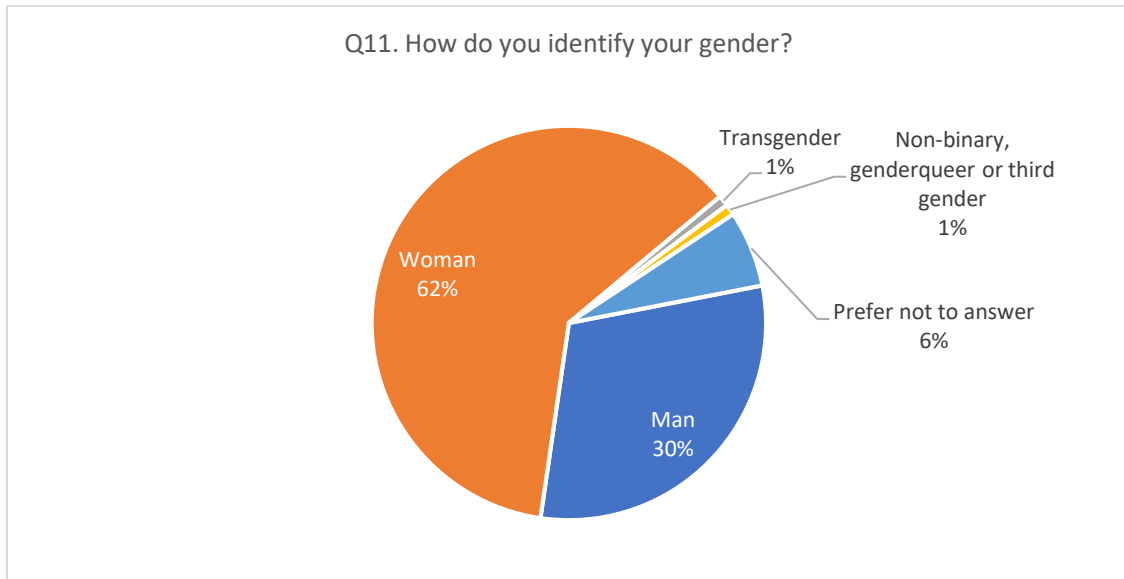
**10. What is your education experience?**

Over 60 percent of online open house respondents reported having a Bachelor’s degree or higher level of education, compared to 20 percent that had a two-year degree or some level of college and 10 percent that have a high school diploma or lower. Among Washington County residents age 25 and over, ACS estimates show that 44 percent reported attaining a Bachelor’s degree or higher level of education, while 30 percent reported some level of college or two-year degree, and 26 percent that were a high school graduate or did not finish high school.



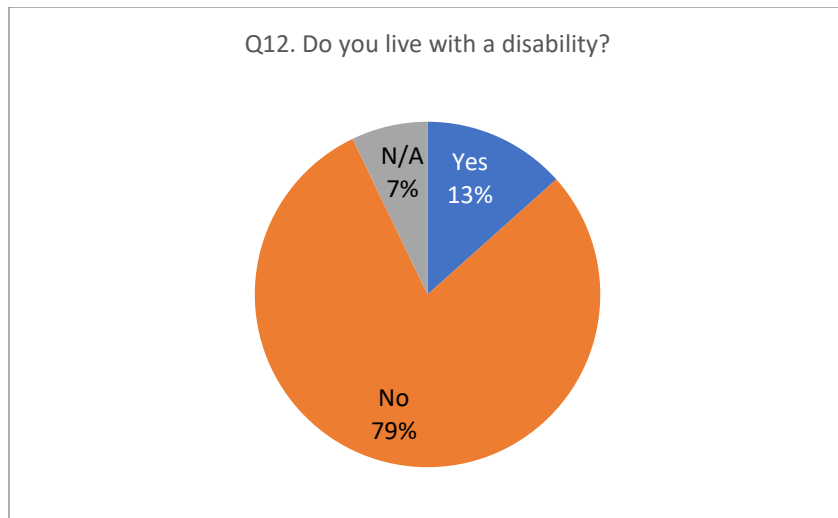
**11. How do you identify your gender?**

Over 60 percent of online open house respondents identified as female, compared to 30 percent that identified as male. Based on ACS estimates, Washington County is 51 percent female and 49 percent male. An additional 2 percent identified as transgender or non-binary. However, the ACS does not include transgender or non-binary population data.



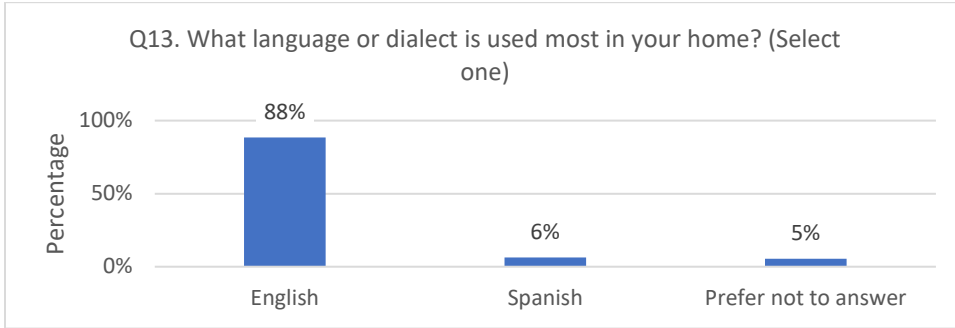
**12. Do you live with a disability? (Select all that apply)**

Almost 15 percent of online open house participants reported living with at least one disability, compared to 10 percent of Washington County residents based on ACS estimates. A third of those participants reported being unable or having serious difficulty walking or climbing stairs, while a quarter reported cognitive difficulties.



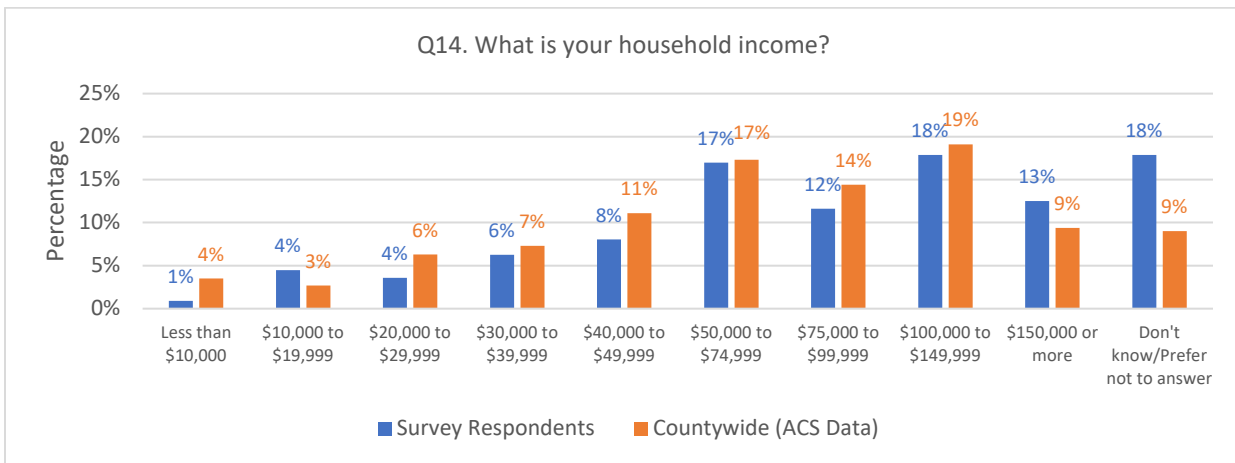
**13. What language or dialect is used most in your home? (Select one)**

Nearly 90 percent of online open house participants reported English as the language primarily used in their home, compared to 75 percent of Washington County residents age 5 and over based on ACS estimates. An additional 6 percent responded that Spanish was the language most commonly spoken, which is less than the county as a whole (13 percent). No other spoken languages were identified by survey respondents, as opposed to 12 percent of county residents who speak a language other than English or Spanish.



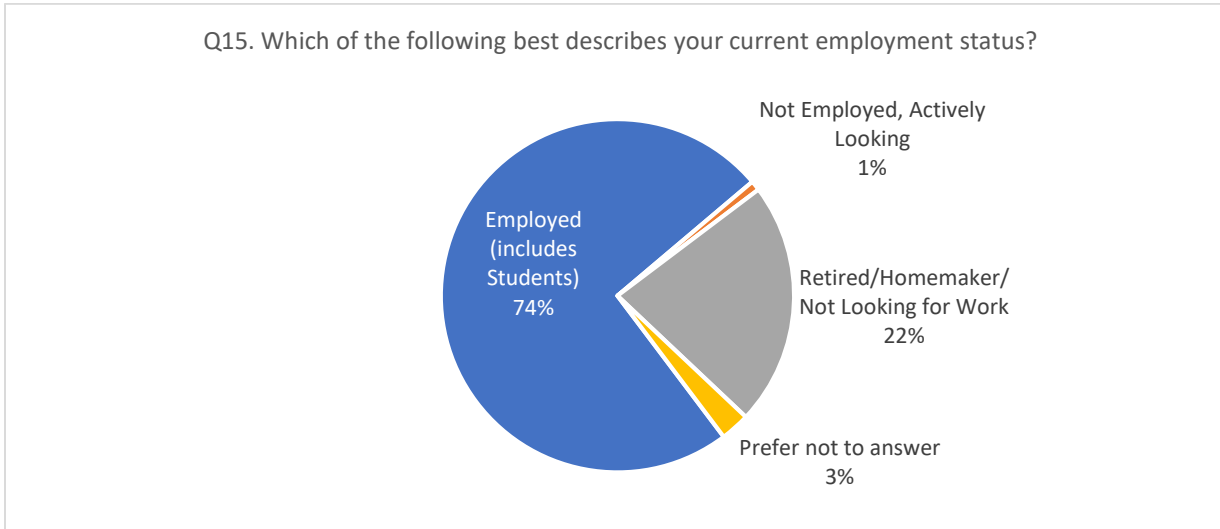
**14. What is your household income?**

The household income for online open house participants skews towards the higher end of the spectrum, which may not accurately represent the segment of the population more reliant on transit. Almost half of participants reported an income above \$100,000 annually, with only 23 percent reporting \$50,000 or less in annual income. In contrast, ACS estimates show that over 30 percent of households in Washington County earned less than \$50,000 in the previous 12 months and 38 percent reported an income over \$100,000. However, nearly one-fifth of survey respondents did not disclose their household income.



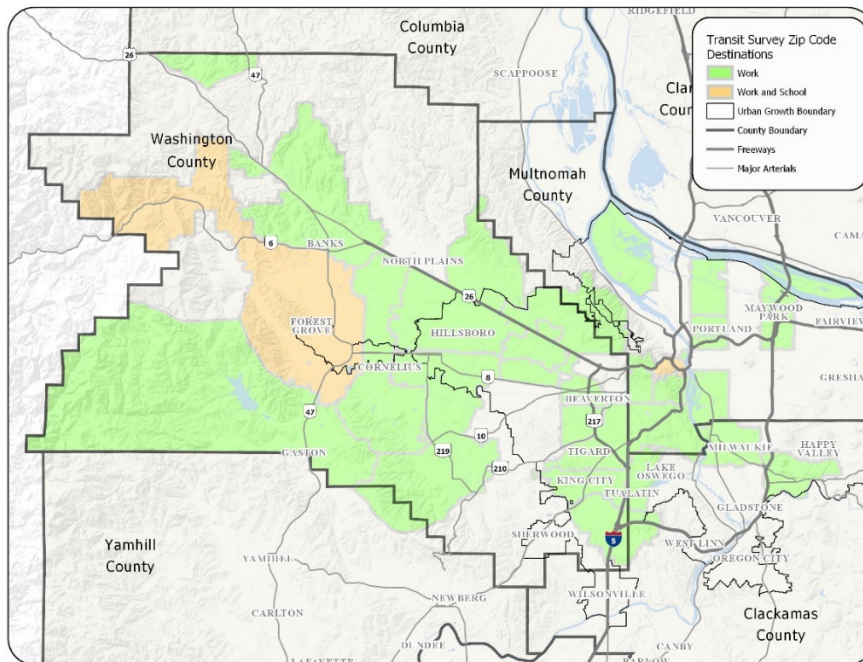
**15. Which of the following best describes your current employment status?**

Nearly three-fourths of online open house participants reported being employed, either full-time or part-time, which tracks closely to the labor force participation rate of 69 percent reported by the ACS for Washington County residents age 16 and over. This includes those working from home and students. One participant reported not being employed but actively looking for work, while over 20 percent indicated they were either retired, a homemaker, or not employed but not actively looking for work. The ACS estimates an unemployment rate estimate of 5 percent in Washington County.



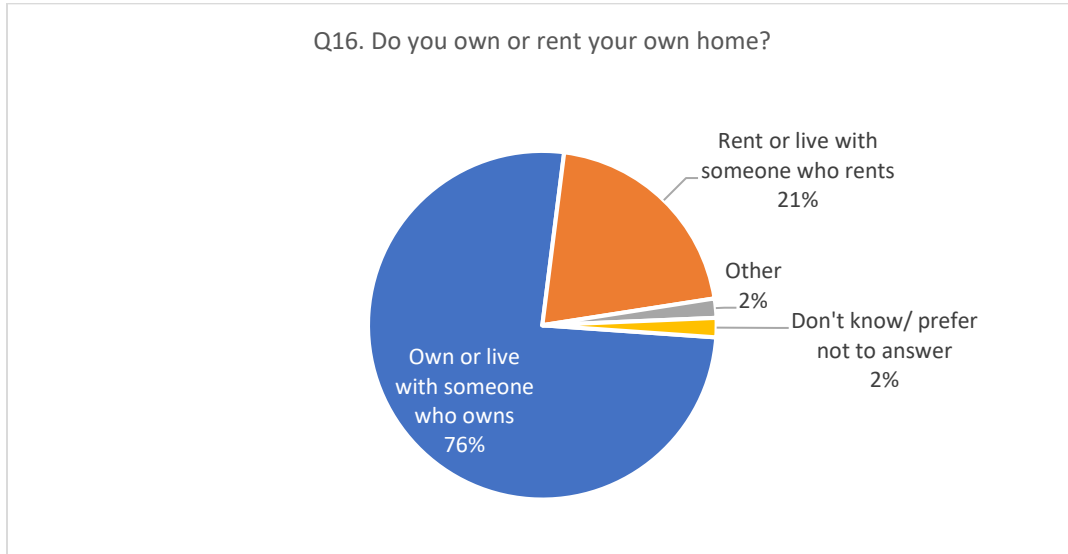
The following map (Figure 8) shows zip codes of respondents work or school location. Zip codes in Forest Grove and downtown Portland were identified by students traveling to college, likely corresponding to Pacific University and Portland State University, respectively.

Figure 8: Work and School Destinations in Portland Metro by Zip Code



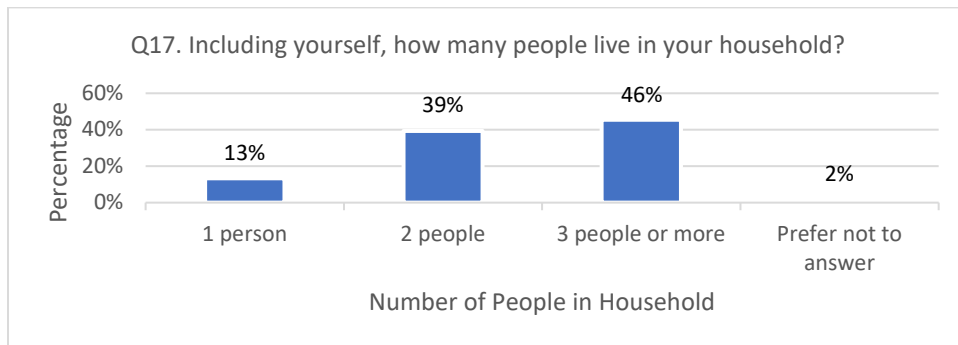
**16. Do you own or rent your own home?**

Three quarters of respondents reported either owning their home or living with someone who owns their home, compared to 20 percent who stated that they rent or live with someone who rents. The ACS estimates that approximately 60 percent of Washington County housing units were owner-occupied, compared to 40 percent renter-occupied.



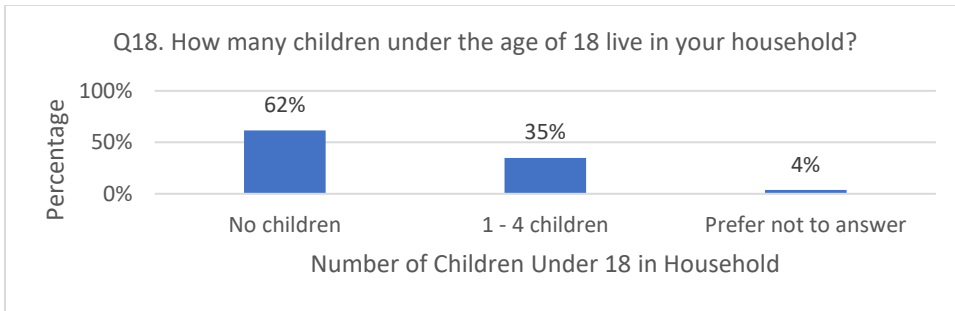
**17. Including yourself, how many people live in your household?**

Nearly half of respondents reported living in a household with 3 or more people, while almost 40 percent lived in a household with two people. By comparison, ACS estimates show that 41 percent of Washington County households contained three or more people, while 35 percent contained two people.



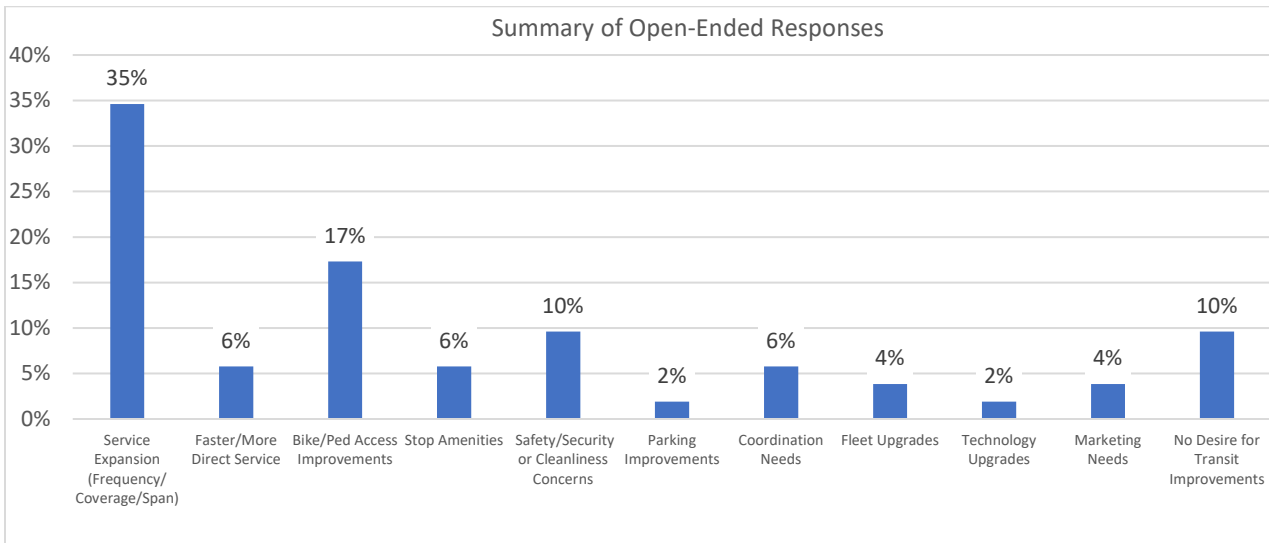
**18. How many children under the age of 18 live in your household?**

Sixty percent of respondents reported no children under age 18 living in their household, compared to just over half of Washington County households using 2018 ACS 1-year survey estimates. Nearly 35 percent of respondents have 1 to 4 children under age 18 in their household, while 49 percent of all households in the county are estimated to contain 1 to 4 related children under age 18.



**19. Do you have any comments you'd like to share?**

Online open house participants were asked to provide additional comments or suggestion at the end of the survey. A total of 57 participants provided some form of comment, although not all were directly pertaining to transit needs or improvements. Of the 52 observed comments, the highest percentage (40 percent) were related to improving service, such as increasing frequency and span, expanding coverage, and/or faster or more direct service. An additional 17 percent of comments discussed the need for safe walking and bicycling access to transit stops. Other comments touched on the need for stop amenities, marketing and coordination considerations, desired upgrades to transit vehicles, and concerns about safety/security or cleanliness on the transit system.



Appendix B-3: Rider Surveys

## GroveLink Customer Survey 2019 – Highlights



Average Daily Ridership (2019): 179  
Surveys completed 5/20/2019 and 7/17/2019  
Respondents: 81



### GroveLink Riders

We asked riders to identify themselves based on the following categories:

- 25% of GroveLink riders identify as either an older adult and/or person with disability (*compared to 31% in 2018*).
- 30% of GroveLink riders identify as low income (*compared to 26% in 2018*).
- 54% of GroveLink riders identify as students (*compared to 26% in 2018*).
- 28% of riders identify as Hispanic or Latino (*compared to 17% in 2018*).
- 59% of GroveLink riders identify as White (*compared to 44% in 2018*).

### Trip Purpose

Respondents were allowed to choose multiple answers for trip purpose, revealing that:

- 48% of riders use GroveLink for more than one type of trip.
- 36% of riders use the service for commuting to work.
- 42% use GroveLink to access shopping destinations.
- 30% rely on GroveLink to complete a trip in conjunction with TriMet line 57.
- 16% of riders take trips to health care appointments and facilities.
- And 12% use GroveLink for recreational purposes.

### Customer Satisfaction

Overall satisfaction is high. Drivers are well liked and often referenced in customer feedback:

- 95% of riders rate GroveLink service as 4 out of 5 or better.

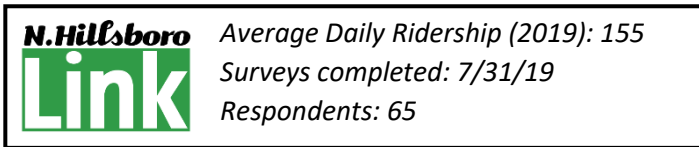
### Other Statistics

- 85% of riders take GroveLink at least once a week (*85% in 2018*).
- 60% of GroveLink riders use both the East and West loops.
- Riders use a diverse mode-share when accessing Grovelink, including walking (73%), TriMet bus (58%), bike (11%), and MAX (11%). 4% used Uber and Lyft, and 5% use another Ride Connection service during trips.

### Expansion Suggestions

- The majority of riders expressed interest in an expansion. 53% identified additional weekday hours for an expansion, 52% asked for Saturday service, and 40% asked for Sunday service.
- 30% of riders are interested in Grovelink expanding or changing its route. The most popular request was for service into Cornelius, specifically to Fred Meyer and Walmart. Destinations such as Rose Grove and other places along the Forest Grove/Cornelius border were suggested.

## North Hillsboro Link Customer Survey 2019 – Highlights



### Riders

We asked riders to self-identify based on the specific categories:

- 44% of NHL riders identify as low-income (35% in 2018).
- 10% of NHL riders identify as having a disability (6% in 2018).
- 14% of riders are students (11% in 2018).
- 27% of NHL riders identify as Hispanic or Latino/a (15% in 2018).
- 9% of NHL riders identify as Asian/Pacific Islander (11% in 2018).
- 12% of NHL riders identify as African American (9% in 2018).
- 57% of NHL riders identify as white (66% in 2018).

### Trips

Respondents were asked questions about frequency of use, multi-modal commuting, and workplace.

- 77% of riders use The Link on a daily basis.
- 95% of riders use the service 3+ days per week (91% in 2018).
- 65% connect with MAX.
- 52% use a TriMet bus in conjunction with The Link.
- 48% of riders also walk as part of their commute.
- 22% of riders are employees of Amazon.
- 12% of riders are employees of Reser's Fine Foods.
- 18% of riders are employees of Intel.
- 13% of riders are employees of Wells Fargo.

### Satisfaction and Service Expansion Needs


Overall satisfaction is high.

- 95% of riders rate NHL service as 4 out of 5 or better.
- Positive terms used to describe the service: "I am happy with the service." "Runs great!" "It provides what I need." "I like the hours it's running now." "It's perfect."
- 47% of respondents requested a weekday expansion.
- 17% of respondents requested a Saturday expansion.
- 16% of respondents requested a Sunday expansion.

*North Hillsboro Link began service in November 2015 and is a "deviated fixed-route" public transit service for employees in the business and industrial park areas of North Hillsboro. The Link is designed to bridge a first/last mile gap for regional transit users.*



## Tualatin Shuttle Customer Survey 2019 – Highlights

	<p>Average Daily Ridership (2019): 92 Surveys Completed: 8/6/19 Respondents: 45</p>
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### Riders

We asked riders to self-identify based on the specific categories:

- 40% of Tualatin Shuttle riders identify as low-income (45% in 2018).
- 2% of Tualatin Shuttle riders identify as having a disability (5% in 2018).
- 11% of Tualatin Shuttle riders are students (9% in 2018).
- 22% of Tualatin Shuttle riders identify as Hispanic or Latino/a (23% in 2018).
- 13% of Tualatin Shuttle riders identify as Asian or Pacific Islander (16% in 2018).
- 7% of Tualatin Shuttle riders are African American or Black (7% in 2018).

### Trips

Respondents were asked questions about frequency of use, multi-modal commuting, workplace, and how they learned about the service.

- 62% of riders use the Tualatin Shuttle on a daily basis.
- 89% of riders use the service 3+ days per week (93% in 2018).
- 69% connect with WES.
- 47% use a TriMet bus in conjunction with the Tualatin Shuttle.
- 44% of riders also walk as part of their commute.
- 12% of survey respondents are employees of LAM.
- 2% of survey respondents are employees of Cascade Window.
- 2% of survey respondents are employees of Marine Lumber.
- 11% learned about the service from their employer or HR Manager (9% in 2017).
- 20% found the service via Google maps.

### Satisfaction and Service Expansion Needs

Overall satisfaction is high. Drivers are well liked and often referenced in customer feedback:

- 90% of riders rate Tualatin shuttle service as 4 out of 5 or better.
- Terms used to describe the service: “The option for deviations has been very helpful,” “Excellent service!” “Everything’s perfect.”
- 29% of rider comments expressed interest in weekend service expansion for Tualatin.
- 38% of rider comments expressed interest in weekday service expansion for Tualatin.

*The Tualatin Shuttle began service in October 2014 and is a “deviated fixed-route” public transit service for employees in the business and industrial park areas of Tualatin. The service is designed to bridge a first/last mile gap for regional transit users.*



## Appendix B-4: Shuttle Outreach Efforts Summaries

Table 1: WestLink Shuttle

Venue	Method(s)	Key Findings
City of Banks	Stakeholder Interviews (Mayor, City Manager); Presentation to City Council	Lack of awareness, marketing, and convenience are big barriers for Banks residents. Those commuting into Banks are a promising target audience. Opportunity in coordinating with TC Wave, CC Rider.
City of North Plains	Stakeholder Interviews (Mayor, City Manager)	Most N. Plains residents have POVs, are of higher income bracket, and have little need for transit. There are pockets of vulnerable people, particularly at the Senior Plaza. Community is growing rapidly, and the City would like to prioritize transit. Marketing and frequency of WestLink need to be improved. There may be a need for more stops in town.
North Plains Chamber of Commerce	Presentation	Interest in improving WestLink so that commuters from Hillsboro/Forest Grove can get to rural jobs. Little identified need to bring tourists or patrons of businesses using transit.
Banks Chamber of Commerce	Presentation	Potential commuting need at lumber mill. Poor marketing, visibility, and awareness of WestLink were highlighted. Enthusiasm about potential for older adults, people with disabilities.
North Plains Employers	Panel discussion	Current WestLink service does not bring commuters from Max to N. Plains in time for their shifts. These commuters are a market unserved by WestLink. Employers have trouble hiring, as many applicants are transit-dependent.
North Plains Senior Center	Open House	General lack of awareness surrounding WestLink. Interest in using shuttle and other Ride Connection services. Interest in mid-day WestLink run.
North Plains Senior Center	Open House	General lack of awareness surrounding WestLink. Interest in using shuttle and other Ride Connection services. Interest in mid-day WestLink run.
North Plains Ice Cream Social	Tabling	Many were unaware that WestLink is open to general public. General lack of awareness. Most expressed preference for using POV. A few responded that they would encourage parents, older friends to use WestLink and other RC-services.

Venue	Method(s)	Key Findings
Banks United Methodist Church	Stakeholder Interview; Open House	Church hosts food bank and senior programming. Food Bank hours would line up with mid-morning and mid-afternoon WestLink service. Constituents found the array of RC services to be confusing and were unaware of their eligibility for them. Many seniors who attend senior programming prefer to drive but are approaching age/health where this will no longer be a possibility. Much interest in service to supermarkets in Cornelius/Hillsboro.
Forest Grove Senior Center	Open House	Event was open to general public. Many attendees are current RC customers, but unaware of GroveLink/WestLink. Many expressed desire for service to Cornelius and Hillsboro supermarkets. Interest in mid-day WestLink run.
Hampton Lumber Company	Stakeholder Interview	Lumber Mill start time is 5:30am, much earlier than current WestLink service. Stakeholder identified little need for commuting via transit among their employees.
Forest Grove, North Plains, Banks, Hillsboro	Online Open House	In lieu of public meetings due to the COVID-19 crisis, created a website that detailed the aspects of the planned expansions for WestLink. Included maps and sample schedules, with the intent to collect feedback from the public. All of the responses to the feedback received was positive and people were grateful for the new midday runs.

Table 2: GroveLink Shuttle

Venue	Method(s)	Key Findings
City of Forest Grove	Stakeholder Meeting (Mayor, City Manager, City Counsellor)	Equity concerns surrounding how GroveLink serves FG. East Forest Grove highlighted as area currently under-served by transit. Specific sites in need of transit include Rose Grove, Neil Armstrong MS, Homestead Community, and others. Belief that either all or none of these locations should be served, citing anticipated equity concerns. Interest in both Saturday and Sunday service. Otherwise, great stakeholder and community satisfaction with GroveLink.
Forest Grove Senior Center	Open House	Many attendees were Ride Connection customers but unaware of GroveLink. Interest in service to supermarkets in Cornelius. Homestead Community specifically identified as under-served by transit, and containing many residents who needed transportation to medical appointments. Concern about food bank moving from FG Senior Center to Pacific University, potentially worsening the transit connection to the food bank.
Forest Grove Farmers' Market	Tabling	Mixed awareness of GroveLink and other Ride Connection services. Questions regarding how bike-friendly GroveLink is. Desire for weekend service and connections to Cornelius.
Forest Grove TriMet Transfer Point	Tabling; Intercept Surveys	Mixed awareness of GroveLink and need for more marketing. Much interest in weekend service, and some (albeit less) interest in more frequency during weekdays. Many respondents use GroveLink for shopping.
Rose Grove Mobile Park	Stakeholder Interview	Many residents are low income and/or limited English speakers. Some residents are older adults and people with disabilities, some of whom already use RC services. Many are transit dependent. Many residents, including those with limited mobility, must walk between their homes and FG/Cornelius along dangerous TV Highway. Residents desire access to aquatic center, libraries, area parks, the FG Senior Center, and Walmart.
Homestead Community	Stakeholder Interview	Community is comprised entirely of older adults, some of whom drive and some of who don't. Some already use RC services. A GroveLink stop at the edge of the community would be beneficial.
Forest Grove Warming Shelter	Stakeholder Interview; Interactive map activity and public comment with constituents	Numerous barriers those experiencing homelessness perceived in transit. TriMet is costly, and many feel low-income fare is inaccessible since they would need to get to Downtown PDX to get this. Many do not know about GroveLink, assume there is a fare, or do not feel comfortable riding GroveLink. Information is spread primarily by word of mouth, but it would be very helpful to advertise GroveLink as fare free on the bus. It would be great if RC-drivers were trained to sensitively work with those experiencing homelessness.
City of Cornelius	Stakeholder Meeting (City Manager,	Discussed future expansion of GroveLink onto weekends, including first service into Cornelius. The GroveLink is already known in Cornelius, but most residents cannot use the service

Venue	Method(s)	Key Findings
	Community Development Director)	because it would require them to travel a ways to access it. Adding new Saturday expansion would help Cornelius residents access major destinations both in town and in FG. Addresses equity issues and helps strengthen connections between the cities.
Ride Connection FG Office (Repeated Meetings)	Interview	Discussed expansion plans for GroveLink with Ride Connection Forest Grove Program Manager and experienced driver. Learned that any expansion plans for weekday service would require careful timing so as to serve FG High School in the afternoon peak, as well as to think about running AM Employment Loop service earlier than the printed schedule on a trial basis. Implemented feedback into next round of schedule developments.
City of Forest Grove	Stakeholder Meeting (Mayor, City Planner)	Discussed future expansion of GroveLink, including expansion of weekday service as well as Saturday service (including to Cornelius). Similar sentiment to City of Cornelius (improved connections, improved access and mobility options for residents).
Forest Grove and Cornelius Communities	Online Open House	In lieu of public meetings due to the COVID-19 crisis, created a website that detailed the aspects of the planned expansions for GroveLink. Included maps and sample schedules, with the intent to collect feedback from the public. All of the responses to the feedback received was positive and people were happy to have access to service on Saturday and for the new route that will reach the east end of town (Cornelius).
Neil Armstrong Middle School	PTO Presentation; Focus Group with students	Parents identified major unmet need in East FG and Cornelius. Parents want transportation options for their children, but safety on transit is a primary concern. Students who ride GroveLink perceive it as safer than TriMet. Many students walk, which is another safety concern along TV Highway and in Cornelius. Fares are a barrier to students using TriMet. Student transportation does not work for all need, particularly after school activities. Transportation infrastructure between FG and Cornelius is very car-centric, and presents a transportation barrier for students trying to get from one community to the other.
Adelante Mujeres	Spanish-language surveying	Need for more Spanish-language materials and marketing. Interest in route to Cornelius and stops at Rose Grove, Walmart, and Centro Cultural.
Centro Cultural	Spanish-language surveying; Transportation needs assessment interview	Information about RC is a key barrier for many in the community, particularly limited English speakers. There is much need for transit in Cornelius not currently met by transit. Many in both FG and Cornelius access Centro for services and activities. Better transit could help link Centro to Forest Grove.

## **Tualatin Shuttle: Summary of Outreach and Engagement**

With STIF funding available, Ride Connection is considering expansion of the Tualatin Shuttle service with increased service hours. Ride Connection staff has conducted public outreach through a variety of means, including tabling at community spaces such as at the City Library and the Juanita Pohl Senior Center, partner outreach through partner organizations such as the Westside Transportation Alliance, the City of Tualatin, and the Aging Task Force, Tualatin Shuttle driver interviews as well as providing an online presence both on the Ride Connection Website and on the City of Tualatin's website to collect feedback on possible expansion plans.

According to the 2010 three year ACS estimates, 25 percent of Tualatin residents identified themselves as working in Tualatin, while 75 percent identified as working outside of the City. Since there is a large percent of the worker's population that come from outside of Tualatin, we designed three separated surveys to get people's input - Tualatin Community Survey, Tualatin Employer survey, Tualatin employee survey. All the surveys, except for the Employer survey was made available in Spanish and English. The Tualatin Community Survey includes all the residents that live in Tualatin, the Tualatin Employer Survey includes all employers in Tualatin and looks at ways the Tualatin Shuttle can better serve their employees and the Tualatin Employee survey includes all employees and understand how the expansion of Tualatin shuttle can better serve their needs.

### **Tualatin Community Transportation Survey**

The Tualatin community survey was distributed to residents of the Tualatin community to collect their input on future expansion efforts for the Tualatin Shuttle. The survey asked respondents to answer a series of questions about their demographics, current transportation habits, changes they would like to see on the Tualatin Shuttle, and ways they get information about the Tualatin Shuttle. The community survey was made available in both English and Spanish, and is still currently available.

#### **Common themes on the public input received:**

- Unserved areas (e.g. Bridgeport, Juanita Pohl Center, City of Tualatin Public Works, City Hall/Library, Marquis Assisted Living, City of Durham, Bridgeport TC, Rolling Hills Church/Borland Free Clinic, , other social services, connect residential area in South Tualatin with shopping in Tualatin, connection from TriMet route #96 to SW Herman Road and 108<sup>th</sup>, Tualatin Park and Ride)
- Need for information/marketing

Table 3: Tualatin Shuttle

Venue	Method(s)	Key Findings
Tualatin City Library	Tabling	Areas of Tualatin residential neighborhoods remain unserved including the neighboring City of Durham despite Tualatin Shuttle and TriMet line 96. Providing connections to these neighborhoods would be a boon for aging population and commuters alike, as WES does not serve most needs of seniors. Residents are interested in a pilot shuttle program that serves Tualatin neighborhoods, potentially including a 6-passenger van instead of a bus. Connector service to Bridgeport was also mentioned.
Juanita Pohl Center (Networking Session)	Tabling, Open House	Need for continued service across Ride Connection services to providing access to Juanita Pohl Center (due to relative inaccessibility from street). Possible connection to Rolling Hills Church on Borland Road and the Borland Free Clinic and other social services. Some seniors at the Center did not know of Ride Connection service or that it was free. Possibility to partner with other Tualatin groups to spread the word about the service.
Driver Interviews	Interviews	Speak with Ride Connection drivers and staff on utility and ridership on the Tualatin Shuttle, including any ideas they may have to improve the service or to deal with existing issues.
Ride Connection Website	Online Resource	Updated agency website with information regarding the Tualatin expansion and link to the Tualatin Community Survey to gather feedback on transportation need in the community.
City of Tualatin Project Webpage	Online Resource	City of Tualatin added a page on their website to host a project page that describes the ongoing expansion efforts and solicits feedback from community stakeholders through the online community survey.
Tualatin Chamber of Commerce Webpage	Online Resource	Tualatin Chamber of Commerce served as conduit for distribution and collection of Tualatin Employer and Employee surveys through their weekly newsletter.
Tualatin Life Newsletter	Partner Outreach	Blurb included in community newsletter describing expansion plans and soliciting public input through the online community survey.
Next Door	Online Resource	Mention of expansion included in online social media resource for individual neighborhoods in Tualatin and soliciting public input through an online community survey.
Aging Task Force	Partner Outreach	With public transportation being a good option for seniors, ensuring that the Tualatin Shuttle can meet the needs of local seniors could be a major boost for the service while also providing valuable connections throughout Tualatin.

Venue	Method(s)	Key Findings
Tualatin Shuttle on-board flyer	On-board agency vehicles	Flyers explaining possible expansions and soliciting feedback through the online community survey was taped to the interior of buses for riders to see and comment upon. Reaching existing riders to gather feedback is important because expansion plans may impact their usage of the service. Ride Connection also plans to have their annual onboard survey done and will gather input from existing riders on their transportation needs and ideas for expansion of service hours.
Community Contact by City of Tualatin via E-Mail and Social Media	Partner Outreach	The City of Tualatin reached out to many of its own neighborhood contacts to spread the word of the expansion plans through e-mail or through other social media platforms. They were able to reach out to people to Increasing the visibility of the expansion plans, especially amongst the population that does not know of the service, might lead to interesting developments as the expansion process continues (including potential future avenues for service).
Westside Transportation Alliance	Partner Outreach	Ride Connection has been in contact with the WTA regarding the needs of its stakeholders as well as to spread the word regarding potential expansion plans.
Tualatin Community Survey	Online survey	<ul style="list-style-type: none"> <li>• 69 responses.</li> <li>• 78% of the respondents live in Tualatin;</li> <li>• 8% of the respondents work in Tualatin</li> <li>• 12% (8 responses) of the respondents use Tualatin Shuttle</li> <li>• 48% Transit reliant (Trimet, Smart, Tualatin Shuttle, other agency)</li> <li>• 59% Transit reliant (if walk and bicycle modes are included)</li> <li>• 20% are frequent riders (more than 3 days/week)</li> <li>• 38% use transit at least once a week</li> <li>• 58% (34 responses) are familiar with the Tualatin Shuttle</li> <li>• Respondents were asked about locations that they would like the Tualatin Shuttle to serve. Bridgeport, Juanita Pohl Center, Borland Free Clinic, Rolling Hills, connect residential area in South Tualatin with shopping in Tualatin; connection from bus 96 to SW Herman Road and 108<sup>th</sup>, and Tualatin Park and Ride (which would also set us up for future SW Corridor MAX service), and the need for midday service.</li> </ul>

## South Beaverton Shuttle: Summary of Outreach and Engagement

Washington County, in alliance with Ride Connection, studied the suitability of the South Beaverton area of Cooper Mountain/Scholls Ferry Road for additional transit service with funding secured from the State for transit-related projects. The study area, which currently includes the Cooper Mountain area as well as Aloha and the corridor along SW 175<sup>th</sup> Ave., is currently underserved by TriMet. The study sought to determine if Ride Connection could offer transit service in the study area to help area residents access regional activity centers as well as connect to the TriMet MAX or the existing or expanded TriMet bus routes in the area, including the proposed 56 Line Scholls Ferry Road expansion. A summary of outreach conducted for the study is shown in Table 39. Three potential service concepts were recommended through the study findings, with two of them being deviated fixed-route concepts and the other a demand-responsive concept with all trip reservations made in advance.

Table 4: South Beaverton Shuttle

Venue	Method(s)	Key Findings
Stakeholder Outreach – Westside Transportation Alliance, Intel, Beaverton School District, Sexton Mountain NAC, Tualatin Hills Parks and Recreational District, City of Beaverton RE: Wishcamper Development	Stakeholder Meetings	Key stakeholder groups were contacted for individual meetings via e-mail or the phone regarding interest in and the potential for community connector service in Southern Beaverton. Several major themes were discussed in the conversations, including the desire for improved connections in the area to the TriMet MAX and to other TriMet bus routes, new connections to shopping and recreational opportunities alongside improved commuter connections, as well as a desire for reliable and flexible transportation services throughout the area. Another major theme was the need for equity throughout the area for transit services to assist those in need. Areas of interest for connections included Progress Ridge, Mountain View Champions Park, and the South Cooper Mountain Nature Park.
Online	S. Beaverton Community Survey	A South Beaverton Community Survey was conducted between June and July 2020 to identify the potential need for transit services within Southern Beaverton. Many of the results of the survey mirrored those from the Stakeholder Outreach meetings, including improved connection to the TriMet MAX and TriMet bus lines, as well as connections to shopping and recreation at Progress Ridge, Murray-Scholls Town Center, Mountain View Champions Park, and South Cooper Mountain Nature Park. Reliable and frequent transit services would be desired by area residents if such service was to be provided.

### *North Plains*

The City of North Plains, in conjunction with Ride Connection, recently conducted a Public Transit Survey<sup>1</sup> which revealed the following about the approximately 130 North Plains residents who responded:

- Only about 12 percent of respondents work in North Plains
- Almost 48 percent are not aware of public transit services available in North Plains
- Just over 20 percent take transit for any trips, about 13 percent take transit at least once a week
- Lack of first/last mile connections, frequency, travel time and free parking at work were cited as reasons for not taking transit
- TriMet MAX light rail is the most used transit service (43 percent of all respondents), followed by the Ride Connection WestLink shuttle (about 5 percent) and Tillamook WAVE (about 4 percent)
- Transit amenities were ranked in the following order (highest to lowest):
  - Covered stops
  - Lighting
  - Schedule information
  - Benches
  - Technology features (e.g. real-time arrival information)
  - Bike racks
- Top priorities for new service in North Plains include the following (highest to lowest priority):
  - Downtown Hillsboro
  - Tanasbourne
  - Downtown Portland
  - Downtown Beaverton
  - Downtown Forest Grove
  - PCC Rock Creek
  - Banks/North Hillsboro/PCC Willow Creek/Other
- Marketing/Publicity that would be most helpful:
  - Schedules posted around North Plains
  - Direct mail marketing
  - City website posts
  - Social media posts

### *Banks*

The City of Banks conducted a Public Transit Survey in June 2018.<sup>2</sup> Approximately 137 persons responded. The following responses were provided through the survey:

- Most residents (approximately 57 percent) are aware of public transit services in Banks
- About 44 percent of those not currently using transit said they would if they had more information about the services provided
- The most preferred methods of marketing and publicity were (highest to lowest preference):
  - Schedules posted around town/social media posts/City website posts

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<sup>1</sup> North Plains Public Transit Survey, August, 2018, conducted via Survey Monkey, announced by City website, City Facebook page and electronic newsletter distribution list.

<sup>2</sup> City of Banks Public Transit Survey, June 21, 2018, conducted via Survey Monkey.

- Direct mail marketing
  - Other
- Over half (57 percent) of survey respondents feel that citizens of Banks would benefit from the addition of a Park and Ride lot in the City. Some of the most suggested locations are as follows:
  - Jim’s Thriftway
  - Sunset Park
  - Racetrack
  - Near trailhead/Banks Road
- Approximately two survey respondents (1.5%) currently use Ride Connection’s services, with the following characteristics:
  - Ride one to two times per week
  - Ride to/from Log Cabin Park stop, eastbound at 7:30 am and westbound at 6:20 pm
  - Ride every day of the week
- Approximately two survey respondents (1.5%) currently use services provided by the Tillamook WAVE, with the following characteristics:
  - Ride one to two times per week
  - Ride to/from Log Cabin Park stop, eastbound at 9:20 am and westbound at 12:20 pm and 4:45 pm
  - Ride every day of the week
- For both Ride Connection and WAVE services, all three respondents use round-trip services (vs. one-way) and 28 respondents said if other times were added, they would use round-trip services (vs. one-way)
- If Ride Connection were to add additional service, the following times were suggested most often:
  - Earlier in the morning
  - Later in the evening
  - Every ½ hour
  - Coordination with The WAVE
  - Weekend routes to TriMet/Sunset Transit Center
  - To/from Tanasbourne
- If Ride Connection were to add additional stops, the following were most frequently suggested:
  - Connect with CC Rider
  - Banks-Vernonia Trail
  - Jim’s Thriftway
  - Sunset Park (if Park and Ride)
  - Buxton/Manning area
  - St. Francis
  - Remaining suggestions are not actually in Banks area
    - 185<sup>th</sup> Transit Center/Max station
    - Downtown Hillsboro
    - Sunset Transit Center
    - 185<sup>th</sup> and all MAX stations in Washington County
    - Tanasbourne
    - Bethany shopping center

- If The WAVE were to add additional service, the following times were most frequently suggested:
  - Earlier in the morning
  - Later in the evening
  - More frequent
  - Coordination with Ride Connection
- If The WAVE were to add additional stops, the following were most frequently suggested:
  - Connect with CC Rider
  - Banks-Vernonia Trail
  - Jim's Thriftway
  - Buxton/Manning area
  - Highway 6/Highway 8 junction
  - Remaining suggestions are not actually in Banks area
    - The Beach
    - Sunset Transit Center
    - Pioneer Courthouse Square (Portland)
    - Hug Point (Oregon Coast)
    - Tanasbourne
    - Bethany shopping center

## Appendix B-5: Aloha and South Beaverton Area Transit Needs Analysis Summary

Ride Connection worked with Washington County and staff from the cities of Beaverton and Tigard to develop concepts for potential transit service linking the South Beaverton (Progress Ridge)/River Terrace area and the Aloha Town Center. The full report summarizing the Needs Analysis, as well as a template that was developed for future shuttle planning, are included in the appendix. Highlights are summarized below:

### Overview

While Aloha is already included in the TriMet Service District boundary and features access to several high-frequency transit routes via both bus and MAX light rail, the South Cooper Mountain/SW 175<sup>th</sup> Avenue corridor and River Terrace areas currently do not have any transit service available to the general public. The feasibility of implementing a South Beaverton Shuttle was studied through a comprehensive demographic analysis and a focused community outreach plan as well as the identification of transit-dependent resident populations. Based on this needs analysis, several transit route concepts were recommended for future funding and implementation consideration as opportunities become available.

### Purpose

The purpose of the study was two-fold: 1) assess the need and potential demand for transit service in an underserved area; and 2) develop and apply a methodology to assess and evaluate needs that may be replicable in other areas underserved by fixed-route transit.

### Methodology

This study assessed need and potential demand based on an analysis of typical transit-dependent populations, focused community outreach, current and forecast travel demand and travel patterns. The project team then developed and evaluated sketch-level service models to address need.

### Study Findings

The South Cooper Mountain-Aloha area of southern Beaverton is home to a diverse resident population that has a variety of transportation needs both for commuting and for everyday trips. While the vast majority of area residents utilize personal vehicles for most or all of their daily trips, there are significant transit-dependent and historically-marginalized populations within the Study Area that may not currently have all of their transportation needs met by existing modal options.

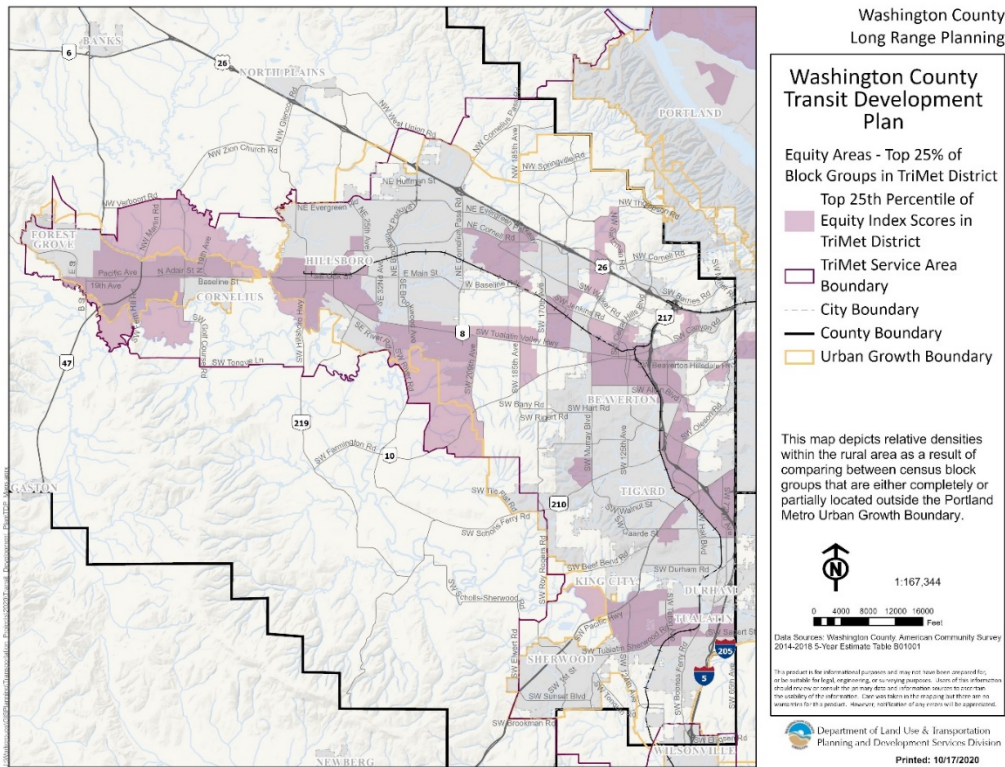
Table 1 shows many of the key demographic categories that were considered for the needs analysis. Figure 1 shows the top 25<sup>th</sup> percentile priority populations. Residents of the northern portion of the study area (Aloha), north of Bany Road has a higher concentration of transit-dependent/historically-marginalized populations than were residents of the southern portion of the study area (South Cooper Mountain).

Table 1: South Beaverton Transit Analysis Demographics

Demographic Category	Aloha	South Cooper Mountain	Total
Population	36,344	30,958	
Households	12,252	12,105	
Minority	42.91%	30.83%	
Hispanic/Latinx Origin	23.8%	7.4%	
Persons w/ a Disability	10.38%	7.67%	
Seniors (65+)	10.92%	11.35%	
Youth (Under 18)	25.16%	23.99%	
Limited English	13.28%	8.56%	
Poverty 200%	33.49%	14.29%	
Drive Alone to Work	72.87%	76.86%	
Transit to Work	7.85%	4.20%	
Car-Free Households	5.66%	2.47%	
One-Car Households	30.30%	26.67%	

Source: 2018 American Community Survey data through the U.S. Census Bureau

Figure 1: Top 25% of Equity Areas in TriMet District



## Commute patterns

- Over 38,000 residents leave the Study Area during their commute
- 9,000 employees commute into the Study Area for employment
- 1,800 residents both live and work within the Study Area.

Based on this data, improving connections both to major transit networks and to significant places of employment/activity generator locations would be of benefit both to local Study Area residents as well as those who commute into the area.

## Stakeholder Outreach

A community survey and stakeholder interview process occurred between June 15 and July 20, 2020. A total of seven stakeholder organizations were interviewed regarding the transit needs of their constituents, and over 80 responses were received for the community survey. Due to the COVID-19 pandemic, outreach was restricted to virtual formats only. Major themes observed include the following:

- Better access to TriMet bus and MAX
  - Many survey respondents would like to see improved connections to the MAX light rail
  - 25 percent of survey respondents use transit regularly
  - Over 40 percent of respondents had used MAX regularly prior to COVID-19, many for commuting to their place of employment.
  - 25 percent of respondents would like to see improved connections to TriMet bus lines
- Access to shopping destinations and other services
  - Shopping was the most-desired location for transit connections
  - Connects to Progress Ridge Town Square, Murray-Scholls Town Center, and Aloha commercial district. Would be first transit service to include Progress Ridge and would bolster transit services to the other locations.
  - Encourages increased transit use by existing riders and those who currently do not use transit
- Flexible transportation options
  - Though fixed-route bus services can carry high volumes of passengers along major corridor routes, the lack of flexibility may mean that potential passengers who are unable to access stops along the route cannot use the service. Providing more flexibility into a South Beaverton Shuttle, such as the ability to provide local neighborhood service as well as the options for route deviations or door-to-door services, may entice more study area residents to consider using transit if they can more easily

## Concepts

Three sketch-level concepts were developed in response to the needs:

1. A more commuter-focused deviated-fixed route concept (Figure 2), which would offer north-south service along the SW 170<sup>th</sup>/175<sup>th</sup> Avenue corridor connecting to Elmonica or Merlo MAX.
2. A more community-focused deviated fixed route concept (Figure 3), which would provide local service in Aloha along Kinnaman Road.
3. Door-to-Door service that would operate within the Study Area

## Concept Evaluation

The following table lists the key implementation and operational aspects for each of the sketch-level concept routes. Table 2 also shows how each concept meets priority criteria, as defined in the STIF rules (OAR 732-042-0020) and a qualitative assessment to address needs based on equity, input from community, potential ridership and cost effectiveness.



Figure 2: South Beaverton Connector – Commuter Route

## STIF Formula fund project evaluation criteria

- (A) Increase the frequency of bus service in communities with a high percentage of Low-Income Households.
- (B) Expand bus routes and bus services to reach communities with a high percentage of Low-Income Households.
- (C) Implement programs to reduce fares for public transportation in communities with a high percentage of Low-Income Households.
- (D) Procure buses that are powered by natural gas, electricity or other low or no-emission propulsion for use in areas with populations of 200,000 or more.
- (E) Improve the frequency and reliability of service connections between communities inside and outside of the Qualified Entity's service area.
- (F) Foster coordination between Public Transportation Service Providers to reduce fragmentation in the provision of transportation services.

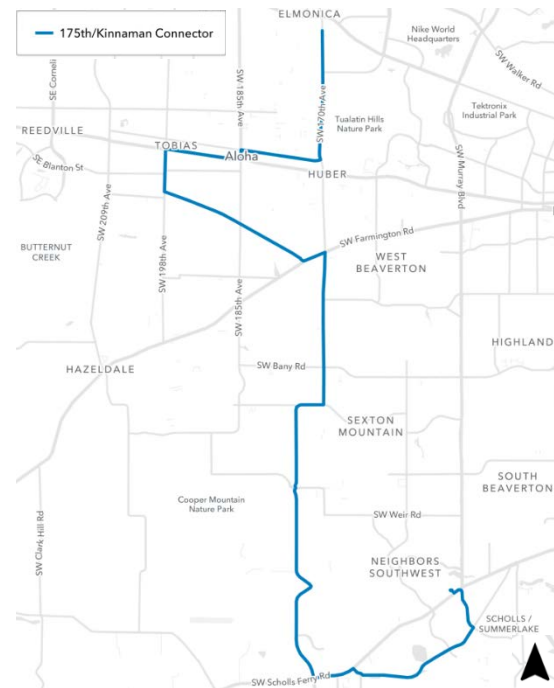


Figure 3: South Beaverton Connector – Kinnaman – 175<sup>th</sup> Avenue Connector Route

- (G) Provide student transit services for students in grades 9 through 12.
- (H) Maintain and expand the existing system.

Table 2 shows the applicable criteria as B, F and G for community connector/first-last mile services funded by STIF in Washington County. All Washington County services funded by STIF are free to the public, so criteria C is met. Criteria D is applicable for fleet purchases which would be required in order to implement any concept. This would be new service. Therefore, criteria H is not applicable.

The assessment also considers other factors as described below:

- Diversity and Transit Equity – considers benefits to targeted populations as described in the needs assessment. (x) indicates a greater benefit to targeted populations.
- Public preference - (x) indicates whether the opportunity was identified as a high priority by public through survey or stakeholder engagement.
- Overall demand - projected ridership based on combined population/jobs density and level of service.
- Relative Cost – considers the overall cost of service (revenue hours, miles). (x) suggests lower and/or more cost effective.

Table 2: Evaluation of Concepts

Concept	Service Description						STIF Priority Criteria			Needs Assessment				
	Deviated-fixed route	Demand response	Vehicles Needed	One-Way Trip Time	Round-Trip Time (+ layover)	Number of Round-Trips per Day (per vehicle)	Reduce Fragmentation in Services (# of route connection)	Expand Service to Reach Low Income Communities	Student Transportation	Public Preference	Diversity and Transit Equity	Potential Ridership	Connection to destinations	Relative Cost
Commute focused shuttle	x		2	30-35 min.	80 min.	9	7					Med		Med
Community focused shuttle	x		2	40-45 min.	90-100 min.	8	7	x	x	x	x	Med High	x	High
Door-to-door		x	1	Varies	Varies	Varies	7		x		x	Low	x	Low

## Appendix B-6: Ride Connection Fleet Data

Table 1: Ride Connection Fleet Serving Washington County - Rural

Service Location	Vehicle Category	Seating Capacity	ADA	Quan.	Fleet Age (in years)			Fleet Mileage			
					Avg. Fleet Age (years)	Useful Life	Avg. Remaining Life	Avg. Fleet Mileage	Useful Life	Remaining Life	
<b>Elderly and Disabled Service</b>											
Hillsboro	Minivan	6/7	2	2	6	6	8%	49K	100K	51%	
	Light Duty Bus	14	2	1	10	10	None	97K	150K	35%	
Tualatin	Minivan	5/6	2	3	6	6	11%	41K	100K	59%	
	Light Duty Bus	14	2	1	9	10	10%	133K	150K	11%	
Washington County (uninc.)	Minivan	5/6	2	5	4	6	40%	35K	100K	65%	
	Light Duty Bus	14	2	1	9	10	Previously Replaced	109K	150K	27%	
	Sedan	5	0	1	21	Exceeded	Previously Replaced	172K	Exceeded	None	
<b>Total Elderly and Disabled Service Vehicles</b>					<b>14</b>	<b>5.9</b>	<b>6.8</b>	<b>18%</b>	<b>55K</b>	<b>100K</b>	<b>45K</b>
<b>Shuttle Service</b>											
Washington County (WestLink)	Light Duty Bus	14	2	1	5	10	50%	104K	150K	30%	
<b>Total Shuttle Service Vehicles</b>					<b>1</b>	<b>5</b>	<b>10</b>	<b>50%</b>	<b>104K</b>	<b>150K</b>	<b>30%</b>
<b>Total Washington County Rural Service Fleet</b>					<b>15</b>						

Table 2: Ride Connection Fleet Serving Washington County – Urban (Regional Coordination)

					Fleet Age (in years)			Fleet Mileage			
Service Location	Vehicle Category	Seating Capacity	ADA	Quan.	Avg. Fleet Age (years)	Useful Life	Avg. Remaining Life	Avg. Fleet Mileage	Useful Life	Remaining Life	
<b>Shuttle Service</b>											
N. Hillsboro Link	Light Duty Bus	14	2	3	6	10	47%	95K	150K	36%	
Tualatin Shuttle	Light Duty Bus	14	2	3	5	10	53%	73K	150K	51%	
Washington County (uninc.)	Light Duty Bus	14	2	4	4	10	60%	87K	150K	42%	
Washington County (Substitute)	Light Duty Bus	14	2	1	7	10	Previously Replaced	136K	150K	9%	
<b>Total Shuttle Service Vehicles</b>					<b>11</b>	<b>4.9</b>	<b>10</b>	<b>51%</b>	<b>90K</b>	<b>150K</b>	<b>40%</b>

## Appendix B-7: Bus Stop Needs Inventory

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
WestLink	Forest Grove Senior Ctr	In/Outbound	High	Bus stop sign, pole, bus zone	TriMet Line 57	WB: 2 blocks; EB: 3 blocks	Crossing improvements at Pacific and 19th Aves; difficult connections with other services: TriMet, YCTA, GroveLink
WestLink	Hillsboro Transit Center	In/Outbound	High	Bus stop sign, pole, need a bay at the redesigned TC	Various TriMet bus and MAX; YCTA Route 33	Same complex	Mostly internal access improvements within transit center; bicycle access lacking in downtown Hillsboro
N. Hillsboro Link	Orenco Station	In/Outbound	High	Bus stop sign	TriMet Lines 47 and 48 and MAX	MAX: Same complex; Line 47: one block; Line 48: ¼ mile	Bicycle facilities on Orenco Station Parkway and Cherry Drive
WestLink	North Plains: Commercial/31 4th	In/Outbound	High	Bus stop sign	TCTD Route 5	Same stop	Complete street on NW Commercial; crossing improvements at NW 314 <sup>th</sup>
Tualatin Shuttle	Tualatin WES Station	Blue/Red	High	Seat (bench or Simme seat)	TriMet Lines 76, 96 and 97 and WES	WES: Same complex; Line 97 and 76 SB: 1 block; Line 76 NB: 2 blocks	Sidewalk infill on Boones Ferry Rd; bicycle facilities on Tualatin-Sherwood Rd
Tualatin Shuttle	Tualatin Library	Red	High	Bus stop sign	TriMet Lines 76 and 96	Line 96 NB: Same stop; Line 96 SB: Across	None

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
						street; Line 76: 1 block	
GroveLink/ GroveLink Cornelius Weekend Ext	Forest Grove Safeway	East on GroveLink, Outbound for Cornelius	High	Infrastructure is already in place at this location	TriMet Line 57	WB: same stop; EB: 1 block	None
GroveLink Cornelius Weekend Ext	Cornelius City Library (proposed)	Outbound	High	Bus stop sign	TriMet Line 57	WB: 1 block; EB: 2 blocks	Crossing enhancement at Adair/13th; bicycle facilities and sidewalk infill on 14 <sup>th</sup>
GroveLink Cornelius Weekend Ext	WalMart (proposed)	Outbound	High	Bus stop sign (affixed to existing TriMet stop pole)	TriMet Line 57	WB: Same stop; EB: 1 block	Sidewalk infill on N Adair St and N 4 <sup>th</sup> Ave; bicycle facilities on N 4 <sup>th</sup> Ave
GroveLink Cornelius Weekend Ext	Rose Grove (proposed)	Outbound	High	Bus stop sign, pole/bench already in place at existing TriMet stop	TriMet Line 57; YCTA Route 33	WB: Same stop; EB: across street; YCTA: ¼ mile	Enhanced crossing at stop; sidewalk infill on OR 8; difficult connection with YCTA (currently M-F only)
GroveLink Employment Loop	Yew and Adair	Outbound	High	Simme Seat or bench	TriMet Line 57	WB: ½ block; EB: 1.5 blocks	Enhanced crossings at Adair/Yew and Pacific/Yew; sidewalk infill on Yew St and Pacific/Adair Ave; bicycle lanes on Yew St
N. Hillsboro Link	Huffman Street	Inbound	High	Bus stop sign, pole, landing pad, bench/Simme seat, shelter	None	N/A	Enhanced crossing at stop

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
Tualatin Shuttle	Meridan Park	Red	High	Landing pad	TriMet Line 76	Across street	Enhanced crossing at stop; bicycle lanes on SW 65th
GroveLink Cornelius Weekend Ext	Harleman Park (proposed)	Outbound	High	Bus stop pole/sign, bus zone	None	N/A	Sidewalk infill on Heather; bicycle facilities on 10th and Heather
GroveLink Employment Loop	Yew and Pacific	Inbound	High	Bus stop sign	TriMet Line 57	EB: ½ block; WB: 2 blocks	Enhanced crossings at Adair/Yew and Pacific/Yew; sidewalk infill on Yew St and Pacific/Adair Ave; bicycle lanes on Yew St; missed connection with YCTA on OR 8
N. Hillsboro Link	Bennett Street	Inbound	Medium	Bus stop sign, pole, landing pad, bench/Simme seat, shelter?	None	N/A	Enhanced crossing at stop
WestLink	Banks: Log Cabin Park	In/Outbound	Medium	Bus zone	TCTD Route 5; CCR Route 6	Same stop	Crossing improvements at OR 47/Sunset; bike lanes on OR 47
Tualatin Shuttle	Sagert at Martinazzi	Red	Medium	Bus stop sign	TriMet Lines 76 and 96	Line 76 SB: Same stop; Line 76 NB and 96 NB: 1/2 block; Line 96 SB: catacorner	Crossing improvements at south leg; bicycle lanes approaching all directions

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
Tualatin Shuttle	Sagert at 71st	Red	Medium	Bus stop sign	TriMet Line 76	Across street	Enhanced crossing at stop, co-locate with Line 76 stop?
GroveLink	University & Main	West	Medium	N/A	None	N/A	Bicycle facilities on Main and University
GroveLink	Forest Grove High School	West	Medium	N/A	None	N/A	Sidewalk and bicycle lane infill on Nichols
GroveLink	Main & University	East	Medium	N/A	None	N/A	Bicycle facilities on Main and University
GroveLink	Forest Grove Hospital	East	Medium	Bus stop pole, bus zone	None	N/A	Bicycle facilities on Maple and 19th; crossing enhancements at Maple/18th
GroveLink Cornelius Weekend Ext	Homestead Community (proposed)	Outbound	Medium	Bus stop pole/sign, bus zone	None	N/A	Bicycle facilities on Heather; enhanced crossing at stop
GroveLink	19th & B	West	Medium	Stop sign, bench or Simme seat, concrete landing pad, bus zone	TriMet Line 57	Across street	Bicycle facilities on B Street
N. Hillsboro Link	Pinefarm Place	Inbound	Medium	Bus stop sign, landing pad	None	N/A	Sidewalk infill on Clara Lane
Tualatin Shuttle	Marquis Tualatin (proposed)	Red	Medium	Bus stop sign, post, seat/shelter, bus zone	TriMet Line 96	1 block	Sidewalk and bike lane infill on Sagert
GroveLink	15th & Cedar	East	Medium	Bus stop pole/sign, landing pad, lighting to assist bus, bus zone	None	N/A	ADA ramp upgrades at intersection

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
GroveLink	Main Street/26 <sup>th</sup> (proposed)	West	Medium	Bus stop sign, pole, bus zone	None	N/A	ADA ramp upgrades at intersection; bicycle facilities on Main
GroveLink Employment Loop	24th Ave	In/Outbound	Medium	Bus stop sign/pole, seating	None	N/A	Sidewalks and bicycle facilities on 24th Ave; enhanced crossing at OR 47
GroveLink Cornelius Weekend Ext	Cornelius Fred Meyer (proposed)	Outbound	Medium	Bus stop pole/sign, landing pad	Line 57	1 block	None
N. Hillsboro Link	Shute Road	Outbound/Inbound	Low	Bus stop sign	TriMet Line 46	1/4 mile	Enhanced crossing and NB bike lane on Shute; co-locate with Line 46 stop?
N. Hillsboro Link	Westmark Center	Outbound/Inbound	Low	Bus stop sign	None	N/A	Crossing enhancements at Century/Westmark
WestLink	North Plains: Pacific St/Glencoe Rd (proposed)	In/Outbound	Low	Bus stop sign, pole, landing pad, bus zone	None	N/A	Crossing improvements at NW Glencoe/Pacific; sidewalk infill and bicycle lanes on NW Pacific
GroveLink	Thatcher & Gales Creek Road	West	Low	Bus stop sign, pole, and seat (bench or Simme seat), landing pad	None	N/A	Sidewalks on Gales Creek and Thatcher; bicycle facilities on Thatcher; crossing enhancements at intersections
GroveLink	Watercrest & Forest Gale Drive	West	Low	Bus stop sign, pole and seat (bench or Simme seat), landing pad, bus zone	None	N/A	Sidewalks and bicycle facilities on Watercrest and Forest Gale; crossing enhancements at intersection

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
GroveLink	Forest Gale Dr & Gales Creek Hwy	West	Low	Bus stop sign, pole and seat (bench or Simme seat), landing pad, bus zone	None	N/A	Sidewalks on Gales Creek and Forest Gale; bicycle facilities on Forest Gale; enhanced crossing at intersection (across Forest Gale)
GroveLink	Willamina/Stra sburg (proposed)	West	Low	Bus stop sign, pole, landing pad, maybe Simme seat or bench, bus zone	None	N/A	Bicycle facilities on Willamina; crossing enhancements at intersection
GroveLink Employment Loop	TTM Technologies	In/Outbound	Low	Bus stop sign	None	N/A	Sidewalks on Poplar Ln
N. Hillsboro Link	Bennett Street	Outbound	Low	landing pad	None	N/A	Enhanced crossing at stop
N. Hillsboro Link	Huffman Street	Outbound	Low	landing pad	None	N/A	Enhanced crossing at stop
N. Hillsboro Link	Pinefarm Place	Outbound	Low	none needed	None	N/A	Sidewalk infill on Clara Lane
GroveLink Employment Loop	19th and Mountain View Ln (proposed)	Outbound	Low	Bus stop sign, bus zone	TriMet Line 57	1 block	Crossing enhancements at intersection; bicycle facilities on Mountain View Ln
WestLink	Banks: Greenville City	In/Outbound	Low	Bus zone	None	N/A	Crossing improvements at NW Arbor Park/Trellis
Tualatin Shuttle	Teton at Avery	Red	Low	N/A	None	N/A	Bike lane infill on Teton and Avery
Tualatin Shuttle	Spokane Court	Blue	Low	Bus stop pole, bus zone	None	N/A	None
Tualatin Shuttle	118th at Myslony	Blue	Low	N/A	None	N/A	Sidewalks and bicycle facilities on south side

Community Connector	Bus Stop Name	Direction	Priority	Infrastructure Need details	Transit Connections	Distance	Access Needs
							of Myslony; crossing enhancements at intersection
Tualatin Shuttle	DPI/ JAE	Blue	Low	N/A	None	N/A	Enhanced crossing at stop
Tualatin Shuttle	LAM/ Fujimi	Blue	Low	N/A	None	N/A	Enhanced crossing at stop
Tualatin Shuttle	Tualatin at Teton	Blue	Low	N/A	None	N/A	Crossing enhancements at intersection; sidewalk and bike lane infill on Teton
Tualatin Shuttle	Tualatin Public Works (proposed)	Blue	Low	Bus stop Sign, Landing pad on sidewalk	None	N/A	Sidewalk on south side of Herman Road; bicycle lane infill on 108th Ave.
GroveLink	Main & Beal	West	Low	Pole for bus stop, landing pad, bus zone	None	N/A	Bicycle facilities on Main Street; crossing enhancements at intersection
GroveLink	26th & Williams	East	Low	Landing pad	None	N/A	Sidewalks and bicycle facilities on 26th Ave; crossing enhancements at intersection

## Appendix B-8: Forecasting Need for Rural Area (TCRP 161)

Rural transit needs were estimated using TRB's (Transportation Research Board) Transit Cooperative Research Program (TCRP) Report 161: Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation. The research includes a workbook that presents step-by-step procedures for quantifying the need for passenger transportation services and the demand that is likely to be generated if passenger transportation services are provided in rural areas. Two elements of rural transit need/demand were estimated using this tool, General Public Rural Non-Program Demand and Small City Fixed Route demand, which are detailed below:

### General Public Rural Non-Program Demand

The forecasts use census data for the following characteristics:

- Number of persons with income below poverty level
- Statewide mobility gap factor (determined by data in the 2009 National Household Travel Survey for the Pacific Division, which includes Washington, Oregon, California, Alaska and Hawaii)
- Population age 60+
- Population age 18-64 with mobility limitation
- Persons living in households with no vehicle available

While data specific to rural persons/households was not specifically available, the census tracts selected consisted primarily of rural areas<sup>1</sup>. Based on this analysis, it is estimated that the overall transit need is about 234,600 annual one-way passenger trips and the annual general public rural non-program demand is about 24,900 annual 1-way passenger trips. As shown previously in Table 12 and Table 14, Ride Connection provides about 26,000 total rural trips annually, with about 23,000 of those demand response (comparable to general public rural non-program demand). While Ride Connection is on-track with the demand response program, there appears to be significant demand that is not being accommodated overall.

### Small City Fixed Route Demand

In addition to overall rural needs, demand for the small cities of Banks and North Plains were estimated using the TCRP 161 tool. The following inputs were used to estimate demand for the two cities (combined):

- Population of City
- College and University Enrollment
- Annual Revenue-Hours of Service

Based on these inputs, the ridership needs for Banks/North Plains are estimated to be about 27,100 annual one-way passenger trips. Compared to WestLink shuttle trips averaging just over 2,000 annually, there appears to be significant demand that is not being accommodated in these small cities.

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<sup>1</sup> Some urban population may be included, but the portion of the census tracts selected is likely to be relatively small. In addition, some minor changes were made to the calculation to include persons within 200 percent of the poverty level and exclude persons age 60-64 who did not have a mobility limitation.